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ARA 322

INFORMATION AND COMMUNICATION TECHNOLOGY FOR ARABIC

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Course code: ARA 322

Course title: Information and Communication Technology for Arabic

Course credit load: 2 Units

Series 1 Foundations of Computer Components and Productivity Tools

1.1 Introduction to Computer Components

- 1.1.1 Hardware Basics (الأجهزة الأساسية)
- 1.1.2 Software Basics (البرمجيات الأساسية)
- 1.1.3 Interaction between Hardware and Software (التفاعل بين الأجهزة والبرمجيات)

1.2 Office Productivity Tools

- 1.2.1 Word Processing Fundamentals (معالجة الكلمات الأساسية)
- 1.2.2 Presentation Tools (أدوات العروض التقديمية)
- 1.2.3 Spreadsheet Applications (تطبيقات الجداول الإلكترونية)

1.3 ICT for Arabic Studies

- 1.3.1 Arabic Language Support in ICT (دعم اللغة العربية في تكنولوجيا المعلومات)
- 1.3.2 Benefits of ICT for Personal and Academic Use (فوائد تكنولوجيا المعلومات للاستخدام الشخصي والأكاديمي)

Introduction

Computers have become an essential part of modern life, shaping how we learn, communicate, and work. For students of Arabic studies, understanding the **مكونات الحاسوب**(computer components) and how to use **أدوات الإنتاجية المكتبية**(office productivity tools) is vital. These skills not only support academic research but also enhance personal efficiency. By learning the foundations of computer systems and productivity applications, you will be better prepared to engage with Arabic-oriented technologies and ICT resources throughout this course.

The aim of this Series is to equip you with the knowledge and skills to identify and explain the basic components of a computer, and to operate essential productivity tools that will support both your academic and personal use of ICT.

We shall commence this Series by exploring the **الأجهزة الأساسية**(hardware basics) and **البرمجيات الأساسية**(software basics), followed by examining how they interact to form a complete system. Next, we will move on to office productivity tools, where you will learn the fundamentals of **معالجة الكلمات**(word processing), **العروض التقديمية**(presentations), and **الجداول الإلكترونية** (spreadsheets). Finally, we will wrap up by considering how ICT supports Arabic studies, focusing on **دعم اللغة العربية فى تكنولوجيا المعلومات**(Arabic language support in ICT) and the benefits of using these tools for both academic and personal purposes.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 1.1** define the basic **الأجهزة الأساسية**(hardware components) of a computer and explain their functions,
- **SLO 1.2** describe the role of **البرمجيات الأساسية**(software components) and how they interact with hardware,
- **SLO 1.3** demonstrate the use of **معالجة الكلمات**(word processing tools) for creating and editing Arabic text documents,
- **SLO 1.4** apply **أدوات العروض التقديمية**(presentation tools) to design simple academic presentations in Arabic,
- **SLO 1.5** operate **الجداول الإلكترونية**(spreadsheets) to organise and analyse basic data,
- **SLO 1.6** explain how ICT provides **دعم اللغة العربية فى تكنولوجيا المعلومات**(Arabic language support in ICT) for academic and personal use.

1.1 Introduction To Computer Components

1.1.1 Hardware basics (الأجهزة الأساسية)

Hardware refers to the physical parts of a computer system. These include the **وحدة المعالجة المركزية**(Central Processing Unit, CPU), which acts as the brain of the computer, the **ذاكرة الوصول العشوائي**(Random Access Memory, RAM), which temporarily stores data for quick access, and **أجهزة الإدخال والإخراج**(input and output devices), such as keyboards, mice, monitors, and printers. Hardware is tangible, meaning you can touch and see it.

Computers rely on hardware to perform basic operations, and without it, software cannot function. For example, when you type Arabic text using a keyboard, the hardware registers your keystrokes and sends them to the CPU for processing.

Fill in the blank: The CPU is often referred to as the _____ of the computer.

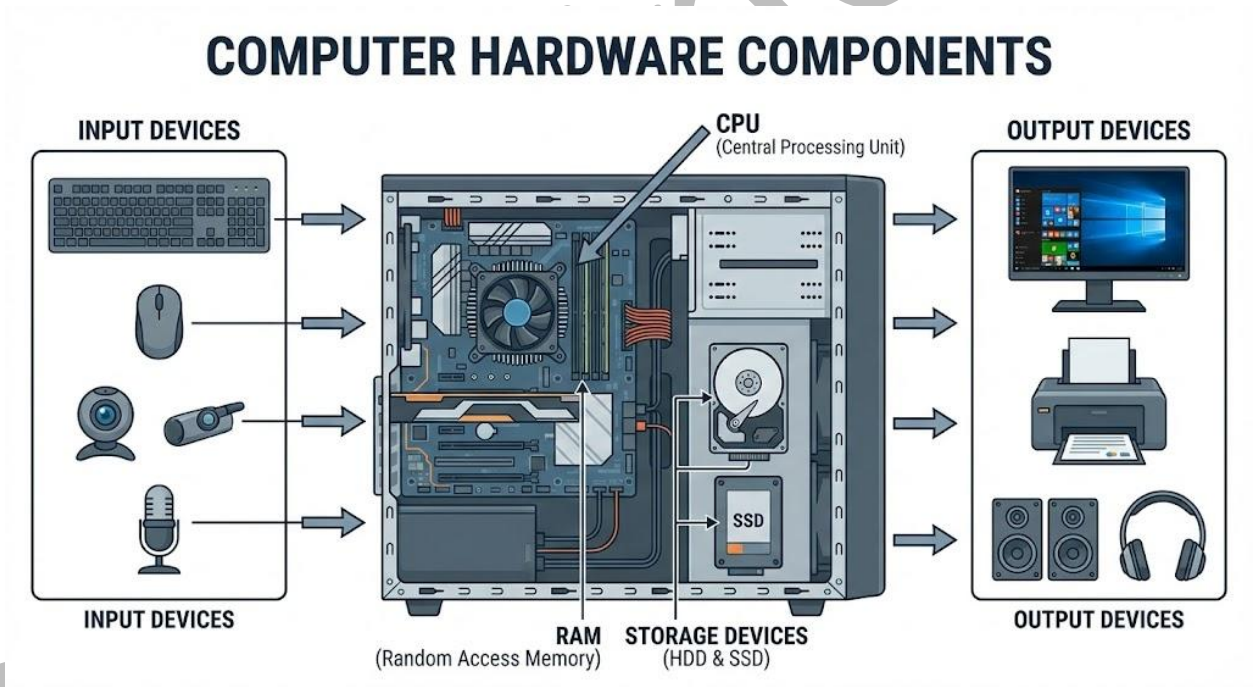

Figure 1.1: Basic computer hardware components

1.1.2 Software basics (البرمجيات الأساسية)

Software refers to the set of instructions or programmes that tell the hardware what to do. Examples include **أنظمة التشغيل**(Operating Systems) such as Windows or Linux, and **برامج التطبيقات** (Application Software) such as word processors, spreadsheets, and presentation tools. Unlike hardware, software is intangible, meaning you cannot physically touch it, but you can see its effects when it runs on a computer.

Software is essential for Arabic studies because it enables the use of **برامج دعم اللغة العربية**(Arabic language support programmes), which allow typing, editing, and formatting Arabic text.

Fill in the blank: Unlike hardware, software cannot be _____, but its effects can be seen when running programmes.

Plate 1.1: Examples of software interfaces

1.1.3 Interaction between hardware and software (التفاعل بين الأجهزة والبرمجيات)

The true power of a computer lies in the interaction between hardware and software. Hardware provides the physical platform, while software provides the instructions. For example, when you open an Arabic word processor, the software sends instructions to the CPU, which processes them and displays the text on the monitor.

This interaction is crucial for Arabic ICT applications. Without hardware, software cannot run, and without software, hardware cannot perform meaningful tasks. Together, they enable learners to type Arabic text, access online resources, and create academic documents.

Fill in the blank: Hardware provides the _____, while software provides the instructions.

Aspect	Hardware	Software
Nature	Tangible, physical components of a computer.	Intangible, programs and instructions that run on hardware.
Examples	CPU, RAM, hard drive, keyboard, monitor.	Operating systems, applications, utilities, drivers.
Function	Provides the physical foundation for computing.	Directs hardware to perform tasks and processes.
Durability	Subject to wear and tear, can be replaced physically.	Can be updated, modified, or reinstalled without physical change.
Interaction	Requires software to operate effectively.	Requires hardware to execute instructions.

Box 1.1: Key differences between hardware and software

Pilot questions 1.1

1. Which component of the computer is considered the brain of the system?
2. What is the main difference between hardware and software?
3. Give one example of input hardware and one example of output hardware.
4. Why is software essential for Arabic language studies?
5. How do hardware and software interact to produce meaningful tasks?

1.2 Office Productivity Tools

1.2.1 Word processing fundamentals (معالجة الكلمات الأساسية)

Word processing refers to the use of software programmes that allow users to create, edit, format, and store text documents. In Arabic studies, word processors such as **معالج النصوص** (Arabic word processor) are essential for typing, editing, and presenting Arabic text accurately. These tools provide features such as font selection, text alignment, and page layout, which are particularly useful when working with Arabic script that flows from right to left.

Word processors also support advanced functions such as inserting tables, images, and references, making them suitable for academic writing. For example, when preparing an Arabic research paper, you can use formatting tools to ensure that headings, paragraphs, and citations are presented clearly.

Fill in the blank: Arabic word processors must support text alignment from _____ to _____.

Figure 1.2: Interface of an Arabic word processor

1.2.2 Presentation tools (أدوات العروض التقديمية)

Presentation tools are software applications that allow users to design and deliver visual presentations. Examples include Microsoft PowerPoint and LibreOffice Impress. In Arabic

studies, these tools are valuable for creating slides that display Arabic text, images, and multimedia content.

Presentation tools provide features such as slide templates, animations, and transitions. They also support Arabic fonts and right-to-left text orientation, which ensures that slides are culturally and linguistically appropriate. For instance, when delivering a lecture on Arabic literature, you can design slides that highlight key authors, texts, and historical contexts.

Fill in the blank: Presentation tools allow users to design slides with _____ and _____ to enhance communication.

Plate 1.2: Example of an Arabic presentation slide

1.2.3 Spreadsheet applications (تطبيقات الجداول الإلكترونية)

Spreadsheets are software programmes used to organise, calculate, and analyse data in tabular form. Common examples include Microsoft Excel and Google Sheets. In Arabic studies, spreadsheets can be applied to manage research data, track bibliographies, or analyse linguistic patterns.

Spreadsheets consist of rows and columns where data can be entered, and formulas can be applied to perform calculations. They also support charts and graphs, which help in visualising information. For example, when studying Arabic vocabulary frequency, you can enter words into a spreadsheet and use formulas to calculate their occurrences.

Fill in the blank: Spreadsheets organise data in _____ and _____.

Use	Explanation
Managing Bibliographies	Organising references, sources, and citations systematically.
Analysing Vocabulary Frequency	Counting word occurrences in classical or modern Arabic texts.
Tracking Research Data	Recording fieldwork notes, manuscript details, or survey results.
Creating Charts and Graphs	Visualising linguistic trends, historical timelines, or statistical findings.

Box 1.2: Common uses of spreadsheets in Arabic studies

Pilot questions 1.2

1. What is the main function of a word processor in Arabic studies?
2. Why is right-to-left text alignment important in Arabic word processing?
3. Name two features of presentation tools that enhance communication.
4. How can spreadsheets be used to analyse Arabic vocabulary?
5. What are the basic structural elements of a spreadsheet?

1.3 ICT For Arabic Studies

1.3.1 Arabic language support in ICT (دعم اللغة العربية فى تكنولوجيا المعلومات)

ICT (Information and Communication Technology) refers to the use of digital tools and systems to process, store, and communicate information. In the context of Arabic studies, ICT plays a vital role in supporting the **اللغة العربية**(Arabic language). Modern operating systems and applications provide features such as Arabic keyboards, right-to-left text orientation, and specialised fonts. These ensure that learners can type, edit, and present Arabic text accurately.

For example, when writing an Arabic essay, ICT tools allow you to select appropriate fonts, apply diacritical marks, and format text in a way that respects the linguistic and cultural features of Arabic.

Fill in the blank: ICT tools support Arabic text by providing _____ orientation and specialised fonts.

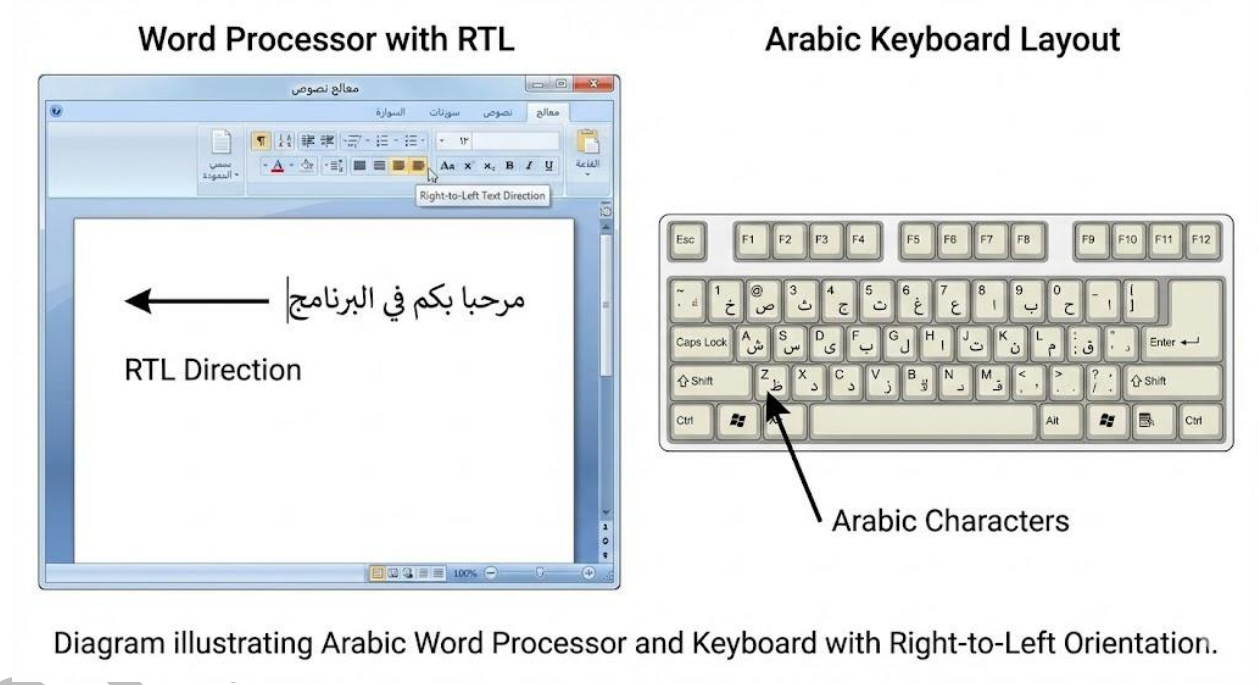

Figure 1.3: ICT support for Arabic text

1.3.2 Benefits of ICT for personal and academic use (فوائد تكنولوجيا المعلومات للاستخدام الشخصي والأكاديمي)

ICT offers numerous benefits for learners of Arabic. On a personal level, it enables communication through Arabic emails, social media, and instant messaging. On an academic level, ICT supports research by providing access to online libraries, databases, and digital archives of Arabic literature.

ICT also enhances productivity by allowing students to prepare assignments, presentations, and research projects efficiently. For instance, you can use spreadsheets to analyse linguistic data, presentation tools to share findings, and word processors to draft essays.

Fill in the blank: ICT supports academic research by providing access to _____ and digital archives.

Benefit	Explanation
Facilitates Arabic Communication	Enables interaction via emails, social media, and online platforms in Arabic.
Provides Access to Online Libraries and Databases	Offers digital access to manuscripts, journals, and scholarly resources.
Enhances Productivity in Assignments and Research	Supports efficient writing, editing, and data management.
Supports Linguistic Analysis Through Digital Tools	Allows computational analysis of vocabulary, syntax, and stylistics in Arabic texts.

Box 1.3: Key benefits of ICT in Arabic studies

Pilot questions 1.3

1. What features of ICT support the Arabic language in digital environments?
2. Why is right-to-left text orientation important in Arabic ICT applications?
3. Give two examples of how ICT supports personal communication in Arabic.
4. How does ICT enhance academic research in Arabic studies?
5. Mention one productivity tool that can be used for linguistic analysis in Arabic.

Series Summary

This Series has introduced you to the foundations of computer components and productivity tools, highlighting their importance in both personal and academic contexts for Arabic studies. We began by examining **الأجهزة الأساسية**(hardware) and **البرمجيات الأساسية**(software), then explored how they interact to form a complete system. Following that, we studied office productivity tools, including **معالجة الكلمات**(word processing), **العروض التقديمية**(presentation tools), and **الجداول الإلكترونية**(spreadsheets). Finally, we considered how ICT supports Arabic language use and the benefits it provides for communication, research, and productivity.

By completing this Series, you should now be able to define and describe computer hardware and software, demonstrate the use of word processors for Arabic text, apply presentation tools to design slides, operate spreadsheets for data organisation, and explain how ICT supports Arabic studies. These achievements directly align with the Series Learning Outcomes (SLOs), ensuring that you are equipped with the essential skills to progress confidently into the next Series.

Glossary of Terms

- **Arabic keyboard (لوحة المفاتيح العربية)**: A specialised keyboard layout that allows users to type Arabic characters and symbols directly into a computer or device.
- **CPU (وحدة المعالجة المركزية)**: The Central Processing Unit, often called the brain of the computer, responsible for executing instructions and managing operations.
- **Hardware (الأجهزة الأساسية)**: The physical components of a computer system, such as the CPU, RAM, keyboard, monitor, and printer, which can be touched and seen.
- **ICT (تكنولوجيا المعلومات والاتصالات)**: Information and Communication Technology, referring to digital tools and systems used to process, store, and communicate information, including those that support Arabic language use.
- **Input and output devices (أجهزة الإدخال والإخراج)**: Hardware components that allow users to interact with the computer, such as keyboards and mice for input, and monitors and printers for output.

- **Operating system (نظام التشغيل)**: Software that manages computer hardware and provides a platform for applications to run, examples include Windows and Linux.
- **Presentation tools (أدوات العروض التقديمية)**: Software applications used to design and deliver visual presentations, such as PowerPoint, which support Arabic fonts and right-to-left text orientation.
- **RAM (ذاكرة الوصول العشوائي)**: Random Access Memory, a temporary storage space that holds data and instructions for quick access while the computer is running.
- **Software (البرمجيات الأساسية)**: Programmes and instructions that tell the hardware what to do, including operating systems and application software.
- **Spreadsheets (الجداول الإلكترونية)**: Software programmes used to organise, calculate, and analyse data in tabular form, often applied in Arabic studies for research and linguistic analysis.
- **Word processing (معالجة الكلمات)**: The use of software to create, edit, format, and store text documents, particularly important for typing and presenting Arabic text.

Concept Check Questions [Series 1]

Objective questions

1. Which component of the computer is considered the brain of the system? (Linked to SLO 1.1)
2. Word processors are essential in Arabic studies because they support which text orientation? (Linked to SLO 1.3)
3. Spreadsheets organise data in what two structural elements? (Linked to SLO 1.5)
4. Presentation tools such as PowerPoint allow users to design slides with what two features? (Linked to SLO 1.4)
5. ICT supports Arabic language use by providing what type of text orientation? (Linked to SLO 1.6)

Short-answer questions

6. Define software and give one example relevant to Arabic studies. (Linked to SLO 1.2)
7. Explain how hardware and software interact to produce meaningful tasks. (Linked to SLO 1.2)
8. Describe one benefit of ICT for personal communication in Arabic. (Linked to SLO 1.6)
9. Demonstrate how a spreadsheet could be used to analyse Arabic vocabulary frequency. (Linked to SLO 1.5)
10. Identify one productivity tool that can be used to prepare Arabic academic presentations. (Linked to SLO 1.4)

Long-answer questions

11. Analyse the importance of hardware and software in supporting Arabic ICT applications, providing examples of how they work together. (Linked to SLO 1.1 and SLO 1.2)
12. Evaluate the role of office productivity tools in Arabic studies, discussing their impact on academic writing, presentations, and data analysis. (Linked to SLO 1.3, SLO 1.4, SLO 1.5)
13. Discuss the benefits of ICT for Arabic language support and academic research, highlighting both personal and institutional advantages. (Linked to SLO 1.6)

Answers to Concept Check Questions [Series 1]

Objective questions

1. CPU (Central Processing Unit).
2. Right-to-left text orientation.
3. Rows and columns.
4. Templates and animations/transitions.
5. Right-to-left orientation.

Short-answer questions

6. Software is a set of instructions that tells hardware what to do. Example: Arabic word processor.
7. Hardware provides the platform, while software provides instructions. Together they enable tasks such as typing Arabic text.
8. ICT allows Arabic communication through emails, social media, and instant messaging.
9. A spreadsheet can record words in rows and calculate their frequency using formulas.
10. PowerPoint or LibreOffice Impress.

Long-answer questions

11. *Basic response*: Hardware such as the CPU and input devices provide the physical means to run software. Software such as Arabic word processors instructs the hardware to process and display text. Together, they enable typing, editing, and presenting Arabic documents.
    Value-added response: Beyond basic interaction, hardware and software integration allows advanced ICT applications such as linguistic analysis, multimedia presentations, and online collaboration. For example, Arabic keyboards (hardware) combined with specialised fonts (software) ensure accurate representation of Arabic script.
12. *Basic response*: Office productivity tools support Arabic studies by enabling word processing for essays, presentations for lectures, and spreadsheets for data analysis.
    Value-added response: These tools also enhance collaboration, efficiency, and creativity. For instance, spreadsheets can be used to analyse linguistic corpora, while presentation tools can integrate multimedia to enrich Arabic literature lectures.
13. *Basic response*: ICT benefits Arabic studies by supporting right-to-left text, providing access to online libraries, and enabling communication in Arabic.
    Value-added response: ICT also empowers institutions by digitising archives, facilitating distance learning, and promoting global collaboration in Arabic research. For example, online databases allow scholars to access rare Arabic manuscripts from anywhere in the world.

Answers to Pilot Questions [Series 1]

Part 1.1 Introduction to Computer Components

1. CPU (Central Processing Unit).
2. Hardware is tangible, while software is intangible.
3. Input hardware: keyboard; Output hardware: monitor.
4. Software enables Arabic typing, editing, and formatting.
5. Hardware provides the platform, software provides the instructions.

Part 1.2 Office Productivity Tools

1. Word processors allow creation, editing, and formatting of Arabic text documents.
2. Right-to-left text alignment.
3. Templates and animations/transitions.
4. By entering words into rows and applying formulas to calculate frequency.
5. Rows and columns.

Part 1.3 ICT for Arabic Studies

1. Arabic keyboards, right-to-left text orientation, and specialised fonts.
2. Because Arabic script flows from right to left.
3. Emails and social media messages in Arabic.
4. By providing access to online libraries and digital archives.
5. Spreadsheets.

References and Attributions [Series 1]

General References (APA style)

- Course document: *ARA 322: Information and Communication Technology for Arabic* (uploaded course outline).
- Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches* (7th ed.). Harlow: Pearson Education.
- Shelly, G. B., & Vermaat, M. E. (2012). *Discovering computers: Fundamentals* (9th ed.). Boston: Cengage Learning.
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- UNESCO. (2018). *ICT competency framework for teachers*. Paris: UNESCO Publishing.

Figures

- *Figure 1.1: Basic computer hardware components* – AI-generated using the prompt "Generate a labelled diagram of computer hardware components including CPU, RAM, input and output devices." Suggested OER search string: "open educational resource diagram computer hardware components."
- *Figure 1.2: Interface of an Arabic word processor* – AI-generated using the prompt "Generate a labelled diagram of an Arabic word processor interface showing right-to-left text alignment." Suggested OER search string: "open educational resource Arabic word processor interface diagram."
- *Figure 1.3: ICT support for Arabic text* – AI-generated using the prompt "Generate a labelled diagram showing Arabic keyboard layout and right-to-left text orientation in a word processor." Suggested OER search string: "open educational resource Arabic keyboard layout diagram."

Plates

- *Plate 1.1: Examples of software interfaces* – AI-generated using the prompt "Create an image showing a Windows desktop with Arabic word processor open." Suggested OER search string: "open educational resource software interface Arabic word processor."
- *Plate 1.2: Example of an Arabic presentation slide* – AI-generated using the prompt "Create an image of a presentation slide with Arabic text and images." Suggested OER search string: "open educational resource Arabic PowerPoint presentation example."

Tables and Boxes

- *Box 1.1: Key differences between hardware and software* – AI-generated using the prompt "Generate a simple comparison table showing differences between hardware and software." Suggested OER search string: "open educational resource hardware vs software comparison table."
- *Box 1.2: Common uses of spreadsheets in Arabic studies* – AI-generated using the prompt "Generate a simple table showing uses of spreadsheets in Arabic studies." Suggested OER search string: "open educational resource spreadsheet applications in Arabic studies."
- *Box 1.3: Key benefits of ICT in Arabic studies* – AI-generated using the prompt "Generate a simple table listing benefits of ICT in Arabic studies." Suggested OER search string: "open educational resource ICT benefits in Arabic studies."

Series 2 Mastering Spreadsheets, Word Processing, and Presentations

2.1 Advanced Word Processing (معالجة الكلمات المتقدمة)

- 2.1.1 Formatting Arabic text (تنسيق النصوص العربية)
- 2.1.2 Working with tables and references (الجداول والمراجع)
- 2.1.3 Document management and collaboration (إدارة المستندات والتعاون)

2.2 Spreadsheet Skills (مهارات الجداول الإلكترونية)

- 2.2.1 Data entry and formatting (إدخال البيانات وتنسيقها)
- 2.2.2 Formulas and functions (الصيغ والدوال)
- 2.2.3 Charts and data analysis (المخططات وتحليل البيانات)

2.3 Presentation Design and Delivery (تصميم العروض التقديمية وتقديمها)

- 2.3.1 Slide creation and layout (إنشاء الشرائح وتخطيطها)
- 2.3.2 Multimedia integration (دمج الوسائط المتعددة)
- 2.3.3 Effective presentation delivery in Arabic (تقديم العروض بفعالية باللغة العربية)

Introduction

In the last Series, we explored the foundations of computer components and productivity tools, focusing on how hardware and software interact and how ICT supports Arabic studies. Building on that knowledge, this Series will take you further into the practical mastery of **معالجة الكلمات** (word processing), **الجداول الإلكترونية**(spreadsheets), and **العروض التقديمية**(presentations). These applications are central to academic and professional work, enabling you to create, analyse, and communicate information effectively in Arabic.

The aim of this Series is to equip you with advanced skills in word processing, spreadsheets, and presentations, ensuring that you can produce professional documents, manage data, and deliver impactful presentations in Arabic contexts.

We shall commence this Series by focusing on advanced word processing, where you will learn to format Arabic text, work with tables and references, and manage documents collaboratively. Next, we will move on to spreadsheet skills, covering data entry, formulas, functions, and data analysis through charts. Finally, we will wrap up by exploring presentation design and delivery, including slide creation, multimedia integration, and effective presentation techniques in Arabic. This progression will ensure that you are confident in applying ICT tools to both academic and personal tasks.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 2.1** format **النصوص العربية**(Arabic text) using advanced word processing features,
- **SLO 2.2** construct and edit **الجداول والمراجع**(tables and references) within Arabic documents,
- **SLO 2.3** demonstrate effective **إدارة المستندات والتعاون**(document management and collaboration) using word processing tools,
- **SLO 2.4** apply **إدخال البيانات وتنسيقها**(data entry and formatting) techniques in spreadsheets,
- **SLO 2.5** calculate using **الصيغ والدوال**(formulas and functions) to solve basic and intermediate problems in spreadsheets,
- **SLO 2.6** design and interpret **المخططات وتحليل البيانات**(charts and data analysis) for Arabic study contexts,
- **SLO 2.7** create **الشرائح وتخطيطها**(slides and layouts) for academic presentations in Arabic,
- **SLO 2.8** integrate **الوسائط المتعددة**(multimedia) into Arabic presentations to enhance communication,
- **SLO 2.9** deliver **العروض بفعالية باللغة العربية**(effective presentations in Arabic), demonstrating clarity and confidence.

2.1 Advanced Word Processing (معالجة الكلمات المتقدمة)

2.1.1 Formatting Arabic text (تنسيق النصوص العربية)

Formatting refers to the process of adjusting the appearance of text to make it clear, attractive, and professional. In Arabic word processing, formatting is especially important because the script flows from **right to left (من اليمين إلى اليسار)**. Word processors allow you to change fonts, apply bold or italics, adjust line spacing, and insert diacritical marks (**التشكيل**) to ensure accuracy in meaning.

For example, when preparing an Arabic research paper, headings can be formatted in bold, while quotations may be italicised to distinguish them from the main text. Proper formatting ensures that the document is easy to read and culturally appropriate.

Fill in the blank: Arabic text in word processors must be aligned from _____ to _____.

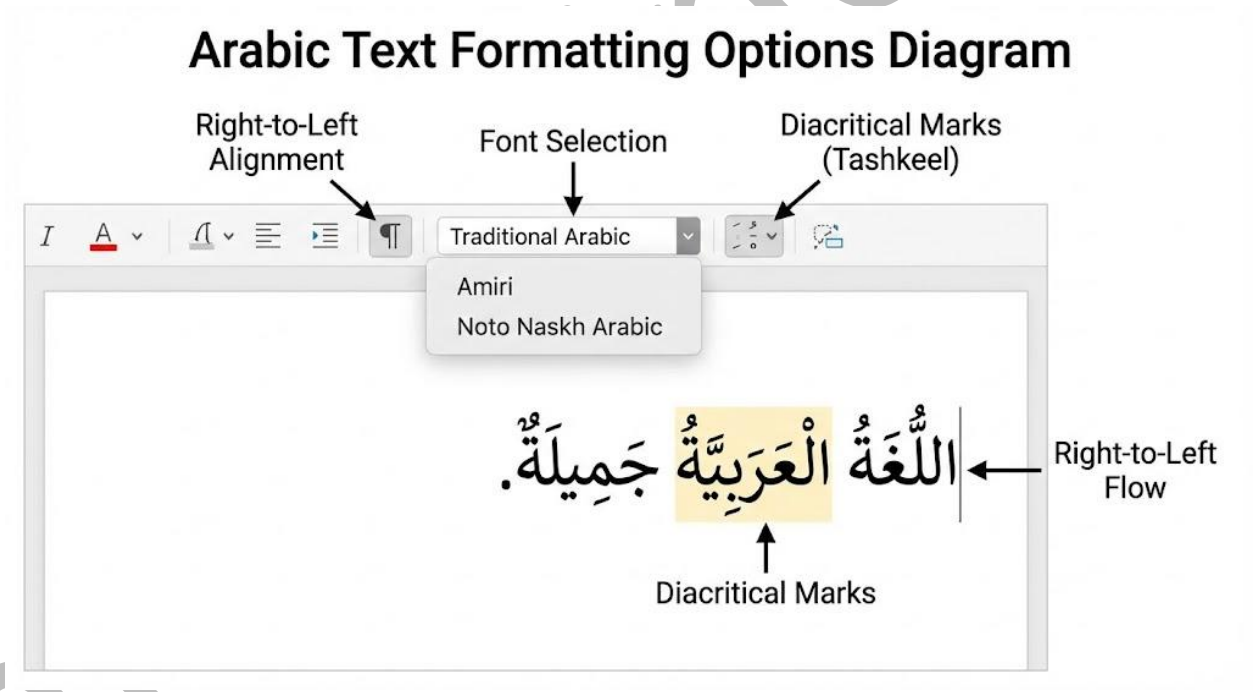


Figure 2.1: Formatting Arabic text in a word processor

2.1.2 Working with tables and references (الجداول والمراجع)

Tables are structured arrangements of data in rows and columns, used to organise information clearly. In Arabic word processing, tables can be applied to present vocabulary lists, bibliographies, or comparative data. **References** refer to citations, footnotes, and bibliographies that acknowledge sources in academic writing. Word processors provide built-in tools to insert references automatically, ensuring consistency and accuracy.

For instance, when writing an Arabic essay, you may insert a table to compare different authors' contributions, and add references to cite books or articles. This strengthens the credibility of your work.

Fill in the blank: References in academic writing are used to acknowledge _____.

Use	Explanation
Vocabulary Lists	Organising Arabic words with meanings, roots, and usage examples.
Bibliographies	Structuring references for manuscripts, articles, and scholarly works.
Comparative Data	Displaying side-by-side comparisons (e.g., Arabic vs. Persian terms, dialectal variations).
Citations and Footnotes	Managing references and scholarly notes systematically within documents.

Box 2.1: Common uses of tables and references in Arabic word processing

2.1.3 Document management and collaboration (إدارة المستندات والتعاون)

Document management refers to organising, saving, and retrieving documents efficiently. Word processors allow you to store files in folders, apply version control, and share documents securely. **Collaboration** means working together with others on the same document, often using cloud-based platforms such as Google Docs or Microsoft Word Online.

In Arabic studies, collaboration is particularly useful when multiple students or researchers are editing the same text. For example, a group project on Arabic literature can be managed by sharing a document online, where each member contributes in real time.

Fill in the blank: Collaboration tools allow multiple users to edit the same _____ simultaneously.

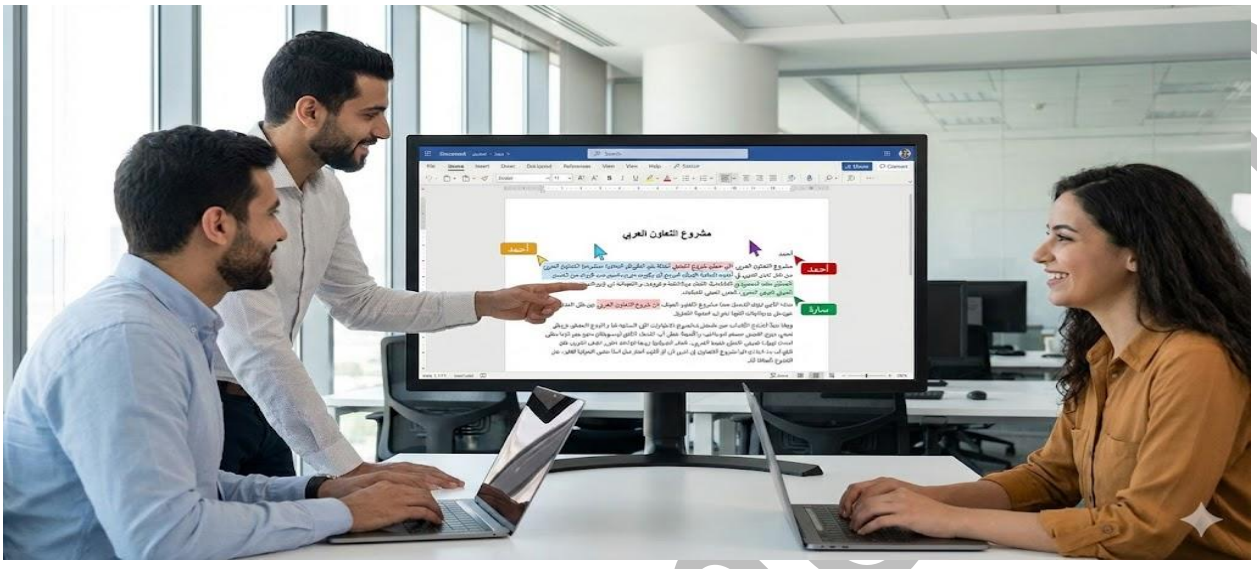


Plate 2.1: Collaborative editing of Arabic documents

Pilot questions 2.1

1. Why is right-to-left alignment important in Arabic word processing?
2. Give one example of how formatting improves the readability of Arabic text.
3. What is the main purpose of references in academic writing?
4. Name two uses of tables in Arabic word processing.
5. How do collaboration tools support group projects in Arabic studies?

2.2 Spreadsheet Skills (مهارات الجداول الإلكترونية)

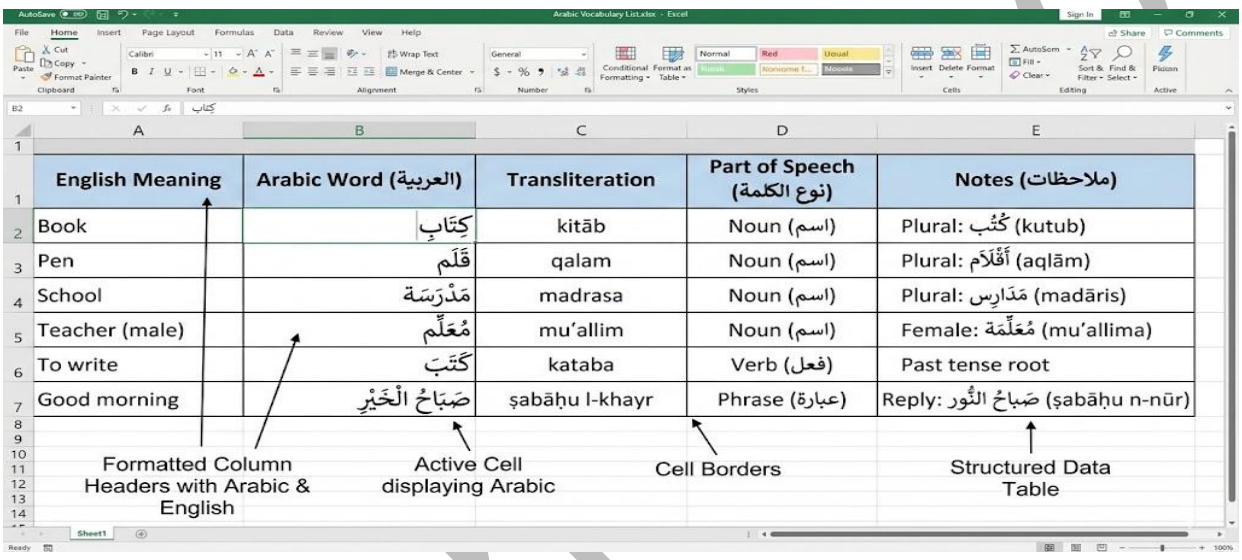
2.2.1 Data entry and formatting (إدخال البيانات وتنسيقها)

Data entry refers to the process of inputting information into spreadsheet cells, which are organised in rows and columns. In Arabic studies, this may involve entering vocabulary lists, bibliographic details, or research data. **Formatting** means adjusting the appearance of the data,

such as changing font style, aligning text, or applying cell borders, to make the spreadsheet clear and professional.

For example, when recording Arabic vocabulary, you can enter each word in a row and its meaning in the adjacent column. Formatting can then be applied to highlight headings or separate sections.

Fill in the blank: Spreadsheet data is organised in _____ and _____.



English Meaning	Arabic Word (العربية)	Transliteration	Part of Speech (نوع الكلمة)	Notes (ملاحظات)
Book	كِتَابٌ	kitāb	Noun (اسم)	Plural: كُتُب (kutub)
Pen	قَلَم	qalam	Noun (اسم)	Plural: أَقْلَام (aqlām)
School	مَدْرَسَة	madrasa	Noun (اسم)	Plural: مَدَارِس (madāris)
Teacher (male)	مُعَلِّم	mu'allim	Noun (اسم)	Female: مُعَلِّمَة (mu'allima)
To write	كَتَبَ	kataba	Verb (فعل)	Past tense root
Good morning	صَبَاحُ الْخَيْرِ	ṣabāḥu l-khayr	Phrase (عبارة)	Reply: صَبَاحُ النُّور (ṣabāḥu n-nūr)

Figure 2.2: Data entry and formatting in spreadsheets

2.2.2 Formulas and functions (الصيغ والدوال)

Formulas are mathematical expressions entered into spreadsheet cells to perform calculations. **Functions** are predefined commands that simplify complex operations, such as SUM, AVERAGE, or COUNT. In Arabic studies, formulas and functions can be used to analyse linguistic data, calculate word frequencies, or summarise research findings.

For instance, if you are studying the frequency of Arabic words in a text, you can use the COUNT function to determine how many times a word appears. Functions save time and reduce errors compared to manual calculations.

Fill in the blank: The SUM function is used to _____ values in a range of cells.

Function	Description	Example in Arabic Studies
SUM	Adds values in selected cells.	Calculating the total number of occurrences of a root word across multiple texts.
AVERAGE	Calculates the mean of values.	Finding the average frequency of a specific vocabulary item in different manuscripts.
COUNT	Counts entries in a range.	Counting the number of bibliographic references in a research dataset.
IF	Applies conditional logic.	Highlighting words that appear more than 50 times in a Qur'anic stylistics analysis.

Box 2.2: Common spreadsheet functions for Arabic studies

2.2.3 Charts and data analysis (المخططات وتحليل البيانات)

Charts are visual representations of data, such as bar graphs, pie charts, or line graphs. **Data analysis** refers to examining and interpreting data to identify patterns or trends. In Arabic studies, charts can be used to display vocabulary frequency, compare authors' contributions, or illustrate survey results.

For example, a bar chart can show the frequency of specific Arabic words in a text, making it easier to identify the most common terms. Data analysis tools in spreadsheets help transform raw data into meaningful insights.

Fill in the blank: Charts are used to present data in a _____ form.

Plate 2.2: Bar chart of Arabic word frequency

Pilot questions 2.2

1. What are the two basic structural elements of a spreadsheet?
2. Give one example of how formatting improves clarity in a spreadsheet.
3. Which function is used to calculate the mean of a set of values?
4. Name two common spreadsheet functions useful in Arabic studies.
5. How can charts help in analysing Arabic vocabulary frequency?

2.3 Presentation Design And Delivery (تصميم العروض التقديمية وتقديمها)

2.3.1 Slide creation and layout (إنشاء الشرائح وتخطيطها)

Slides are individual pages within a presentation that contain text, images, or other content. **Layout** refers to the arrangement of these elements on a slide. In Arabic presentations, it is important to use right-to-left orientation (**من اليمين إلى اليسار**) so that the text flows naturally. Word

processors and presentation tools such as PowerPoint provide templates that can be customised with Arabic fonts, colours, and backgrounds.

For example, when preparing a lecture on Arabic literature, you may design slides with headings in bold Arabic script, supporting text in smaller font, and images placed strategically to enhance understanding.

Fill in the blank: In Arabic presentations, text must be oriented from _____ to _____.

Figure 2.3: Arabic slide layout in presentations

2.3.2 Multimedia integration (دمج الوسائط المتعددة)

Multimedia refers to the combination of text, images, audio, and video in a presentation. Integrating multimedia makes presentations more engaging and helps communicate ideas effectively. In Arabic studies, multimedia can include recitations of Arabic poetry, video clips of cultural practices, or images of manuscripts.

For instance, when presenting on Arabic calligraphy, you may insert a video demonstration alongside images of famous calligraphic works. This combination enriches the audience's understanding and maintains their attention.

Fill in the blank: Multimedia integration combines text, images, audio, and _____.

Plate 2.3: Multimedia integration in Arabic presentations

2.3.3 Effective presentation delivery in Arabic (تقديم العروض بفعالية باللغة العربية)

Presentation delivery refers to the way a speaker communicates their content to an audience. Effective delivery involves clarity, confidence, and cultural appropriateness. In Arabic presentations, this means using correct pronunciation, maintaining eye contact, and pacing speech to match the audience's understanding.

For example, when presenting research findings, you should explain key points in clear Arabic, use visual aids to support your arguments, and engage the audience with questions. Delivery is as important as design, since even well-prepared slides lose impact if presented poorly.

Fill in the blank: Effective presentation delivery requires clarity, confidence, and _____.

Tip	Explanation
Use Clear Pronunciation	Speak distinctly to ensure accurate understanding of Arabic terms and concepts.

Maintain Eye Contact	Build rapport and keep the audience engaged by looking at them directly.
Pace Speech Appropriately	Avoid rushing; allow pauses for emphasis and comprehension.
Engage the Audience with Questions	Encourage interaction and check understanding by asking relevant questions.

Box 2.3: Tips for effective Arabic presentation delivery

Pilot questions 2.3

1. Why is right-to-left orientation important in Arabic slide design?
2. Give one example of how multimedia can enhance an Arabic presentation.
3. What are the four main elements of multimedia integration?
4. Mention two tips for effective delivery of Arabic presentations.
5. Why is delivery as important as slide design in presentations?

Series Summary

This Series has guided you through mastering the essential productivity tools of **معالجة الكلمات المتقدمة**(advanced word processing), **مهارات الجداول الإلكترونية**(spreadsheet skills), and **تصميم العروض التقديمية وتقديمها**(presentation design and delivery). The purpose was to build on your foundational knowledge from Series 1 and enable you to apply ICT tools more effectively in Arabic academic and professional contexts. We began with advanced word processing, focusing on formatting Arabic text, working with tables and references, and managing documents collaboratively. Then we moved on to spreadsheets, where you practised data entry, formulas, functions, and data analysis through charts. Finally, we explored presentation design and delivery, including slide creation, multimedia integration, and effective delivery techniques in Arabic.

By completing this Series, you should now be able to format Arabic documents professionally, construct tables and references, manage and collaborate on documents, apply spreadsheet functions to analyse data, design charts for meaningful insights, and create and deliver engaging Arabic presentations. These achievements align directly with the Series Learning Outcomes (SLOs), ensuring that you are confident in applying advanced ICT skills to both academic and personal tasks in Arabic studies.

Glossary of Terms

- **Charts (المخططات)**: Visual representations of data in spreadsheets, such as bar graphs or pie charts, used to identify patterns and trends.
- **Collaboration (التعاون)**: The process of multiple users working together on the same document, often through cloud-based platforms.
- **Data analysis (تحليل البيانات)**: The examination and interpretation of data to draw meaningful conclusions, often supported by charts and functions in spreadsheets.
- **Data entry (إدخال البيانات)**: The process of inputting information into spreadsheet cells organised in rows and columns.
- **Document management (إدارة المستندات)**: Organising, saving, and retrieving documents efficiently, including version control and secure storage.

- **Formatting (تنسيق النصوص)**: Adjusting the appearance of text or data, such as font style, alignment, or spacing, to improve clarity and presentation.
- **Functions (الدوال)**: Predefined commands in spreadsheets that perform specific calculations or operations, such as SUM, AVERAGE, or COUNT.
- **Layout (تخطيط الشرائح)**: The arrangement of text, images, and other elements on a presentation slide.
- **Multimedia (الوسائط المتعددة)**: The combination of text, images, audio, and video in a presentation to enhance communication and engagement.
- **References (المراجع)**: Citations, footnotes, and bibliographies used in academic writing to acknowledge sources.
- **Slides (الشرائح)**: Individual pages in a presentation that contain text, images, or multimedia content.
- **Tables (الجداول)**: Structured arrangements of data in rows and columns, used in word processing to organise information clearly.
- **Formulas (الصيغ)**: Mathematical expressions entered into spreadsheet cells to perform calculations.
- **Presentation delivery (تقديم العروض)**: The act of communicating a presentation to an audience with clarity, confidence, and cultural appropriateness.

Concept Check Questions [Series 2]

Objective questions

1. Which text orientation must be applied when formatting Arabic documents in word processors? (Linked to SLO 2.1)
2. Tables in word processing are used to organise information into what two structural elements? (Linked to SLO 2.2)
3. Which spreadsheet function is used to calculate the mean of a set of values? (Linked to SLO 2.5)
4. Charts in spreadsheets present data in what form? (Linked to SLO 2.6)
5. Multimedia integration in presentations combines text, images, audio, and what other element? (Linked to SLO 2.8)

Short-answer questions

6. Define formatting and explain why it is important in Arabic word processing. (Linked to SLO 2.1)
7. Describe one common use of references in Arabic academic writing. (Linked to SLO 2.2)
8. Explain how collaboration tools support group projects in Arabic studies. (Linked to SLO 2.3)
9. Demonstrate how the COUNT function can be applied to analyse Arabic vocabulary frequency. (Linked to SLO 2.5)
10. Identify two tips for effective delivery of Arabic presentations. (Linked to SLO 2.9)

Long-answer questions

11. Analyse the importance of advanced formatting and references in Arabic word processing, providing examples of how they improve academic writing. (Linked to SLO 2.1 and SLO 2.2)

12. Evaluate the role of spreadsheet functions and charts in supporting Arabic linguistic research, discussing their impact on data organisation and analysis. (Linked to SLO 2.5 and SLO 2.6)

13. Discuss the significance of multimedia integration and effective delivery in Arabic presentations, highlighting how they enhance communication and audience engagement. (Linked to SLO 2.8 and SLO 2.9)

Answers to Concept Check Questions [Series 2]

Objective questions

1. Right-to-left orientation.
2. Rows and columns.
3. AVERAGE.
4. Visual form.
5. Video.

Short-answer questions

6. Formatting is adjusting the appearance of text, such as font style and alignment. It is important in Arabic word processing to ensure clarity and cultural appropriateness.
7. References are used to acknowledge sources, such as books or articles, in academic writing.
8. Collaboration tools allow multiple users to edit the same document simultaneously, supporting teamwork in Arabic studies.
9. The COUNT function can be used to calculate how many times a specific Arabic word appears in a dataset.
10. Use clear pronunciation and maintain eye contact.

Long-answer questions

11. *Basic response*: Advanced formatting ensures Arabic text is presented clearly, while references acknowledge sources and strengthen credibility. For example, bold headings and accurate citations improve the quality of academic writing.
    Value-added response: Beyond clarity, formatting and references establish professionalism and scholarly integrity. They also facilitate peer review and collaboration, ensuring Arabic research is respected internationally.

12. *Basic response*: Spreadsheet functions such as SUM and COUNT simplify calculations, while charts visually present data, making analysis easier. For example, a bar chart can show the frequency of Arabic words.
    Value-added response: Functions and charts not only organise data but also reveal linguistic patterns and trends. They support advanced research, such as corpus analysis, and enable scholars to compare large datasets efficiently.

13. *Basic response*: Multimedia integration makes presentations engaging, while effective delivery ensures clarity and confidence. For example, combining text with audio recordings of Arabic poetry enhances communication.
    Value-added response: Multimedia and delivery elevate presentations by appealing to multiple senses and fostering audience interaction. They also bridge cultural contexts, allowing Arabic scholarship to be communicated more effectively to diverse audiences.

Answers to Pilot Questions [Series 2]

Part 2.1 Advanced Word Processing (معالجة الكلمات المتقدمة)

1. Because Arabic script flows from right to left, alignment ensures readability and cultural accuracy.
2. Bold headings or italicised quotations improve clarity and distinguish sections of Arabic text.
3. To acknowledge sources such as books, articles, or manuscripts.
4. Vocabulary lists and bibliographies.
5. By allowing multiple users to edit the same document simultaneously.

Part 2.2 Spreadsheet Skills (مهارات الجداول الإلكترونية)

1. Rows and columns.
2. Formatting highlights headings and separates sections, improving clarity.
3. AVERAGE.

4. SUM and COUNT.
5. Charts visually display frequency, making patterns easier to identify.

Part 2.3 Presentation Design and Delivery (تصميم العروض التقديمية وتقديمها)

1. Because Arabic text must flow naturally from right to left.
2. Adding a video of Arabic poetry recitation enriches the presentation.
3. Text, images, audio, and video.
4. Clear pronunciation and maintaining eye contact.
5. Because even well-designed slides lose impact if delivered poorly.

References and Attributions [Series 2]

General References (APA style)

- Course document: *ARA 322: Information and Communication Technology for Arabic* (uploaded course outline).
- Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches* (7th ed.). Harlow: Pearson Education.
- Shelly, G. B., & Vermaat, M. E. (2012). *Discovering computers: Fundamentals* (9th ed.). Boston: Cengage Learning.
- Laudon, K. C., & Laudon, J. P. (2019). *Management information systems: Managing the digital firm* (16th ed.). Harlow: Pearson Education.
- UNESCO. (2018). *ICT competency framework for teachers*. Paris: UNESCO Publishing.
- OER Commons. (n.d.). Retrieved from https://www.oercommons.org

Figures

- *Figure 2.1: Formatting Arabic text in a word processor* – AI-generated using the prompt "Generate a labelled diagram showing Arabic text formatting options such as right-to-left alignment, font selection, and diacritical marks." Suggested OER search string: "open educational resource Arabic text formatting word processor."
- *Figure 2.2: Data entry and formatting in spreadsheets* – AI-generated using the prompt "Generate a labelled diagram showing Arabic vocabulary entered into a spreadsheet with formatted headings and borders." Suggested OER search string: "open educational resource spreadsheet data entry formatting Arabic."
- *Figure 2.3: Arabic slide layout in presentations* – AI-generated using the prompt "Generate a labelled diagram showing an Arabic presentation slide with right-to-left text layout and customised fonts." Suggested OER search string: "open educational resource Arabic presentation slide layout."

Plates

- *Plate 2.1: Collaborative editing of Arabic documents* – AI-generated using the prompt "Create an image showing multiple users editing an Arabic document in a cloud-based word processor." Suggested OER search string: "open educational resource collaborative editing Arabic documents."
- *Plate 2.2: Bar chart of Arabic word frequency* – AI-generated using the prompt "Create an image showing a bar chart of Arabic word frequency created in a spreadsheet." Suggested OER search string: "open educational resource Arabic word frequency chart spreadsheet."
- *Plate 2.3: Multimedia integration in Arabic presentations* – AI-generated using the prompt "Create an image showing an Arabic presentation slide with text, images, and embedded video." Suggested OER search string: "open educational resource multimedia Arabic presentation example."

Boxes

- *Box 2.1: Common uses of tables and references in Arabic word processing* – AI-generated using the prompt "Generate a simple table listing uses of tables and references in Arabic word processing." Suggested OER search string: "open educational resource tables and references in Arabic word processing."
- *Box 2.2: Common spreadsheet functions for Arabic studies* – AI-generated using the prompt "Generate a simple table listing common spreadsheet functions with descriptions and examples for Arabic studies." Suggested OER search string: "open educational resource spreadsheet functions examples Arabic."
- *Box 2.3: Tips for effective Arabic presentation delivery* – AI-generated using the prompt "Generate a simple table listing tips for effective Arabic presentation delivery." Suggested OER search string: "open educational resource effective Arabic presentation delivery tips."

Series 3: Understanding Databases For Academic And Personal Use (فهم قواعد البيانات للاستخدام الأكاديمي والشخصي)

3.1 Introduction To Databases (مقدمة في قواعد البيانات)

- 3.1.1 Definition and importance (التعريف والأهمية)
- 3.1.2 Types of databases (أنواع قواعد البيانات)
- 3.1.3 Database applications in Arabic studies (تطبيقات قواعد البيانات في الدراسات العربية)

3.2 Database Design And Structure (تصميم وبنية قواعد البيانات)

- 3.2.1 Tables, fields, and records (الجداول والحقول والسجلات)
- 3.2.2 Relationships and keys (العلاقات والمفاتيح)
- 3.2.3 Normalisation and organisation (التطبيع والتنظيم)

3.3 Practical Use Of Databases (الاستخدام العملي لقواعد البيانات)

- 3.3.1 Querying and searching (الاستعلام والبحث)
- 3.3.2 Data entry and management (إدخال البيانات وإدارتها)
- 3.3.3 Security and ethical use (الأمن والاستخدام الأخلاقي)

Introduction

In today's digital world, information is one of the most valuable resources. Whether you are conducting academic research or managing personal records, **قواعد البيانات**(databases) provide a structured way to store, organise, and retrieve data efficiently. Without databases, handling large amounts of information would be slow, error-prone, and difficult to manage. For students of Arabic studies, databases are particularly useful in cataloguing manuscripts, organising bibliographies, and supporting linguistic analysis.

The aim of this Series is to introduce you to the fundamental concepts of databases and to equip you with the skills needed to design, manage, and apply them effectively for both academic and personal use in Arabic contexts.

We shall commence this Series by exploring the **مقدمة في قواعد البيانات**(introduction to databases), where you will learn their definition, importance, types, and applications in Arabic studies. Next, we will move on to **تصميم وبنية قواعد البيانات**(database design and structure), focusing on tables, fields, records, relationships, and organisation principles such as normalisation. Finally, we will wrap up with **الاستخدام العملي لقواعد البيانات**(practical use of databases), where you will practise querying, data entry, management, and consider issues of security and ethical use. This progression will ensure you are confident in applying database skills to both scholarly and everyday tasks.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 3.1** define **قواعد البيانات**(databases) and explain their importance in academic and personal contexts,
- **SLO 3.2** distinguish between different **أنواع قواعد البيانات**(types of databases) and describe their applications in Arabic studies,
- **SLO 3.3** identify and describe the structure of **الجداول والحقول والسجلات**(tables, fields, and records) in a database,
- **SLO 3.4** demonstrate how to establish **العلاقات والمفاتيح**(relationships and keys) between tables,
- **SLO 3.5** apply principles of **التطبيع والتنظيم**(normalisation and organisation) to design efficient databases,
- **SLO 3.6** perform **الاستعلام والبحث**(querying and searching) to retrieve specific information from a database,
- **SLO 3.7** carry out **إدخال البيانات وإدارتها**(data entry and management) tasks in a database system,
- **SLO 3.8** evaluate issues of **الأمن والاستخدام الأخلاقي**(security and ethical use) in database management.

3.1 Introduction To Databases (مقدمة في قواعد البيانات)

3.1.1 Definition and importance (التعريف والأهمية)

A **database (قاعدة بيانات)** is an organised collection of information stored electronically, designed to make data easy to access, manage, and update. Databases are important because they allow large amounts of information to be handled efficiently, reducing errors and saving time. In Arabic studies, databases can store manuscripts, bibliographies, or linguistic data, making research more systematic and reliable.

Fill in the blank: A database is an organised collection of _____ stored electronically.

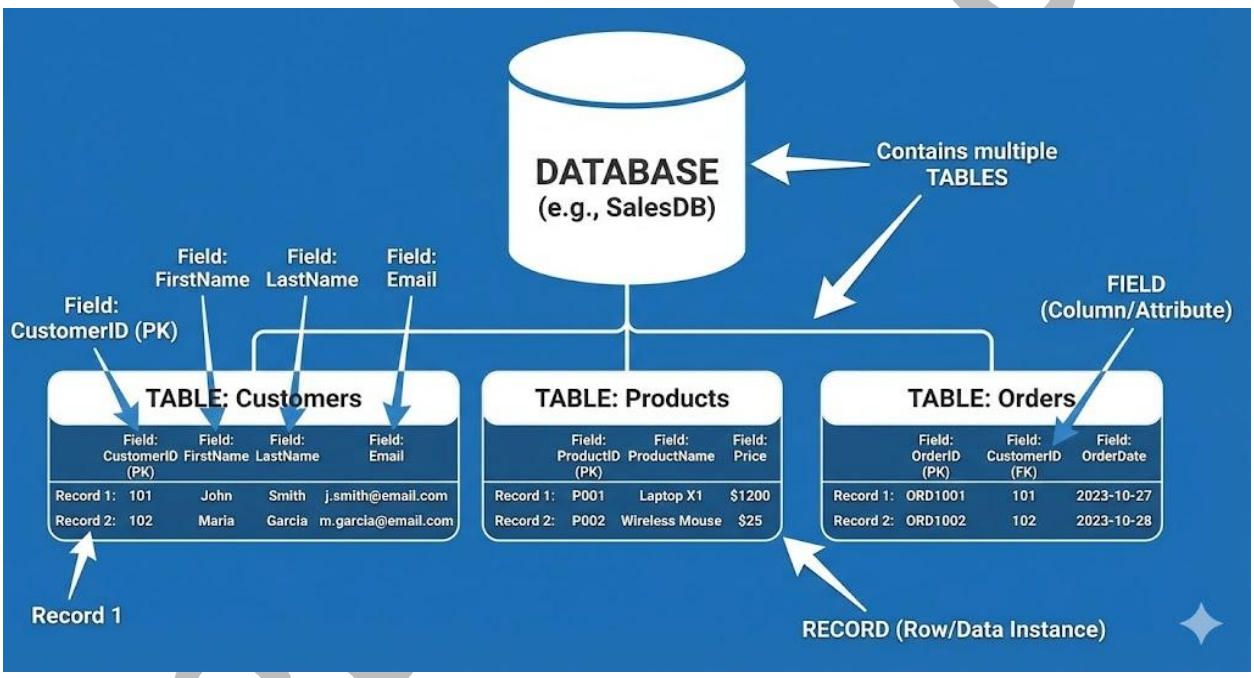


Figure 3.1: Basic structure of a database

3.1.2 Types of databases (أنواع قواعد البيانات)

There are several types of databases, each serving different purposes. A **relational database (قاعدة بيانات علائقية)** stores data in tables linked by relationships. A **hierarchical database (قاعدة بيانات هرمية)** organises data in a tree-like structure. A **document database (قاعدة بيانات المستندات)** stores information in documents, often used for text-heavy content. In Arabic studies, relational databases are commonly used for cataloguing manuscripts, while document databases are useful for storing scanned texts.

Fill in the blank: A relational database stores data in _____ linked by relationships.

Type	Description
Relational	Organises data into tables linked by relationships (e.g., SQL databases).
Hierarchical	Stores data in a tree-like structure, with parent–child relationships.
Document	Stores information in documents, often in JSON or XML format (e.g., MongoDB).

Box 3.1: Common types of databases

3.1.3 Database applications in Arabic studies (تطبيقات قواعد البيانات في الدراسات العربية)

Databases have wide applications in Arabic studies. They can be used to catalogue **المخطوطات** (manuscripts), organise **المراجع**(references), and analyse **النصوص**(texts). For example, a database of Arabic poetry can store thousands of verses, allowing researchers to query specific words or themes. Similarly, bibliographic databases help students and scholars track sources efficiently.

Fill in the blank: Databases in Arabic studies can be used to catalogue _____ and organise references.

Plate 3.1: Database application in Arabic manuscript studies

Pilot questions 3.1

1. What is a database and why is it important?
2. Name one type of database and describe its structure.
3. Which type of database is most commonly used for cataloguing manuscripts?
4. Give one example of how databases support Arabic studies.
5. Fill in the blank: A database of Arabic poetry can store thousands of _____.

3.2 Database Design And Structure (تصميم وبنية قواعد البيانات)

3.2.1 Tables, fields, and records (الجداول والحقول والسجلات)

A **table (جدول)** is a structured collection of data organised into rows and columns. Each **field (حقل)** represents a specific category of information, such as a student's name or ID number. A **record (سجل)** is a complete set of fields that describe one item or person. Together, tables, fields, and records form the foundation of any database.

For example, in a database of Arabic manuscripts, one table may contain fields for manuscript title, author, and date, while each record represents a single manuscript entry.

Fill in the blank: A record is a complete set of _____ that describes one item.

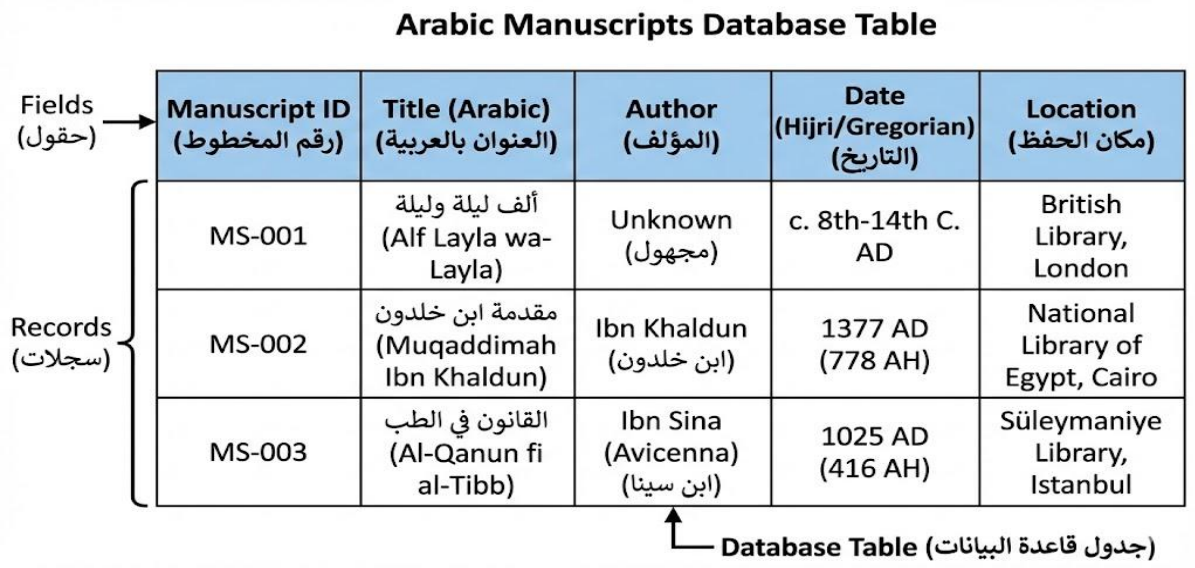


Figure 3.2: Structure of tables, fields, and records

3.2.2 Relationships and keys (العلاقات والمفاتيح)

Relationships (العلاقات) connect tables to one another, allowing data to be linked across different categories. A **key (مفتاح)** is a unique identifier used to establish these connections. The most common type is the **primary key (المفتاح الأساسي)**, which uniquely identifies each record in a table. A **foreign key (المفتاح الخارجي)** links one table to another.

For instance, in an Arabic student database, the student ID may serve as a primary key in the student table, while appearing as a foreign key in the course enrolment table. This ensures that data remains consistent and connected.

Fill in the blank: A primary key uniquely identifies each _____ in a table.

Key Type	Definition
Primary Key	A unique identifier for each record in a table, ensuring no duplicates.
Foreign Key	A field that links one table to another, establishing relationships between data.

Box 3.2: Types of keys in databases

3.2.3 Normalisation and organisation (التطبيع والتنظيم)

Normalisation (التطبيع) is the process of organising data in a database to reduce redundancy and improve efficiency. It involves dividing large tables into smaller ones and defining relationships between them. **Organisation (التنظيم)** ensures that data is stored logically, making it easier to query and maintain.

For example, instead of storing a student's course details repeatedly in the student table, normalisation separates this into a course table linked by a foreign key. This reduces duplication and keeps the database efficient.

Fill in the blank: Normalisation reduces data _____ and improves efficiency.

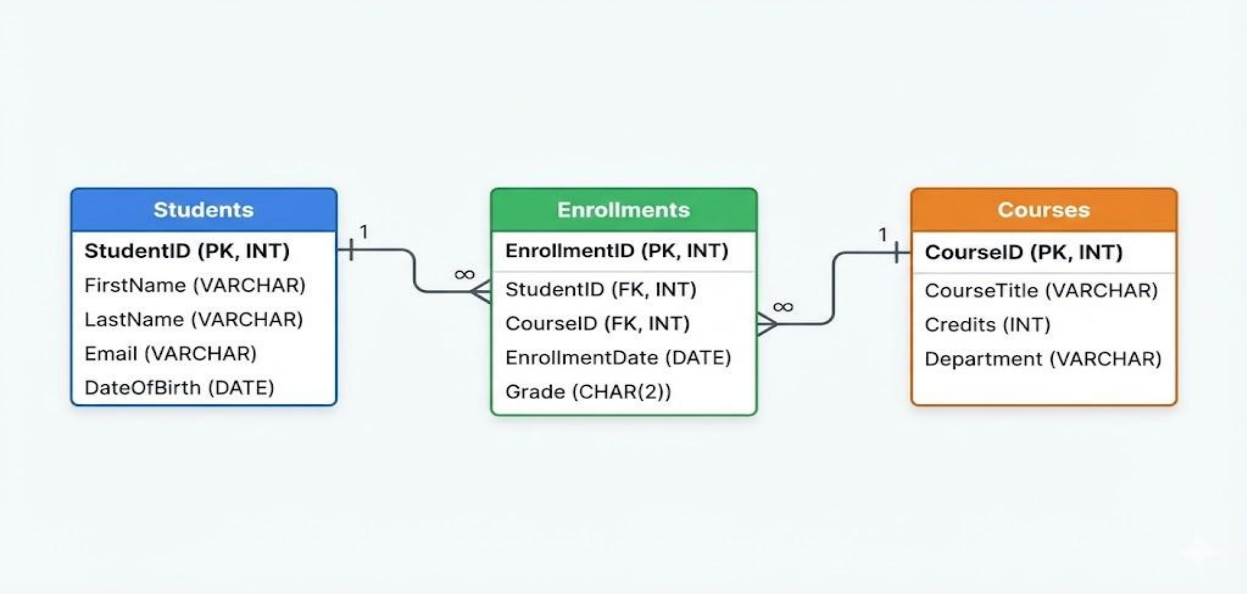


Plate 3.2: Example of normalised database tables

Pilot questions 3.2

1. What are the three basic elements of a database table?
2. Which type of key uniquely identifies each record in a table?
3. Give one example of how a foreign key is used.
4. What is the main purpose of normalisation?

5. Fill in the blank: Organisation ensures that data is stored _____.

3.3 Practical Use Of Databases (الاستخدام العملي لقواعد البيانات)

3.3.1 Querying and searching (الاستعلام والبحث)

A **query (استعلام)** is a request for specific information from a database. Queries allow you to search, filter, and retrieve data according to defined conditions. Searching is the process of locating information quickly within a database. In Arabic studies, queries can be used to find manuscripts by author, filter texts by date, or retrieve references that contain certain keywords.

For example, a query could be written to display all Arabic manuscripts authored in the 12th century. This saves time compared to manually scanning through thousands of records.

Fill in the blank: A query is a request for specific _____ from a database.

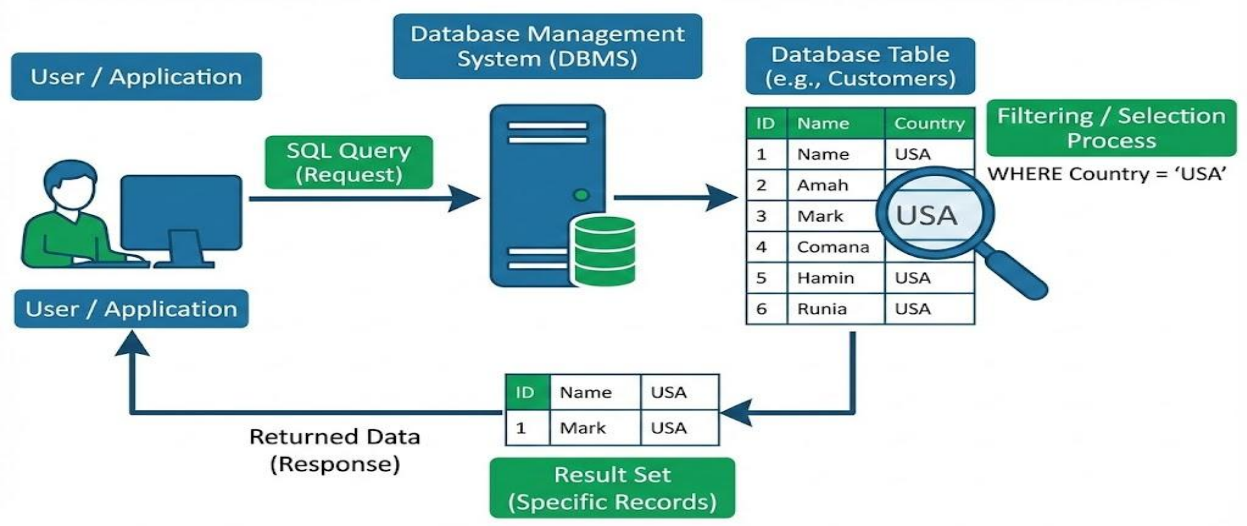


Figure 3.3: Querying and searching in databases

3.3.2 Data entry and management (إدخال البيانات وإدارتها)

Data entry (إدخال البيانات) refers to inputting new information into a database, while **management (إدارة البيانات)** involves updating, deleting, and maintaining accuracy of stored data. Proper data entry ensures consistency, while management keeps the database reliable and useful.

For instance, in an Arabic bibliography database, entering a new book requires filling in fields such as title, author, year, and publisher. Management tasks may include correcting errors, removing duplicates, or updating records with new editions.

Fill in the blank: Data management involves updating, deleting, and maintaining _____ of stored data.

Practice	Explanation
Use Consistent Formats	Apply uniform styles for dates, names, and references to ensure clarity and avoid confusion.
Avoid Duplicate Entries	Prevent redundancy by checking for existing records before adding new ones.
Update Records Regularly	Keep information current to maintain accuracy and relevance.
Verify Accuracy of Information	Double-check entries against reliable sources to ensure correctness.

Box 3.3: Best practices for data entry and management

3.3.3 Security and ethical use (الأمن والاستخدام الأخلاقي)

Security (الأمن) in databases refers to protecting data from unauthorised access, loss, or corruption. **Ethical use (الاستخدام الأخلاقي)** means handling data responsibly, respecting privacy, and avoiding misuse. In Arabic studies, this is especially important when dealing with sensitive manuscripts, student records, or personal information.

For example, a database containing student details must be secured with passwords and access controls. Ethically, researchers must avoid altering or misrepresenting data to suit personal arguments.

Fill in the blank: Ethical use of databases requires respecting _____ and avoiding misuse.

Plate 3.3: Database security and ethical use

Pilot questions 3.3

1. What is a query and why is it useful?
2. Give one example of how queries can support Arabic studies.
3. What are two best practices for data entry and management?
4. Why is security important in databases?
5. Fill in the blank: Ethical use of databases requires respecting _____.

Series Summary

This Series has introduced you to the foundations of **قواعد البيانات**(databases) and their relevance to both academic and personal contexts. We began with an introduction to databases, covering their definition, importance, types, and specific applications in Arabic studies. Then we moved on to database design and structure, where you explored tables, fields, records, relationships, keys, and the principles of normalisation. Finally, we examined the practical use of databases, focusing on querying, data entry, management, and the critical issues of security and ethical use.

By completing this Series, you should now be able to define databases and explain their importance, distinguish between types, design efficient structures using tables and keys, apply normalisation principles, perform queries, manage data effectively, and evaluate security and ethical considerations. These achievements align directly with the Series Learning Outcomes (SLOs), ensuring that you are well prepared to apply database skills confidently in Arabic academic research and personal information management.

Glossary of Terms

- **Database (قاعدة بيانات)**: An organised collection of information stored electronically, designed to make data easy to access, manage, and update.
- **Data entry (إدخال البيانات)**: The process of inputting new information into a database.
- **Data management (إدارة البيانات)**: Updating, deleting, and maintaining the accuracy of stored data.
- **Field (حقل)**: A specific category of information within a table, such as a name or date.
- **Foreign key (المفتاح الخارجي)**: A key that links one table to another, ensuring data consistency across tables.
- **Normalisation (التطبيع)**: The process of organising data in a database to reduce redundancy and improve efficiency.
- **Primary key (المفتاح الأساسي)**: A unique identifier that distinguishes each record in a table.

- **Query (استعلام)**: A request for specific information from a database, used to search and filter data.
- **Record (سجل)**: A complete set of fields that describe one item or person in a database.
- **Relationships (العلاقات)**: Connections between tables that allow data to be linked across different categories.
- **Security (الأمن)**: Measures taken to protect data from unauthorised access, loss, or corruption.
- **Table (جدول)**: A structured arrangement of data in rows and columns within a database.
- **Types of databases (أنواع قواعد البيانات)**: Different models of databases such as relational, hierarchical, and document databases, each serving specific purposes.
- **Ethical use (الاستخدام الأخلاقي)**: Handling data responsibly, respecting privacy, and avoiding misuse.

Concept Check Questions [Series 3]

Objective questions

1. A database is an organised collection of _____ stored electronically. (Linked to SLO 3.1)
2. Which type of database stores data in tables linked by relationships? (Linked to SLO 3.2)
3. A primary key uniquely identifies each _____ in a table. (Linked to SLO 3.4)
4. Normalisation reduces data _____ and improves efficiency. (Linked to SLO 3.5)
5. A query is a request for specific _____ from a database. (Linked to SLO 3.6)

Short-answer questions

6. Define a database and explain its importance in Arabic studies. (Linked to SLO 3.1)
7. Describe one type of database and give an example of its use. (Linked to SLO 3.2)
8. Explain the difference between a primary key and a foreign key. (Linked to SLO 3.4)
9. Demonstrate how normalisation improves database organisation. (Linked to SLO 3.5)
10. Identify two best practices for data entry and management. (Linked to SLO 3.7)

Long-answer questions

11. Analyse the role of databases in Arabic academic research, providing examples of how they support cataloguing and text analysis. (Linked to SLO 3.1 and SLO 3.2)
12. Evaluate the importance of relationships, keys, and normalisation in designing efficient databases, using examples from student or manuscript records. (Linked to SLO 3.4 and SLO 3.5)
13. Discuss the significance of querying, data management, and ethical use in practical database applications, highlighting their impact on reliability and security. (Linked to SLO 3.6, SLO 3.7, and SLO 3.8)

Answers to Concept Check Questions [Series 3]

Objective questions

1. Information.
2. Relational database.
3. Record.
4. Redundancy.
5. Information.

Short-answer questions

6. A database is an organised collection of information stored electronically. It is important in Arabic studies for cataloguing manuscripts and managing bibliographies.
7. A hierarchical database organises data in a tree-like structure. For example, it can be used to store family genealogies in Arabic historical studies.
8. A primary key uniquely identifies each record in a table, while a foreign key links one table to another.
9. Normalisation separates large tables into smaller ones, reducing duplication and improving efficiency.
10. Use consistent formats and avoid duplicate entries.

Long-answer questions

11. *Basic response*: Databases support Arabic research by cataloguing manuscripts and organising bibliographies. They also allow text analysis through queries.
    Value-added response: Beyond cataloguing, databases enable advanced linguistic research, such as corpus analysis of Arabic texts, and facilitate collaboration among scholars by providing shared access to structured information.
12. *Basic response*: Relationships and keys connect tables, while normalisation reduces redundancy. Together, they ensure efficient database design.

Value-added response: These principles not only improve efficiency but also maintain data integrity. For example, in a student database, normalisation prevents duplication of course details, while keys ensure accurate linking of student and course records.

13. *Basic response*: Querying retrieves specific information, data management maintains accuracy, and ethical use ensures responsible handling of information.
    Value-added response: These practices enhance reliability and security. For instance, secure querying prevents unauthorised access, while ethical use protects sensitive student or manuscript data, ensuring trust in academic and personal database applications.

Answers to Pilot Questions [Series 3]

Part 3.1 Introduction To Databases (مقدمة في قواعد البيانات)

1. A database is an organised collection of information stored electronically, and it is important because it allows large amounts of data to be handled efficiently.
2. A relational database; it stores data in tables linked by relationships.
3. Relational databases.
4. Databases can be used to catalogue manuscripts, organise references, and analyse texts.
5. Verses.

Part 3.2 Database Design And Structure (تصميم وبنية قواعد البيانات)

1. Tables, fields, and records.
2. Primary key.
3. A foreign key links one table to another, such as student ID linking a student table to a course table.
4. To reduce redundancy and improve efficiency.
5. Logically.

Part 3.3 Practical Use Of Databases (الاستخدام العملي لقواعد البيانات)

1. A query is a request for specific information, and it is useful because it allows quick retrieval of data.
2. Queries can be used to find manuscripts by author or filter texts by date.
3. Use consistent formats and update records regularly.
4. Security protects data from unauthorised access, loss, or corruption.
5. Privacy.

References and Attributions [Series 3]

General References (APA style)

- Laudon, K. C., & Laudon, J. P. (2019). *Management information systems: Managing the digital firm* (16th ed.). Harlow: Pearson Education.
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Figures

- *Figure 3.1: Basic structure of a database* – AI-generated using the prompt "Generate a labelled diagram showing the basic structure of a database with tables, fields, and records." Suggested OER search string: "open educational resource database structure diagram."
- *Figure 3.2: Structure of tables, fields, and records* – AI-generated using the prompt "Generate a labelled diagram showing a database table with fields and records for Arabic manuscripts." Suggested OER search string: "open educational resource database table fields records diagram."
- *Figure 3.3: Querying and searching in databases* – AI-generated using the prompt "Generate a labelled diagram showing a query retrieving specific records from a database table." Suggested OER search string: "open educational resource database query example diagram."

Boxes

- *Box 3.1: Common types of databases* – AI-generated using the prompt "Generate a simple table listing types of databases with short descriptions." Suggested OER search string: "open educational resource types of databases comparison."

- *Box 3.2: Types of keys in databases* – AI-generated using the prompt "Generate a simple table listing types of database keys with definitions." Suggested OER search string: "open educational resource database keys primary foreign."
- *Box 3.3: Best practices for data entry and management* – AI-generated using the prompt "Generate a simple table listing best practices for data entry and management in databases." Suggested OER search string: "open educational resource database data entry management best practices."

Plates

- *Plate 3.1: Database application in Arabic manuscript studies* – AI-generated using the prompt "Create an image showing an Arabic manuscript database interface with search and catalogue options." Suggested OER search string: "open educational resource Arabic manuscript database interface."
- *Plate 3.2: Example of normalised database tables* – AI-generated using the prompt "Create an image showing normalised database tables for students and courses with relationships." Suggested OER search string: "open educational resource normalised database tables example."
- *Plate 3.3: Database security and ethical use* – AI-generated using the prompt "Create an image showing secure login and access control for a database system." Suggested OER search string: "open educational resource database security ethical use."

Series 4: Arabic-Oriented Hardware And Software Applications (التطبيقات الموجهة للأجهزة والبرامج العربية)

4.1 Hardware For Arabic Use (الأجهزة للاستخدام العربي)

- 4.1.1 Arabic keyboards and input devices (لوحات المفاتيح وأجهزة الإدخال العربية)
- 4.1.2 Display technologies and Arabic script rendering (تقنيات العرض وعرض الخط العربي)
- 4.1.3 Mobile devices and Arabic language support (الأجهزة المحمولة ودعم اللغة العربية)

4.2 Software Applications For Arabic Studies (تطبيقات البرمجيات للدراسات العربية)

- 4.2.1 Word processing and Arabic text tools (معالجة الكلمات وأدوات النص العربي)
- 4.2.2 Arabic-enabled spreadsheets and databases (الجداول الإلكترونية وقواعد البيانات باللغة العربية)
- 4.2.3 Multimedia and presentation tools with Arabic support (الوسائط المتعددة وأدوات العرض باللغة العربية)

4.3 Integration And Practical Applications (الدمج والتطبيقات العملية)

- 4.3.1 Operating systems and localisation (أنظمة التشغيل والتعريب)
- 4.3.2 Cross-platform compatibility for Arabic users (التوافق عبر الأنظمة للمستخدمين العرب)
- 4.3.3 Practical case studies in Arabic ICT (دراسات حالة عملية في تكنولوجيا المعلومات العربية)

Introduction

Technology is most effective when it adapts to the needs of its users. For Arabic speakers, this means having hardware and software that support the unique features of the Arabic script and cultural context. From keyboards designed for right-to-left input to applications that render Arabic text accurately, these tools make everyday tasks smoother and academic work more precise. Without them, working with Arabic content can become unnecessarily difficult and time-consuming.

The aim of this Series is to familiarise you with Arabic-oriented hardware and software applications, and to equip you with the skills needed to select, use, and integrate them effectively in both academic and personal settings.

We shall commence this Series by examining **الأجهزة للاستخدام العربي**(hardware for Arabic use), focusing on keyboards, input devices, display technologies, and mobile devices with Arabic language support. Next, we will move on to **تطبيقات البرمجيات للدراسات العربية**(software applications for Arabic studies), where you will explore word processing, spreadsheets, databases, and multimedia tools designed for Arabic contexts. Finally, we will wrap up with **الدمج والتطبيقات العملية**(integration and practical applications), considering operating system localisation, cross-platform compatibility, and practical case studies in Arabic ICT. This progression will ensure you are confident in applying both hardware and software solutions tailored to Arabic needs.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 4.1** describe the features of **لوحات المفاتيح وأجهزة الإدخال العربية**(Arabic keyboards and input devices),
- **SLO 4.2** explain how **تقنيات العرض**(display technologies) render Arabic script accurately,
- **SLO 4.3** demonstrate the use of **الأجهزة المحمولة**(mobile devices) with Arabic language support,
- **SLO 4.4** apply **معالجة الكلمات وأدوات النص العربي**(word processing and Arabic text tools) to academic tasks,
- **SLO 4.5** utilise **الجداول الإلكترونية وقواعد البيانات باللغة العربية**(Arabic-enabled spreadsheets and databases) for organising and analysing information,
- **SLO 4.6** create multimedia and presentations using **أدوات العرض باللغة العربية** (Arabic-supported tools),

- **SLO 4.7** analyse the role of **أنظمة التشغيل والتعريب**(operating systems and localisation) in supporting Arabic users,
- **SLO 4.8** evaluate **التوافق عبر الأنظمة**(cross-platform compatibility) for Arabic applications,
- **SLO 4.9** assess practical **دراسات حالة عملية**(case studies) in Arabic ICT to connect theory with real-world applications.

4.1 Hardware For Arabic Use (الأجهزة للاستخدام العربي)

4.1.1 Arabic keyboards and input devices (لوحات المفاتيح وأجهزة الإدخال العربية)

An **Arabic keyboard (لوحة مفاتيح عربية)** is designed to support right-to-left text entry and includes keys for Arabic letters and diacritical marks. Input devices such as touchscreens and styluses also provide Arabic language support, enabling handwriting recognition and digital calligraphy. These tools ensure that users can type or write in Arabic accurately and efficiently.

Fill in the blank: An Arabic keyboard is designed to support _____ text entry.

Plate 4.1: Arabic keyboard layout

4.1.2 Display technologies and Arabic script rendering (تقنيات العرض وعرض الخط العربي)

Display technologies (تقنيات العرض) refer to the hardware and software that render text on screens. For Arabic, accurate **script rendering (عرض الخط العربي)** is essential to display connected letters, ligatures, and diacritical marks correctly. Modern operating systems and devices use advanced rendering engines to ensure Arabic text appears clear and readable.

For example, without proper rendering, Arabic letters may appear disconnected, making text difficult to read. Correct rendering ensures that words such as "اللغة العربية" are displayed properly.

Fill in the blank: Script rendering ensures that Arabic letters appear _____ and readable.

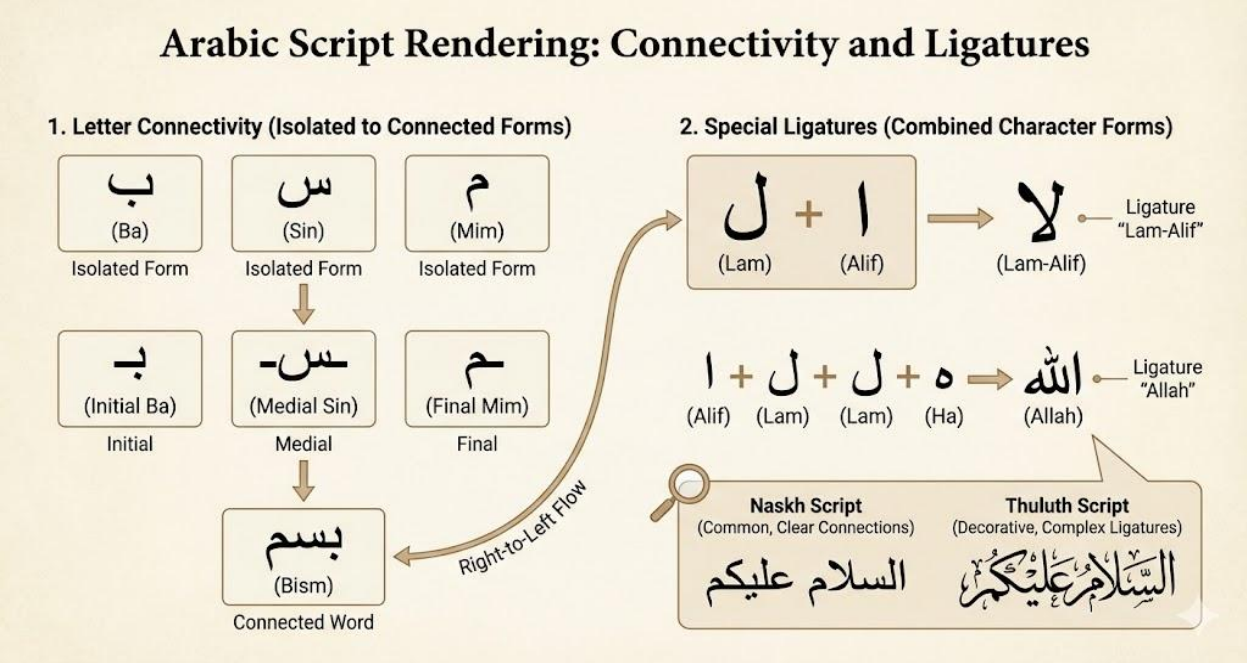

Figure 4.1: Arabic script rendering on digital displays

4.1.3 Mobile devices and Arabic language support (الأجهزة المحمولة ودعم اللغة العربية)

Mobile devices (الأجهزة المحمولة) such as smartphones and tablets often include built-in **Arabic language support (دعم اللغة العربية)**. This support covers system menus, keyboards, predictive text, and voice input. It allows users to interact with their devices entirely in Arabic, making technology more accessible and inclusive.

For instance, a smartphone with Arabic localisation enables users to navigate menus, send messages, and use applications in their native language. This is particularly important for learners and professionals who rely on Arabic for communication and study.

Fill in the blank: Mobile devices with Arabic support allow users to interact with their devices entirely in _____.

Feature	Explanation
Arabic System Menus	Mobile operating systems offer full interface translations in Arabic.
Arabic Keyboards and Predictive Text	Built-in keyboards allow typing in Arabic with smart suggestions and autocorrect.
Voice Input in Arabic	Speech recognition enables dictation and commands in Arabic.
Arabic Localisation of Apps	Many apps provide Arabic versions, ensuring accessibility for native speakers.

Box 4.1: Features of Arabic language support in mobile devices

Pilot questions 4.1

1. What is the main purpose of an Arabic keyboard?
2. Why is script rendering important for Arabic text?
3. Give one example of how mobile devices support Arabic users.
4. Fill in the blank: Script rendering ensures that Arabic letters appear _____.
5. Fill in the blank: Mobile devices with Arabic support allow users to interact with their devices entirely in _____.

4.2 Software Applications For Arabic Studies (تطبيقات البرمجيات للدراسات العربية)

4.2.1 Word processing and Arabic text tools (معالجة الكلمات وأدوات النص العربي)

Word processing (معالجة الكلمات) refers to software used to create, edit, and format text documents. For Arabic, specialised **text tools (أدوات النص العربي)** ensure right-to-left alignment, proper diacritical marks, and accurate font rendering. These features are essential for preparing academic papers, official documents, and literary works in Arabic.

For example, Microsoft Word and LibreOffice Writer both provide Arabic language support, allowing users to type, format, and proof-read Arabic text with ease.

Fill in the blank: Word processing tools for Arabic ensure proper _____ alignment and diacritical marks.

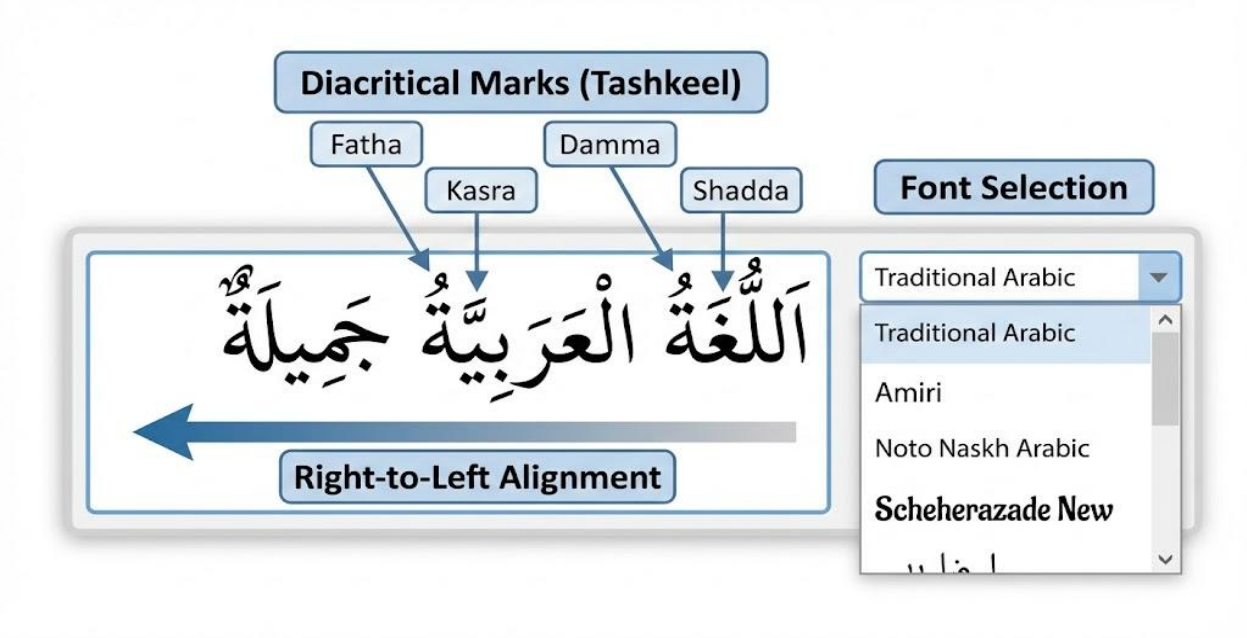

Figure 4.2: Word processing with Arabic text tools

4.2.2 Arabic-enabled spreadsheets and databases (الجداول الإلكترونية وقواعد البيانات باللغة العربية)

Spreadsheets (الجداول الإلكترونية) are applications used to organise and analyse data in tabular form. When enabled for Arabic, they support right-to-left cell alignment and Arabic numerals. **Databases (قواعد البيانات)** with Arabic support allow users to store and query information in Arabic script.

For instance, a spreadsheet can be used to record student grades in Arabic, while a database can catalogue manuscripts with fields such as title, author, and year.

Fill in the blank: Arabic-enabled spreadsheets support right-to-left _____ alignment.

Feature	Explanation
Right-to-Left Alignment	Supports Arabic script by aligning text and data from right to left.
Arabic Numerals	Allows entry and display of numerals in Arabic format.
Arabic Field Names	Enables naming of tables, columns, and fields in Arabic script.
Querying in Arabic Script	Permits searches and queries directly using Arabic words and characters.

Box 4.2: Features of Arabic-enabled spreadsheets and databases

4.2.3 Multimedia and presentation tools with Arabic support (الوسائط المتعددة وأدوات العرض باللغة العربية)

Multimedia tools (أدوات الوسائط المتعددة) allow integration of text, images, audio, and video. When designed with Arabic support, they ensure correct text direction and font rendering. **Presentation tools (أدوات العرض)** such as PowerPoint or Google Slides enable users to create slides with Arabic titles, bullet points, and embedded media.

For example, an Arabic presentation may include right-to-left text, Arabic charts, and embedded audio recitations. These tools are vital for teaching, research dissemination, and professional communication in Arabic contexts.

Fill in the blank: Presentation tools with Arabic support ensure correct text _____ and font rendering.

Plate 4.2: Arabic presentation tools with multimedia support

Pilot questions 4.2

1. What features make word processing tools suitable for Arabic text?
2. Give one example of how spreadsheets can be used in Arabic studies.
3. What is the main advantage of Arabic-enabled databases?
4. Fill in the blank: Arabic-enabled spreadsheets support right-to-left _____ alignment.
5. Fill in the blank: Presentation tools with Arabic support ensure correct text _____ and font rendering.

4.3 Integration And Practical Applications (الدمج والتطبيقات العملية)

4.3.1 Operating systems and localisation (أنظمة التشغيل والتعريب)

An **operating system (نظام تشغيل)** is the software that manages computer hardware and provides services for applications. **Localisation (التعريب)** refers to adapting the operating system to support Arabic users, including menus, system messages, and input methods. Localisation ensures that Arabic speakers can interact with their devices in their native language, making technology more inclusive and accessible.

For example, Windows, macOS, and Android all provide Arabic localisation, allowing users to switch system languages and navigate interfaces in Arabic.

Fill in the blank: Localisation refers to adapting the operating system to support _____ users.

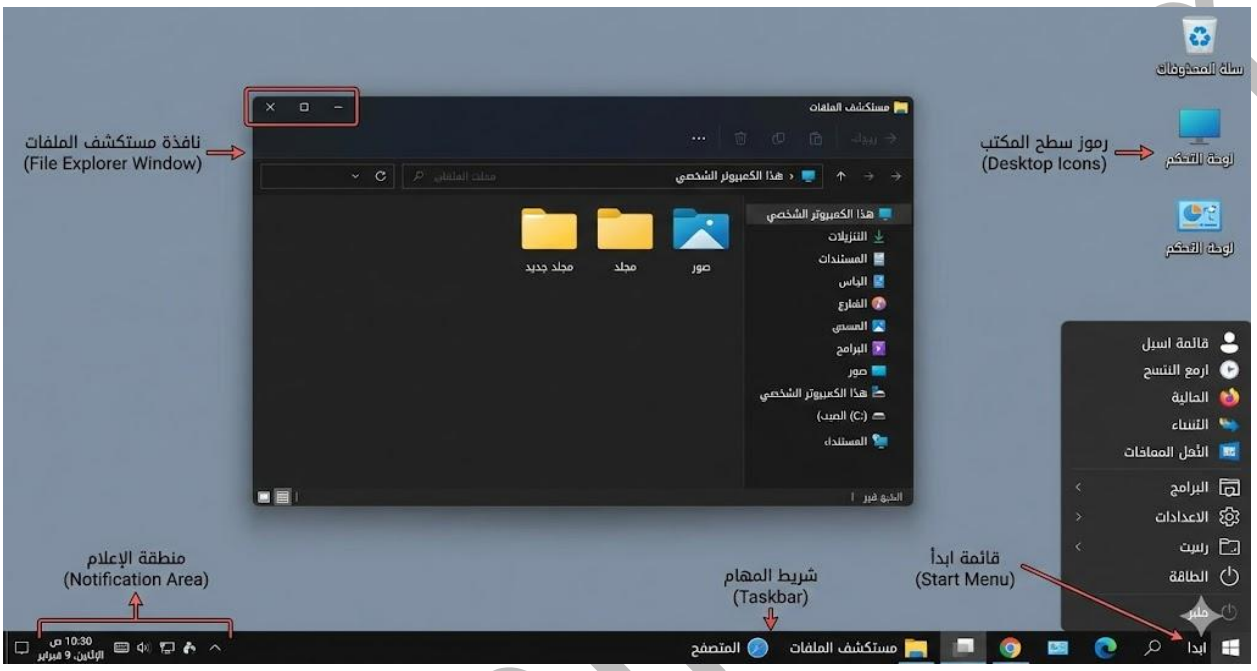

Figure 4.3: Operating system localisation for Arabic users

4.3.2 Cross-platform compatibility for Arabic users (التوافق عبر الأنظمة للمستخدمين العرب)

Cross-platform compatibility (التوافق عبر الأنظمة) means that applications and files can be used across different devices and operating systems without losing functionality. For Arabic users, this ensures that text, fonts, and layouts remain consistent whether accessed on Windows, macOS, Linux, or mobile platforms.

For instance, an Arabic document created in Microsoft Word should display correctly when opened in LibreOffice or Google Docs. Compatibility prevents errors such as broken fonts or misaligned text.

Fill in the blank: Cross-platform compatibility ensures that Arabic text remains _____ across different systems.

Benefit	Explanation
Consistent Text Rendering	Ensures Arabic script displays correctly across different devices and operating systems.
Reliable Font Support	Provides stable Arabic fonts, avoiding missing characters or distortions.
Seamless File Sharing	Allows documents, spreadsheets, and databases in Arabic to be shared without formatting loss.
Reduced Formatting Errors	Minimises issues with alignment, diacritics, and right-to-left text flow.

Box 4.3: Benefits of cross-platform compatibility for Arabic users

4.3.3 Practical case studies in Arabic ICT (دراسات حالة عملية في تكنولوجيا المعلومات العربية)

Case studies (دراسات حالة) provide real-world examples of how Arabic-oriented hardware and software are applied in academic and professional contexts. These may include digital libraries of Arabic manuscripts, e-learning platforms with Arabic interfaces, or mobile applications designed for Arabic language learners.

For example, the King Fahd National Library uses databases and digital tools to catalogue Arabic manuscripts, while platforms like Moodle offer Arabic localisation for online learning. Such case studies highlight the practical impact of ICT in supporting Arabic scholarship and communication.

Fill in the blank: Case studies provide real-world examples of how Arabic ICT is _____ in practice.

Plate 4.3: Case study of Arabic ICT in digital libraries

Pilot questions 4.3

1. What does localisation mean in the context of operating systems?
2. Give one example of cross-platform compatibility for Arabic users.
3. Why are case studies important in Arabic ICT?
4. Fill in the blank: Cross-platform compatibility ensures that Arabic text remains _____ across different systems.
5. Fill in the blank: Case studies provide real-world examples of how Arabic ICT is _____ in practice.

Series Summary

This Series has guided you through the essential hardware and software applications tailored for Arabic users, highlighting their importance in both academic and personal contexts. We began by exploring **الأجهزة للاستخدام العربي**(hardware for Arabic use), including Arabic keyboards, display technologies, and mobile devices with built-in Arabic support. Then we moved on to **تطبيقات البرمجيات للدراسات العربية**(software applications for Arabic studies), where you examined word processing tools, spreadsheets, databases, and multimedia applications designed to handle Arabic text effectively. Finally, we considered **الدمج والتطبيقات العملية**(integration and practical applications), focusing on operating system localisation, cross-platform compatibility, and real-world case studies in Arabic ICT.

By completing this Series, you should now be able to describe Arabic-oriented hardware, explain how software supports Arabic text, demonstrate the use of mobile and desktop applications, apply tools for academic tasks, analyse localisation and compatibility issues, and evaluate practical case studies. These achievements align directly with the Series Learning Outcomes (SLOs), ensuring you are well prepared to integrate Arabic-oriented hardware and software confidently into your studies and everyday digital practices.

Glossary of Terms

- **Arabic keyboard (لوحة مفاتيح عربية)**: A keyboard designed for right-to-left text entry, including Arabic letters and diacritical marks.
- **Cross-platform compatibility (التوافق عبر الأنظمة)**: The ability of applications and files to function consistently across different devices and operating systems without losing Arabic text formatting.
- **Database (قاعدة بيانات)**: A structured collection of information that can store and query Arabic text and data fields.
- **Display technologies (تقنيات العرض)**: Hardware and software systems that render Arabic script correctly on screens, ensuring connected letters and ligatures appear properly.

- **Localisation (التعريب)**: The adaptation of operating systems and applications to support Arabic users, including menus, system messages, and input methods.
- **Mobile devices (الأجهزة المحمولة)**: Smartphones and tablets that include built-in Arabic language support such as system menus, keyboards, predictive text, and voice input.
- **Multimedia tools (أدوات الوسائط المتعددة)**: Applications that integrate text, images, audio, and video, designed to support Arabic script and right-to-left formatting.
- **Operating system (نظام تشغيل)**: The software that manages computer hardware and provides services for applications, often adapted through localisation for Arabic users.
- **Presentation tools (أدوات العرض)**: Software such as PowerPoint or Google Slides that allows users to create slides with Arabic titles, bullet points, and embedded media.
- **Script rendering (عرض الخط العربي)**: The process of displaying Arabic text correctly on digital devices, ensuring letters are connected and diacritical marks are visible.
- **Spreadsheets (الجداول الإلكترونية)**: Applications used to organise and analyse data in tabular form, with Arabic support for right-to-left alignment and numerals.
- **Text tools (أدوات النص العربي)**: Features in word processors that support Arabic text formatting, including alignment, fonts, and diacritical marks.
- **Word processing (معالجة الكلمات)**: Software used to create, edit, and format documents, with specialised support for Arabic script and right-to-left text.

Concept Check Questions [Series 4]

Objective questions

1. An Arabic keyboard is designed to support _____ text entry. (Linked to SLO 4.1)
2. Script rendering ensures that Arabic letters appear _____ and readable. (Linked to SLO 4.2)
3. Mobile devices with Arabic support allow users to interact with their devices entirely in _____. (Linked to SLO 4.3)
4. Word processing tools for Arabic ensure proper _____ alignment and diacritical marks. (Linked to SLO 4.4)
5. Arabic-enabled spreadsheets support right-to-left _____ alignment. (Linked to SLO 4.5)

Short-answer questions

6. Describe one feature of Arabic keyboards that makes them suitable for Arabic users. (Linked to SLO 4.1)
7. Explain why script rendering is important for Arabic text on digital devices. (Linked to SLO 4.2)
8. Give one example of how mobile devices support Arabic language users. (Linked to SLO 4.3)
9. Identify two features of Arabic-enabled databases. (Linked to SLO 4.5)
10. State one benefit of cross-platform compatibility for Arabic users. (Linked to SLO 4.8)

Long-answer questions

11. Analyse the role of Arabic-oriented hardware such as keyboards and mobile devices in supporting academic and personal use. (Linked to SLO 4.1 and SLO 4.3)
12. Evaluate the importance of software applications like word processors, spreadsheets, and presentation tools in Arabic studies. (Linked to SLO 4.4, SLO 4.5, and SLO 4.6)

13. Discuss the significance of localisation, cross-platform compatibility, and case studies in integrating Arabic ICT into real-world contexts. (Linked to SLO 4.7, SLO 4.8, and SLO 4.9)

Answers to Concept Check Questions [Series 4]

Objective questions

1. Right-to-left.
2. Connected.
3. Arabic.
4. Right-to-left.
5. Cell.

Short-answer questions

6. Arabic keyboards include keys for Arabic letters and diacritical marks, supporting right-to-left text entry.
7. Script rendering ensures Arabic letters are displayed connected with ligatures, making text readable.
8. Mobile devices provide Arabic system menus, predictive text, and voice input.
9. Arabic-enabled databases allow querying in Arabic script and support Arabic field names.
10. It ensures consistent text rendering and reliable font support across systems.

Long-answer questions

11. *Basic response*: Arabic keyboards and mobile devices enable accurate input and interaction in Arabic, supporting everyday communication and study.
    Value-added response: Beyond basic use, these devices enhance accessibility for Arabic learners, support digital calligraphy, and provide inclusive technology for diverse users.

12. *Basic response*: Word processors, spreadsheets, and presentation tools allow users to create, organise, and present Arabic text effectively.
    Value-added response: These applications also support advanced academic tasks such as bibliographic management, statistical analysis in Arabic, and multimedia presentations for research dissemination.

13. *Basic response*: Localisation adapts systems for Arabic users, cross-platform compatibility ensures consistency, and case studies show practical applications.
    Value-added response: Together, they demonstrate how Arabic ICT integrates into education, libraries, and professional contexts, promoting digital scholarship and cultural preservation.

Answers to Pilot Questions [Series 4]

Part 4.1 Hardware For Arabic Use (الأجهزة للاستخدام العربي)

1. To support right-to-left text entry and provide Arabic letters and diacritical marks.
2. It ensures Arabic letters are displayed connected and readable.
3. By offering Arabic system menus, keyboards, predictive text, and voice input.
4. Connected.
5. Arabic.

Part 4.2 Software Applications For Arabic Studies (تطبيقات البرمجيات للدراسات العربية)

1. Right-to-left alignment, proper diacritical marks, and accurate font rendering.
2. Recording student grades in Arabic.
3. They allow storage and querying of information in Arabic script.
4. Cell.
5. Direction.

Part 4.3 Integration And Practical Applications (الدمج والتطبيقات العملية)

1. Adapting the operating system to support Arabic users through menus, messages, and input methods.
2. An Arabic document created in Microsoft Word can be opened correctly in LibreOffice or Google Docs.
3. They show how Arabic ICT is applied in real-world contexts such as libraries or e-learning platforms.
4. Consistent.
5. Applied.

References and Attributions [Series 4]

General References (APA style)

- Coronel, C., & Morris, S. (2018). *Database systems: Design, implementation, and management* (12th ed.). Boston: Cengage Learning.
- Laudon, K. C., & Laudon, J. P. (2019). *Management information systems: Managing the digital firm* (16th ed.). Harlow: Pearson Education.
- UNESCO. (2018). *ICT competency framework for teachers*. Paris: UNESCO Publishing.
- OER Commons. (n.d.). Retrieved from https://www.oercommons.org

Figures

- *Figure 4.1: Arabic script rendering on digital displays* – AI-generated using the prompt "Generate a labelled diagram showing Arabic script rendering with connected letters and ligatures." Suggested OER search string: "open educational resource Arabic script rendering diagram."
- *Figure 4.2: Word processing with Arabic text tools* – AI-generated using the prompt "Generate a labelled diagram showing Arabic text formatting options such as right-to-left alignment, fonts, and diacritical marks." Suggested OER search string: "open educational resource Arabic word processing text tools."
- *Figure 4.3: Operating system localisation for Arabic users* – AI-generated using the prompt "Generate a labelled diagram showing an operating system interface with Arabic localisation enabled." Suggested OER search string: "open educational resource operating system Arabic localisation."

Plates

- *Plate 4.1: Arabic keyboard layout* – AI-generated using the prompt "Create an image showing an Arabic keyboard layout with highlighted right-to-left orientation." Suggested OER search string: "open educational resource Arabic keyboard layout diagram."
- *Plate 4.2: Arabic presentation tools with multimedia support* – AI-generated using the prompt "Create an image showing an Arabic presentation slide with right-to-left text and

embedded media." Suggested OER search string: "open educational resource Arabic presentation multimedia tools."

- *Plate 4.3: Case study of Arabic ICT in digital libraries* – AI-generated using the prompt "Create an image showing an Arabic digital library interface with manuscript catalogue." Suggested OER search string: "open educational resource Arabic digital library ICT case study."

Boxes

- *Box 4.1: Features of Arabic language support in mobile devices* – AI-generated using the prompt "Generate a simple table listing features of Arabic language support in mobile devices." Suggested OER search string: "open educational resource Arabic language support mobile devices."
- *Box 4.2: Features of Arabic-enabled spreadsheets and databases* – AI-generated using the prompt "Generate a simple table listing features of Arabic-enabled spreadsheets and databases." Suggested OER search string: "open educational resource Arabic spreadsheets databases features."
- *Box 4.3: Benefits of cross-platform compatibility for Arabic users* – AI-generated using the prompt "Generate a simple table listing benefits of cross-platform compatibility for Arabic users." Suggested OER search string: "open educational resource cross platform compatibility Arabic text."

Series 5: Exploring Web And ICT Resources For Arabic Studies (استكشاف موارد الويب وتكنولوجيا المعلومات للدراسات العربية)

5.1 Introduction To Web Resources For Arabic Studies (مقدمة لموارد الويب للدراسات العربية)

- 5.1.1 Types of Arabic web resources (أنواع الموارد العربية على الويب)
- 5.1.2 Online libraries and manuscript collections (المكتبات الإلكترونية ومجموعات المخطوطات)
- 5.1.3 Academic journals and research databases (المجلات الأكاديمية وقواعد البيانات البحثية)

5.2 ICT Tools For Arabic Research And Learning (أدوات تكنولوجيا المعلومات للبحث والتعلم العربي)

- 5.2.1 Search engines and Arabic-specific queries (محركات البحث والاستعلامات الخاصة بالعربية)
- 5.2.2 E-learning platforms with Arabic support (منصات التعلم الإلكتروني بدعم اللغة العربية)
- 5.2.3 Digital annotation and collaboration tools (أدوات التعليق الرقمي والتعاون)

5.3 Practical Applications And Case Studies (التطبيقات العملية ودراسات الحالة)

- 5.3.1 Using ICT resources in Arabic language teaching (استخدام موارد تكنولوجيا المعلومات في تعليم اللغة العربية)
- 5.3.2 ICT in Arabic cultural preservation (تكنولوجيا المعلومات في حفظ الثقافة العربية)
- 5.3.3 Case studies of Arabic ICT projects (دراسات حالة لمشاريع تكنولوجيا المعلومات العربية)

Introduction

In today's digital age, the web has become a central hub for accessing knowledge, and Arabic studies are no exception. From online libraries of manuscripts to e-learning platforms and collaborative tools, web and ICT resources provide learners and researchers with unprecedented opportunities to explore, preserve, and share Arabic language and culture. Without these resources, much of the richness of Arabic scholarship would remain inaccessible or difficult to navigate.

The aim of this Series is to introduce you to key web and ICT resources that support Arabic studies, and to equip you with the skills needed to locate, use, and evaluate them effectively in both academic and cultural contexts.

We shall commence this Series by examining مقدمة لموارد الويب للدراسات العربية(introduction to web resources for Arabic studies), focusing on types of resources, online libraries, and academic databases. Next, we will move on to أدوات تكنولوجيا المعلومات للبحث والتعلم العربي(ICT tools for Arabic research and learning), where you will explore search engines, e-learning platforms, and digital collaboration tools. Finally, we will wrap up with التطبيقات العملية ودراسات الحالة(practical applications and case studies), considering how ICT resources are applied in teaching, cultural preservation, and real-world Arabic ICT projects. This progression will ensure you are confident in exploring and applying web and ICT resources for Arabic studies.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- **SLO 5.1** define the main types of موارد الويب للدراسات العربية(web resources for Arabic studies),
- **SLO 5.2** describe the role of المكتبات الإلكترونية ومجموعات المخطوطات(online libraries and manuscript collections) in Arabic scholarship,
- **SLO 5.3** explain how المجلات الأكاديمية وقواعد البيانات البحثية(academic journals and research databases) support Arabic research,
- **SLO 5.4** demonstrate effective use of محركات البحث والاستعلامات الخاصة بالعربية(search engines and Arabic-specific queries),
- **SLO 5.5** apply منصات التعلم الإلكتروني بدعم اللغة العربية(e-learning platforms with Arabic support) to learning and teaching tasks,
- **SLO 5.6** utilise أدوات التعليق الرقمي والتعاون(digital annotation and collaboration tools) for Arabic studies,

- **SLO 5.7** analyse how **استخدام موارد تكنولوجيا المعلومات في تعليم اللغة العربية**(ICT resources in Arabic language teaching) enhance pedagogy,
- **SLO 5.8** evaluate the contribution of **تكنولوجيا المعلومات في حفظ الثقافة العربية**(ICT in Arabic cultural preservation),
- **SLO 5.9** assess **دراسات حالة لمشاريع تكنولوجيا المعلومات العربية**(case studies of Arabic ICT projects) to connect theory with practice.

5.1 Introduction To Web Resources For Arabic Studies (مقدمة لموارد الويب للدراسات العربية)

5.1.1 Types of Arabic web resources (أنواع الموارد العربية على الويب)

Web resources (موارد الويب) are online materials that provide information, tools, or services. For Arabic studies, these include digital dictionaries, Qur'anic resources, manuscript archives, and educational websites. They are valuable because they make Arabic knowledge accessible globally and often free of charge.

Fill in the blank: Web resources for Arabic studies include digital _____ and manuscript archives.

Resource Type	Explanation
Digital Dictionaries	Online lexicons for Arabic vocabulary, roots, and meanings (e.g., Lisān al-ʿArab digital editions).
Qur'anic Resources	Platforms offering searchable Qur'anic texts, tafsīr (exegesis), and audio recitations.
Manuscript Archives	Digital repositories preserving classical Arabic manuscripts for scholarly access.
Educational Websites	Online learning portals providing courses, tutorials, and open educational resources in Arabic studies.

Box 5.1: Examples of Arabic web resources

5.1.2 Online libraries and manuscript collections (المكتبات الإلكترونية ومجموعات المخطوطات)

Online libraries (المكتبات الإلكترونية) are digital platforms that provide access to books, journals, and manuscripts. **Manuscript collections (مجموعات المخطوطات)** are specialised archives that preserve and share rare Arabic texts. These resources allow learners and researchers to study primary sources without geographical limitations.

For example, the King Fahd National Library and Al-Manhal provide extensive Arabic digital collections.

Fill in the blank: Online libraries provide access to books, journals, and _____.

Plate 5.1: Online Arabic library interface

5.1.3 Academic journals and research databases (المجلات الأكاديمية وقواعد البيانات البحثية)

Academic journals (المجلات الأكاديمية) are periodicals that publish peer-reviewed research articles. **Research databases (قواعد البيانات البحثية)** are searchable collections of scholarly materials. For Arabic studies, these provide access to linguistic research, cultural studies, and historical analysis.

For instance, JSTOR and Al-Manhal host Arabic journals and articles that support advanced research.

Fill in the blank: Academic journals publish peer-reviewed _____ articles.

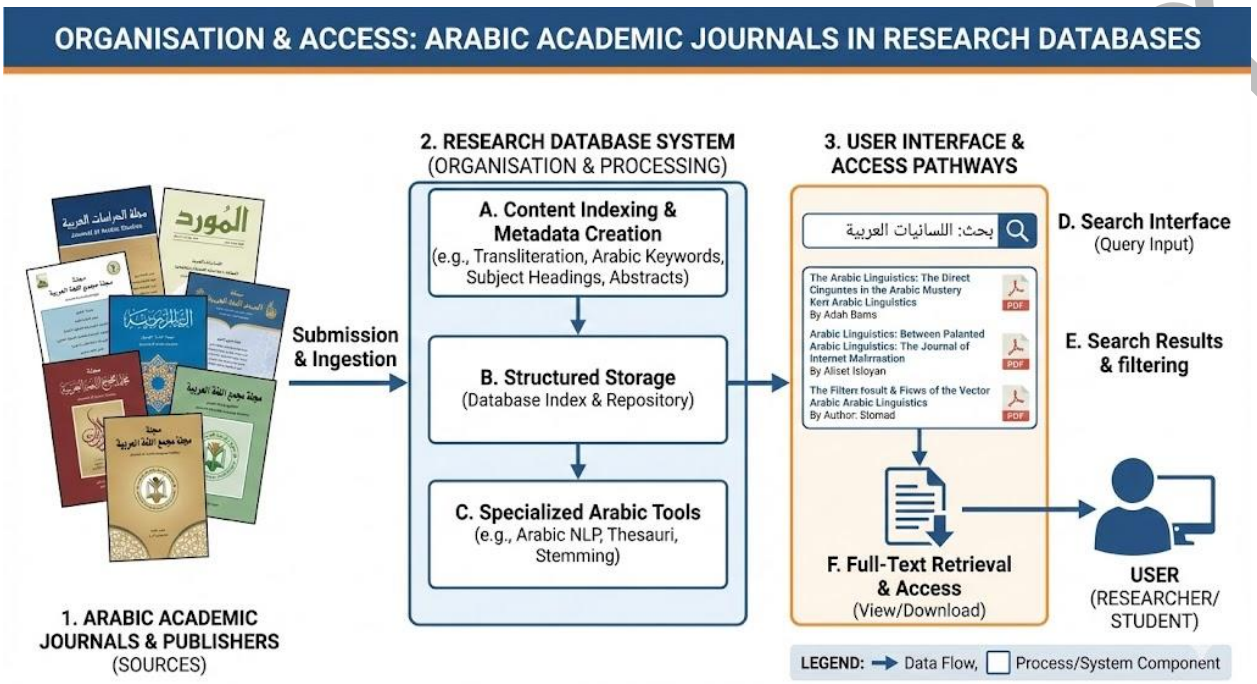

Figure 5.1: Structure of Arabic research databases

Pilot questions 5.1

1. List two examples of Arabic web resources.
2. What is the main advantage of online libraries for Arabic studies?
3. Give one example of an Arabic manuscript collection.
4. Fill in the blank: Online libraries provide access to books, journals, and _____.
5. Fill in the blank: Academic journals publish peer-reviewed _____ articles.

5.2 ICT Tools For Arabic Research And Learning (أدوات تكنولوجيا المعلومات للبحث والتعلم العربي)

5.2.1 Search engines and Arabic-specific queries (محركات البحث والاستعلامات الخاصة بالعربية)

Search engines (محركات البحث) are online tools that help users locate information. For Arabic studies, they must support **Arabic-specific queries (الاستعلامات الخاصة بالعربية)**, which include right-to-left text, diacritical marks, and Arabic keywords. Effective searching requires choosing precise terms and using advanced filters to narrow results.

For example, searching for "المخطوطات العربية" will yield manuscript resources, while adding filters such as "PDF" or "academic" can refine the search.

Fill in the blank: Effective searching requires choosing precise _____ and using advanced filters.

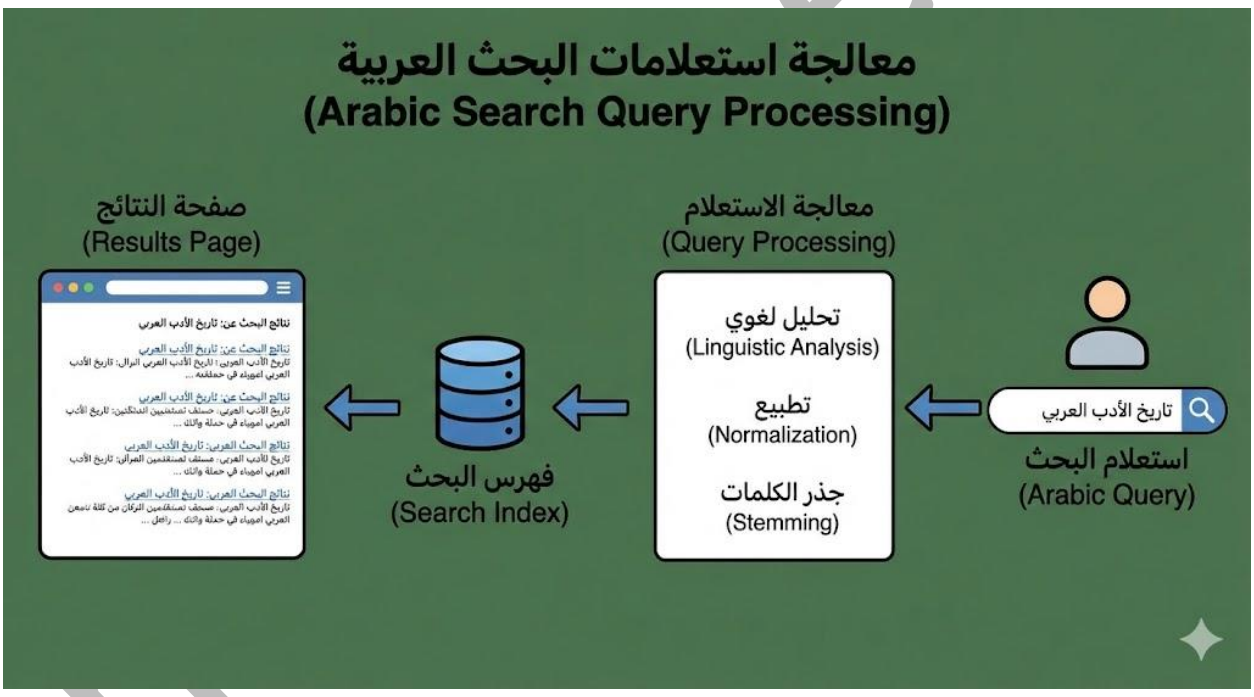

Figure 5.2: Arabic-specific queries in search engines

5.2.2 E-learning platforms with Arabic support (منصات التعلم الإلكتروني بدعم اللغة العربية)

E-learning platforms (منصات التعلم الإلكتروني) are digital systems that deliver courses and training online. With **Arabic support (بدعم اللغة العربية)**, they provide interfaces, content, and assessments in Arabic. This makes learning accessible to Arabic speakers and supports teaching Arabic as a subject.

Examples include Moodle and Edraak, which offer Arabic interfaces and resources for learners and educators.

Fill in the blank: E-learning platforms with Arabic support provide interfaces, content, and _____ in Arabic.

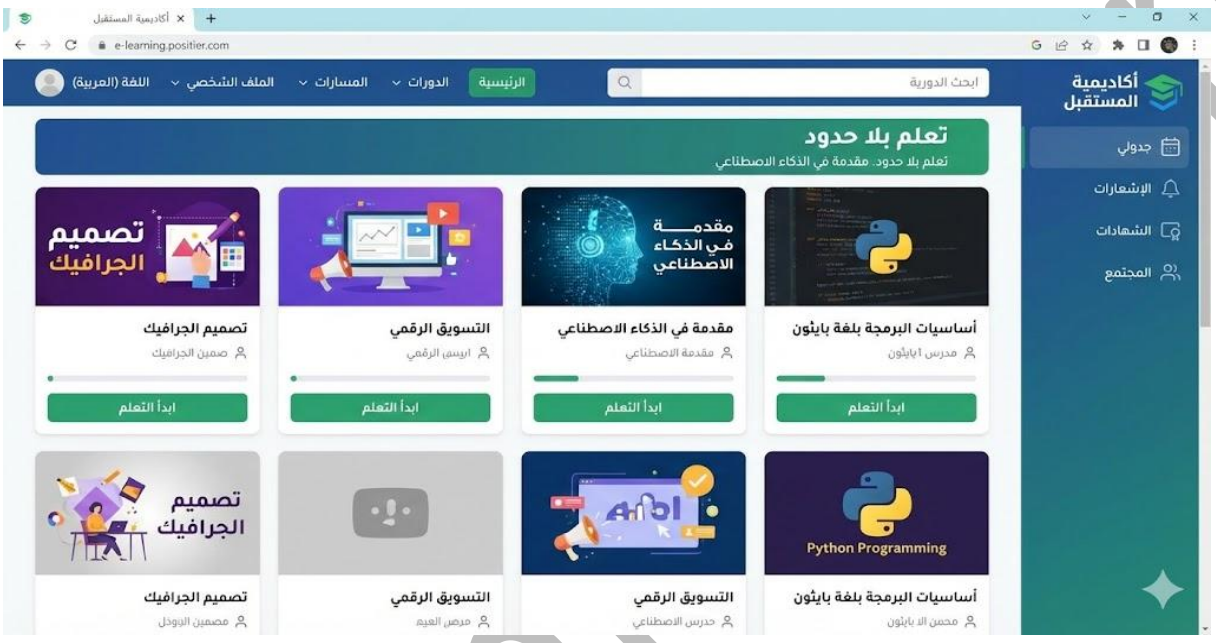

Plate 5.2: Arabic e-learning platform interface

5.2.3 Digital annotation and collaboration tools (أدوات التعليق الرقمي والتعاون)

Digital annotation tools (أدوات التعليق الرقمي) allow users to highlight, comment, and add notes to digital texts. **Collaboration tools (أدوات التعاون)** enable multiple users to work together on shared documents or projects. For Arabic studies, these tools support right-to-left text and Arabic fonts, making group research and learning more effective.

For instance, Google Docs and Hypothesis allow collaborative annotation of Arabic texts, while platforms like Slack or Microsoft Teams support Arabic communication.

Fill in the blank: Collaboration tools enable multiple users to work together on shared _____ or projects.

Feature	Explanation

Highlighting and Commenting in Arabic	Enables scholars to mark important text passages and add comments directly in Arabic script.
Adding Notes with Right-to-Left Text	Supports annotations written in Arabic, preserving correct script direction.
Shared Document Editing	Allows multiple users to edit manuscripts, translations, or research notes collaboratively.
Group Communication in Arabic	Facilitates discussions and feedback among researchers using Arabic in chat or comment threads.

Box 5.2: Features of digital annotation and collaboration tools for Arabic studies

Pilot questions 5.2

1. What makes Arabic-specific queries different from general search queries?
2. Give one example of an e-learning platform with Arabic support.
3. Why are annotation tools important for Arabic studies?
4. Fill in the blank: Effective searching requires choosing precise _____ and using advanced filters.
5. Fill in the blank: Collaboration tools enable multiple users to work together on shared _____ or projects.

5.3 Practical Applications And Case Studies (التطبيقات العملية ودراسات الحالة)

5.3.1 Using ICT resources in Arabic language teaching (استخدام موارد تكنولوجيا المعلومات في تعليم اللغة العربية)

ICT resources (موارد تكنولوجيا المعلومات) are digital tools and platforms that support teaching and learning. In Arabic language teaching, they include e-learning platforms, interactive apps, and multimedia resources. These tools make lessons more engaging, provide immediate feedback, and allow learners to practise Arabic in authentic contexts.

For example, teachers may use online quizzes, digital flashcards, or video lessons to reinforce grammar and vocabulary.

Fill in the blank: ICT resources in Arabic teaching provide immediate _____ and authentic practice opportunities.

Plate 5.3: ICT resources in Arabic language teaching

5.3.2 ICT in Arabic cultural preservation (تكنولوجيا المعلومات في حفظ الثقافة العربية)

Cultural preservation (حفظ الثقافة) involves safeguarding traditions, manuscripts, and heritage. ICT plays a vital role by digitising manuscripts, archiving oral histories, and creating online museums. These efforts ensure that Arabic culture is accessible to future generations and researchers worldwide.

For instance, digitisation projects in libraries across the Arab world have preserved thousands of manuscripts that would otherwise be at risk of deterioration.

Fill in the blank: ICT helps preserve Arabic culture by digitising manuscripts and creating online _____.

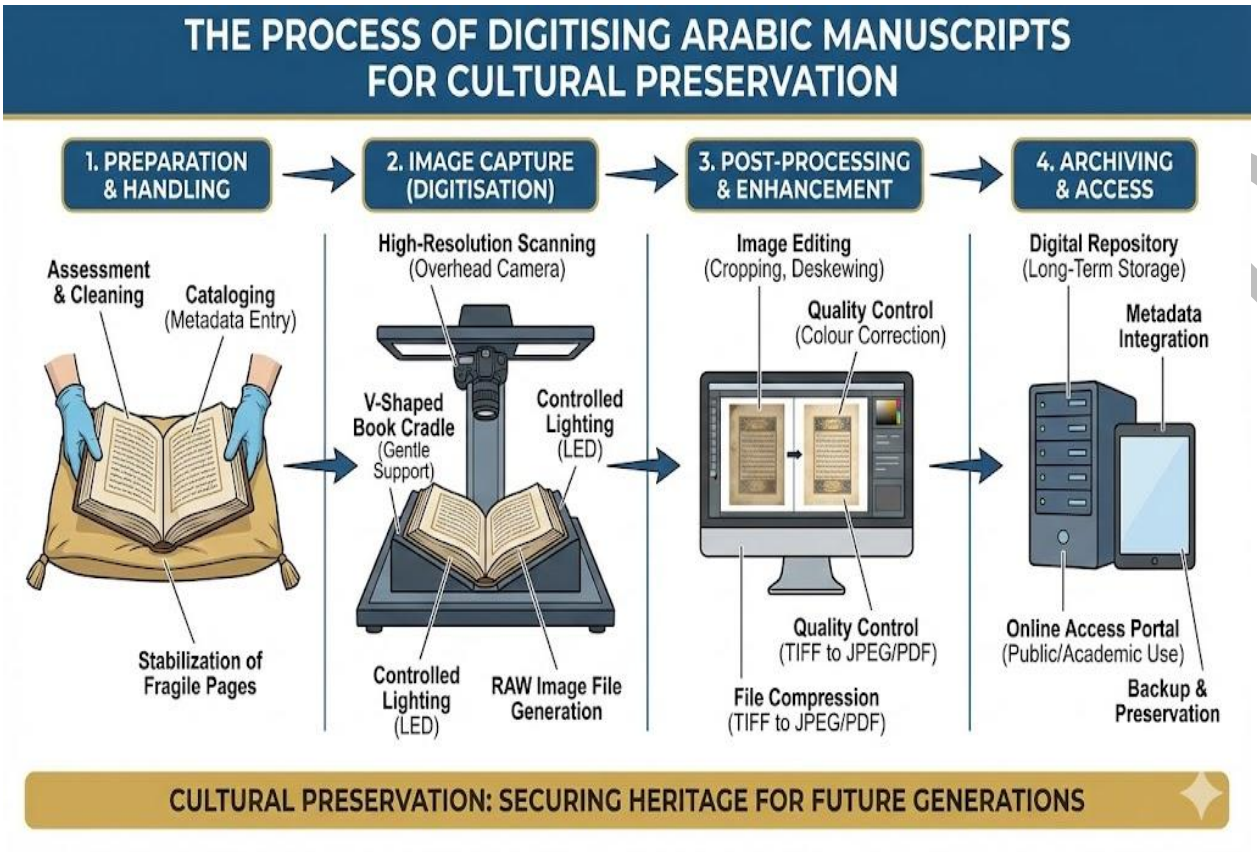

Figure 5.3: Digitisation process for Arabic cultural preservation

5.3.3 Case studies of Arabic ICT projects (دراسات حالة لمشاريع تكنولوجيا المعلومات العربية)

Case studies (دراسات حالة) provide real-world examples of ICT applications in Arabic contexts. They highlight successes, challenges, and lessons learned. Examples include digital libraries, Arabic e-learning platforms, and collaborative research projects.

For instance, the Qatar Digital Library offers access to thousands of Arabic manuscripts and historical documents, while Edraak provides free Arabic online courses.

Fill in the blank: Case studies highlight successes, challenges, and _____ learned from Arabic ICT projects.

Project	**Focus**
Qatar Digital Library	Provides access to digitised Arabic manuscripts and historical documents.

Edraak	An Arabic e-learning platform offering MOOCs and online courses.
King Fahd National Library	Digitisation projects preserving Arabic books, manuscripts, and cultural heritage.
Al Manhal	A digital database of Arabic academic resources, journals, and e-books.

Box 5.3: Selected case studies of Arabic ICT projects

Pilot questions 5.3

1. What is one way ICT resources support Arabic language teaching?
2. How does ICT contribute to Arabic cultural preservation?
3. Give one example of an Arabic ICT project.
4. Fill in the blank: ICT helps preserve Arabic culture by digitising manuscripts and creating online _____.
5. Fill in the blank: Case studies highlight successes, challenges, and _____ learned from Arabic ICT projects.

Series Summary

This Series has introduced you to the wide range of web and ICT resources that support Arabic studies, emphasising their importance for research, teaching, and cultural preservation. We began with **مقدمة لموارد الويب للدراسات العربية**(introduction to web resources for Arabic studies), where you explored types of resources, online libraries, and academic journals. We then moved on to **أدوات تكنولوجيا المعلومات للبحث والتعلم العربي**(ICT tools for Arabic research and learning), examining search engines, e-learning platforms, and collaboration tools. Finally, we considered **التطبيقات العملية ودراسات الحالة**(practical applications and case studies), focusing on how ICT resources are applied in teaching, cultural preservation, and real-world projects.

By completing this Series, you should now be able to define and describe Arabic web resources, demonstrate effective use of ICT tools, apply e-learning platforms and collaboration systems, analyse their role in teaching, and evaluate their contribution to cultural preservation and practical projects. These achievements align directly with the Series Learning Outcomes (SLOs), ensuring you are well equipped to explore, apply, and critically assess web and ICT resources in Arabic contexts.

Glossary of Terms

- **Academic journals (المجلات الأكاديمية)**: Periodicals that publish peer-reviewed research articles relevant to Arabic studies.
- **Collaboration tools (أدوات التعاون)**: Digital platforms that allow multiple users to work together on shared documents or projects in Arabic.
- **Cultural preservation (حفظ الثقافة)**: The safeguarding of Arabic traditions, manuscripts, and heritage through digitisation and archiving.
- **Digital annotation tools (أدوات التعليق الرقمي)**: Applications that enable users to highlight, comment, and add notes to Arabic digital texts.
- **E-learning platforms (منصات التعلم الإلكتروني)**: Online systems that deliver courses and training, often with Arabic interfaces and content.

- **Manuscript collections (مجموعات المخطوطات)**: Specialised archives that preserve and share rare Arabic texts in digital form.
- **Online libraries (المكتبات الإلكترونية)**: Digital platforms that provide access to books, journals, and manuscripts for Arabic studies.
- **Research databases (قواعد البيانات البحثية)**: Searchable collections of scholarly materials, including Arabic journals and articles.
- **Search engines (محركات البحث)**: Online tools that locate information, supporting Arabic-specific queries with right-to-left text and diacritical marks.
- **Web resources (موارد الويب)**: Online materials such as dictionaries, Qur'anic resources, manuscript archives, and educational websites that support Arabic studies.

Concept Check Questions [Series 5]

Objective questions

1. Web resources for Arabic studies include digital _____ and manuscript archives. (Linked to SLO 5.1)
2. Online libraries provide access to books, journals, and _____. (Linked to SLO 5.2)
3. Academic journals publish peer-reviewed _____ articles. (Linked to SLO 5.3)
4. Effective searching requires choosing precise _____ and using advanced filters. (Linked to SLO 5.4)
5. Collaboration tools enable multiple users to work together on shared _____ or projects. (Linked to SLO 5.6)

Short-answer questions

6. Define web resources in the context of Arabic studies. (Linked to SLO 5.1)
7. Explain one advantage of online libraries for Arabic scholarship. (Linked to SLO 5.2)
8. Give one example of an e-learning platform with Arabic support. (Linked to SLO 5.5)

9. Describe how annotation tools can be used in Arabic research. (Linked to SLO 5.6)
10. State one way ICT contributes to Arabic cultural preservation. (Linked to SLO 5.8)

Long-answer questions

11. Analyse the importance of Arabic-specific queries in search engines for effective research. (Linked to SLO 5.4)
12. Evaluate the role of e-learning platforms and collaboration tools in Arabic language teaching. (Linked to SLO 5.5 and SLO 5.6)
13. Discuss the significance of ICT in Arabic cultural preservation, using case studies to illustrate your points. (Linked to SLO 5.8 and SLO 5.9)

Answers to Concept Check Questions [Series 5]

Objective questions

1. Dictionaries.
2. Manuscripts.
3. Research.
4. Terms.
5. Documents.

Short-answer questions

6. Web resources are online materials such as dictionaries, Qur'anic resources, manuscript archives, and educational websites that support Arabic studies.
7. They provide access to books, journals, and manuscripts without geographical limitations.
8. Edraak is an example of an e-learning platform with Arabic support.
9. Annotation tools allow researchers to highlight, comment, and add notes to Arabic texts, supporting collaborative study.
10. ICT digitises manuscripts and creates online museums to preserve Arabic culture.

Long-answer questions

11. *Basic response*: Arabic-specific queries ensure accurate search results by supporting right-to-left text and diacritical marks.
    Value-added response: They also improve precision in academic research, enabling scholars to locate manuscripts, journals, and cultural resources more effectively across multilingual databases.
12. *Basic response*: E-learning platforms and collaboration tools provide Arabic interfaces and allow group work, making teaching more interactive.
    Value-added response: They also foster blended learning environments, support distance

education, and encourage collaborative projects that integrate multimedia and authentic Arabic resources.

13. *Basic response*: ICT preserves Arabic culture by digitising manuscripts and archiving oral histories.
    Value-added response: Case studies such as the Qatar Digital Library and King Fahd National Library show how ICT projects safeguard heritage, expand access globally, and promote cultural scholarship in the digital age.

Answers to Pilot Questions [Series 5]

Part 5.1 Introduction To Web Resources For Arabic Studies (مقدمة لموارد الويب للدراسات العربية)

1. Digital dictionaries and Qur'anic resources.
2. They provide access to books, journals, and manuscripts without geographical limitations.
3. The King Fahd National Library or Al-Manhal.
4. Manuscripts.
5. Research.

Part 5.2 ICT Tools For Arabic Research And Learning (أدوات تكنولوجيا المعلومات للبحث والتعلم العربي)

1. They support right-to-left text, diacritical marks, and Arabic keywords.
2. Edraak or Moodle.
3. They allow researchers to highlight, comment, and add notes to Arabic texts.
4. Terms.
5. Documents.

Part 5.3 Practical Applications And Case Studies (التطبيقات العملية ودراسات الحالة)

1. By providing interactive lessons, quizzes, and multimedia resources.

2. By digitising manuscripts, archiving oral histories, and creating online museums.
3. Qatar Digital Library or King Fahd National Library digitisation projects.
4. Museums.
5. Lessons.

References and Attributions [Series 5]

General References (APA style)

- UNESCO. (2018). *ICT competency framework for teachers*. Paris: UNESCO Publishing.
- Al-Manhal. (n.d.). *Digital Arabic resources and journals*. Retrieved from https://www.almanhal.com
- JSTOR. (n.d.). *Academic journals and research databases*. Retrieved from https://www.jstor.org
- OER Commons. (n.d.). Retrieved from https://www.oercommons.org

Figures

- *Figure 5.1: Structure of Arabic research databases* – AI-generated using the prompt "Generate a labelled diagram showing how research databases organise and provide access to Arabic academic journals." Suggested OER search string: "open educational resource Arabic research databases journals diagram."
- *Figure 5.2: Arabic-specific queries in search engines* – AI-generated using the prompt "Generate a labelled diagram showing how Arabic search queries are processed in a search engine with right-to-left text." Suggested OER search string: "open educational resource Arabic search engine queries diagram."
- *Figure 5.3: Digitisation process for Arabic cultural preservation* – AI-generated using the prompt "Generate a labelled diagram showing the process of digitising Arabic manuscripts for cultural preservation." Suggested OER search string: "open educational resource Arabic manuscript digitisation diagram."

Plates

- *Plate 5.1: Online Arabic library interface* – AI-generated using the prompt "Create an image showing an Arabic online library interface with manuscript search options." Suggested OER search string: "open educational resource Arabic online library manuscripts."

- *Plate 5.2: Arabic e-learning platform interface* – AI-generated using the prompt "Create an image showing an Arabic e-learning platform interface with course modules and Arabic menus." Suggested OER search string: "open educational resource Arabic e-learning platform interface."
- *Plate 5.3: ICT resources in Arabic language teaching* – AI-generated using the prompt "Create an image showing an Arabic classroom using ICT tools such as interactive screens and online quizzes." Suggested OER search string: "open educational resource Arabic language teaching ICT tools."

Boxes

- *Box 5.1: Examples of Arabic web resources* – AI-generated using the prompt "Generate a simple table listing examples of Arabic web resources such as dictionaries, Qur'anic resources, and manuscript archives." Suggested OER search string: "open educational resource Arabic web resources examples."
- *Box 5.2: Features of digital annotation and collaboration tools for Arabic studies* – AI-generated using the prompt "Generate a simple table listing features of digital annotation and collaboration tools for Arabic studies." Suggested OER search string: "open educational resource Arabic annotation collaboration tools."
- *Box 5.3: Selected case studies of Arabic ICT projects* – AI-generated using the prompt "Generate a simple table listing selected case studies of Arabic ICT projects such as Qatar Digital Library and Edraak." Suggested OER search string: "open educational resource Arabic ICT case studies."