

Chapter 2: Introduction to Operating System

Theory: 3 hrs | Lab: 4 hrs | NIELIT CCC Revision 3

Operating System

Desktop UI

File Management

Settings

MCQ Practice



Learning Objectives

After completing this chapter, students will be able to:

- Understand the Operating System and its applications for both desktop and mobile devices
- Identify various desktop screen components and modify properties such as date, time, display settings
- Add and remove programs/features, manage files and folders efficiently
- Understand printing setup and know various types of file extensions

2.1 What is an Operating System?

An **Operating System (OS)** is system software that acts as an **intermediary between the user and the computer hardware**. It manages all hardware resources and provides services for application programs. Without an OS, a computer cannot function. It is the first program loaded when a computer starts (this process is called **Bootting**).

Key Definition: OS = System Software that manages hardware, runs applications, and provides user interface.

OS as a Bridge between Hardware and Software:

HARDWARE

CPU, RAM, HDD, Input/Output Devices

OPERATING SYSTEM

Manages hardware & provides services to apps

APPLICATION SOFTWARE

MS Word, Chrome, Games, VLC

USER

End User / Applications

Main Functions of an Operating System:

Function	Description
Process Management	Creates, schedules and terminates processes; handles multitasking
Memory Management	Allocates and deallocates RAM to running programs

File Management	Creates, deletes, organises files and folders on storage
Device Management	Controls I/O devices via device drivers
Security & Access	User login, passwords, permissions and data protection
User Interface (UI)	Provides GUI (graphical) or CLI (command line) to interact with computer
Error Detection	Monitors system for errors and alerts the user

2.2 Types of Operating Systems

Desktop / Laptop OS

- Windows 10 / 11
- Linux (Ubuntu)
 - macOS
- Chrome OS

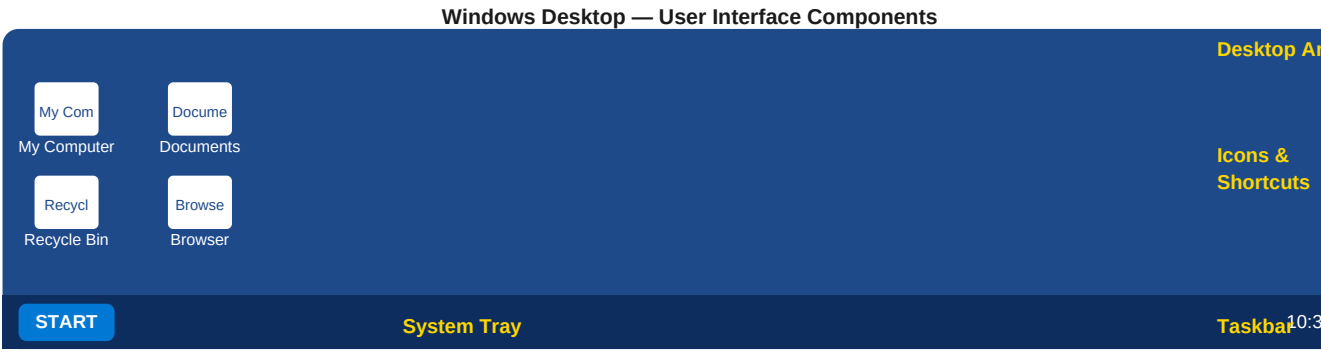
Mobile / Tablet OS

- Android (Google)
- iOS / iPadOS (Apple)
 - Windows Mobile
- KaiOS

OS Name	Type	Developer	Key Feature
Windows 10/11	Desktop	Microsoft	Most widely used; GUI-based; paid
Linux (Ubuntu)	Desktop	Community	Free, open source; used in servers
macOS	Desktop	Apple Inc.	Only for Apple Mac computers
Chrome OS	Desktop	Google	Web-based; used in Chromebooks
Android	Mobile	Google	Most popular mobile OS; open source
iOS / iPadOS	Mobile	Apple	Used on iPhone and iPad; closed source
KaiOS	Mobile	KaiOS Tech	Used in feature phones; lightweight

2.3 User Interface — Desktop and Laptop

The **User Interface (UI)** is the visual environment through which a user interacts with the computer. A **Graphical User Interface (GUI)** uses icons, windows, menus and a mouse pointer — making computers easy to use. The alternative is **CLI (Command Line Interface)** where users type text commands.



2.3.1 The Taskbar

The **Taskbar** is a horizontal bar usually at the bottom of the Windows desktop. It contains the Start Button, Search Bar, pinned application icons, and the System Tray.



Component	Location	Purpose
Start Button	Left side	Opens Start Menu — access to all programs, settings, shutdown
Search Bar	Left-centre	Search files, apps, and web content
Task View	Left-centre	View open windows and create virtual desktops
Pinned Apps	Centre	Quick launch frequently used applications
Running Apps	Centre	Shows currently open applications as buttons
System Tray	Right side	Shows clock, volume, network, battery and notifications
Show Desktop	Far right	Click to minimise all windows and show desktop

2.3.2 Icons and Shortcuts

Term	Meaning
Icon	A small graphical image representing a file, folder, program, or action
Shortcut	A link (arrow icon) pointing to a program/file stored elsewhere — does not contain the original
Shortcut key	Keyboard combination to quickly perform an action (e.g. Ctrl+C = Copy)
Desktop icon	Icons placed on the Desktop for quick access to programs or files

2.3.3 Running an Application

An application can be started in several ways: **(1)** Double-click its desktop icon, **(2)** Click Start Menu → find and click the app, **(3)** Use the Search bar and press Enter, **(4)** Right-click a file and choose 'Open With', **(5)** Press Windows key + R, type the app name and press Enter (Run dialog).

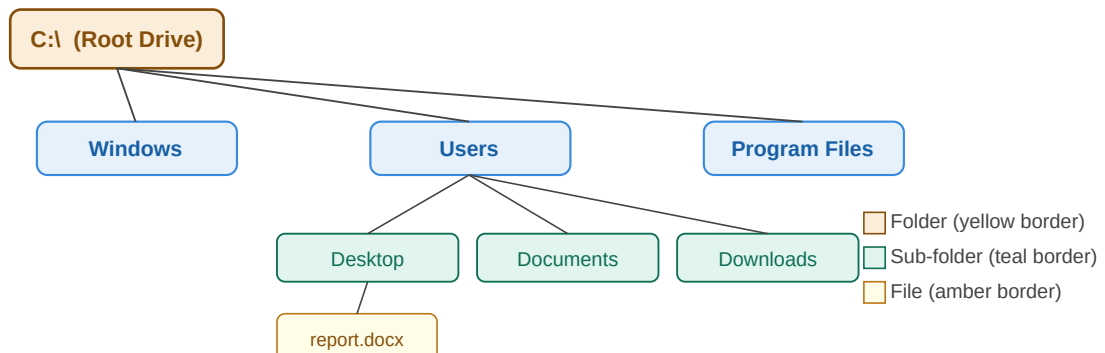
2.4 Operating System Simple Settings

Setting	How to Access	What You Can Do
Mouse Properties	Control Panel → Mouse	Change pointer speed, button config, scroll speed, pointer appearance
Date and Time	Taskbar clock (right-click) → Adjust Date	Set correct date, time, time zone; enable automatic sync
Display Properties	Desktop right-click → Display Settings	Change resolution, brightness, wallpaper, screen saver, multiple displays
Add/Remove Programs	Settings → Apps → Installed Apps	Install new software, uninstall unused programs to free disk space
Add/Remove/Share Printers	Settings → Devices → Printers & Scanners	Install printer driver, set default printer, share printer over network
Sound Settings	Taskbar → Volume icon / Sound settings	Adjust volume, set default playback device, configure microphone
Power Settings	Settings → System → Power & Sleep	Set screen off timer, sleep time, hibernate options

Adding a Printer: Go to Settings → Devices → Printers & Scanners → Add a printer. Windows will search for available printers. Install the driver if needed. To share: right-click the printer → Printer properties → Sharing tab → Share this printer.

2.5 File and Folder Management

A **file** is a collection of related data stored under a name on a storage device. A **folder** (also called a **directory**) is a container used to organise files. File management involves creating, naming, copying, moving, deleting and organising files and folders.



Operation	Steps / Shortcut	Notes
Create File	Right-click → New → File type	Name the file and press Enter
Create Folder	Right-click → New → Folder or Ctrl+Shift+N	Organise files by subject/project
Rename	Right-click → Rename or press F2	Change name; extension should not be changed
Copy	Select → Ctrl+C → go to destination → Ctrl+V	Original stays in place; a copy is made
Cut/Move	Select → Ctrl+X → go to destination → Ctrl+V	Original is moved to new location
Delete	Select → Delete key or Right-click → Delete	Moves to Recycle Bin (not permanently deleted)
Perm. Delete	Select → Shift+Delete	Bypasses Recycle Bin; cannot be recovered easily
Restore	Open Recycle Bin → Right-click → Restore	Restores file to original location
Search File	Windows key + E → Search bar or Ctrl+F	Search by file name, type, or date
Properties	Right-click → Properties	View size, type, location, creation date

Important Keyboard Shortcuts for File Management:

Shortcut	Action	Shortcut	Action
Ctrl + C	Copy	Ctrl + X	Cut
Ctrl + V	Paste	Ctrl + Z	Undo
Ctrl + A	Select All	Delete	Send to Recycle Bin
Shift + Delete	Permanent Delete	F2	Rename file/folder
Windows + E	Open File Explorer	Alt + F4	Close window
Ctrl + N	New window/file	F5	Refresh

Alt + Tab	Switch between apps	Windows + D	Show Desktop
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2.6 Types of File Extensions

A **file extension** is a suffix (after the dot) in a file name that tells the OS what type of file it is and which program can open it. For example: **report.docx** — 'docx' is the extension.

Extension	File Type	Opened By	Extension	File Type	Opened By
.txt	Plain Text	Notepad	.mp3	Audio	Windows Media / VLC
.doc/.docx	Word Document	MS Word / LibreOffice	.mp4/.avi	Video	VLC / Windows Media
.xls/.xlsx	Spreadsheet	MS Excel / LibreOffice	.jpg/.png	Image	Photos / Paint
.ppt/.pptx	Presentation	MS PowerPoint	.gif	Animated Image	Browser / Photos
.pdf	PDF Document	Adobe Reader / Browser	.zip/.rar	Compressed Archive	WinZip / WinRAR
.html/.htm	Web Page	Web Browser	.exe	Executable Program	Direct run (installer)
.csv	Comma Separated	MS Excel / Notepad	.iso	Disk Image	Virtual Drive / Burner
.bmp	Bitmap Image	Paint / Photos	.apk	Android App	Android device / emulator

Quick Revision — Key Terms

Term	Meaning
Operating System	System software managing hardware, runs apps, provides UI (Windows, Linux, Android)
Booting	Process of starting a computer and loading the OS into RAM
GUI	Graphical User Interface — uses icons, windows, mouse (e.g. Windows desktop)
CLI	Command Line Interface — user types text commands (e.g. Command Prompt, Terminal)
Taskbar	Bar at bottom of Windows desktop with Start, apps, system tray and clock
Icon	Small graphic representing a file, folder, or application
Shortcut	A link (arrow icon) to a file/program stored elsewhere on the computer
File	Collection of data stored on disk with a name and extension

Folder/Directory	Container used to organise files on storage device
File Extension	Suffix after dot in filename indicating file type (e.g. .docx, .mp4, .pdf)
Recycle Bin	Temporary storage for deleted files; files can be restored from here
Device Driver	Software that allows OS to communicate with hardware devices
Multitasking	Running more than one application at the same time

MULTIPLE CHOICE QUESTIONS — Chapter 2 | 20 Questions | Introduction to Operating System

Q1. Which of the following BEST describes an Operating System?

- (A) A hardware device that stores data
- (B) System software that manages hardware and provides services to applications
- (C) An application used for word processing
- (D) A utility program for scanning viruses

Answer: (B) | An OS is system software that acts as an interface between user and hardware, managing all resources.

Q2. What is the process of starting a computer called?

- (A) Formatting
- (B) Defragmenting
- (C) Booting
- (D) Compiling

Answer: (C) | Booting is the process of starting/restarting a computer and loading the OS into RAM.

Q3. Which of the following is an Operating System for Mobile Phones?

- (A) Windows 10
- (B) Linux Ubuntu
- (C) Android
- (D) MS-DOS

Answer: (C) | Android is a mobile operating system developed by Google for smartphones and tablets.

Q4. The full form of GUI is:

- (A) General User Interface
- (B) Graphical User Interface
- (C) Global Unified Interface
- (D) Graphical Unified Instruction

Answer: (B) | GUI = Graphical User Interface — uses icons, windows, and a mouse for easy interaction.

Q5. Which part of the Windows desktop is located at the bottom and contains the Start button?

- (A) Menu Bar
- (B) Title Bar
- (C) Status Bar
- (D) Taskbar

Answer: (D) | The Taskbar is the horizontal bar at the bottom of the Windows desktop containing the Start button, apps, and system tray.

Q6. What does the Recycle Bin do?

- (A) Permanently deletes all files
- (B) Stores temporarily deleted files that can be restored
- (C) Compresses large files
- (D) Backs up important documents

Answer: (B) | Recycle Bin temporarily holds deleted files. Files can be restored from it unless it is emptied.

Q7. Which keyboard shortcut is used to permanently delete a file (bypassing Recycle Bin)?

- (A) Ctrl + Delete
- (B) Alt + Delete
- (C) Shift + Delete
- (D) Windows + Delete

Answer: (C) | Shift + Delete permanently deletes a file, bypassing the Recycle Bin completely.

Q8. Which of the following is an Open Source Operating System?

- (A) Windows 11
- (B) macOS
- (C) iOS
- (D) Linux

Answer: (D) | Linux is a free and open source operating system. Its source code is publicly available.

Q9. The file extension .xlsx is associated with which type of file?

- (A) Word Processing document
- (B) Presentation file
- (C) Spreadsheet file
- (D) PDF document

Answer: (C) | .xlsx is the extension for Microsoft Excel spreadsheet files.

Q10. To change the Date and Time in Windows, you should:

- (A) Right-click the clock in the taskbar and select Adjust Date/Time
- (B) Open MS Word → File → Properties
- (C) Open Control Panel → Network
- (D) Press Alt + F4

Answer: (A) | Right-clicking the clock on the taskbar and selecting Adjust Date/Time is the quickest way to change date/time settings.

Q11. Which keyboard shortcut opens File Explorer in Windows?

- (A) Ctrl + E
- (B) Windows + E
- (C) Alt + E
- (D) Shift + E

Answer: (B) | Windows key + E opens File Explorer (My Computer) directly.

Q12. An icon with a small arrow in the bottom-left corner is called a:

- (A) Executable file
- (B) Folder
- (C) Shortcut
- (D) System file

Answer: (C) | A shortcut has a small arrow overlay icon. It is a pointer/link to the actual file or program stored elsewhere.

Q13. Which of the following file extensions is used for a video file?

- (A) .mp3
- (B) .docx
- (C) .mp4
- (D) .txt

Answer: (C) | .mp4 is a common video file format. .mp3 is audio, .docx is a Word document, .txt is plain text.

Q14. What is the purpose of a Device Driver?

- (A) To create new user accounts
- (B) To allow the OS to communicate with hardware devices
- (C) To compress files and folders
- (D) To protect the computer from viruses

Answer: (B) | Device drivers are software programs that allow the OS to communicate with and control hardware devices.

Q15. Which OS is developed by Apple for its desktop/laptop computers?

- (A) Android
- (B) Windows
- (C) Linux
- (D) macOS

Answer: (D) | macOS is developed by Apple Inc. and runs exclusively on Apple Mac computers.

Q16. To rename a file in Windows, which key is pressed after selecting the file?

- (A) F1
- (B) F2
- (C) F5
- (D) F10

Answer: (B) | Pressing F2 after selecting a file activates the rename mode, allowing you to type a new name.

Q17. Which of the following is the correct path structure in a Windows file system?

- (A) C:/Users/Desktop/file.txt
- (B) C:\Users\Desktop\file.txt
- (C) Users > Desktop > file.txt
- (D) file.txt/Desktop/Users/C:

Answer: (B) | Windows uses backslash (\) as the path separator. The correct format is C:\Users\Desktop\file.txt

Q18. What does Ctrl + A do in File Explorer?

- (A) Opens a new file
- (B) Saves the file
- (C) Selects all files/folders
- (D) Closes the window

Answer: (C) | Ctrl + A selects ALL files and folders in the current window or directory.

Q19. Which of the following allows multiple applications to run at the same time?

- (A) Single tasking
- (B) Multitasking
- (C) Batch processing
- (D) Real-time processing

Answer: (B) | Multitasking is the ability of an OS to run more than one application simultaneously by sharing CPU time.

Q20. The .exe file extension refers to:

- (A) A text document
- (B) An image file
- (C) An executable program file
- (D) A compressed archive

Answer: (C) | .exe (Executable) files are programs that can be run directly on Windows by double-clicking them.