THE OPERATING SYSTEM

SECONDARY KCSE NOTES

COMPUTER STUDIES
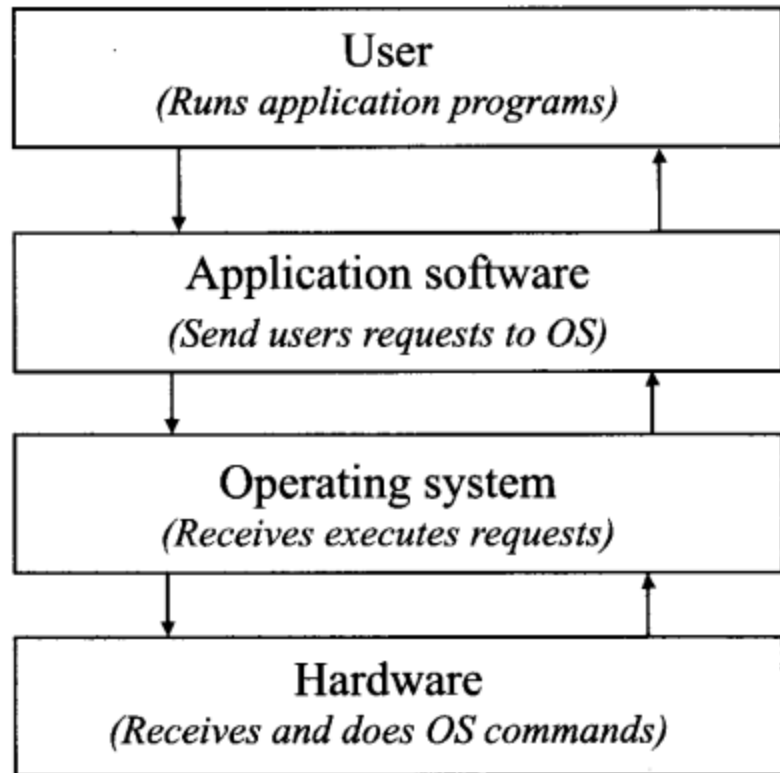
FORM 1 2021

Enhanced by:

Specific Objectives

By the end of the topic, the learner should be able to:

a) define an operating system

b) state the functions of an operating system

c) describe types of operating systems

d) describe how operating systems organize information

e) manage files using an operating system

f) manage disks using an operating system

g) identify internal and peripheral devices under Operating System control

h) install and configure an operating system.

Definition of an operating system

An operating system or OS is a set of programs that control the execution/running of application programs and act as an intermediary/interface between a user of a computer and the computer hardware.

User
(Runs application programs)

Application software
(Send users requests to OS)

Operating system
(Receives executes requests)

Hardware
(Receives and does OS commands)

Functions of an operating system

Introduction

An operating system basically consists two main parts namely;

1. **Shell; and**
2. **kernel.**

   Shell is the outer part of an operating system used to interact with operating system.

   Kernel is the core of the operating system regarded as the operation system. It is the kernel that is responsible for managing and controlling computer resources such as the processor, main memory, storage devices, input devices, output device and communication devices.

Functions of an operating system

1. Job scheduling

Processor scheduling refers to allocating each job waiting for execution processor time at each given interval.

Since a computer may have concurrent processes ready for execution, it is the operating system that determine which task will be processed first.

The operating system schedules jobs according to priorities. The higher the priority, the higher the likelihood of being allocated CPU time.

Common processes used for job scheduling include:

1. FCFS – First come First Serve
2. SJF – Shortest Job First
3. Round Robin

Functions of an operating system

2. Resource Control

Each available resource in a computer is given a unique identification number called an Interrupt Request (IRQ).

The Operating system uses the IRQ number to identify the resource being requested.

Poor resource allocation would result to an undesirable condition referred to as deadlock.

Deadlock is a situation where a particular job holds a requested resource and fails to release it, yet it is requesting for a resource held by the other job.

What is a resource?

This is any device, program or peripherals supported by a computer.

They include:

Printers, keyboard, hard disk, memory, processor, mouse, ports, application programs etc.

Each hardware or applications in a computer are allocated special programs by the operating system that controls them in every process.

Sometimes, these special programs are shared amongst available processes that if not properly allocated, may lead to deadlocks.

Functions of an operating system

3. Input/output handling

The operating system coordinates between various I/O and other peripheral devices such as auxiliary storage devices, making sure that data is transmitted securely.

The operating system is responsible for decoding input data i.e. translating human readable data to machine code for processing before encoding it again into human readable format that appears on the screen or hardcopy. This process happens so fast that the computer user may not be able to notice it.

Functions of an operating system

4. Memory Management

When the computer user enters data into the computer or the while the CPU is processing, it is the work of the operating system to find suitable memory spaces where it will temporarily or permanently stores the incoming, outgoing and data waiting for processing. The OS is designed in a way that harmoniously allocates each task a piece of memory to maximize efficiency.

Functions of an operating system

5. Error handling

The operating system is designed to troubleshoot errors on its own and if this fails, it will alert the user of errors that may arise out of illegal operations, hardware or software failure. It does this by showing the error, it's cause and suggests ways of troubleshooting/fixing it.

It does this by monitoring the status of the computer system and performing audit checks on users, hardware and software.

Functions of an operating system

6. Interrupt handling

The operating system is designed to halt other processes taken by the processor as low priority jobs so as to attend to remote enquiries which are of higher priority or halting a processor for another task to be performed.

A good example, is when one is using a phone to play a game then suddenly a voice call is received. The game is halted by the OS until the call is received before it resumes again.

Types of Operating Systems

Categories/Types and Examples of OS

a) Number of users

    a) single user

    b) multi user

b) Number of tasks

    a) single tasking

    b) multi tasking

c) Interface

    a) Command line

    b) menu driven interface

    c) Graphical User Interface (GUI)

Classification according to number of users

Single-user operating system

A single-user operating system is designed for use by only one person. It cannot support more than one person and runs only one user application program at a time.

Examples:

Windows 7, Windows XP, MS Dos, Windows 8, Ubuntu, Android

Classification according to number of users

Multi-user operating system

Multi-user or multi-access operating systems allow more than one user to interactively use a computer. For example, server operating system such as Windows 2003 server.

Examples:

UNIX, Novell and Windows NT/2000, Linux.

Classification according to number of tasks

Single program operating system

Single program or single task operating systems allows processing of one application program in the main memory at a time. This means that the user can only run one interactive program at a time. The user must exit from the program before loading and running another program. An example of a single user operating system is MS DOS from Microsoft Corporation.

Classification according to number of tasks

Multitasking operating system

Multitasking operating systems allows a single CPU to execute what appears to be more than one application programs apparently at the same time. Through processor scheduling, the operating system allocates a time slice to each ready task. The CPU switches its attention between programs as directed by the operating system. This switching mechanism is so fast that it appears as if the tasks are being executed simultaneously.

Classification according to interface

The term user **interface** refers to the interaction between the user and a computer.

The underlying principle in operating systems design is to make the interface as easy to use as possible. This is the reason why software developers have dedicated a lot of time and resources in research, in order to come up with user friendly interfaces.

Operating systems can be classified into **three** categories according to user interface.

Classification according to interface

Command-line based operating systems

Command-line user interface operating systems lets the user type a command at a command prompt. The computer reads the typed command from the command line and execute it.

Examples:

MS Dos, Unix and Linux

Classification according to interface

Menu driven interface

❑Menu driver interfaces provide the user with a list of options to choose from. The interface is suitable for beginners who may have difficulties recalling commands.

❑Some operating systems present the user with simple menus while others have sophisticated menus.

Examples:

Dos Shell and Dos Editor

Classification according to interface

The graphical user interface (GUI)

❑ Graphical User-Interface (GUI), is the latest effort to make the user-interface more user-friendly.

❑ Beside menus, GUI make use of rectangular work areas called windows, graphical objects called icons and most commands are executed using a pointing device.

❑ These features are given an acronym **WIMP which stands for windows, icons, menus and pointing devices**.

❑ Some examples of GUI operating systems include; Microsoft Windows versions 2000, XP and Vista; Apple Mac OS and various distributions of Linux Figure 3.5 shows Linux operating system GUI desktop.

Factors to consider when choosing an operating system

When choosing an operating system for a computer, the following factors may be considered:

- ❑ The hardware configuration of the computer such as the memory capacity, processor speed and hard disk capacity.
- ❑ The type of computer in terms of size and make. For example, some earlier Apple computers would not run on Microsoft operating systems.
- ❑ The application software intended for the computer.
- ❑ User-friendliness of the operating system.
- ❑ The documentation available.
- ❑ The cost of the operating system.
- ❑ Reliability and security provided by the operating system.
- ❑ The number of processors and hardware it can support.
- ❑ The number of users it can support.

Organization of Information using an Operating System

The operating system organizes information in a computer using the following tools.

❑Files

❑Directories/folders

❑Storage media

Factor that determine how the OS organizes information

❑ **Rapid access.** The organisation method should allow quick access to stored data.

❑ **Ease of update:** The organisation method should allow ease of update and the operating system must be able to keep a record of the date of modification.

❑ **Economy of storage:** The organisation method should use the least storage possible because memory is a scarce resource.

❑ **Simplicity of maintenance:** The organisation method should enable quick navigation through the file system and make it easy for it to be maintained.

❑ **Reliability:** The file organisation method must be reliable.

Files

❑ A file is a collection of related data given a unique name for ease of access, manipulation and storage on a backing storage.

❑ The main use of files is to hold information /data that is closely related.
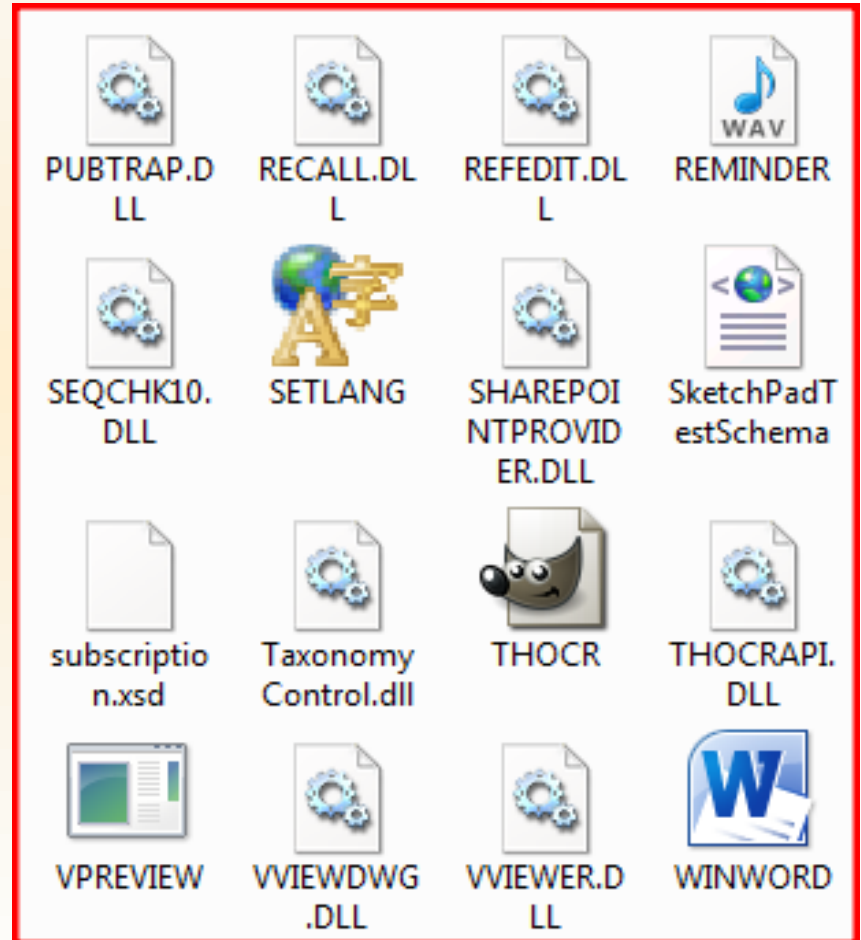
Characteristics of a computer file

Every computer file must have the following:

❑ **Unique Identity**
   this is a name that identifies a file and differentiates it with other files of the same category

❑ **Extension**
   this is the last letters of a file after a dot that represents the file format that the file is made of. E.g .docx represents MS Word document.

❑ **Properties**
   these are file attributes such as the date it was created, time, its size, application software that can open it etc.

❑ **Icon**
   this is a small picture that represents files once they are in a folder. The picture is responsive to clicks.

Description and types of some file extensions

Extension	File type	Description
.doc	Data	A Microsoft Word document file.
.txt	Data	A plain text file created using note pad or DOS editor.
.tif	Data	A graphic file created using applications such as Adobe Photoshop.
.exe	Application file	The file that launches a particular application, e.g. Winword.exe, PM.70.exe, etc.
.bat	System files	File containing a series of commands loaded during boot up.
.sys	System files	System files that perform fundamental operations in a computer.

Types of files

There are **three** types of files namely system, application and data files.

❑**System files** contain information that is critical for the operation of the computer.

❑**Application files** hold programs and are executable.
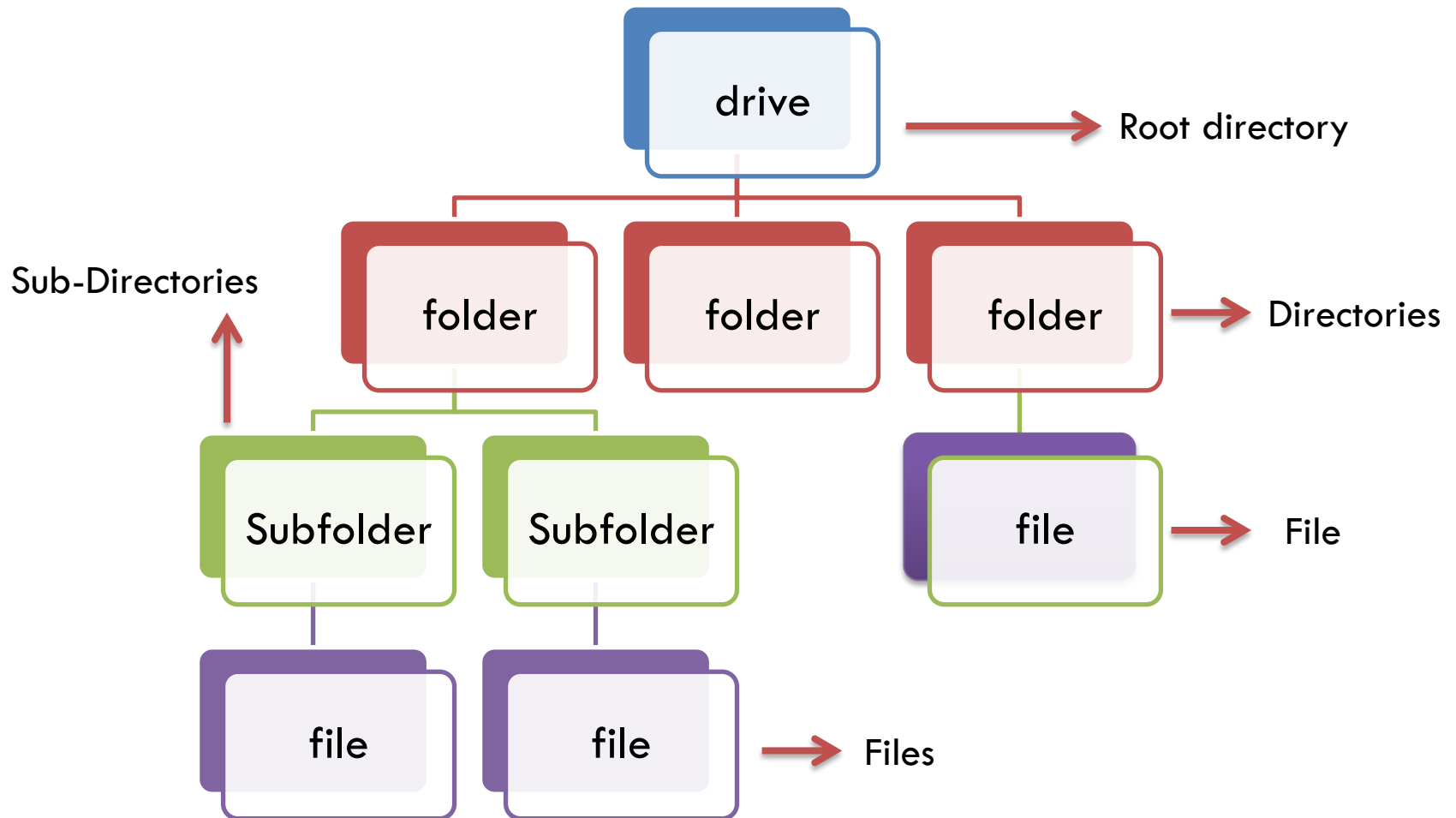
❑**Data files** contains user specific data.

Functions of Computer files

❑Storage of data or information

❑Organization of information

❑Retrieving/displaying of information

❑Updating of information

Folders/Directories

❑A folder is also known as a **directory** in some operating systems such as command-line OS

❑**This is a named storage location where related files can be stored.**

❑All folders or directories originate from a special directory called the **root directory or folder.**

❑The root directory is represented by special letters followed by a back slash (\).

❑A folder or directory may be created inside another folder or directory. Such a folder or directory is called **a subfolder or a subdirectory.**

Tree diagram that shows relationship between drives, folders and files

drive → Root directory

folder, folder, folder → Directories

Sub-Directories

Subfolder, Subfolder

file → File

file, file → Files

Drives

❑ A disk drive is a device that reads and/or writes data to a disk. The most common type of disk drive is a hard drive (or "hard disk drive"), but several other types of disk drives exist as well.

❑ The operating system recognizes storage media or devices as drives.

❑ The operating system represents disk drives in form of letters such as C, E, A, B, F etc. These letters are links that help the computer user to access them to read/write content.

Operating system view of disk drives
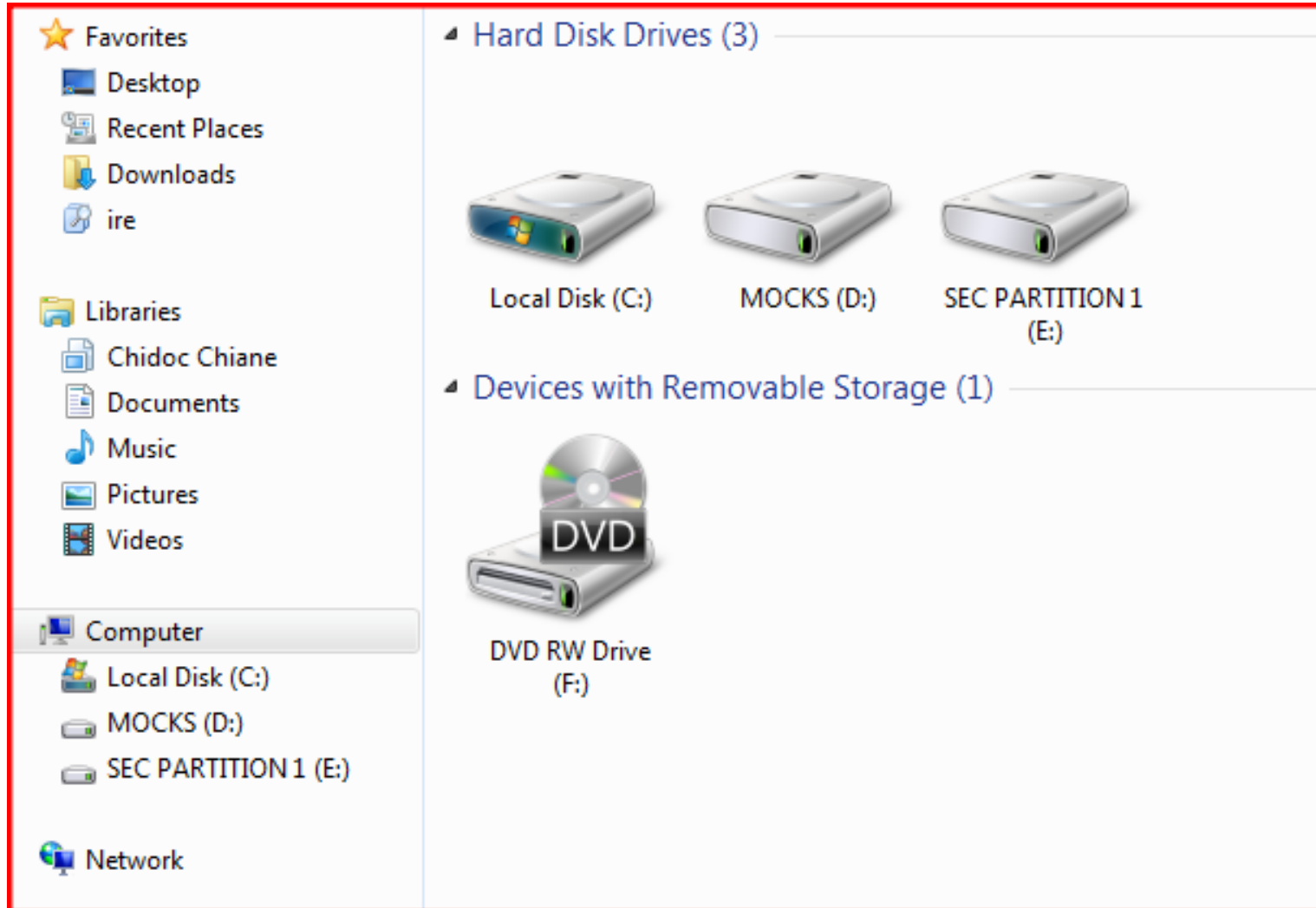
Summary of how Microsoft operating systems identify drives

Storage location	Drive	Remarks
Floppy drive	A and B	If a computer has two floppy drives, one will be assigned letter A the other B.
Hard disk	C, D, E, F	If a computer has 4 hard drives, they will be assigned letters C–F.
Optical drives	D, E, F, G	If a computer has one hard disk and three or more CD/DVD drives, they will take up any number between D and Z.
Other removable	D, E, …, Z	If a computer does not have an optical drive, any removable drive attached to the computer can take any letter between D and Z.
Network drive	Logical	Network drives takes D–Z depending on the number of physical drives installed or attached

Creating files

Before we learn how to create files, let us first learn common terminologies associated with files. We have learnt some previously.

Icons

Icons are symbolic/pictorial elements on the desktop or folder that represents folders, subfolders and files.

Icons that represent folders and sub-folders are by default of the same color. But those representing files differ according to the file format.

PROFFESSIONAL RECORDS
Foxit Reader PDF Document
271 KB

LESSON PLAN RECORDS
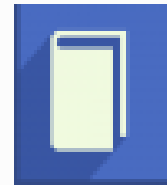Foxit Reader PDF Document
125 KB

FORM 3
WinRAR archive
28.9 MB

debug
Text Document
116 bytes

MATH EDITOR
Chrome HTML Document
855 bytes

ebook_reader_setup
Icecream Ebook Reader Setup
Icecream Apps

files

book 1
File folder

FORM 3
File folder

alpha
File folder

DAILY ROUTINE
File folder

folders

Desktop

A desktop is a folder but this is a special kind of folder because it contains common files and folders initially after the computer has booted and ready for use.

By default, the desktop folder contains '**My Computer**' folder that links to the disk drives, has **recycle bin** and other shortcut folder that link application programs, **My network** and **my documents.** A typical Windows 7 Desktop looks like this:
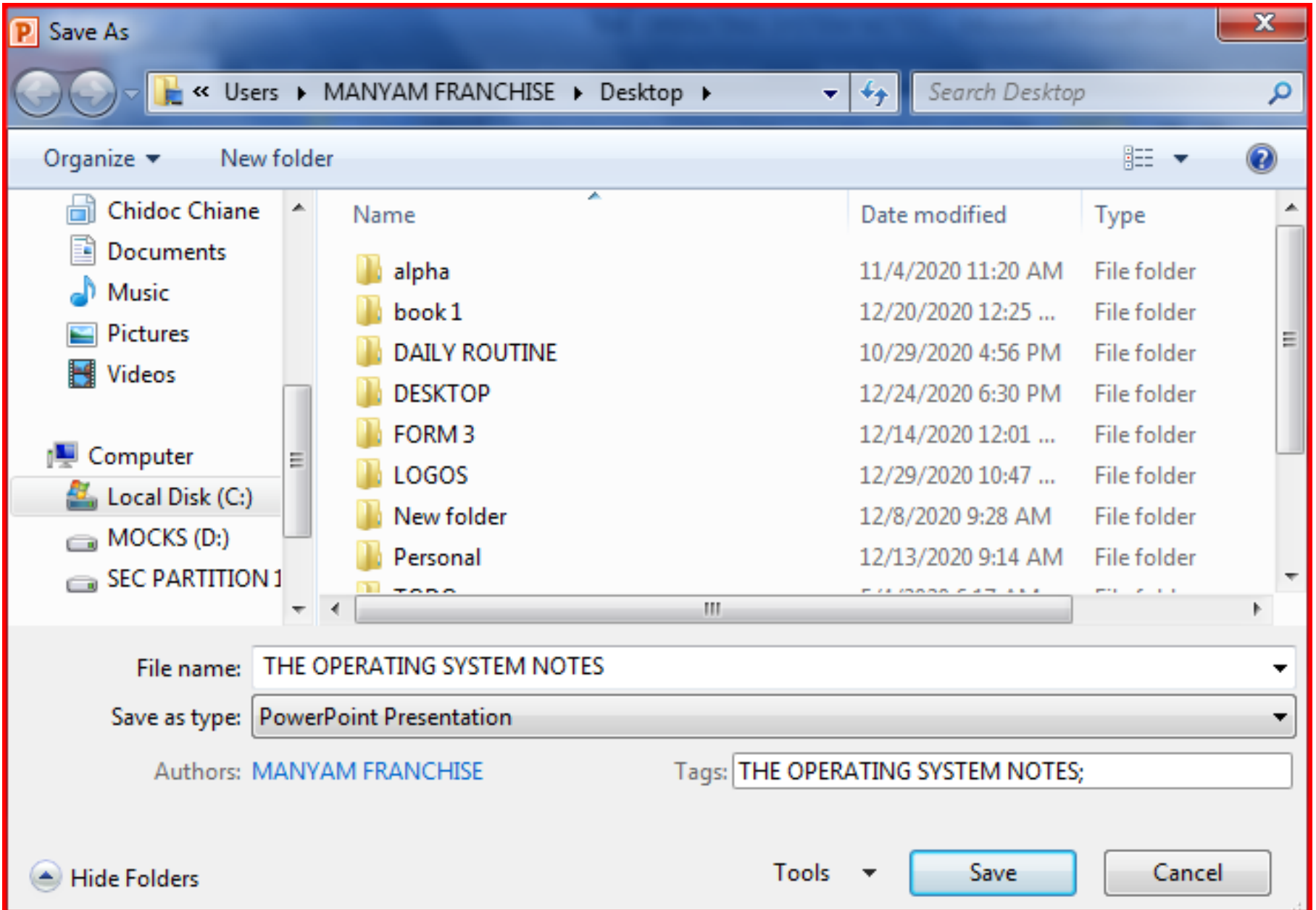
Creating a file

Using the operating systems in our disposal, a file can be created using

1. MS Dos
   'Edit' command is used

2. GUI
   1. Open the application software you want to use
   2. Click on file menu
   3. Click save or save as
   4. Select the folder where you want to save, then select save.

Creating a file

Another way to create a file is by:

1. Open the folder where you want to create a file

2. Right click on a blank space

3. Point to 'new' on the drop down list that appears, select the application software of which you want to make a file from.

creating a word document file

View	▶
Sort by	▶
Refresh	
Paste	
Paste shortcut	
Shared Folder Synchronization	▶
Graphics Properties...	
Graphics Options	▶
Next desktop background	
New	▶
Screen resolution	
Gadgets	
Personalize	

Folder	
Shortcut	
Microsoft Access Database	
Bitmap image	
Contact	
Microsoft Word Document	
Journal Document	
Microsoft PowerPoint Presentation	
Microsoft Publisher Document	
WinRAR archive	
Text Document	
Microsoft Excel Worksheet	
WinRAR ZIP archive	
Briefcase	

Creating folders/directories

1. Right click where you want to create a folder
2. Point to new
3. Select folder
4. Rename the filename
5. Press the enter key.

In command prompt:

1. Open command prompt
2. Type MD "filename"
3. Press enter key
4. To view your folder, type "dir"
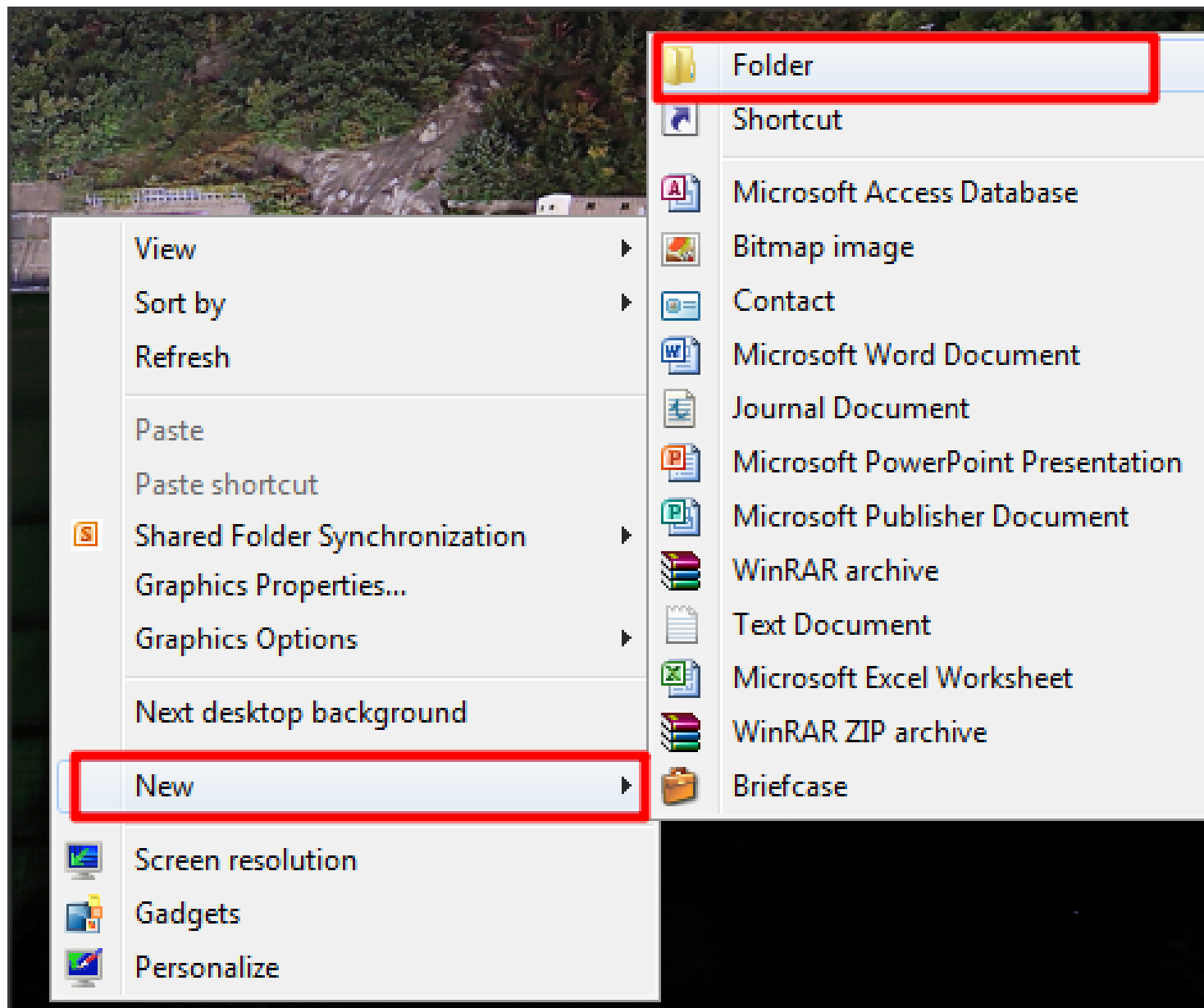
About Zipped folders

A zipped folder can either have the characteristics of a file and a folder.

❑It is a file because it has extension .zip or .rar

❑At the same time, it is a folder because it is a storage area.

A zipped folder is a compressed folder that was designed with one objective of transmitting files through the network.

It compresses contents to make them occupy less memory space for faster transmission. To open it, the user must uncompress.

Viewing files and directories

The easiest way to view files and folders is:

1. Open start menu

2. Beneath the start menu is a search box labelled '**search programs and file**' type the filename of the component you want to search.

3. Step 2 will automatically trigger a drop down list of matching options. Select relevant option. If option not available, click '**see more results**' to broaden the search.

Files (451)

P THE OPERATING SYSTEM NOTES

THE OPERATING SYSTEM NOTES

THE OPERATING SYSTEM NOTES Show

Windows 7 will use pop-ups to warn users of the operating syst...

Windows 7 will use pop-ups to warn users of the operating syst...

COMPUTER FORM 1 SCHEMES OF WORK

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AtikaSchool-mkschm-Computer

COMPUTER

COMPUTER PAPER 2 QS

Location: THE OPERATING SYSTEM N...
FRANCHISE\Desktop)

See more results

the operating system   ✕   Hibernate ▶

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Practical Activity

With the help of your teacher,

1. Identify features of a desktop and their use

2. Create a folder on the desktop and name it Kenya. Create a sub-folder in Kenya and name it Nakuru. Create a text document inside Nakuru and type the 47 Kenyan counties then save.

3. Open 'Kenya' folder and name all parts of the window

Practical Activity

4. Identify the following features of the operating system and hardware your computer is using:

   a) Type of Operating system and version

   b) Capacity of RAM in your computer

   c) Processor speed

   d) Hard disk capacity

   e) Name of processor

   f) System type

   g) Computer name

Practical Activity

5. Open WordPad window and identify the following parts of window and their uses:
    a) Menu tabs/bar
    b) Ribbon / toolbar
    c) Work area
    d) Title bar
    e) Zoom slider
    f) Quick access toolbar
    g) Type something about yourself in one paragraph on the document and save as **'biography'** in a folder on the desktop labeled **'Nakuru'**

Opening files/folders

To open files and folders;

1. Use the search/find tool to find the file or folder you want to open or locate in a folder that you saved, then;

2. Double click on the file/folder to open it or select it with a single click and press the return/enter key on the keyboard.

Editing files

Editing a file means making necessary changes to a file. This requires you to;

a) Open the file you want to edit;

b) Make the changes on the open file.

Renaming files/folders

There are two commands responsible for renaming files namely

1. rename:

1. Right click of the file icon you want to rename, select rename command and type the new name then press enter

2. Save as

1. Open the file you want to rename, then click file menu select the 'save as command'

2. On the dialog box that appears type the new filename in the filename box then click save

Sorting files/folders

- Sorting files and folder simply means arranging files and folders in a particular order. Either by:
  - Name
  - Date
  - Size and
  - type.

  To sort files and folders:

1. Right click on the blank surface in the folder window. Drop down menu will appear.

2. Point to **sort by** then select the type of sort you want to apply.

View	▶
Sort by	▶
Refresh	
Paste	
Paste shortcut	
Shared Folder Synchronization	▶
Graphics Properties...	
Graphics Options	▶
Next desktop background	
New	▶
Screen resolution	
Gadgets	
Personalize	

| Name |
| Size |
| Item type |
| Date modified |
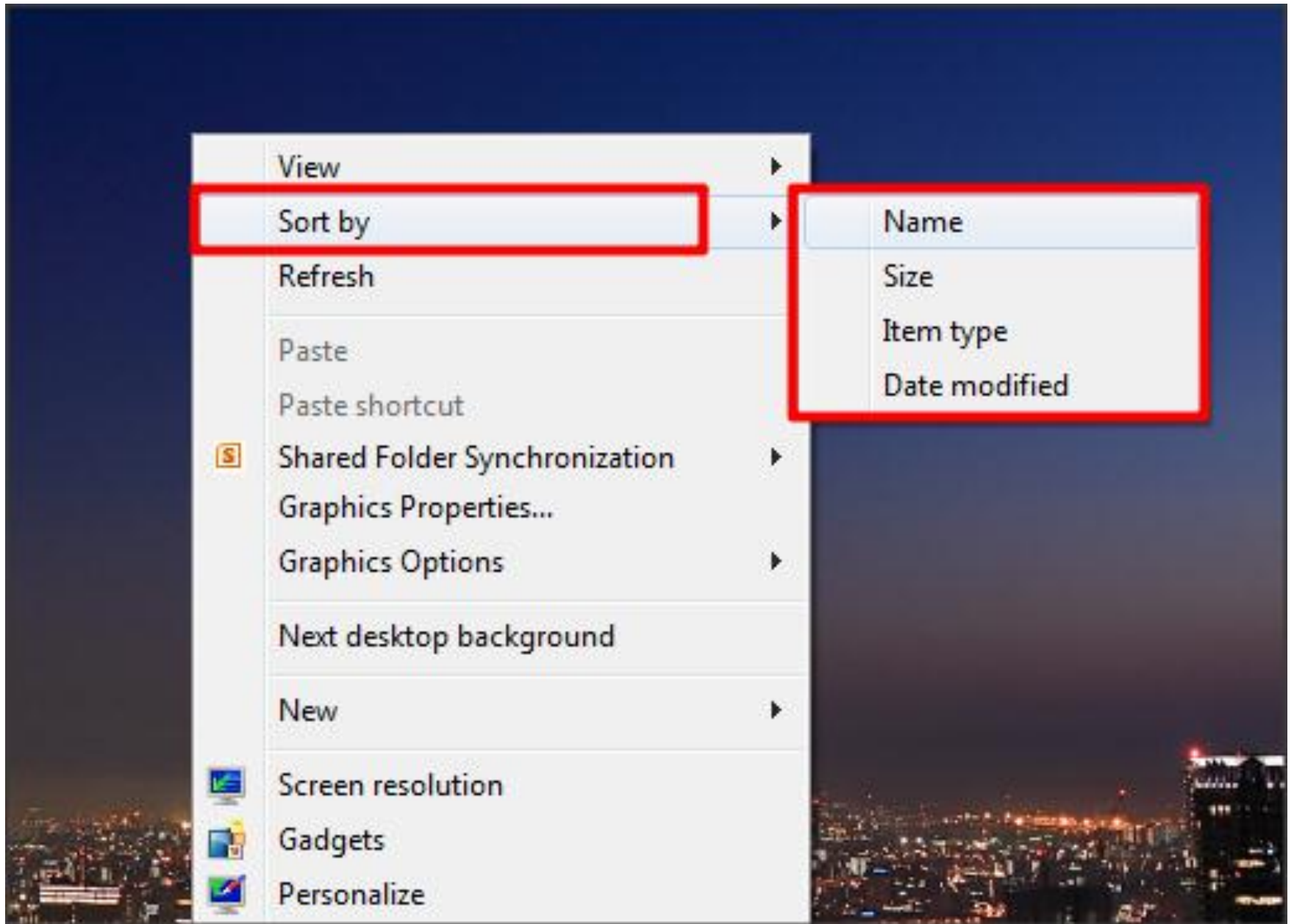
Copying files/folders

- Copying a file or a folder means to duplicate.
- There are **two** commands instrumental for copying files and folders namely:
  - Copy and
  - Paste

Procedure:

1) Highlight files or folders you want to copy
2) Right click on it and then select the 'copy' command
3) Put the cursor where you want to duplicate the copied item then right click and choose the 'paste' command.

Alternatively, use CTRL + C to copy and CTRL + V to paste on the keyboard.

Moving files/folders

- Moving a file or a folder means to change the position of files or folders on the screen.

There are **two** commands instrumental for copying files and folders namely:
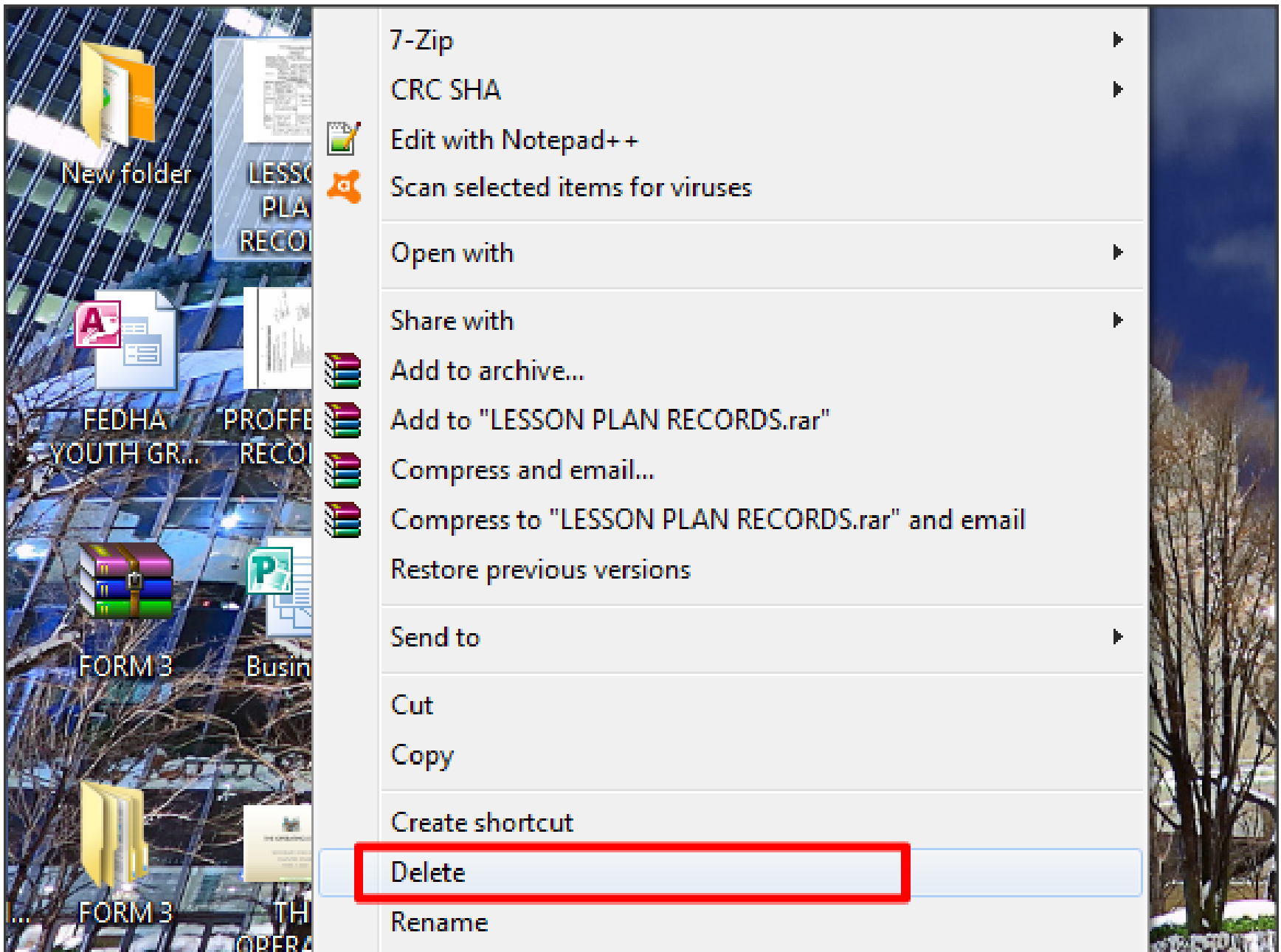
- – Cut and
- – Paste

Procedure:

- Highlight files or folders you want to move
- Right click on it and then select the 'cut' command
- Put the cursor where you want to move the copied item then right click and choose the 'paste' command.
- Alternatively, use CTRL + X to copy and CTRL + V to paste on the keyboard.

Deleting files/folders

Deleting files or folders means to erase or to send unwanted item to the recycle bin.

Procedure:

1. Highlight the file or folder you want to delete,

2. Press the delete key on the keyboard or right click on the item icon and select delete.

	7-Zip	▶
	CRC SHA	▶
▨	Edit with Notepad++	
▨	Scan selected items for viruses	
	Open with	▶
	Share with	▶
▧	Add to archive...	
▧	Add to "LESSON PLAN RECORDS.rar"	
▧	Compress and email...	
▧	Compress to "LESSON PLAN RECORDS.rar" and email	
	Restore previous versions	
	Send to	▶
	Cut	
	Copy	
	Create shortcut	
	Delete	
	Rename	

Desktop icons: New folder, LESSON PLAN RECORDS, FEDHA YOUTH GR..., PROFFE RECO..., FORM 3, Busin..., FORM 3, THE OPERA...

Review Questions

1. Give examples of two multi-user and one Single user operating system.

2. Describe four functions of the operating system

3. What is an interrupt?

4. Name and explain four types of human computer interface

5. What are the advantages of GUI based operating system Over the command-line?

6. Differentiate between Multitasking and multi-user operating systems

7. What is a deadlock in reference to the operating system?

8. Outline the factors you would operating system.

Disk management using an operating system

1) Formatting

2) Partitioning

3) Defragmentation

4) Disk Diagnostics/Disk Compression

5) Back up

Formatting

Formatting disks

- Formatting is the process of preparing a new disk for use by imprinting empty sectors and tracks on the surface of the disk so that the operating system can recognize and make it accessible.

- Other drives which are not disks can also be formatted to create a file system on them.

- **File system** refers to the technology that an operating system uses to organize data on a storage media. To format a removable storage media:

i.   Insert the media disk you want to format

ii. Double click My Computer

iii. Right click the drive.

iv. On the shortcut menu, click Format,

v.   In the Format dialog box, choose a file system FAT32 or NTFS

vi. Specify the capacity and type in the drive label.

vii. Click Start to start formatting.

viii. Click Close.

Format SEC PARTITION 1 (E:)

Capacity:

100 GB

File system

NTFS (Default)

Allocation unit size

4096 bytes

Restore device defaults

Volume label

SEC PARTITION 1

Format options

☑ Quick Format

☐ Create an MS-DOS startup disk

Start   Close

SEC PARTITION 1
(E:)

ge (1)

Total size: 100 GB
File system: NTFS

Partitioning

Partitioning a disk refers to the process of dividing a large physical disk into two or more partitions called logical drives. A logical drive is treated as a separate drive and is assigned a drive letter. Two reasons for partitioning a disk are:

1. When the user intends to install more than one operating systems on the same disk, install each on a separate partition.

2. For purposes of backup on the same disk but different partitions so that if one partition fails, the other will still be working.

Types of file systems

- Before partitioning a disk, you need to decide how files are stored on each partition. The following file systems are used on Windows operating systems:

    1. FAT or FAT16
       File Allocation Tables 16

    2. FAT 32
       File Allocation Tables 32

    3. NTFS
       New Technology File System   [Read More]

To create a partition from un-partitioned space follow these steps:

- Right click This PC/ My Computer and select Manage.

- Open Disk Management.

- Select the disk from which you want to make a partition.

- Right click the Un-partitioned space in the bottom pane and select New Simple Volume.

- Enter the size and click next and you are done.

Defragmentation

Disk fragmentation occurs when a file is broken up into pieces to fit on the disk. Because files are constantly being written, deleted and resized, fragmentation is a natural occurrence. When a file is spread out over several locations, it takes longer to read and write.

Defragmentation is a process that reduces the degree of fragmentation. It does this by physically organizing the contents of the mass storage device used to store files into the smallest number of contiguous regions (fragments, extents).

How to defragment a disk with windows 10

1. Select the search bar on the taskbar and enter defrag.

2. Select Defragment and Optimize Drives.

3. Select the disk drive you want to optimize.

4. Select the Optimize button.

Disk Diagnostics/Disk Compression

Disk diagnostics is a features of an operating system that checks disk for errors

Procedure to diagnose and compress disk

- Right click on drive or folder

- Select properties > on the dialog box that appears select tools tab

- Click check now to diagnose

- To compress data, select general tab the check on '*compress this drive to save disk space*' then select apply

Backup

Windows comes with a utility program called backup. It enables the user to create copies of data and programs (on separate storage devices) that help a user to avoid losing important data and program files in case the storage device or the computer fails. It is good practice to keep backups away from the computer room to ensure security of the information in case of a calamity such as fire.

How to create a backup in Windows 7

1. Click Start.
2. Go to Control Panel.
3. Go to System and Security.
4. Click Backup and Restore. ...
5. At the Back up or restore your files screen, click Set up backup. ...
6. Select where you want to save the backup and click Next. ...
7. Choose Let Windows choose (recommended) ...
8. Click Next.

How to create a backup in Windows 10

Select Start > Settings > Update & Security > Backup > Add a drive , and then choose an external drive or network location for your backups.

Devices under Operating System Control

1) Processor

2) Memory (Ram)

3) Storage devices

4) Input/output devices and ports

5) Communication devices and ports

Installation and Configuration of an Operating system

Requirements:

1. Operating system in a CD

2. Full computer System

Procedure for installing windows 7:

Check here:

https://www.oreilly.com/library/view/windows-7-up/9780596806422/ch01.html

Troubleshooting

- Troubleshooting is a form of problem solving, often applied to repair failed products or processes on a machine or a system. It is a logical, systematic search for the source of a problem in order to solve it, and make the product or process operational again.

- Trouble shooting requires you to diagnose the system using symptoms, identify the problem and provide solutions.

- Some operating systems provided automated troubleshooting software that the user can run to repair the problem.

Common Troubleshooting

Techniques

Computer is hanging/cease responding

Cause

1. Low memory
2. Too many programs running at the same time
3. Computer virus attack
4. Someone is accessing your computer from a network
5. Overheating of the CPU
6. Computer updating on the background

Solution

1. Install higher memory
2. Close some programs using task manager (Ctrl+Alt+Del)
3. Install anti-malware
4. Increase memory
5. Switch off the computer to cool
6. Either turn of auto-updates or close other programs for the computer to update first. Use task manager

Computer won't start

Causes

1. Loose cables
2. Damaged operating system
3. Loose RAM
4. Faulty power button or power supply
5. Damaged CPU
6. Short circuiting at the mother board
7. No power from the source

Solution

1. Check loose cables and other devices then fasten them
2. Repair the OS using windows startup pack DVD
3. Regulary blow the computer to avoid dust which is commonly responsible for short circuiting
4. Ascertain that power is entering the computer using fuse tester

Screen is blank

Causes

1. Electric signal is not passing through the data cable. Either the cable or the graphic card is faulty

Solution

1. Use another cable or graphic card

Computer is behaving abnormally

Causes

1. Computer Virus
2. If it is a laptop, your charging system is faulty
3. Overheating because the fan is not working
4. Damaged hard disk i.e. the computer is not picking right files for processing. This can also be as a result of faulty operating system

Solutions

1. Install anti-malware
2. If charging system is faulty, change it.
3. Fan needs cleared off dust then oiled
4. Using disk utility tools, check disk for errors and repairs then run the defragmentation tool.

Operating system not booting

Causes

1. Damaged disk surface
2. BIOS settings altered
3. No sufficient RAM space
4. Damaged operating system

Solutions

1. Re-install the operating system if system repair fails

Computer switches off by itself abruptly

Causes

1. Loose RAM
2. Malware
3. Overheating
4. For laptops, exhausted battery
   1. Loose battery
5. Very low memory
6. Faulty CPU

Solutions

1. Increase RAM space
2. Install anti-malware
3. Switch off the computer to cool
4. Fasten battery and check if there is power
5. Upgrade memory
6. Replace CPU

Computer is slower than previously

Causes

1. Malware

2. Low memory because many processes are running at the same time

3. Many people are accessing your computer from remote networks

4. System auto-updates

Solutions

1. Install anti-malware

2. Upgrade memory

3. Limit the number of requests to your computer

4. Turn off system auto-updates

Computer has strange noises

Causes

1. Serious error such as fatal error as a result of a faulty hardware.

2. Operating system malfunction especially POST failure due to the system failing to load BIOS.

3. Missing input, wrong procedure or wrong key pressed

Solutions

1. Restart the computer or program you are running this may solve all the causes.

Slow internet

Causes

1. There is a lot of traffic loading from the same network server
2. Low computer memory
3. Some sites are bulky
4. Malware
5. There are so many processes running at the same time on the same computer

Solution

1. More traffic, wait
2. Upgrade memory
3. Blacklist sites suspected to have malware
4. Reduce the number of processes running at the same time

Can't trace where I saved my files

Causes

1. Computer virus
2. Damaged hard disk

Solution

1. Install anti-malware software
2. Scan disk for errors and repair damaged tracks and sectors

Some hardware devices are not working

Causes

1. Lack of drivers
2. Faulty operating system
3. Faulty hardware device

Solutions

1. Source driver pack from dealers and run it or download online.
2. Faulty operating system can be repaired by running OS CD
3. Faulty hardware device can be checked by the use of a meter or oscillators

Screen is flickering

Causes

1. Power surge /unstable power supply
2. Loose data cable
3. Damaged graphic adapter

Solution

1. Normally install UPS or AVS to supply power to the computer
2. Check whether the data cable involved in transmitting data to the monitor is fastened properly
3. Try to change video graphic adapter to determine whether the previous was faulty

FOR KCSE RELATED QUESTIONS AND ANSWERS

TO GET EDITABLE FILE. USE THE LINK ABOVE