

1.3 Operating systems

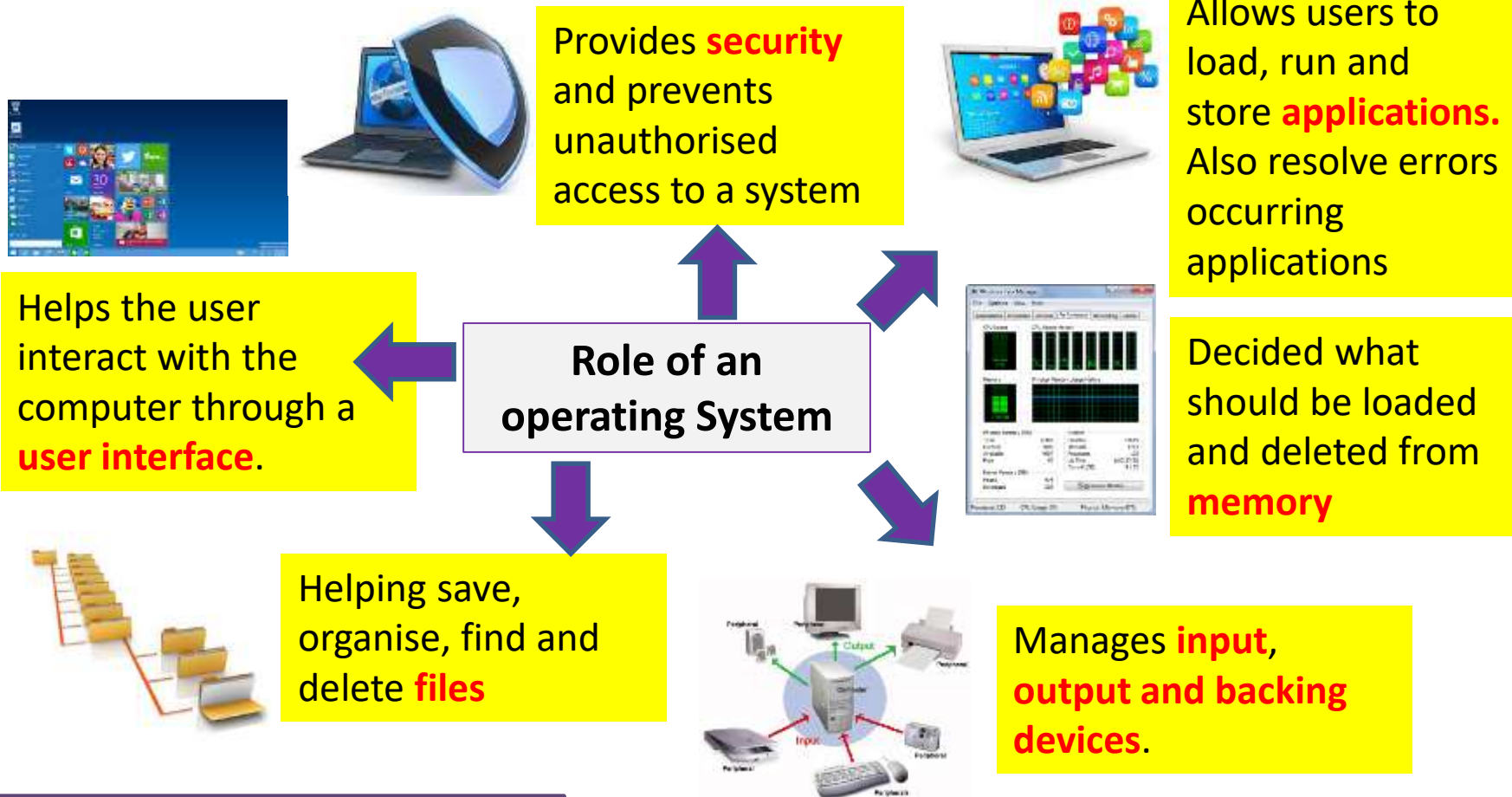
- Define and describe operating systems which contain a Command Line Interface (CLI)
- Define and describe operating systems which contain a Graphical User Interface (GUI)
- Describe the differences, including the benefits and drawbacks, between operating systems which contain a CLI and those which contain a GUI

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Role of an Operating System

An operating system is a system **software** that **manages** the general operation of a computer system:



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Describe the main functions of the operating system?

Key Words: User Interface, Security, Files, memory, applications, input/output/storages devices



Exam Question

The operating system provides the **user interface** which allows the user to interact with the system. In addition the operating system provides **security** and prevents unauthorised access to a system. **Files and folders** can be created and organised. Furthermore the operating system allows users to **load, run and store applications** also decides what should be loaded into the computer **memory** (RAM). The operating system also manages the **input/output/storages devices**.

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Example GUI Operating Systems



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Graphical User Interface (**GUI**)

GUI (Graphical User Interface) is an user interface built around graphics.



Windows – areas for displaying information

Menus - lists of options or applications users can select from



GUI



Icons -small images used to represent files/folders or applications

Pointers –Mouse pointer can be used to select and open files/applications



- **GUIs** are quite **easy to use** due to the visual nature of the interface
- The user has lots of visual clues as to what things do.

WIMP

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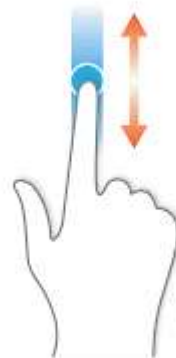
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Post GUI (GUI) Touch Screen Technology

Post GUI allows the use of touch screen



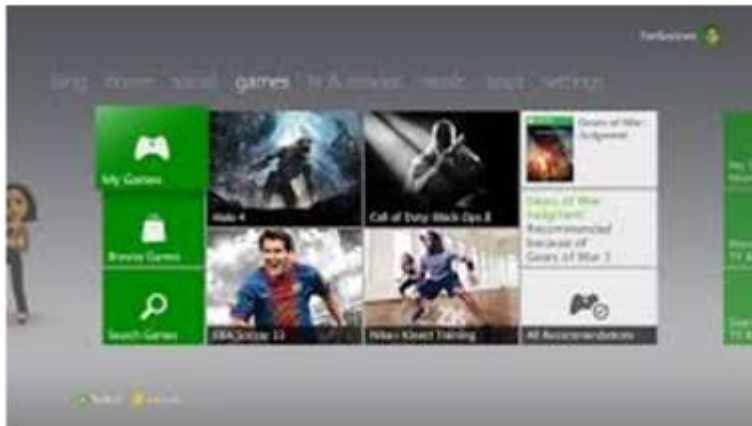
Post GUI allows the use of pinching, scrolling, expanding



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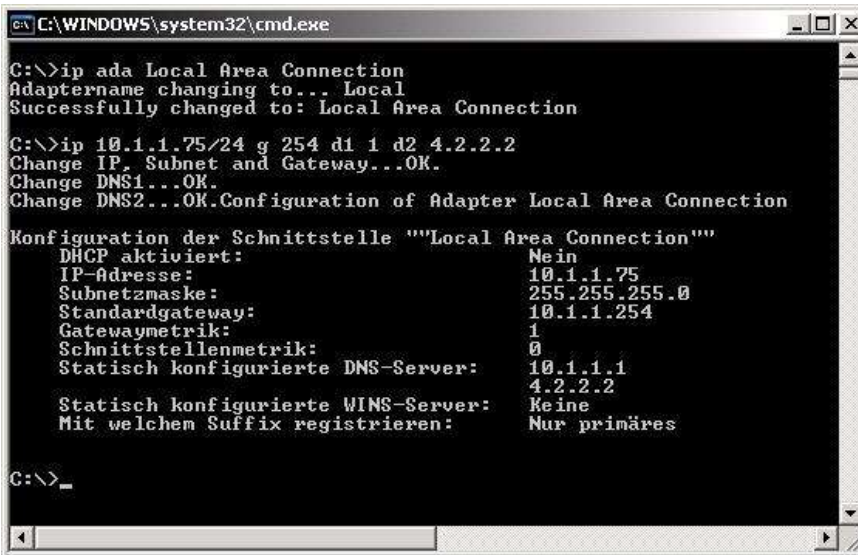
Graphical User Interface (GUI) Examples



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Command Line Interface (CLI)

- CLI requires the user to **enter command prompts** to interact with the computer.
- CLI are normally used by **expert users as it allows them to is more complicated to use.**
- CLI and is not restricted to a number of predetermined options.



```
C:\WINDOWS\system32\cmd.exe
C:\>ip ada Local Area Connection
Adaptername changing to... Local
Successfully changed to: Local Area Connection

C:\>ip 10.1.1.75/24 g 254 d1 1 d2 4.2.2.2
Change IP, Subnet and Gateway...OK.
Change DNS1...OK.
Change DNS2...OK.Configuration of Adapter Local Area Connection

Konfiguration der Schnittstelle ""Local Area Connection""
DHCP aktiviert:                Nein
IP-Adresse:                    10.1.1.75
Subnetzmaske:                  255.255.255.0
Standardgateway:              10.1.1.254
Gatewaymetrik:                 1
Schnittstellenmetrik:         0
Statisch konfigurierte DNS-Server: 10.1.1.1
                                4.2.2.2
Statisch konfigurierte WINS-Server: Keine
Mit welchem Suffix registrieren: Nur primäres

C:\>_
```

Example Command Prompts

- ATTRIB:** Displays or changes file attributes.
- CD:** Displays the name of current directory
- CHKDSK:** Checks a disk and displays a status report
- Copy:** Copies one or more files to another location
- DIR:** Displays a list of files and sub directories

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Main Differences between CLI and GUI

Graphical User Interface (GUI)



Advantages:

- The user does not need to learn any commands.
- The interface is easier to use.
- Can use a pointing device to clicks and select icons or menu options.

Disadvantages:

- Takes up more memory than a CLI interface.
- Requires an operating system to operate.

Command Line Interface (CLI)



Advantages:

- The user has more freedom to use specific command in interacting with the computer.
- It is possible to alter computer settings.

Disadvantages:

- User needs to learn commands
- Commands must be typed in without errors.
- No visual aids.

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Discuss the difference between a **CLI** and **GUI** interface?

Key Words: Windows, Icons, Menus, Pointers, visuals aids, learn, command prompts, pre-determined options, expert user



Exam Question

The GUI (Graphical user interface) allows the users to interact with the interface by using a **pointer** to select **windows**, **icons** and **menu** options. The GUI will have **visual aids** which it make it easier for users to **learn** how to use the interface. On the other hand users are required to enter **command prompts** to interact with the CLI (Command Line Interface). The command prompts have to be learned by the user and entered correctly. This would make the CLI interface more challenging to for the user to **learn**. However the advantage of using the CLI for **expert users** is that you are not restricted to **pre-determined options** which would be the case in the GUI. This would allow for greater freedom when using the CLI.