

User interfaces

A **user interface** is the means by which the user communicates with the O/S or other software. It is the **boundary** between the user and the machine and it is how the computer presents itself. Making the user interface easy to use and intuitive has been one of the biggest challenges in developing computer systems. Much of the design of the interface is dictated by how the underlying operating system works. For example, all applications that run under Windows look very much the same, with similar layouts and menus. However, it is important to remember that an operating system can use different interfaces.

Common interface types are:

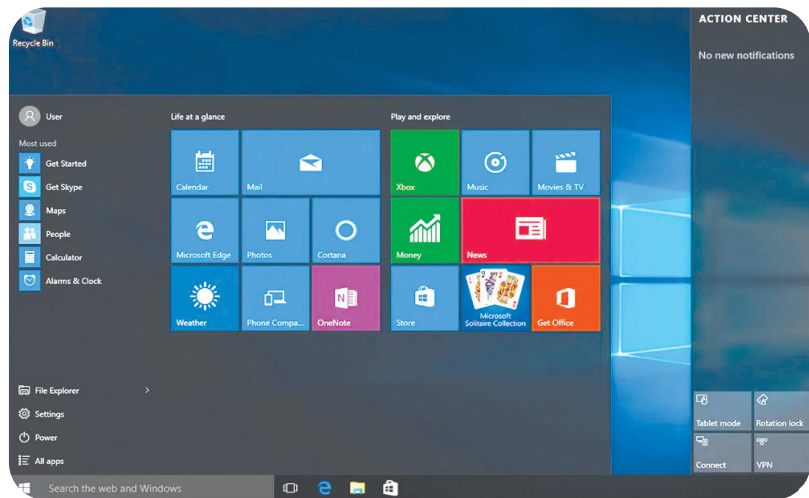
- Command line interface (CLI);
- Menu-driven interface (MDI);
- Graphical user interface (GUI);
- Touchscreen graphical user interface (touchscreen GUI).

■ Command line interface •

A **command line interface** is an old, but still used, way of interacting with a computer that presents the user with a **blank** screen. The user types in commands, usually abbreviated, which the operating system then **carries out**. Once the user has learnt all the commands, the system is quicker to operate than the other systems, but it can take a long time to learn all the commands needed.

■ Menu-driven interface

A **menu-driven interface** displays a list of commands or options, organised under various headings or menus. The user selects a command by pressing a key on the keyboard corresponding to that option or by clicking on it with the mouse. This type of user interface means that the user does not need to learn many commands, but it can be slow and sometimes not very practical.



■ Graphical user interface ••

A **graphical user interface** is the most popular type of interface; all major modern operating systems use it. GUIs are intuitive, there is no need to learn commands, and users can see a representation of what will be output or printed, with several choices visible at once. Icons or small pictures represent actions or files, which the user touches or clicks on with a mouse. GUIs are also known as **WIMPs**, because they make use of **Windows**, **Icons**, **Menus** and **Pointers**.

WINDOWS

contain information relevant to one particular task, and multi-tasking systems can have many windows open at the same time.

ICONS

are pictures representing commands, e.g. by clicking on the picture of a floppy disk you save the active file.

POINTERS

are usually arrows or something similar that the user can move about the screen using a mouse or any other pointing device.

MENUS

give the user a list of options; each option corresponds to a possible command.

blank: vuoto

boundary: confine

to carry out: eseguire

narrow: stretto

to overwhelm: sopraffare

requirement: condizione, esigenza

■ Touchscreen graphical user interface

A **touchscreen graphical user interface** is very similar to a regular GUI except that, instead of a mouse, users touch the screen with their fingers or with a stylus to select icons and perform tasks. It is common in mobile devices and some medical devices.

One common command line O/S is MS-DOS and the command to tell the O/S to display all files is *dir*, for example, which stands for *directory*. This is still a common way to control a computer, especially for IT professionals.

The first computer with all the elements of a modern GUI was Alto, produced by Xerox in 1973.



1  **PAIR WORK** Write the different features of each type of interface in the right place in the table.

1. Difficult to learn
2. Easy to use
3. It is not necessary to remember a long list of manual commands
4. Large amount of memory
5. Limited menu options
6. Many applications can run simultaneously
7. Minimal memory usage
8. Self-explanatory
9. Self-explanatory menu options
10. Similar format among different programs
11. Simple functions may require many menu options
12. Simple structure

	Advantages	Disadvantages
Command line interface (CLI)		
Menu-driven interface (MDI)		
Graphical user interface (GUI)		

2 Read the text and answer the questions.

Mobile User Interface (Mobile UI)

A mobile user interface, or touchscreen GUI, is the graphical and usually touch-sensitive display on a mobile device that allows the user to interact with the device's apps, features, content and functions. Mobile user interface design **requirements** are significantly different from those for desktop computers. The smaller screen size and touch screen controls create special considerations in UI design to ensure usability, readability and consistency. In a mobile interface, symbols may be used more extensively and controls may be automatically hidden until accessed. The symbols themselves must also be smaller and there is not enough room for text labels on everything. Users have to be able to understand a command icon and its meaning whether through legible text or comprehensible graphical representation. Mobile UI design best practices include a series of basic features:

- The layout of the information, commands, and content in an app should echo those of the operating system.
- Click points must be usable for touch-based selection with a finger. This means a click point can't be too small or **narrow** in any direction, to avoid unwanted selection of nearby items.
- Maximise the content window size. On small screens, the UI should not unnecessarily dominate screen size.
- The number of controls or commands displayed at any given time should be appropriate to avoid **overwhelming** the user or making viewing and interacting with content confusing.

It can be challenging to strike a balance between concentrating on design and dealing with the specific requirements of different apps.

Adapted from: <http://searchmobilecomputing.techtarget.com/definition/mobile-UI-mobile-user-interface>

1. Why is mobile UI significantly different from a computer GUI?
2. What are the best practices regarding the layout of information, click points, window size, and number of commands?
3. What is challenging when designing a mobile UI?

