

Types of computer systems

From mainframes to wearable computers



A **mainframe** is the most powerful type of computer. It can process and store large amounts of data. It supports multiple users at the same time and can support more simultaneous processes than a PC. The central system is a large server connected to hundreds of terminals over a network. Mainframes are used for large-scale computing purposes in banks, big companies and universities.



A **desktop PC** has its own processing unit (or CPU), monitor and keyboard. It is used as a personal computer in the home or as a workstation for group work. Typical examples are the IBM PC and the Apple Macintosh. It's designed to be placed on your desk. Some models have a vertical case called a tower.



A **laptop** (also called a **notebook PC**) is a lightweight computer that you can transport easily. It can work as fast as a desktop PC, with similar processors, memory capacity, and disk drives, but it is portable and has a smaller screen. Modern notebooks have a **TFT** (Thin Film Transistor) screen that produces very sharp images.

Instead of a mouse, they have a **touchpad** built into the keyboard – a sensitive pad that you can touch to move the pointer on the screen.

They offer a lot of connectivity options: **USB** (Universal Serial Bus) ports for connecting peripherals, slots for memory cards, etc.

They come with **battery packs**, which let you use the computer when there are no electrical outlets available.



A **tablet PC** looks like a book, with an LCD screen on which you can write using a special digital pen. You can fold and rotate the screen 180 degrees. Your handwriting can be recognized and converted into editable text. You can also type at the detached keyboard or use voice recognition. It's mobile and versatile.



A **personal digital assistant** or **PDA** is a tiny computer which can be held in one hand. The term PDA refers to a wide variety of **hand-held** devices, **palmtops** and **pocket PCs**.

For input, you type at a small keyboard or use a **stylus** – a special pen used with a **touch screen** to select items, draw pictures, etc. Some models incorporate **handwriting recognition**, which enables a PDA to recognize characters written by hand. Some PDAs recognize spoken words by using **voice recognition** software.

They can be used as mobile phones or as personal organizers for storing notes, reminders and addresses. They also let you access the Internet via **wireless** technology, without cables.



A **wearable computer** runs on batteries and is worn on the user's body, e.g. on a belt, backpack or vest; it is designed for mobile or hands-free operation. Some devices are equipped with a wireless modem, a small keyboard and a screen; others are voice-activated and can access email or voice mail.

3 The World Wide Web

A What the Web is

The World Wide Web, Web or WWW is a network of documents that works in a hypertext environment, i.e. using text that contains links, **hyperlinks** to other documents.

The files, **web pages**, are stored in computers, which act as servers. Your computer, the **client**, uses a **web browser**, a special program to access and download them. The **web pages** are organized in **websites**, groups of pages located on the Web, maintained by a **webmaster**, the manager of a website.

The Web enables you to post and access all sorts of interactive multimedia information and has become a real **information highway**.

B How to surf the Web

To **surf** or navigate the Web, access and retrieve web pages or websites, you need a computer with an Internet connection and a web browser. After you have launched it, you must type the website address or **URL** (**Uniform Resource Locator**), which may look like this:

`http://www.cup.org/education/sample.htm`

`http://` indicates the type of **protocol** that the server and browser will use to communicate. Here it is Hypertext Transfer Protocol.

`www.` shows that it is a resource on the **World Wide Web**.

`cup.org` is the **domain name** of the web server that hosts the website.

`education` is the **path**, the place where a web page is located.

`sample.htm` is the **filename** or name of a single web page.

The different parts are separated by full stops (.) and forward slashes (/). When we say a URL, we say **dot** (.) and **slash** (/).

To find interesting sites you can use **search engines**, where the website information is compiled by **spiders**, computer-robot programs that collect information from sites by using keywords, or through **web indexes**, subject directories that are selected by people and organized into hierarchical subject categories. Some **web portals** – websites that offer all types of services, e.g. email, forums, search engines, etc. – are also good starting points.

The most relevant website addresses can be stored in your computer using the **bookmarks** or **favourites** function in your browser.

Websites usually have a beginning page or **home page**. From this starting point you can navigate by clicking your mouse on hyperlinks in texts or images.

BrE: favourites

AmE: favorites

C What you can do on the Web

The Web is an open door to a universe of multimedia resources that people use in many different ways. Here are just a few.

*'In my **weblog**, an electronic journal I maintain on the Web, you can read and post opinions in chronological order. In my role as **blogger**, the manager of a **blog**, I can promote this new type of discussion.'*

*'**E-learning**, education via the Web, is a great opportunity for people like me who haven't got time to attend classes.'*

*'Online shopping, i.e. **cybershopping** or **e-commerce**, saves you time and gives you the comfort of buying from your personal computer. The goods are then sent to you, so it's very easy.'*

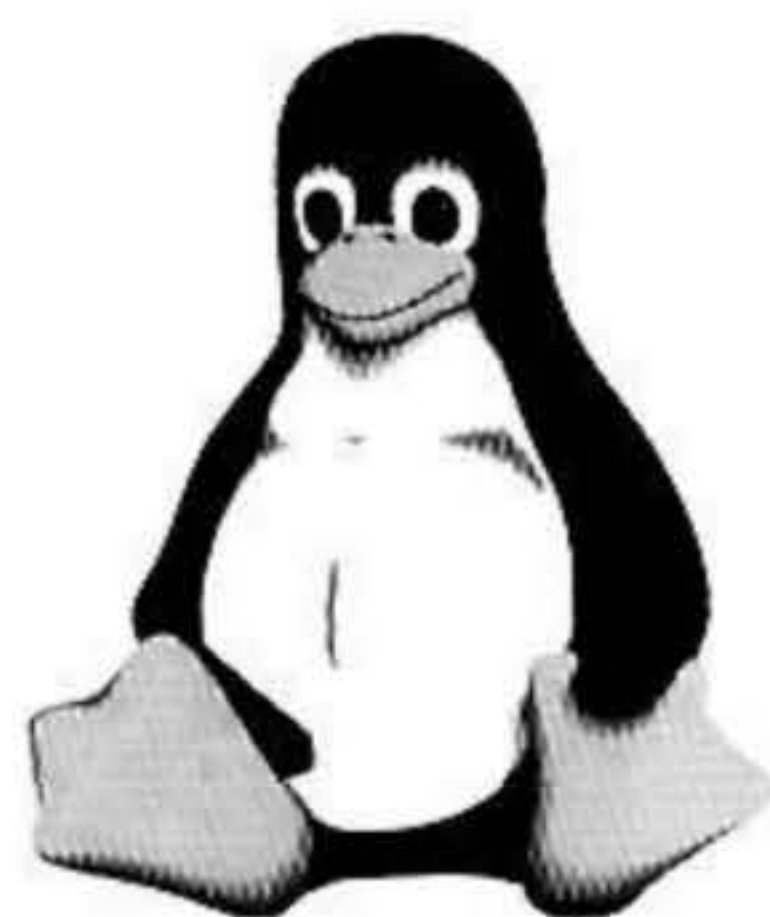
1 Operating systems and the GUI

A Types of software; the operating system (OS)

- 1 **System software** controls the basic functions of a computer, e.g. operating systems, programming software and utility programs.
- 2 **Application software** lets you do specific jobs such as writing letters, doing calculations, drawing or playing games. Examples are a word processor or a graphics package.

An **operating system** is a set of programs that control the hardware and allow people and applications to communicate with the hardware. Typical functions of the OS are handling input/output operations, running programs and organizing files on disks. The OS also gives access to networks and allows **multitasking**: a user can run several programs (and do various tasks) at a time. Examples are:

- the **Windows** family – designed by Microsoft and used on most PCs
- **Mac OS** – created by Apple and used on Macintosh computers
- **Unix** – found on mainframes and workstations in corporate installations, as it supports multi-users
- **Linux** – developed under the GNU General Public License; anyone can copy its source code, modify and redistribute it. It is used on PCs and in appliances and small devices.



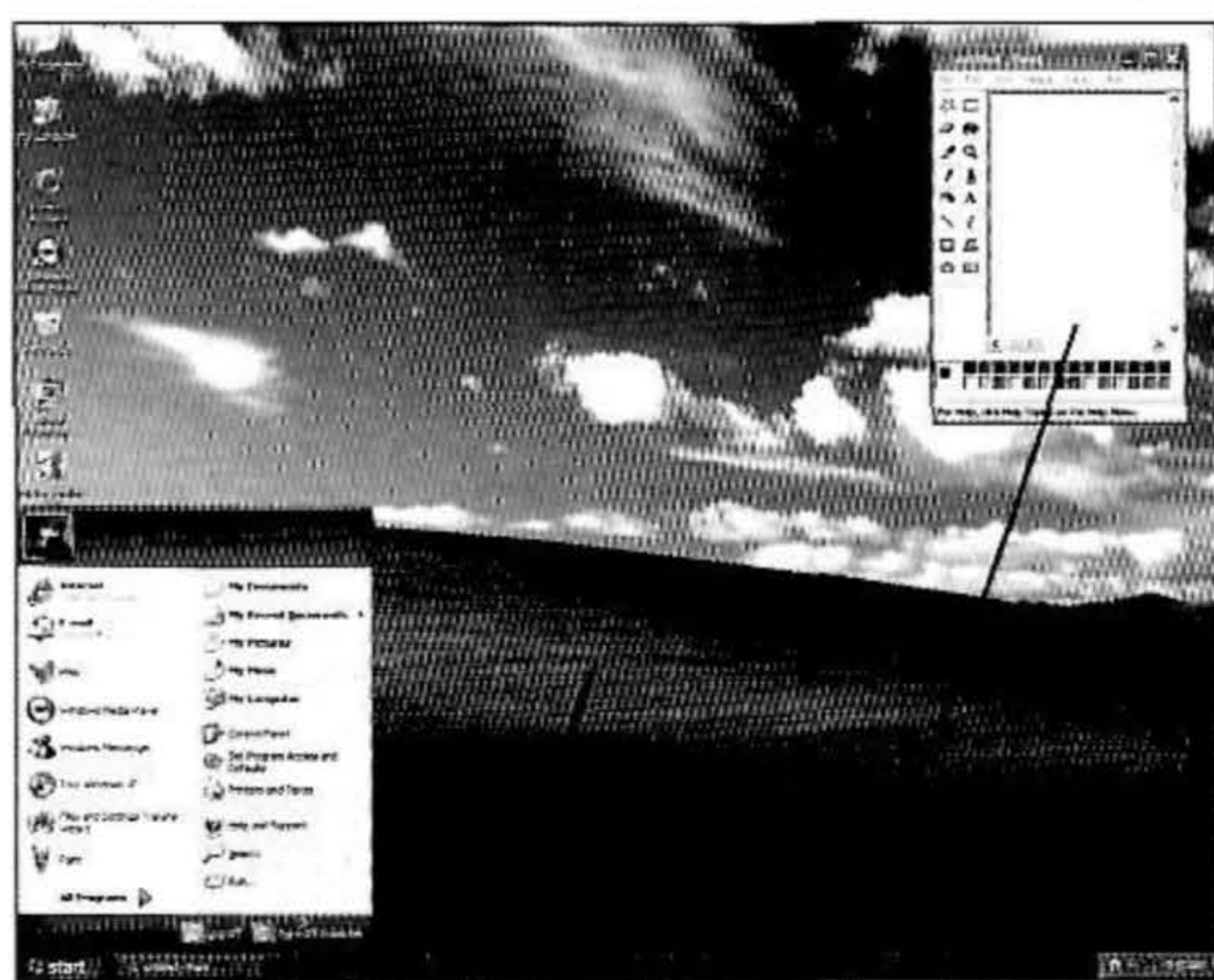
Tux, the Linux mascot

B The Graphical User Interface

A GUI makes use of a **WIMP** environment: **Windows**, **Icons**, **Menus** and **Pointer**. This type of interface is **user-friendly**, where system functions are accessed by selecting self-explanatory icons (pictures representing programs or documents) and items from menus. A **drop-down menu**, or **pull-down menu**, is a list of options that appear below a menu bar when you click on an item.

The **pointer** is the arrow, controlled by the mouse, which lets you choose options from menus.

The background screen that displays icons, representing programs, files and folders (directories) is called the **desktop**. Double-clicking a folder icon opens a **window** which shows the programs, documents and other folders contained within the folder.



taskbar

desktop

When you run a program, your PC opens a window that lets you work with different tools and menus.

The Windows environment is a typical example of a GUI

C System utilities

These are small programs included with an OS that improve a system's performance. They can be desk accessories, device drivers, or system extensions activated when you turn on the PC.

- A **crashed disk rescuer** is used to restore disks and corrupted files.
- An **accessibility program** makes a PC easier for disabled users to use.
- A **compression utility** rewrites data so that it takes less space on disk.
- A **media player** lets you watch DVDs, play music and listen to the radio on the Web.