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Types of software; the operating system (OS)

System software controls the basic functions of a computer, e.g. operating systems, programming software and utility programs.

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:

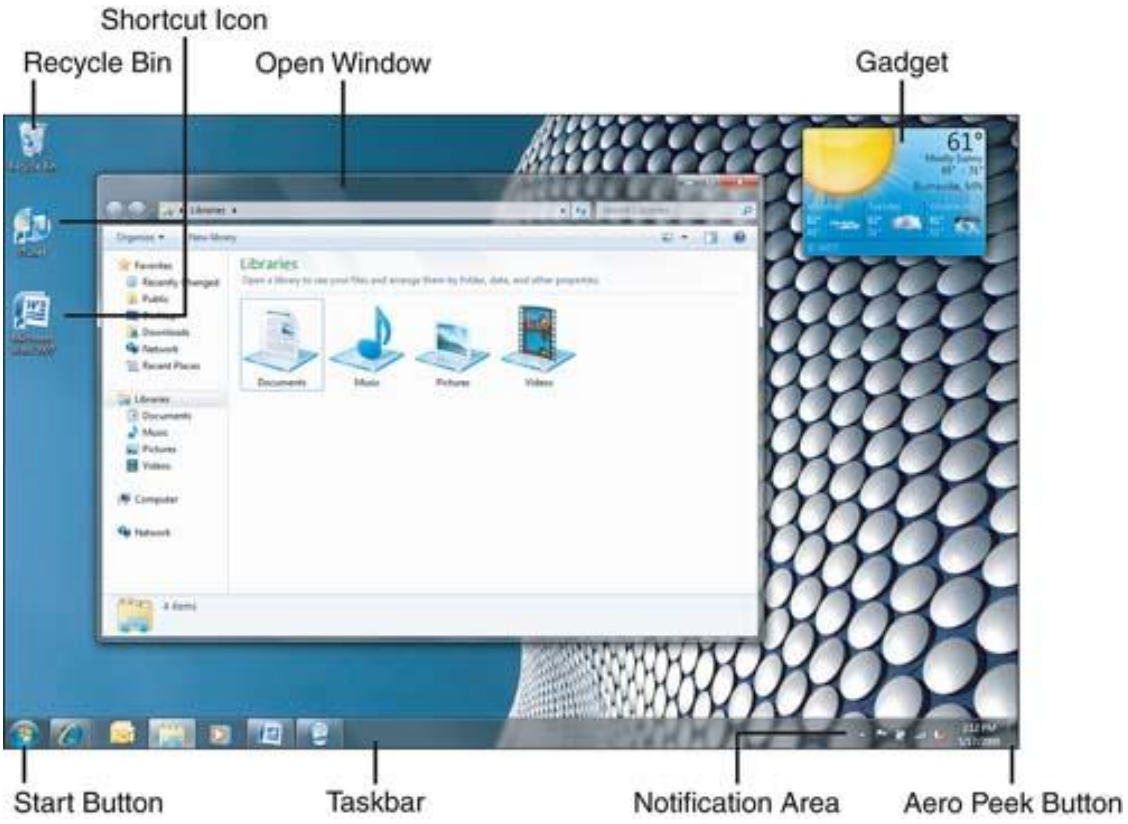
- The Windows family – designed by Microsoft and used on most PCs
- Mac OS – created by Apple and used on Macintosh computers
- Unix – found on mainframes and workstations in corporate installations, as it supports multi-users
- Linux – developed under the GNU General Public License; anyone can copy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

The Graphical User Interface

A GUI makes use of **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



Windows Desktop

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Mac Desktop

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System utilities

These are small programs included within 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.

Basic Software 1

Database basics

A database is essentially a computerized record-keeping system.

Each unit of information you create is called a **record** and each record is made up of a collection of **fields**. Typically, a single record consists of a set of field names like Title, FirstName, Surname, etc. You fill in a form with the relevant information for each field to add a new record to the database. There are different data types.

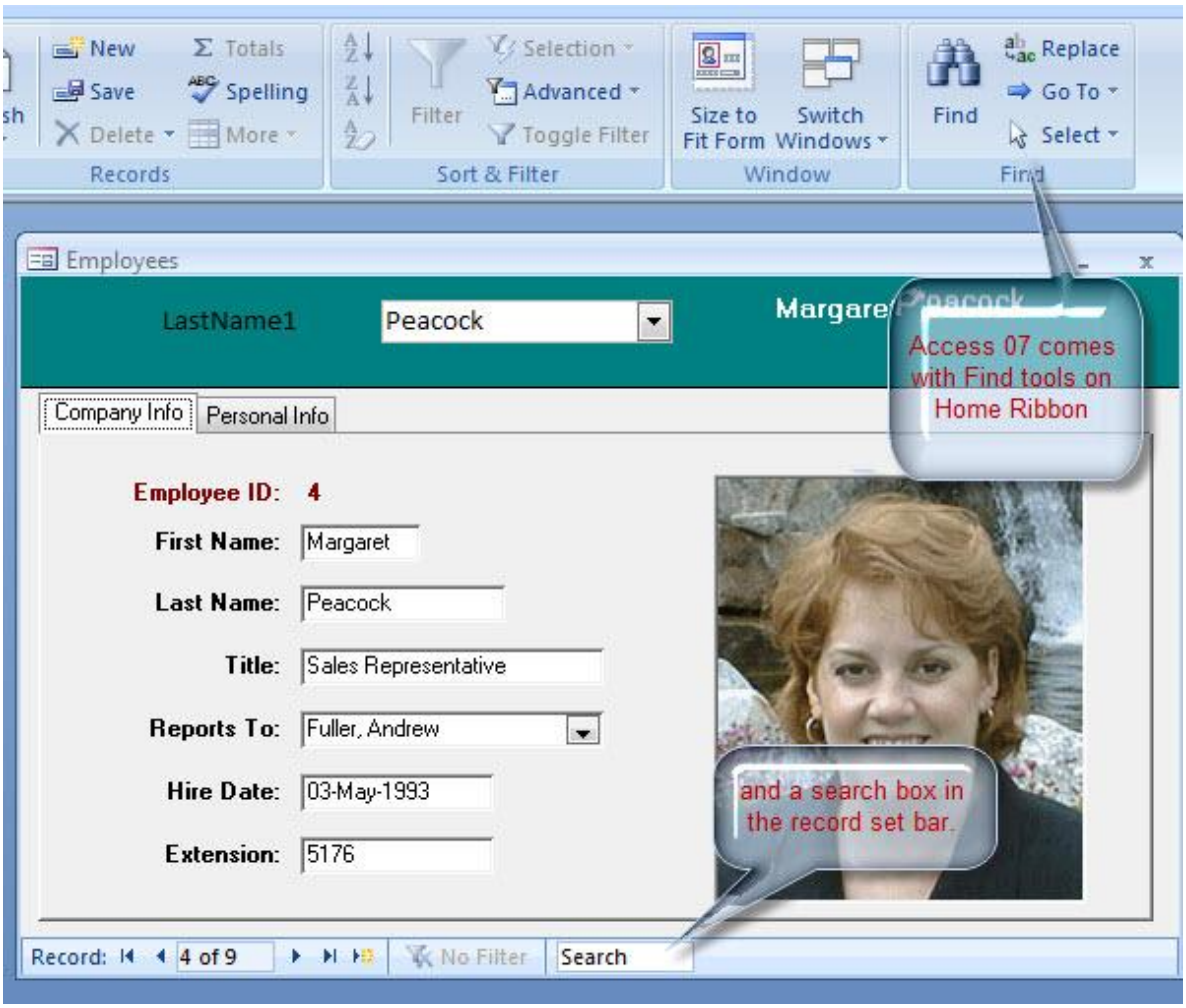
- Text: holds letters and numbers not used in calculations)
- Number: can hold numbers used in calculations and reports
- Memo: can store long texts
- Data/Time: a date or time, or a combination of both
- AutoNumber: assigns a number to each record
- OLE Object (Object linking and embedding): holds sounds and pictures
- Yes/No: for alternative values like true/false, yes/no, on/off, etc.
- Hyperlink: adds a link to a website

Once you have added data to a set of records, indexes must be created to help the database find specific records and sort (classify) records faster. An **index** performs the same function as in the back of a book or in a library. For example, if you regularly search your database by surname, the index should be defined on this field.

Relational Databases

Two database files can be related or joined as long as they hold a piece of data in common. A file of employee names, for example, could include a field called 'DEPARTMENT NUMBER' and another file, containing details of the department itself, could include the same field. This common field can then be used to link the two files together.

Extracting information from a database is known as performing a **query**. For example, if you want to know all customers that spend more than USD 9,000 per month, the program will search the name field and the money field simultaneously.



MS Access sample

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