Types of Operating System

Type	Definition	Example of Use
Batch Processing System	Data or programs are collected grouped and processed at a later date.	Payroll, stock control and billing systems.
Real-time Systems	**Inputs immediately affect the outputs. Timing is critical** i.e. they are capable of influencing the source of the data e.g. control where data from sensors is processed immediately and affect the outputs – controlling some device. **Timing is critical** and the term real-time control system.	e.g. control of nuclear power plants, oil refining, chemical processing and air traffic control systems.
Real-time transaction	**Inputs immediately affect the outputs but timing is not critical.** Each transaction is completed online as it arises e.g. booking systems – each booking is online and a database of bookings can be amended interactively and very quickly whilst another user is **locked out** so **cannot double book** or alter that record at the same time.	**Holiday and airline booking system.** **Difference between real-time and real-time transactions**. In real time, ***time is critical*** and delays can be catastrophic but in real-time transactions systems there is no time criticality. E.g. poor speeds in airline control would be dangerous but poor booking speeds would not be so crucial.
Online processing	**Processing performed under the direct control of the CPU** whilst the user remains in communication with the computer.	
Offline processing	**Processing which is done away from CPU.**	e.g. batching together of clock cards, filling in OMR forms.
	Provides for interaction between the job and the user, which may influence the course of processing.	Word processing

Type	Definition	Example of Use
	Such systems may be single-user (e.g. a personal computer).	
Multi-access on-line	**Any users linked by workstations to a central computer such as in a network.**	Holiday or airline booking system. One person must be locked out when another is updating the file. This helps to prevent Double booking
Interactive processing	**The user has to be present and program cannot proceed until there is some input from the user**	Select from a menu at ATM.
Distributed system	**Processing is carried out independently in more than one location, but with shared and controlled access to some common facilities.**	Databases e.g. libraries.
Multiprogramming:	**Ability to run many programs apparently at the same time.**	Mainframe systems. Each job is allocated a small amount of processing time (***time slice***) in turn.
Multi tasking	**The ability to hold several programs in RAM at one time but the user switches between them.**	Usually uses GUI's. Facilitates import and export of data.

Source: WJEC GCSE ICT INSET Document on paper 2. Cardiff. March 2003.