Processing Modes

BATCH PROCESSING, REAL-TIME, ON-LINE, TIME SHARING
Processing

- This is the manipulation of data to produce information.
- Data are raw facts and figures that are meaningless. E.g. 250299
- Information is processed data with structure. It depends on how the data is interpreted and the context used. E.g. 250299 may be interpreted as 25 Feb 1999.

- The types of processing: batch (off-line) processing, on-line processing, real-time processing and time-sharing.
Batch processing

- Processing of a number of jobs simultaneously from start to end without user intervention. This allows the processor to be utilised efficiently, thereby increasing the productivity of the computer. Data is gathered, stored in batches and processed later.

- Immediate information is not possible.
Examples of batch processing

- Processing hand-written receipts
- Inventory control
- Accounts receivable where invoices are hand-written
Advantages

- Once the data is submitted for processing, the computer may be left running without human intervention.
- The computer is only used for a certain period of time for the batch job.
- Jobs can be scheduled for a time when the computer is not busy.
Disadvantages

- There is always a delay before work is processed and returned since batch jobs are usually stored up over a period of time
- It usually involves an expensive computer and a large number of trained staff
On-line processing

- In online processing when a transaction is made the processing may or may not be done during the transaction.
- An input device is connected to the computer which allows data to be entered during the transaction.
- The data is stored and processed shortly after.
Examples of on-line processing

- ATM
- Point of Sale terminals at the checkout counter of a supermarket
Real-time processing

- In real-time processing the data is processed immediately, thus making information current and readily available.
- Processing must be connected to one or more computers to process data, then it must also be online.
Examples of real-time processing

- An airline reservation system
- Nuclear power plant
- Anti missile defence system
- Electronic fund transfer system
- Aeroplane landing control system
- Flight simulation systems
Advantages

- No significant delay for response
- Information is always up-to-date
- Output from the computer may be used to adjust and improve the input back to the system
Disadvantages

- The computer must be dedicated solely to the task
- The computer must be continually online
Time-sharing systems allow many users to share time on a single computer.
Each user is given a slice of CPU time.
The computer has fast processing speeds which give the impression that each user is the sole user of the system.
Example:

- A bank’s bankcard system, which allows hundreds of persons to access the same program on the mainframe at the same time.
Reference

- Oxford Information Technology for CXC CSEC by Glenda Gay, Ronald Blades
- CXC Information Technology by Kelvin Skeete