OCR Computer Science A Level

2.1.5 Thinking Concurrently

Concise Notes

Specification

2.1.5 a)
- Determining where concurrent processing can be used

2.1.5 b)
- Benefits of concurrent processing
- Drawbacks of concurrent processing

Thinking Concurrently

Concurrent Thinking
- Concurrent thinking is the process of completing more than one task at a given time.
- Does not always mean you have to be working on multiple tasks at once.
- Involves giving 'slices' of your time to different tasks.
- Parts of a problem which are related can often be solved concurrently.

Concurrent Processing
- Concurrent processing and parallel processing are not the same thing
- Parallel processing is when multiple processors are used to complete more than one task simultaneously
- In concurrent processing, each task is given a slice of processor time to make it appear as if tasks are being completed simultaneously.
- In reality, tasks are executed sequentially.

Benefits of concurrent processing
- The number of tasks completed in a given time is increased.
- Less time is wasted waiting for an input or user interaction, as other tasks can be completed in this time.

Drawbacks of concurrent processing
- Concurrent processing can take longer to complete when large numbers of users or tasks are involved as processes cannot be completed at once.
- There is an overhead in coordinating and switching between processes, which reduces program throughput.
- Just as with parallel processing, not all tasks are suited to being broken up and performed concurrently.