CPS notes

Multi-threading

Thread

* A thread of execution is the smallest sequence of computer instructions controlled by the operating system
* Operating systems mange threads
* Threads are part of a process
* Difference is process has isolated memory
* Threads are made of fibres

Scheduling

* Scheduling is the method of allocating threads process times
* In general os will conduct scheduling in a round robin
* Each thread is given a timeslice once this is complete the thread is pre-empted
* Two main types are Pre-emptive and Cooperative Multitasking
* Preemptive is an operative controlled approach allowing the programmer to not worry about scheduling however it means you have less control over setting priorities
* Cooperative multitasking involves threads deciding when they can access the processor this is more complicated

Context Switching

* Context Switching occurs when we switch threads
* Is the bane of multi-threading
* Need to save , the load and continue running
* Occurs a interrupt, waiting and multi-tasking

Mutexs and Futures

* Mutexs (mutual exclusion point) is an object that guard a object that allows threads to share resources
* Futures send of work to be done and return a result later