Comp2240 revision mid term

Ghant chart needed. (take a ruler)

1. Processes
   1. A process is an instance of a running program, which can be assigned to and executed on a processor.
   2. A process is comprised of two elements:
      1. Program code – this is what is to be excuted
      2. Process data – associated with that code (focus on)
2. Process control block
   1. While a program is excuting a process can be uniquely categorized
   2. Where process control blocks are stored
   3. Pcbs are created and managed by the os and are fundamental in enabling support for multiple process
   4. Arguable pcb is most important data structure in os
   5. Protecting the integrity of theses is a major concern.
   6. Handler routine exists to protect pcb- only the handler is allowed to read/write pcbs
   7. 152-157 of text
3. Dedicated processor assignment
   1. When a thread is assigned to a processor that remains dedicated to that thread until the application runs to completion.
   2. If a thread of an application is blocked waiting for I/O or for synchronization with another thread, then that threads processor remains idle.
   3. In a highly parallel system, with tens or hundreds of processors, processor utilisation is no longer the prime metric for effectiveness, efficiency or performance
   4. The total avoidance of process switching during the lifetime of a program should result in a substantial speed-up in execution of that program.
   5. 470 of text
4. Process models
   1. Two state model
      1. Highly simplistic
      2. Wen an os creates a new process it creates a pcb and puts it in the not running state and is waiting for an opportunity to execute
      3. Some are blocked waiting while others are ready to continue using a single que you would need to search que for longest time in que and what is actually ready to exicutee
      4. No clean up at the end
      5. Four commone events lead to creation of a new process
         1. New batch – a process created in response to the submission of a job
         2. Log in – a process created when a new user attempts to log on
         3. Service – an os may also create a process on behalf of an application
         4. Process spawning – when the os creates a process at the explicit request of another process
      6. Numerous conditions lead to the termination of and exit of a process
      7. Better way to handle two state is to split running into ready and blocked. Additionally a new state for process creation and an exit state for process management
   2. five state model
      1. five state model is an interim model that sits between two state and the real world
   3. 136-147 of text (relate five state to two state)
5. Virtual round robin
   1. Relative treatment of processor-bound and I/O bound processes
   2. Virtual round robin is a refinement of standard round robin that avoids some of the unfairness of standard round robin.
   3. Starts the same way as round robin.
   4. Uses auxiliary que for process after being release from i/o block when a dispatching decision is to be made, processes in the auxiliary queue get preference over those in the main ready queue.
   5. When a process is dispatched from the auxiliary queue it runs no longer than a time equal to the basic time quantum minus the total time spent since running
   6. 437 – 439 of text
6. Rate monotonic scheduling
   1. Rate monotonic inequality
      1. Where c is the service time and t is the period of a periodic task
   2. 482 – 486 of text
   3. Rate monotonic scheduling
      1. Remember the rhs basics here:
      2. For n =1:   
         for n =2:   
         for n = 3:   
         for n = 4:
7. Need study more this doesn’t cover everything. Week 5, tutorial 3.