1. Linux
   1. Pwd - print working dir
   2. Ls list
   3. rm
   4. Cd change dir
   5. Mkdir
   6. Rmdir
   7. Ps process list
   8. Cp - copy
   9. Mv
   10. Grep - (global regular expression print)
   11. Find
   12. Locate - fast not accurate
   13. Man - manual
   14. Clear less nano sudo su view
2. Network commands -
   1. Ifconfig
   2. Ip
   3. Traceroute, tracepath, ping, netstat, ss <-> netstat but more fast and info (-t, -u, -x), dig (domain info groper), nslookup,
   4. telnet - unix utility, adv ssh, ftp, sftp,
   5. system variable - export name=12
   6. ps - \t, \d, \n, \s, \W(dir), \w(full path dir), \u, \h, \# command number, \$ (uid==0 then # otherwise $)
3. Process management
   1. Preemptive - (running -> ready (interrupt), waiting -> ready(process io completes) forced to leave
   2. Non preemptive - (running -> waiting, running->terminated)
   3. Criteria - cpu utilization, throughput(process per time), turn around time (start to end), waiting time, response time, gantt chart process for cpu cycle
   4. FCFS - waiting time long, non pre emptive, overhead low, no starvation
      1. Convey effect - long process holding cpu so starve
   5. SJF - low cpu brust time, only theory, pre-emptive (shortest remaining time first)
   6. Priority - ageing
   7. Round robin -
   8. Queue’
   9. Fork() create duplicate process returns pid, create child
   10. Exec - replaces current process image with new one
   11. Orphan process - executing but parent dies process group
   12. Zombie - executed but has entry in process table wait is used
4. Memory
   1. First fit
   2. Best fit, worst fit,
   3. Compaction
   4. External fragmentation - no continuose space paging and segmentation
   5. Segmentation - table base address and limit number- bits required to segement, segment offset (d) size of segment
   6. Paging table frame number, present/absent, protection, ref, cache, diry
   7. Shared pages - prevent two copies of same page
   8. Re-entrant - reusable code invoke, interrupt, reinvoke simultanousy
   9. Page replacement -
      1. FIFO baladys anamoly - increase in page fault even increase in frames
      2. Optimal - no anomaly
      3. LRU
      4. LFU
      5. MFU
   10. Dirty bit update required or not
   11. Throttling - slow down computer to use less energy and battery
5. IPC
   1. Shared memory
   2. Message passing
      1. Pipe
      2. Message queue
      3. Signals
      4. Socket
      5. Remote procedure call
   3. Semaphore - sync tool wait and signal, integer and critical section, counting, binary 1
   4. Deadlock resource held
      1. Mutual ex - no for sharable resource
      2. Hold and wait
      3. No pre-emptive
      4. Circular wait
   5. Prevention
      1. Stop above condition at least one
   6. Avoidance
      1. Resorce allocation graph - request edge assignement ege
      2. Banker algo
      3. Deadlock recovery (not deadlock - unsafe)
         1. Process termination victim
         2. Pre - emption
6. Atomic - uninterruptable
7. Unsafe state - not deadlock
8. Base register - relocation register
9. Select short term scheduler - dispatcher
10. Address base table - page table base register
11. PS1 - bash version all all PS2 - variable and other dir location