Project 3 Roadmap

Scheduling
Semaphores
Multilevel Feedback Scheduling

- **struct Kernel_Thread in kthread.h**
  - current queue: int currentReadyQueue
  - blocked state: bool blocked

- There are 4 run queues now:
  - s_runQueue[MAX_QUEUE_LEVEL] in kthread.c

- A thread is initially in s_runQueue[0]
  - Except IDLE thread that enters at 3 when switching to MLF mode

- Check the scenarios
  - **Find_Best()** automatically pick the highest priority thread in a queue
  - **Get_NextRunnable()** will call **Find_Best()** for each queue until it finds a ready process
Multilevel Feedback Scheduling

- end of quantum?
  - if blocked promote
  - if has just run demote (check TODO in Timer_Interrupt_Handler() defined in timer.c)

- make sure your Sys_SetSchedulingPolicy() works before stuff gets complicated

- A thread becomes blocked in Wait().
Semaphores

- rough guideline
  - add two files `sem.h/sem.c`
  - create a semaphore structure
  - each has a thread queue, count, name, etc
- P/V semantics
  - P decrease, block if needed
  - V increase, never blocks
- section 7.4.2 in the textbook, pp 203
Testing Your Code

- workload.exe [rr/mys]
- ping.exe & pong.exe
GetTimeOfDay()

- Sys_GetTimeOfDay - trivial
  - (return g_numTicks)