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EECS 678
Project 2 Report

Process Scheduling in Linux

Functions in sched_other_rr.c:

- enqueue_task_other_rr
  - This add task p to the tail of the other_rr queue. We then increment the number of tasks in the queue.
- dequeue_task_other_rr
  - This updates the running queue's stats, removes task p from the running queue, and then decrements the number of tasks in the queue.
- yield_task_other_rr
  - We requeue the task, which takes the current task and puts it at the tail of the queue.
- pick_next_task_other_rr
  - If the running queue is empty, it return NULL. Otherwise it finds the current task, updates its execution start time, and return a pointer to the task.
- task_tick_other_rr
  - This function updates the running queue's stats, then if the time slice is 0, it returns. Otherwise, it decrements the task's time remaining; if it is zero, it sets the TIF_NEED_RESCHED flag to true.

Functions in sched.c:

- __sched_setscheduler
  - Added policy!= SCHED_OTHER_RR to the if statement to prevent error being outputted when policy==SCHED_OTHER_RR
- __setscheduler
  - Added an additional case statement for when priority is SCHED_OTHER_RR, which sets task p's sched_clas to other_rr_sched_class
- SYSCALL_DEFINE1(sched_other_rr_setquantum, unsigned int quantum)
  - This prints "sys_sched_other_rr_setquantum() reached!\n", then sets other_rr_time_slice to quantum.

Testing:
Testing was done with thread_runner.c. It uses 4 threads, buffer size of 20 MB. Additional options were "-s other_rr" to test our scheduling policy. There was also "--quantum=<value>" where value was 0, 1, 5, 10.

Use Cases:
```
./thread_runner 4 20m -s other_rr –quantum=0
./thread_runner 4 20m -s other_rr –quantum=1
./thread_runner 4 20m -s other_rr –quantum=5
./thread_runner 4 20m -s other_rr --quantum=10
```

Difficulties:
Some difficulties were that strcpy() was seg-faulting in thread_runner.c whenever a time quantum was specified. This was due to optarg being NULL. This was solved by using the long notation –quantum=.

Unimplemented Features
None