

# Os

## Assignment 3

### Write Up

In this assignment we have modified our CFS Scheduler for which we have added soft real time to the process. We have given higher priority to the process soft-real time requirement compared to the vruntime that is normally considered.

- Firstly I have added the new system call in my syscall\_64.tbl file named rt nice.
- Then I implemented my rt nice syscall in a sys.c file. This function has two parameters pid and soft runtime passed by test.c file. In which I ran the for loop to all processes and checked with pid given by test.c file/ If matched then update the soft runtime requirement of that process.
- We have added the syscall rt nice in our kernel, now we need to make changes in our scheduler. For that we first need to add sftime variable in our struct sched\_entity which was in sched.h file.
- Then we have initialized sftime with zero in our core.c file.
- Finally we have to make changes in our fair.c file. In the file we have modified two functions. First in entity\_before() function, in this function we have added comparison of two processes on the basis of sftime. We have returned 1 when process “a” has more priority then “b” and 0 when process “b” has more priority then “a”. Second in update\_curr() function , in this function we have updated our sftime after every context switch.

Input :- we have passed two parameters to our syscall by test.c. First was pid no of the process of which priority has to increase and other soft real time requirements of that process.

Expected Output:- I have to print the time taken by each process by the kernel. I am running  $10^{10}$  operations on both child and parent. In my child I also called syscall() with a child pid and  $10^{10}$  soft real time. If my syscall is running correctly then the child process should run faster.

Error :-

- 1) First if pid was wrong then my syscall returned -1 and also wrote messages in kernel log.
- 2) Second if soft real time was negative then also syscall return -1 and write message in kernel log.