REPORT

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ASSIGNMENT 5-Enhancing XV6 OS

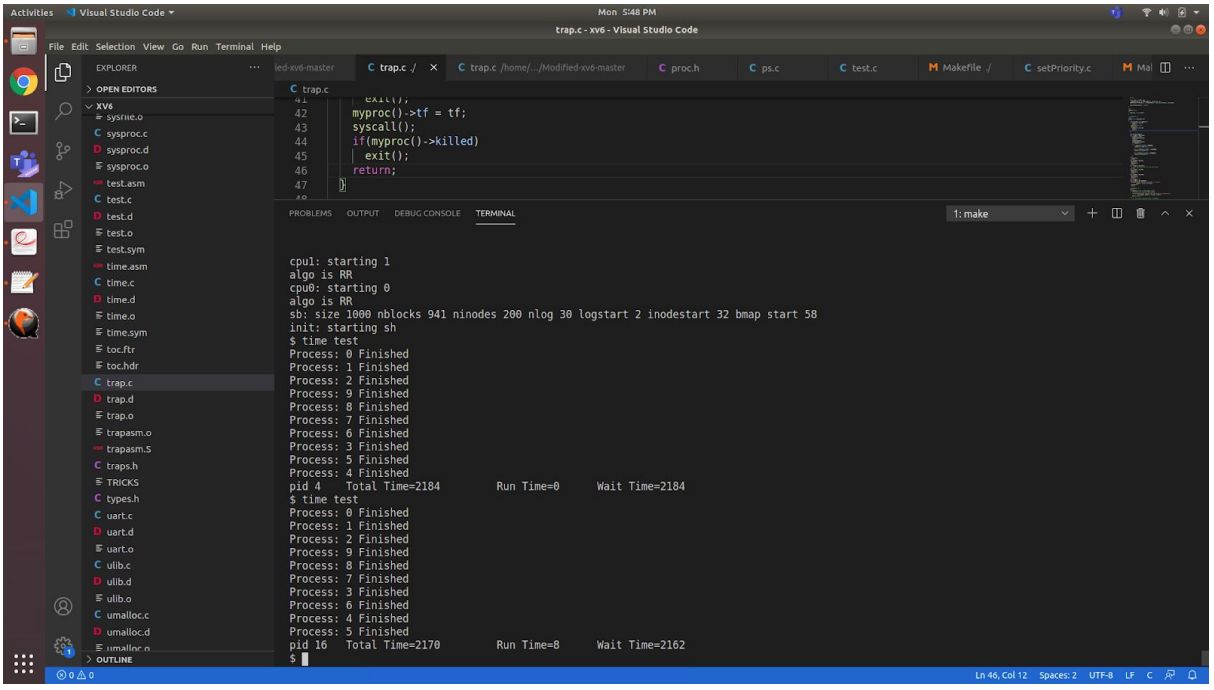
PERFORMANCE COMPARISON FOR VARIOUS SCHEDULERS

Bench mark program:(test.c)

RUN: time test

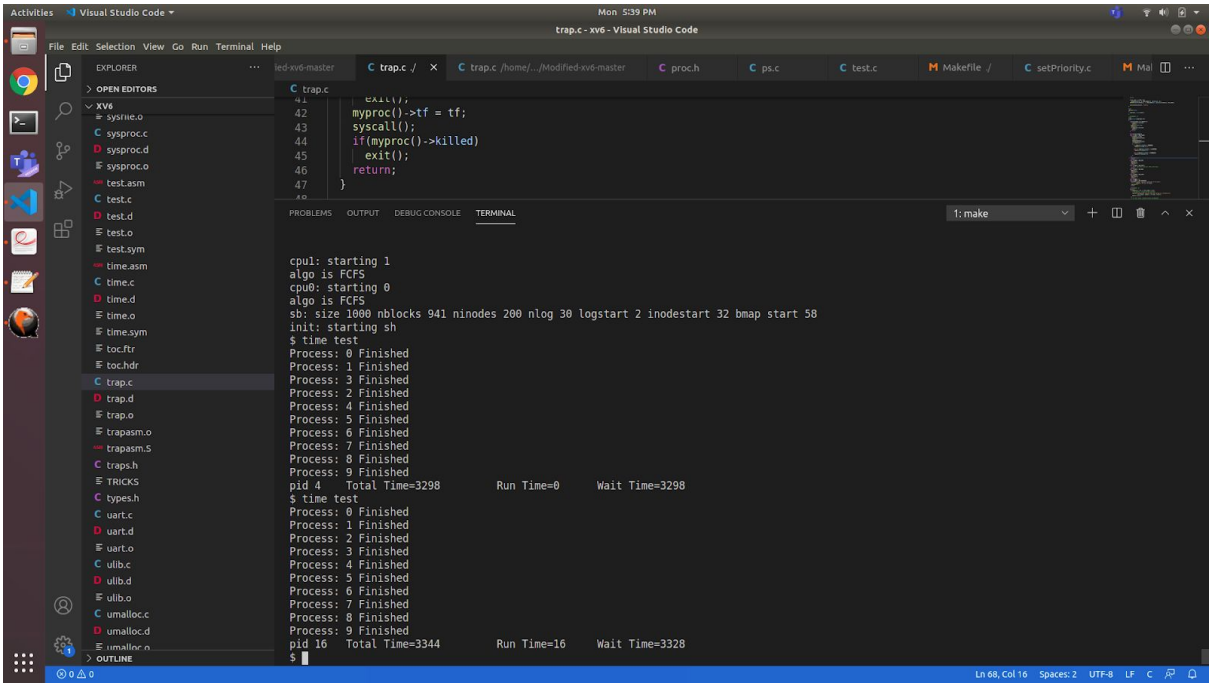
Test program forks 10 times and the parent waits for its children to exit. The children sleep for some time and run for some time to get a proper blend of cpu and iotime . Also children change priority to check proper implementation of PBS.

1.RR(Round-Robin)



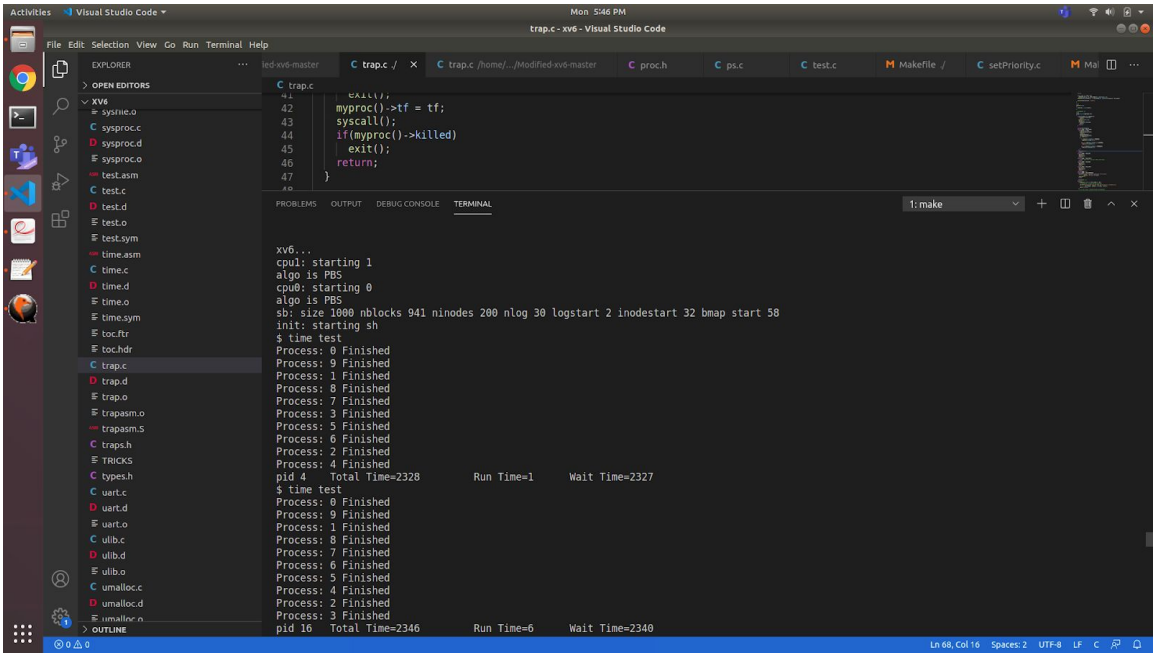
When the scheduler is run on test program it gives the following results. The total time of test.c is 2177(avg of two runs)

2.FCFS(First come -First serve)



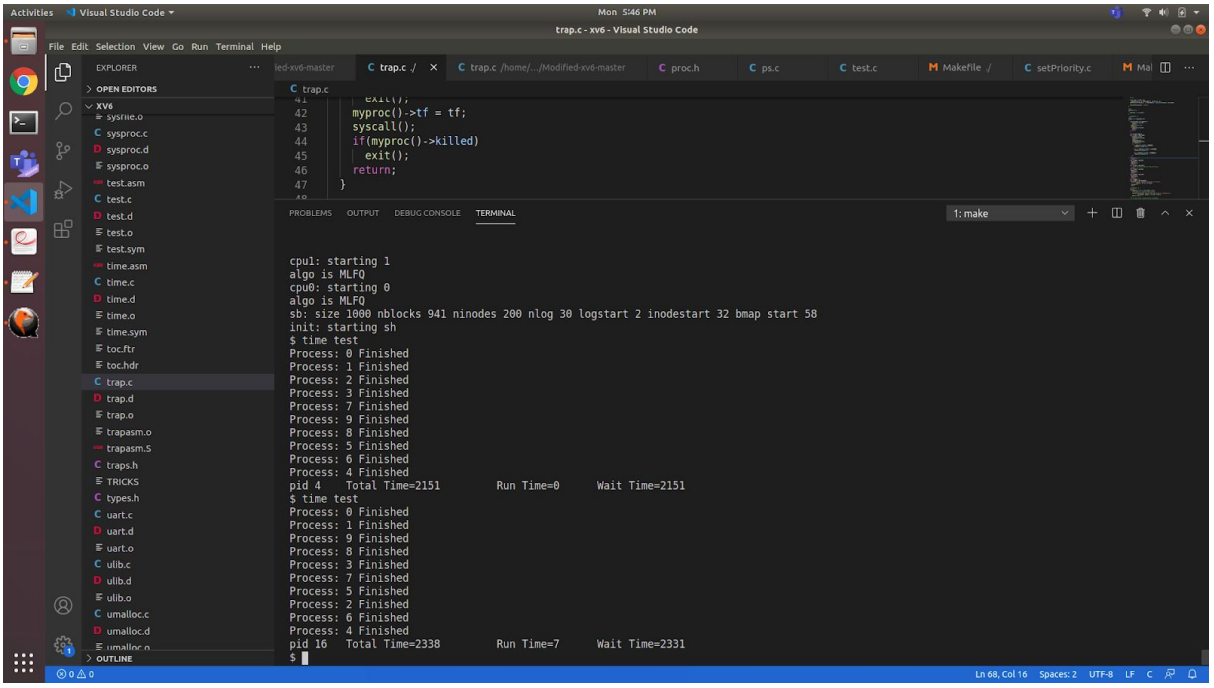
When the scheduler is run on test program it gives the following results. The total time of test.c is 3321(avg of two runs)

3.PBS(priority based scheduling):



When the scheduler is run on test program it gives the following results. The total time of test.c is 2337(avg of two runs)

4.MLFQ(Multi-level feedback scheduling queue):



When the scheduler is run on test program it gives the following results. The total time of test.c is 2244.5(avg of two runs)

Comparison:

FCFS> PBS> MLFQ>RR

- PBS ,MLFQ,RR are almost the same sometimes,with very minor differences.
- RR seems to work slightly better than rest.
- FCFS was giving the worst performance.

Inferences:

1.RR

RR was giving the best performance as it gives equal priority for io bound and cpu bound processes by yielding them after the completion of time quantum(each tick in this case).

2.FCFS

Io bound programs are made to wait for longer times even though they had least cpu burst , since cpu bound processes came first.Hence it was giving worst performance.

3.PBS.

In the following test program io bound processes received more priority.Hence they executed first,then all the cpu intensive programs were run.Therefore result may vary if this is changed.

4.MLFQ

IO boundprocesses came first and were yielded frequently hence moving them into higher priority queues.CPU intensive processes took more ‘ticks’ and hence were constantly shifted down to lower priority queues. Hence, it performed better than FCFS.