Benchmark program (benchmark.c):

This file is used to test all the scheduling algorithms. It forks 10 times and the parent waits for the 10 child processes to terminate. The child processes are of different types as the I/O and CPU loops depend on the child number and so there is a good blend of both CPU and IO times.

Writing the output of executing benchmark program using different schedulers:-

1)RR:-

Total Time: 2024
Total Time: 2528
Total Time: 2951
Total Time: 3284
Total Time: 3298
Total Time: 3517
Total Time: 3669
Total Time: 3713
Total Time: 3735
Total Time: 3744

2)FCFS:-

Total Time: 907
Total Time: 1728
Total Time: 2475
Total Time: 3139
Total Time: 3723
Total Time: 4230
Total Time: 4666
Total Time: 5024
Total Time: 5299
Total Time: 5500

3)PBS:-

Total Time: 1763
Total Time: 1886
Total Time: 1891
Total Time: 2001
Total Time: 2014
Total Time: 2230
Total Time: 2523
Total Time: 2902
Total Time: 3361
Total Time: 3897

4)MLFQ:-

Total Time: 2067
Total Time: 2531
Total Time: 2947
Total Time: 3187
Total Time: 3275
Total Time: 3521
Total Time: 3705
Total Time: 3723
Total Time: 3752
Total Time: 3779

RANKING:-

1)PBS
2)RR
3)MLFQ
4)FCFS

Conclusions:

1.Although the total time for the 1st process is much less than the others but the total time for the last process and on average_total_time is too high making it a bad choice of scheduling algorithm.

2. RR, MLFQ gave somewhat similar results,but RR worked slightly better.

3.PBS turnout to be the best scheduling algorithm for the scenario.Although it was comparable with the RR,MLFQ but by looking at the total time one can infer that PBS outperforms rest of the implementations.

Inferences:-

FCFS:-It turn out to be least productive scheduling algorithm because it executes process one by one making other processes to wait for long for their execution.

MLFQ:-This is comparatively good algorithm but instead not up to the mark.It also has overhead of switching processes from one queue to another making it somewhat less efficient.

RR:-Quite good scheduling algorithm and gave reasonable performance but it also has overhead in switching the process after particular time interval.

PBS:-Fantastic scheduling algorithm.Sort the processes by their priorities and executes them accordingly.Also if priority of some process gets changed then it reschedules and afterwards start execution.