Assignment 3
Scheduling

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Used functions:

```
/// target:
/// check input and blocked process to ready queue

/// exp:
// scan the input queue with curntTime
// if there greater than enter at the same time
// sort them with lowest ID
// we will use priority queue with ID
// in some cases we will need priority queue, so we will use buffer to save all
process has the same
// arrival time with priority its process ID

void inputAndBlockedToReadyQ();


/// the dispatcher will choose which process will enter to processor
void dispatcher();

/// this function is the processor operation
bool FCFS_execute();

/// this function is the processor operation
bool RR_execute();

/// covert the state number with its String
void printState(int state);

/// print the diagram
void printProcessStates();
```
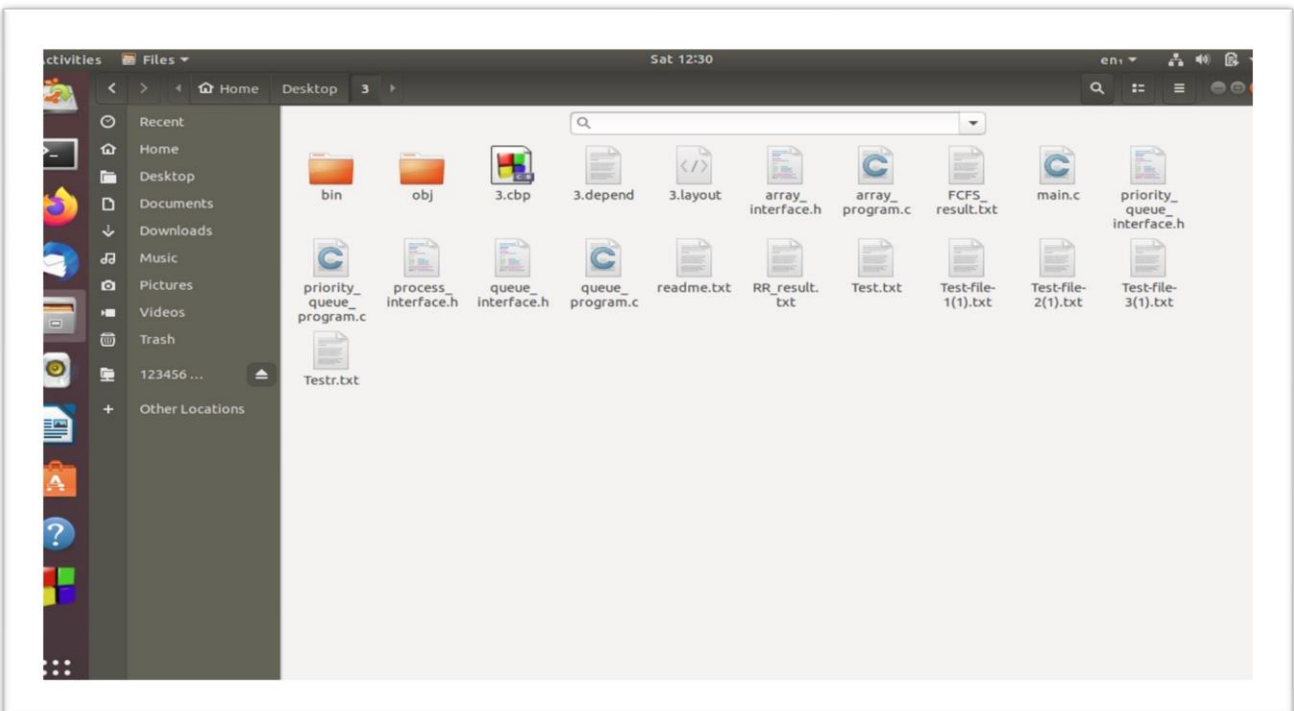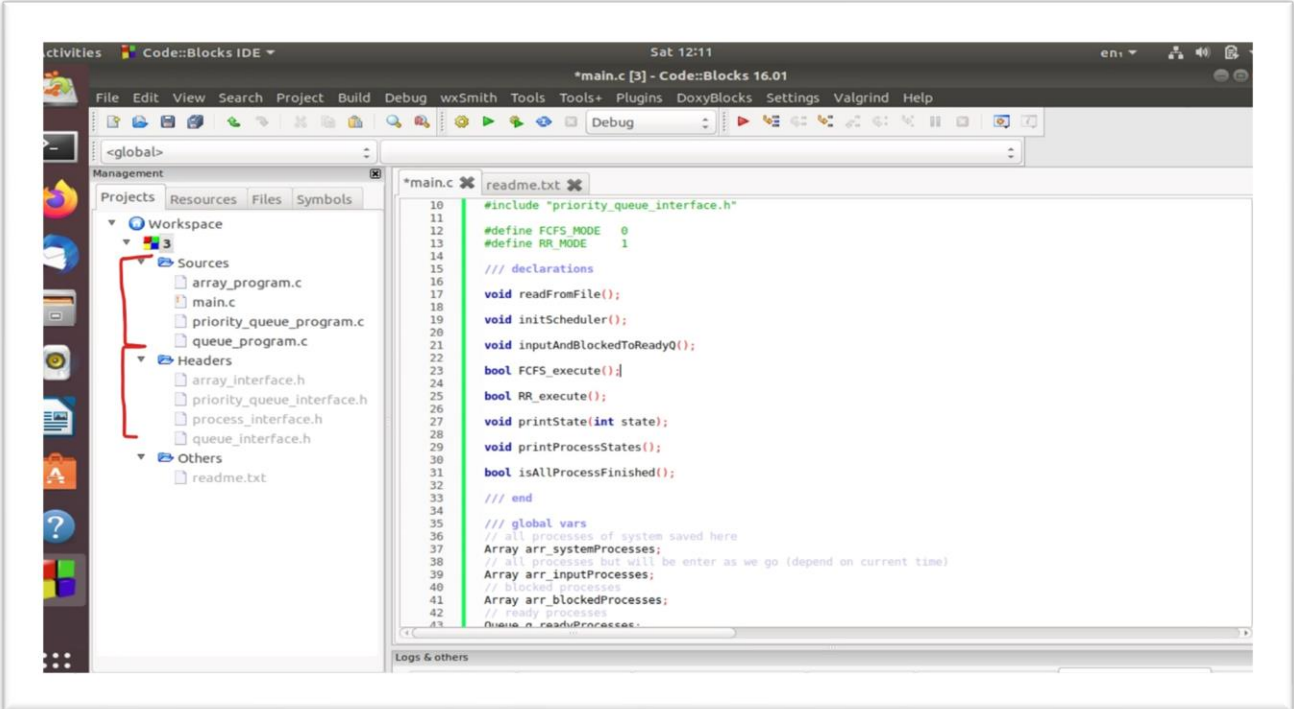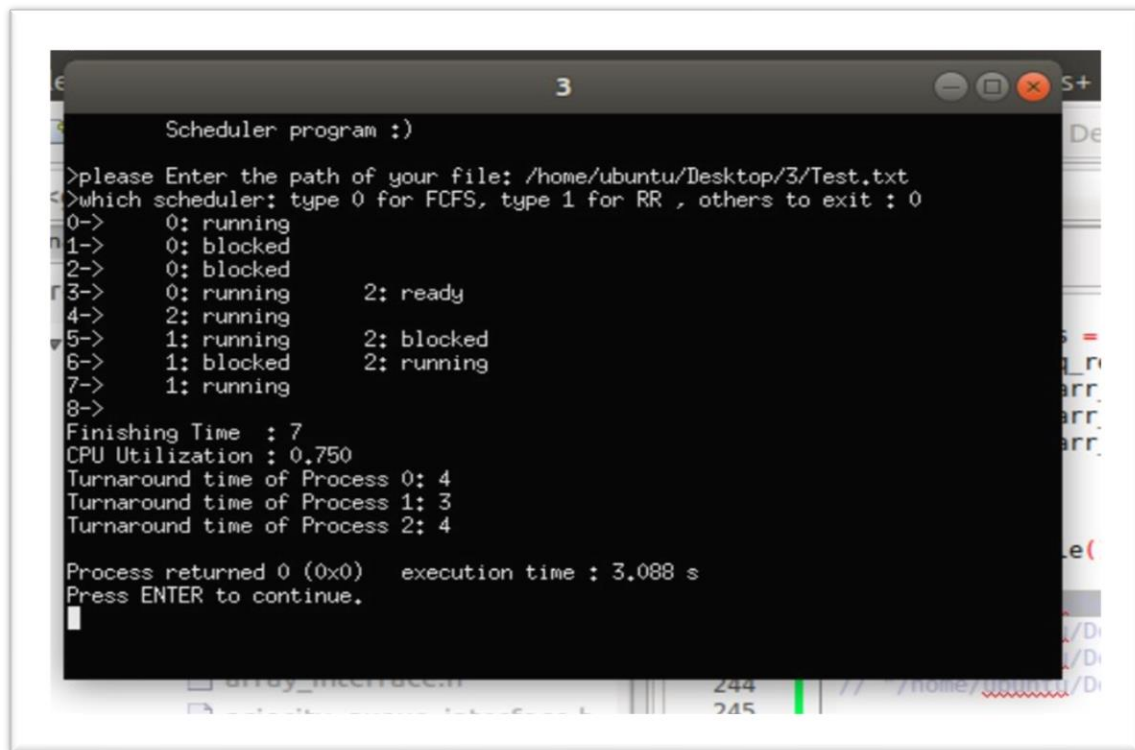
Code Blocks View:

Screenshot

Figure 1:The test in the pdf file - FCFS

Figure 2:The test in the pdf file - RR

```
          Scheduler program :)

>please Enter the path of your file: /home/ubuntu/Desktop/3/Test-file-1(1).txt
>which scheduler: type 0 for FCFS, type 1 for RR , others to exit : 0
0->
1->
2->      1: running      3: ready
3->      0: blocked      1: running      2: ready      3: ready
4->      0: blocked      1: blocked      2: ready      3: running
5->      0: blocked      1: blocked      2: ready      3: running
6->      1: blocked      2: ready      3: running
7->      1: blocked      2: ready      3: running
8->      1: ready        2: ready      3: running
9->      1: ready        2: ready      3: running
10->     1: ready        2: ready      3: running
11->     1: ready        2: ready      3: running
12->     1: ready        2: ready      3: running
13->     1: ready        2: running    3: blocked
14->     1: ready        2: running    3: blocked
15->     1: running      2: blocked    3: blocked
16->     1: running      2: blocked    3: ready
17->     2: blocked      3: running
18->     2: blocked      3: running
19->     2: ready        3: running
20->     2: ready        3: running
21->     2: ready        3: running
22->     2: ready        3: running
23->     2: ready        3: running
24->     2: ready        3: running
25->     2: ready        3: running
26->     2: running
27->     2: running
28->
Finishing Time  : 27
CPU Utilization : 0.929
Turnaround time of Process 0: 4
Turnaround time of Process 1: 15
Turnaround time of Process 2: 25
Turnaround time of Process 3: 24

Process returned 0 (0x0)   execution time : 5.907 s
Press ENTER to continue.
```

Figure 3:The 1st test file - FCFS

```
                           3                           ⊖ ▢ ✖   S

        Scheduler program :)

>please Enter the path of your file: /home/ubuntu/Desktop/3/Test-file-1(1).txt
>which scheduler: type 0 for FCFS, type 1 for RR , others to exit : 1
>enter 'q' time of Round Robin = 1
0->
1->
2->      1: running        3: ready
3->      0: blocked        1: ready          2: ready          3: running
4->      0: blocked        1: ready          2: running        3: ready
5->      0: blocked        1: running        2: ready          3: ready
6->      1: blocked        2: ready          3: running
7->      1: blocked        2: running        3: ready
8->      1: blocked        2: blocked        3: running
9->      1: blocked        2: blocked        3: running
10->     1: running        2: blocked        3: ready
11->     1: ready          2: blocked        3: running
12->     1: running        2: ready          3: ready
13->     2: running        3: ready
14->     2: ready          3: running
15->     2: running        3: ready
16->     3: running
17->     3: running
18->     3: running
19->     3: blocked
20->     3: blocked
21->     3: blocked
22->     3: running
23->     3: running
24->     3: running
25->     3: running
26->     3: running
27->     3: running
28->     3: running
29->     3: running
30->     3: running
31->
Finishing Time  : 30
CPU Utilization : 0.839
Turnaround time of Process 0: 4
Turnaround time of Process 1: 11
Turnaround time of Process 2: 13
Turnaround time of Process 3: 29

Process returned 0 (0x0)   execution time : 9.626 s
Press ENTER to continue.
```

Figure 4:The 1st test file - RR

Figure 5: :The 1st test file – RR , q = 2

Figure 6:The 2nd test file - FCFS

Figure 7:The 2nd test file - RR

```
>
>       2: running       6: ready
>       0: blocked       2: running
>       0: blocked       1: ready        3: blocked      6: ready        7: ready
>       0: blocked       1: ready        2: running      4: blocked      5: ready        6: ready        7: ready
>       1: ready         2: running      2: running      4: blocked      5: ready        6: ready        7: ready
>       1: ready         2: blocked      4: blocked      5: ready        6: ready        7: ready
>       1: ready         2: blocked      5: ready        6: running      7: ready
>       1: ready         2: blocked      5: ready        6: running      7: ready
>       1: ready         2: blocked      5: ready        6: blocked      7: running
>       1: ready         2: blocked      5: ready        6: blocked      7: running
->      1: running       2: blocked      5: ready        6: blocked      7: blocked
->      1: running       2: ready        5: ready        6: ready        7: blocked
->      1: blocked       2: ready        5: running      6: ready        7: blocked
->      1: blocked       2: ready        5: running      6: ready        7: ready
->      1: blocked       2: running      5: blocked      6: ready        7: ready
-> |    1: blocked       2: running      5: blocked      6: ready        7: ready
->      1: ready         2: running      5: blocked      6: ready        7: ready
->      1: ready         2: running      5: blocked      6: ready        7: ready
->      1: ready         2: running      5: ready        6: ready        7: ready
->      1: ready         5: ready        6: running      7: ready
->      1: ready         5: ready        6: running      7: ready
->      1: ready         5: ready        7: running
->      1: ready         5: ready        7: running
->      1: running       5: ready
->      1: running       5: ready
->      5: running
->      5: running
->
nishing Time   : 26
U Utilization : 0.963
rnaround time of Process 0: 4
rnaround time of Process 1: 22
rnaround time of Process 2: 18
rnaround time of Process 3: 2
rnaround time of Process 4: 4
rnaround time of Process 5: 24
rnaround time of Process 6: 20
rnaround time of Process 7: 21
```

Figure 8:The 3rd test file - FCFS

```
        q = 1
>
>       2: running       6: ready
>       0: blocked       2: ready        3: blocked      6: running      7: ready
>       0: blocked       1: ready        2: ready        4: blocked      5: ready        6: ready        7: running
>       0: blocked       1: ready        2: running      4: blocked      5: ready        6: ready        7: ready
>       1: running       2: ready        4: blocked      5: ready        6: ready        7: ready
>       1: ready         2: ready        5: running      6: ready        7: ready
>       1: ready         2: ready        5: ready        6: running      7: ready
>       1: ready         2: ready        5: ready        6: blocked      7: running
>       1: ready         2: running      5: ready        6: blocked      7: blocked
->      1: running       2: ready        5: ready        6: blocked      7: blocked
->      1: blocked       2: ready        5: running      6: ready        7: blocked
->      1: blocked       2: running      5: blocked      6: ready        7: ready
->      1: blocked       2: ready        5: blocked      6: running      7: ready
->      1: blocked       2: ready        5: blocked      6: ready        7: running
->      1: ready         2: running      5: blocked      6: ready        7: ready
->      1: ready         2: blocked      5: ready        6: running      7: ready
->      1: running       2: blocked      5: ready        7: ready
->      1: ready         2: blocked      5: ready        7: running
->      1: ready         2: blocked      5: running
->      1: running       2: blocked      5: ready
->      2: ready         5: running
->      2: running
->      2: running
->      2: running
->      2: running
->      2: running
->
nishing Time   : 26
U Utilization : 0.963
rnaround time of Process 0: 4
rnaround time of Process 1: 18
rnaround time of Process 2: 26
rnaround time of Process 3: 2
rnaround time of Process 4: 4
rnaround time of Process 5: 19
rnaround time of Process 6: 16
rnaround time of Process 7: 17
```

Figure 9:The 3rd test file - RR

```
        q = 3
>
>       2: running        6: ready
>       0: blocked        2: running       3: blocked       6: ready        7: ready
>       0: blocked        1: ready         2: running       4: blocked      5: ready        6: ready        7: ready
>       0: blocked        1: ready         2: ready         4: blocked      5: ready        6: running      7: ready
>       1: ready          2: ready         4: blocked       5: ready        6: running      7: ready
>       1: ready          2: ready         5: ready         6: blocked      7: running
>       1: ready          2: ready         5: ready         6: blocked      7: running
>       1: running        2: ready         5: ready         6: blocked      7: blocked
>       1: running        2: ready         5: ready         6: ready        7: blocked
->      1: blocked        2: ready         5: running       6: ready        7: blocked
->      1: blocked        2: ready         5: running       6: ready        7: ready
->      1: blocked        2: running       5: blocked       6: ready        7: ready
->      1: blocked        2: running       5: blocked       6: ready        7: ready
->      1: ready          2: blocked       5: blocked       6: running      7: ready
->      1: ready          2: blocked       5: blocked       6: running      7: ready
->      1: ready          2: blocked       5: ready         7: running
->      1: ready          2: blocked       5: ready         7: running
->      1: running        2: blocked       5: ready
->      1: running        2: ready         5: ready
->      2: ready          5: running
->      2: ready          5: running
->      2: running
->      2: running
->      2: running
->      2: running
->      2: running
->
nishing Time  : 26
U Utilization : 0.963
rnaround time of Process 0: 4
rnaround time of Process 1: 17
rnaround time of Process 2: 26
rnaround time of Process 3: 2
rnaround time of Process 4: 4
rnaround time of Process 5: 19
rnaround time of Process 6: 15
rnaround time of Process 7: 16
```

Figure 10:The 3rd test file - RR