**Homework #3-4**

1. **Fork and Exec:**

Run:

make args=“arguments go here”

or

gcc -Wall -g -o hw3 hw3.c

./hw3.c arguments go here

1. **Simple Scheduling:**
   1. **FIFO Scheduling**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Start Time | End Time | Turnaround | Response |
| Job1 | 0 | 10 | 10 | 0 |
| Job2 | 10 | 25 | 25 | 10 |
| Job3 | 25 | 30 | 30 | 25 |
| Job4 | 30 | 52 | 52 | 30 |

Avg. Turnaround = (10 + 25 + 30 + 52)/4 = 29.25 s

Avg. Response = (0 + 10 + 25 + 30)/4 = 16.25 s

* 1. **SJF Scheduling**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Start Time | End Time | Turnaround | Response |
| Job1 | 30 | 55 | 55 | 30 |
| Job2 | 15 | 30 | 30 | 15 |
| Job3 | 0 | 5 | 5 | 0 |
| Job4 | 5 | 15 | 15 | 5 |

Avg. Turnaround = (55 + 30 + 5 + 15)/4 = 26.25 s

Avg. Response = (30 + 15 + 0 + 5)/4 = 12.5 s

* 1. **STCF Scheduling**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Start Time | End Time | Turnaround | Response |
| Job1 | 35 | 60 | 60 | 35 |
| Job2 | 0 | 35 | 35 | 5 |
| Job3 | 5 | 10 | 5 | 0 |
| Job4 | 10 | 25 | 15 | 0 |

Avg. Turnaround = (60 + 35 + 5 + 15)/4 = 28.75 s

Avg. Response = (35 + 5 + 0 + 0)/4 = 10 s

* 1. **RR Scheduling**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Start Time | End Time | Turnaround | Response |
| Job1 | 0 | 52 | 52 | 0 |
| Job2 | 2 | 32 | 32 | 2 |
| Job3 | 6 | 24 | 19 | 1 |
| Job4 | 10 | 50 | 40 | 0 |

Avg. Turnaround = (52 + 32 + 19 + 40)/4 = 35.75 s

Avg. Response = (0 + 2 + 1 + 0)/4 = 0.75 s

1. **More Complex Scheduling:**
   1. **MLFQ Scheduling**

|  |  |  |
| --- | --- | --- |
|  | Turnaround | Response |
| Job 0 | 84 | 0 |
| Job 1 | 153 | 7 |
| Job 2 | 81 | 15 |
| Job 3 | 70 | 18 |

Avg. Turnaround = (84 + 153 + 81 + 70)/4 = 97 s

Avg. Response = (0 + 7 + 15 + 18)/4 = 10 s

ii) In the range of 1 - 15, the average response time is shorter, but the average

turnaround time is longer. After that point, the response time seems to stay right around 10 and the turnaround time goes over 100.

* 1. **Lottery Scheduling**

|  |  |  |
| --- | --- | --- |
|  | Turnaround | Response |
| Job 0 | 13 | 2 |
| Job 1 | 23 | 0 |
| Job 2 | 18 | 1 |
| Job 3 | 27 | 4 |

Avg. Turnaround = (13 + 23 + 18 + 27)/4 = 20.25 s

Avg. Response = (2 + 0 + 1 + 4)/4 = 1.75 s

ii) As the time slice time goes up, the turnaround and response times go up. If you put

the slice time longer than the job’s length, it still runs for the entire slice, so it can increase the times significantly if that is done.