

Simulation of PreEmptive Priority Queue

M/M/1 Model

| P# | Arrival Time | Service Time | Priority | Start | End | Turn Around | Wait Time | Response Time |
|----|--------------|--------------|----------|-------|-----|-------------|-----------|---------------|
| 1 | 0 | 19 | 3 | 0 | 70 | 70 | 51 | 0 |
| 2 | 4 | 18 | 3 | 70 | 88 | 84 | 66 | 66 |
| 3 | 7 | 12 | 2 | 7 | 30 | 23 | 11 | 0 |
| 4 | 9 | 17 | 3 | 88 | 105 | 96 | 79 | 79 |
| 5 | 15 | 5 | 1 | 15 | 20 | 5 | 0 | 0 |
| 6 | 18 | 6 | 1 | 20 | 26 | 8 | 2 | 2 |
| 7 | 27 | 13 | 2 | 30 | 43 | 16 | 3 | 3 |
| 8 | 30 | 15 | 2 | 43 | 58 | 28 | 13 | 13 |
| | | 105 | | | 330 | 225 | 163 | |

M/M/2 Model

| P# | Arrival Time | Service Time | Priority | Server | Start | End | Turn Around | Wait Time | Response Time |
|----|--------------|--------------|----------|--------|-------|-----|-------------|-----------|---------------|
| 1 | 0 | 19 | 3 | A | 0 | 47 | 47 | 28 | 0 |
| 2 | 4 | 18 | 3 | B | 4 | 28 | 24 | 6 | 0 |
| 3 | 7 | 12 | 2 | A | 7 | 24 | 17 | 5 | 0 |
| 4 | 9 | 17 | 3 | B | 45 | 62 | 53 | 36 | 36 |
| 5 | 15 | 5 | 1 | A | 15 | 20 | 5 | 0 | 0 |
| 6 | 18 | 6 | 1 | B | 18 | 24 | 6 | 0 | 0 |
| 7 | 27 | 13 | 2 | A | 27 | 40 | 13 | 0 | 0 |
| 8 | 30 | 15 | 2 | B | 30 | 45 | 15 | 0 | 0 |
| | | 105 | | | 180 | 75 | 36 | | |

Formula:

- Turn Around=End -Arrival Time
- Wait Time =Turn Around -Service Time
- Response Time=Start-Arrival Time