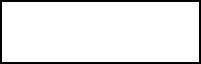
**Batch Scheduling Visual Representation**

Prompt: Consider 5 jobs, A through E, with runtimes 3, 5, 2, 2, 2 and arrival times 0, 0, 5, 5, 5 respectively.  Provide a visual representation of both cases showing the runtimes and arrival times

**Solution:**



**`**



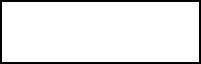
**a)**

**Running jobs in defined order:** Using a defined order, the average wait time is 3.4 which is shown below:

|  |  |  |  |
| --- | --- | --- | --- |
| Job | Arrival Time | Start time | Wait Time ( Start Time – Arrival Time) |
| B | 0 | 0 | 0 |
| C | 5 | 5 | 0 |
| D | 5 | 7 | 2 |
| E | 5 | 9 | 4 |
| A | 0 | 11 | 11 |

Average Wait Time = Total Wait Time/ number of jobs = 17/5 = 3.4

Note: Start time = max(finish time of previous job, arrival time of current job)



**b)**

**Running jobs in shortest job first (sjf) order:** it picks the job with the shortest run time. Using sjf, the average wait time is 3.6

|  |  |  |  |
| --- | --- | --- | --- |
| Job | Arrival Time | Start time | Wait Time ( Start Time – Arrival Time) |
| A | 0 | 0 | 0 |
| B | 0 | 3 | 3 |
| C | 5 | 8 | 3 |
| D | 5 | 10 | 5 |
| E | 5 | 12 | 7 |

Average Wait Time = Total Wait Time/ number of jobs = 18/5 = 3.6