Data Structures and Algorithms

Project Phase 1 Report

**Number of Members: 3**

# Members' Info:

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| --- | --- | --- | --- |
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# Selected Data Structures:

| **List Name** | **Chosen DS** | **Justification** |
| --- | --- | --- |
| NEW List | Queue | * (FIFO order): The queue ensures that the processes are scheduled in the order they arrived, in a FIFO order. (As they are sorted by arrival time in the input file) * Fast Insertion and Removal   + inserting a new process in the queue is O(1)   + removing the first process from the front of the queue has a time complexity of O(1)   Therefore, using a queue to store new processes ensures that the process scheduler can efficiently manage incoming processes and schedule them for execution in an orderly manner. |
| TRM List | Queue | * By using a queue, the terminated processes can be easily added to the end of the queue as they are terminated, and processed in the order they were terminated, ensuring that they are printed in ascending order by termination time. * Fast Insertion and Removal   + inserting a new process in the queue is O(1)   + removing the first process from the front of the queue has a time complexity of O(1)   A queue ensures that the processes are printed in the order they were terminated, which is important for bookkeeping and record-keeping purposes. This allows the process scheduler to easily track and manage the terminated processes and ensure that they are processed and printed in the correct order. |
| BLK List | Queue |  |
| FCFS RDY list | List (may change) |  |
| SJF RDY list | Priority Queue |  |
| RR RDY list | Queue |  |
| Processors List | List |  |