ADVANCED OPERATING SYSTEMS

CSEN383

PROJECT-5 (Disk Scheduling Simulator)

Group – 3

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Disk Scheduling Algorithm Output:

1. FCFS

```
FCFS:
FCFS Order: 2255 -> 2055 -> 1175 -> 2304 -> 2700 -> 513 -> 1680 -> 256 -> 1401 -> 4922 -> 3692
Total Distance: 13279
```

2. SSTF

```
SSTF:
SSTF Order: 2255 -> 2304 -> 2055 -> 1680 -> 1401 -> 1175 -> 513 -> 256 -> 2700 -> 3692 -> 4922
Total Distance: 6763
```

3. SCAN

```
SCAN:
SCAN Order: 2255 -> 2304 -> 2700 -> 3692 -> 4922 -> 4999 -> 2055 -> 1680 -> 1401 -> 1175 -> 513 -> 256
Total Distance: 7487
```

4. LOOK

```
LOOK:
LOOK Order: 2255 -> 2304 -> 2700 -> 3692 -> 4922 -> 2055 -> 1680 -> 1401 -> 1175 -> 513 -> 256
Total Distance: 7333
```

5. C-SCAN

```
C-SCAN:
C-SCAN Order: 2255 -> 2304 -> 2700 -> 3692 -> 4922 -> 4999 -> 0 -> 256 -> 513 -> 1175 -> 1401 -> 1680 -> 2055
Total Distance: 4799
```

6. C-LOOK

```
C-LOOK:
C-LOOK Order: 2255 -> 2304 -> 2700 -> 3692 -> 4922 -> 256 -> 513 -> 1175 -> 1401 -> 1680 -> 2055
Total Distance: 9132
```

Conclusion:

The analysis of various **Disk Scheduling Algorithms**—FCFS, SSTF, SCAN, LOOK, C-SCAN, and C-LOOK—demonstrates significant variations in efficiency based on the total seek time. FCFS, being the simplest, results in the highest seek time due to its non-optimized approach, making it inefficient for real-world applications. SSTF significantly reduces seek time by serving the closest request first but suffers from starvation issues. SCAN and LOOK improve upon SSTF by ensuring fairness and reducing unnecessary movements, though they still involve significant seek distances.

Among all algorithms, **C-SCAN proves to be the most efficient**, ensuring a uniform wait time while minimizing the total seek distance. C-LOOK further optimizes this by avoiding redundant movement to the disk edges. Overall, the choice of the scheduling algorithm depends on system needs: **C-SCAN or LOOK are ideal for balancing efficiency and fairness, while SSTF is suitable for minimizing seek time but may not be fair to all requests.**