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CSC 332 Section H
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Assignment #4 Report

Screenshot of the Output:

```
stefantan@Stefans-MacBook-Air assignment_04 % gcc assignment_04.c -o assignment_04
stefantan@Stefans-MacBook-Air assignment_04 % ./assignment_04 5000
```

Disk-Scheduling Algorithms	Amount of Head Movements
FCFS	3475195
SCAN	14999
C-SCAN	19996

```
stefantan@Stefans-MacBook-Air assignment_04 %
```

Questions:

1. Definition of each algorithm.

   The FCFS (First Come First Serve) disk-scheduling algorithm executes queued requests and processes in the order of their arrival. As such, the requests are stored within a queue and the number that is in the front of the queue will be handled first. All incoming requests will be added to the end of the queue.

   The SCAN (elevator) disk-scheduling algorithm, the requests are handled starting from the one end of the disk and then moves towards the other end of the disk. Once it reaches the other end of the disk, the head movement is reversed and the servicing of the requests continues.

   The C-SCAN disk-scheduling algorithm is a modified version of the SCAN algorithm and it addresses the issue of the SCAN algorithm possibly causing a huge

disparity in waiting time. C-SCAN provides a more uniform waiting time. To do that, C-SCAN, similar to SCAN, starts handling requests from one end of the disk and then moves towards the other end of the disk. However, when it reaches the end of the disk, C-SCAN instead returns to the beginning of the disk without servicing any requests on the return trip. It effectively treats the cylinders as a circular list that wraps around from the last cylinder to the first one.

2. The result (total amount of head movement) for each algorithm.

    The FCFS (First Come First Serve) disk-scheduling algorithm results in a total head movement of 3,475,195 cylinders.

    The SCAN (elevator) disk-scheduling algorithm results in a total head movement of 14,999 cylinders.

    The C-SCAN disk-scheduling algorithm results in a total head movement of 19,996 cylinders.

3. Which algorithm is the most efficient one? Why?

    The algorithm that is the most efficient one is the SCAN disk-scheduling algorithm. This is due to the SCAN disk-scheduling algorithm results in the least amount of total head movement compared to the other two disk-scheduling algorithms. Thus, it is able to complete servicing the requests with the least amount of head movement.