



Lab5

Disk Scheduling

Objectives:

1. Implementing several disk scheduling algorithms.
2. Evaluating several disk scheduling algorithms.

Description:

The simplest form of disk scheduling is, of course, the (**FIFO**) algorithm. This algorithm is intrinsically fair, but it generally does not provide the fastest service. In the **SCAN** algorithm, the disk arm starts at one end, and moves towards the other end, servicing requests as it reaches each cylinder, until it gets to the other end of the disk. At the other end, the direction of head movement is reversed, and servicing continues. The head continuously scans back and forth across the disk. **C-SCAN** is a variant of **SCAN** designed to provide a more uniform wait time. Like **SCAN**, **C-SCAN** moves the head from one end of the disk to the other, servicing requests along the way. When the head reaches the other end, however, it immediately returns to the beginning of the disk without servicing any requests on the return trip.

Problem Statement:

It is required to simulate some of disk scheduling algorithms. The required algorithms to be implemented are as follows:

- First In First Out (FIFO)
- SCAN
- C-SCAN

Input: *Your input will be from standard input.*

- Disk track requests. *e.g. 27, 129, 110, 186, 147, 41, 10, 64, 120.*
- Disk head is initially positioned over track *e.g. 100.*
- Disk head is moving in *e.g. the direction of decreasing track number.*



Output: *Your output will be from standard output*

For each algorithm: Show the sequence of head movement to access the requested tracks based on the implemented algorithms , and show the average head movement per algorithm.

Ex : Output for SCAN

```
Enter the size of disk
200
Enter number of requests
9
Enter the requests
27 129 110 186 147 41 10 64 120
Enter the head position
100
Enter the head direction
1
100 -> 110 -> 120 -> 129 -> 147 -> 186 -> 64 -> 41 -> 27 -> 10
Total head movements = 262
Average head movement = 29.1111
```

Deliverables:

- Complete source code
- A report that includes:
 - i. A description of the overall organization of your code and the major functions.
 - ii. Sample runs.

Notes:

- You must write your code in C/C++ .
- Operating System: Linux
- You should work individually.