**Class: CSC 502**

**Assignment #4: Disk Scheduling Algorithms**

**Group-2**

Assignment Participants:

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**Project submission Date:**

**Project Scope:** To calculate total distance and list the order disk arm moves from current serving request to satisfy all the pending request in the given queue by applying following disk -scheduling algorithms.

1. **FCFS:** First Come First Serve

2. **SSTF:** Shortest Seek Time First

3. **SCAN:** Elevator Algorithm – Serving in both directions and always starts at cylinder 0 to the highest cylinder and then reverses direction

4. **LOOK:** similar to SCAN in serving in both directions, however it reverses as soon as there is no more requests in the moving direction

5. **C-SCAN:** Similar to SCAN but serving in one direction only

6. **C-LOOK:** correspond to C-SCAN but reverses as soon as there is no more re-quests in the moving direction. Similar to LOOK but serves in one direction only.

**Assumptions:**

1.Total Disk driver cylinder:5000 Numbered 0 to 4999

2.Current serving cylinder:2255

3. Previous serving cylinder:1723

4. Queue of pending request:2055,1175,2304,2700,513,1680,256,1401,4922,3692

**Disk Scheduling Algorithms:**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **(A) Pending requests based on FIFO** | **# of cylinders movement** |  | **(B) Pending requests based on SSTF** | **# of cylinders movement** |  | **(C) Pending requests based on SCAN** | **# of cylinders movement** |  | **(d) Pending requets based on LOOK** | **# of cylinders movement** |
|  |  |  |  |  |  |  |  |  |  |  |
| 2255 | - |  | 2255 | - |  | 2255 | - |  | 2255 | - |
| 2055 | 200 |  | 2304 | 49 |  | 2304 | 49 |  | 2304 | 49 |
| 1175 | 880 |  | 2055 | 249 |  | 2700 | 396 |  | 2700 | 396 |
| 2304 | 859 |  | 1680 | 375 |  | 3692 | 992 |  | 3692 | 992 |
| 2700 | 666 |  | 1401 | 279 |  | 4922 | 1230 |  | 4922 | 1230 |
| 513 | 2187 |  | 1175 | 226 |  | 2055 | 2867 |  | 2055 | 2867 |
| 1680 | 1167 |  | 513 | 662 |  | 1680 | 375 |  | 1680 | 375 |
| 256 | 1424 |  | 256 | 257 |  | 1401 | 279 |  | 1401 | 279 |
| 1401 | 1145 |  | 2700 | 2444 |  | 1175 | 226 |  | 1175 | 226 |
| 4922 | 3521 |  | 3692 | 992 |  | 513 | 662 |  | 513 | 662 |
| 3692 | 1230 |  | 4922 | 1230 |  | 256 | 257 |  | 256 | 257 |
| Total | 13279 |  | Total | 6763 |  | Total | 7333 |  | Total | 7333 |
| Calculation: | 13279 |  |  | 6763 |  | Total Dist travel= (4999-2255) +(4999-256) =7487 | |  | Total Dist travel= (4922-2255) +(4922-256) =7333 | |
| **Total distance Traveled** | **13279** |  | **Total distance Traveled** | **6763** |  | **Total distance Traveled** | **7487** |  | **Total distance Traveled** | **7333** |

**Continue:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **(e) Pending requets based on C-SCAN** | **# of cylinders movement** |  | **(f) Pending requets based on C-LOOK** | **# of cylinders movement** |
|  |  |  |  |  |
| **2255** | **-** |  | **2255** | **-** |
| **2304** | **49** |  | **2304** | **49** |
| **2700** | **396** |  | **2700** | **396** |
| **3692** | **992** |  | **3692** | **992** |
| **4922** | **1230** |  | **4922** | **1230** |
| **256** | **4666** |  | **256** | **4666** |
| **513** | **257** |  | **513** | **257** |
| **1175** | **662** |  | **1175** | **662** |
| **1401** | **226** |  | **1401** | **226** |
| **1680** | **279** |  | **1680** | **279** |
| **2055** | **375** |  | **2055** | **375** |
| **Total** | **9132** |  | **Total** | **9132** |
| **Total Dist travel=(4999-2255)+(4999-0)+(2055-0)=9798** | |  |  | **Total Dist travel= (4922-2255) + (4922-256)+(2055-256)=9132** |
| **Total distance Traveled** | **9798** |  | **Total distance Traveled** | **9132** |