Project Title: Disk Scheduling Algorithms

Introduction

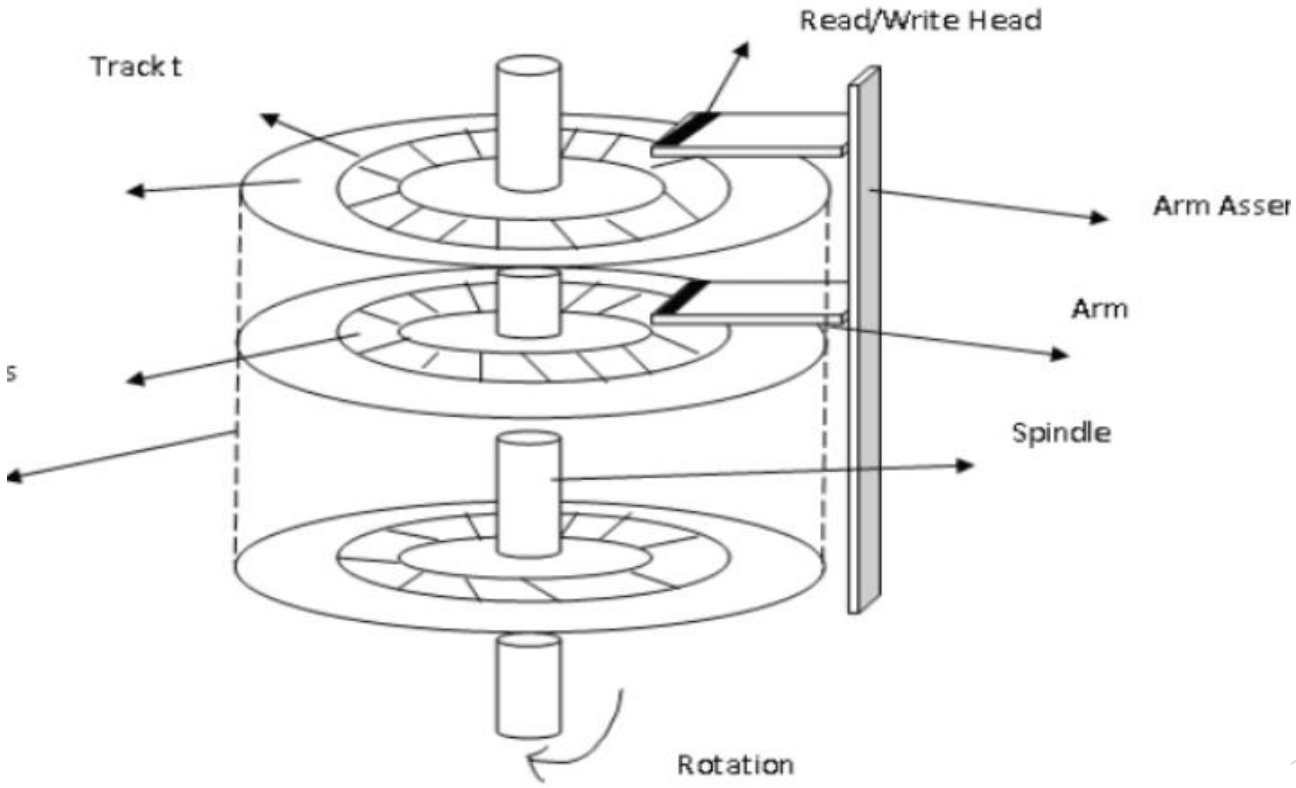
Objective: To understand and analyze various disk scheduling algorithms and their impact on system performance.

Scope: This project covers the basic concepts, key algorithms, their advantages, disadvantages, and practical applications.

Disk Scheduling Algorithms

FCFS (First Come First Serve)
SSTF (Shortest Seek Time First)
SCAN
C-SCAN
LOOK
C-LOOK
RSS (Random Scheduling)
LIFO (Last-In First-Out)

Disk scheduling algorithm in OS

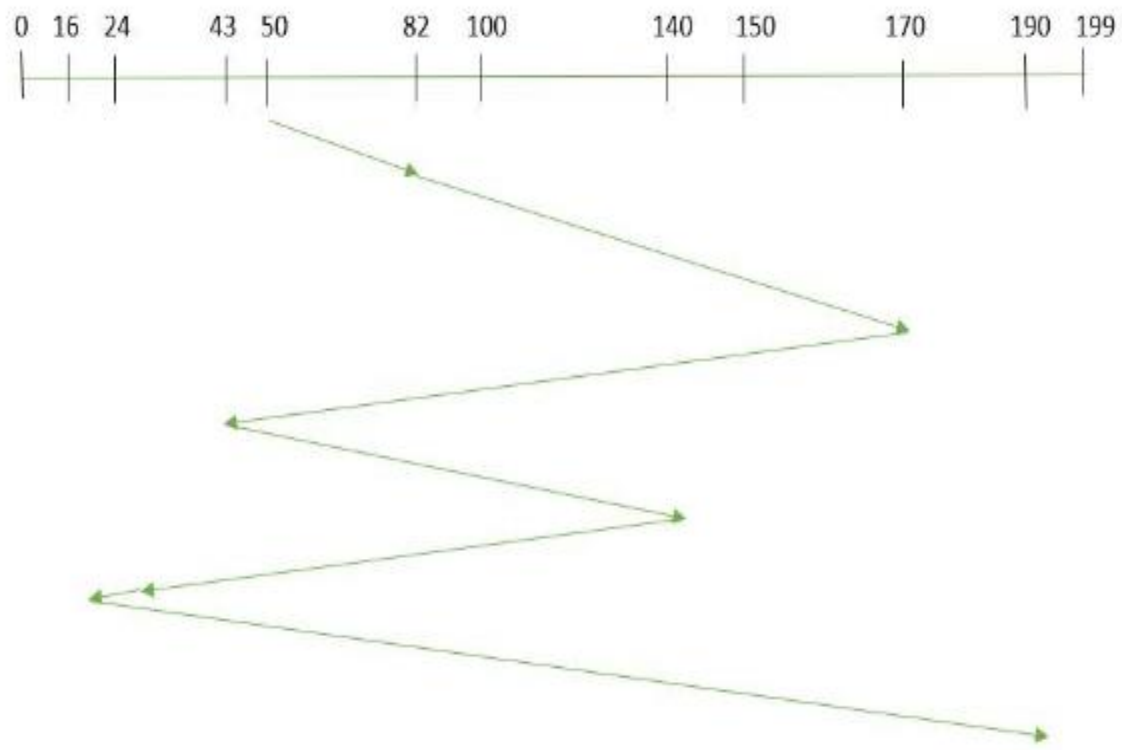


First-Come-First-Serve (FCFS):

FCFS is the simplest of all Disk Scheduling Algorithms. In FCFS, the requests are addressed in the order they arrive in the disk queue. Let us understand this with the help of an example.

Suppose the order of request is-
(82,170,43,140,24,16,190)
And current position of Read/Write head is: 50

So, total overhead movement (total distance covered by the disk arm) =
(82-50)+(170-82)+(170-43)+(140-43)+(140-24)+(24-16)+(190-16) =642



First Come First Serve

First-Come-First-Serve (FCFS):

Advantages of FCFS

Every request gets a fair chance

No indefinite postponement

Disadvantages of FCFS

Here are some of the disadvantages of First Come First Serve.

Does not try to optimize seek time

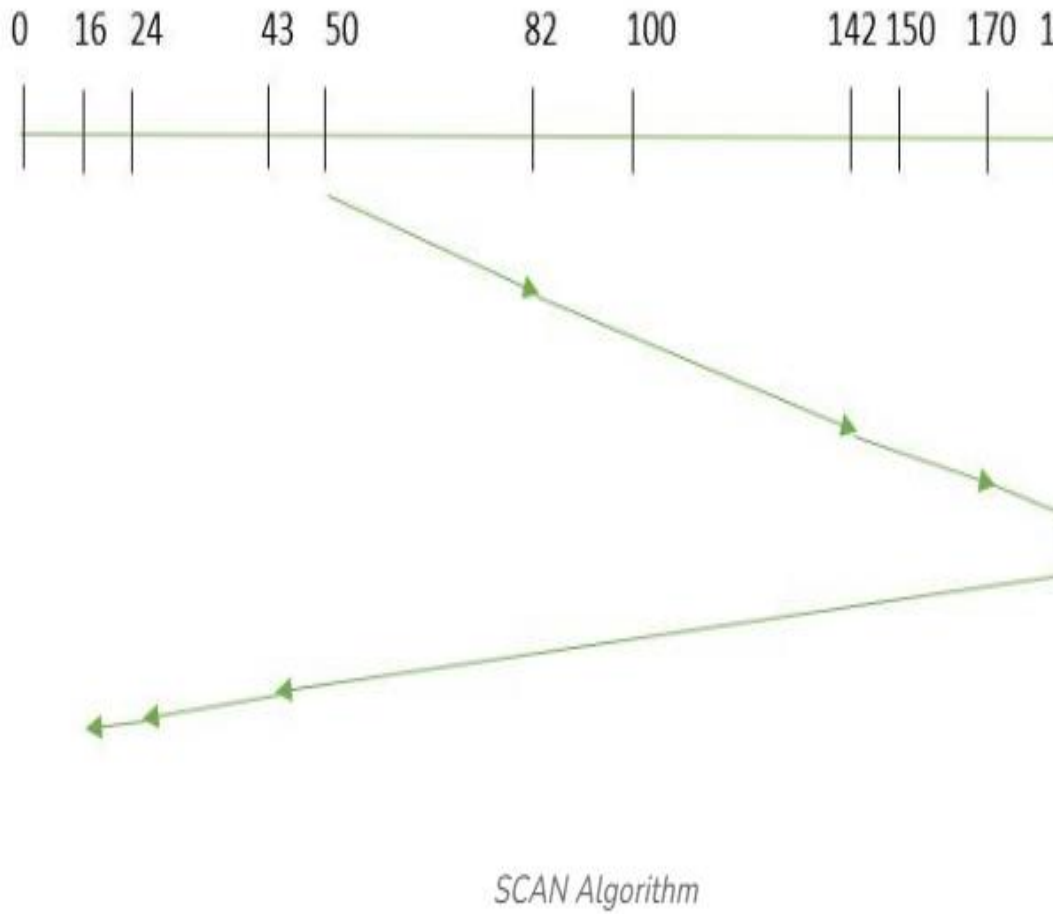
May not provide the best possible service

SCAN algorithm

In the SCAN algorithm the disk arm moves in a particular direction and services the requests coming in its path and after reaching the end of the disk, it reverses its direction and again services the request arriving in its path.

uppose the requests to be addressed are-82,170,43,140,24,16,190. And the Read/Write arm is at 50, and it is also given that the disk arm should move **“towards the larger value”.**

So, total overhead movement (total distance covered by the disk arm) = (199-50) + (199-16) = 332



SCAN Algorithm

First-Come-First-Serve (FCFS):

Advantages of SCAN Algorithm

Here are some of the advantages of the SCAN Algorithm.

High throughput

Low variance of response time

Average response time

Disadvantages of SCAN Algorithm

Here are some of the disadvantages of the SCAN Algorithm.

Long waiting time for requests for locations just visited by disk arm

Thank You