Disk scheduling algorithms are used by the operating system to determine the order in which disk requests are serviced.

The following are some commonly used disk scheduling algorithms:

1. First Come, First Served (FCFS)
2. Shortest Seek Time First (SSTF)
3. SCAN
4. C-SCAN
5. Look

1. First Come, First Served (FCFS):

In this algorithm, the disk requests are serviced in the order they are received. The first request to arrive is serviced first, followed by the second request, and so on. This algorithm is simple and easy to implement but can lead to long wait times for requests that are located far from the current disk head position.

Illustration:

Consider the following disk requests in track order: 98, 183, 37, 122, 14, 124, 65, 67. Starting position of the disk head is at track 53. The total amount of head movement required is 640 tracks.

2. Shortest Seek Time First (SSTF):

In this algorithm, the disk head moves to the request that is closest to its current position. This reduces the average wait time for requests and improves the overall disk performance.

Illustration:

Consider the same disk requests as above with the same starting position. The total amount of head movement required is reduced to 236 tracks.

3. SCAN:

In this algorithm, the disk head moves in one direction servicing requests until it reaches the end of the disk, then reverses direction and services requests in the opposite direction. This algorithm provides good service times for all requests, but can lead to some requests waiting longer than others.

Illustration:

Consider the same disk requests as above with the same starting position. The total amount of head movement required is 208 tracks.

4. C-SCAN:

In this algorithm, the disk head moves in one direction servicing requests until it reaches the end of the disk, then immediately moves to the opposite end of the disk and begins servicing requests again in the same direction. This algorithm provides good service times for all requests and ensures that no requests wait longer than others.

Illustration:

Consider the same disk requests as above with the same starting position. The total amount of head movement required is 143 tracks.

5. Look:

In this algorithm, the disk head services requests in one direction until there are no more requests in that direction, then reverses direction and services requests in the opposite direction. This algorithm reduces the head movement compared to SCAN and provides good service times for all requests.

Illustration:

Consider the same disk requests as above with the same starting position. The total amount of head movement required is 202 tracks.

The choice of algorithm depends on the specific requirements of the system, the characteristics of the workload, and the desired trade-offs between performance metrics such as throughput, response time, and fairness.

Related posts:

1. Operating System: A List of Video Lectures RGPV Notes
2. GATE, Context switch calculation in SRTF algorithm | Prof. Jayesh Umre
3. Introduction to Operating Systems
4. Different Types of OS
5. Characteristics and features of an OS
6. Operating sytems services
7. System Calls in OS
8. File Systems
9. How many page faults
10. Process State Diagram

11. Operating System Scheduler
12. FIFO page replacement algorithm
13. LRU page replacement algorithms
14. Optimal page replacement algorithm
15. SRTF shortest remaining time first
16. OS 4
17. OS 3
18. Os 2
19. Os 1
20. CBSE NET 2004 38
21. Cbse net 2004 37
22. Cbse net 2004
23. CBSE Net 2017
24. Ugc net 2017 solved
25. NET 4
26. NET 1
27. Net 28
28. Net 26
29. Net 50
30. Net 49
31. Net 48
32. Net 46
33. Net 44
34. Net 40
35. Net 39
36. GATE, Longest Remaining Time First Algorithm | Prof. Jayesh Umre
37. GATE SRTF | What is the total waiting time for process P2?

38. GATE Calculate Total Waiting Time SRTF algorithm | Prof. Jayesh Umre
39. Memory management
40. Concept of Threads
41. Process concept
42. Directory Structure OS
43. Contiguous disk space allocation method
44. File systems
45. Types of os
46. Evolution of os
47. Functions of os
48. Why is operating system a mandatory software?
49. Bankers algorithm problems
50. Diploma Linux Unit 3
51. RGPV Diploma Linnux Unit 2
52. Program to print string in reverse order
53. Program to implement while loop in Linux
54. Program to implement for loop using sequence keyword in Liux
55. Program to implement different types of increment in Linux
56. For loop without in keyword in Linux
57. Program to implement for loop using in keyword in Linux
58. Multiple Processor Scheduling
59. What do you mean by Virtual Memory? Write down its advantages?
60. Compare Paging and Segmentation?
61. What is Process Scheduling, CPU Scheduling, Disk Scheduling? Explain Short, Medium and Long term Scheduler?
62. Explain concept of a process with its components ?
63. Explain the following in brief Contiguous and Linked list allocation for implementing file

system?

64. Define process and thread. What is PCB ? Explain its various entries with their usefulness ?
65. Discuss advantages and disadvantages of the Buffer cache ?
66. Explain different types of OS with examples of each ?
67. What is an Operating System? Write down its desirable characteristics ?
68. Define a deadlock ? Write down the conditions responsible for deadlock? How can we recover from deadlock ?
69. What are the various services provided by Operating system ?
70. What do you mean by PCB? Where is it used? What are its contents? Explain.
71. What is Binary and Counting semaphores ?
72. What is File? What are the different File attribute and operations?
73. What are System call? Explain briefly about various types of system call provided by an Operating System?
74. Describe necessary conditions for deadlocks situation to arise.
75. What are points to be consider in file system design? Explain linked list allocation in detail?
76. Write a Semaphore solution for dining Philosopher’s problem?
77. Consider the following page reference string:1,2,3,4,5,3,4,1,2,7,8,7,8,9,7,8,9,5,4,5. How many page faults would occur for the following replacement algorithm, assuming four frames:a) FIFOb) LRU
78. Explain CPU schedulers in operating system?
79. Write the different state of a process with the help of Process state deagram?
80. What is Mutex in operating system?
81. Explain Network operating system?
82. What do you mean by paging in operating system ?