Explain CPU schedulers in operating system?

In an operating system, a CPU scheduler is a component responsible for selecting processes from the ready queue and assigning them to the CPU for execution. There are different types of CPU schedulers, and they differ in their scheduling policies and algorithms.

The primary goal of a CPU scheduler is to achieve good system performance by optimizing CPU utilization, throughput, response time, and fairness.

Here are some of the commonly used CPU scheduling algorithms:

1. First-Come, First-Served (FCFS): In this scheduling algorithm, processes are selected in the order they enter the ready queue. The process that arrives first gets executed first. FCFS is a non-preemptive algorithm, which means that once a process is assigned to the CPU, it runs to completion, and only then another process is selected.

2. Shortest Job First (SJF): In this scheduling algorithm, processes with the shortest expected processing time are given priority. SJF is also a non-preemptive algorithm, which means that once a process is assigned to the CPU, it runs to completion, and only then another process is selected.

3. Round Robin (RR): In this scheduling algorithm, each process is assigned a fixed time slice or quantum, and the CPU switches between processes in a cyclic manner, giving each process a chance to execute for a fixed amount of time. If a process does not complete execution within its time slice, it is preempted, and the CPU switches to the next process in the queue.

4. Priority Scheduling: In this scheduling algorithm, each process is assigned a priority, and the CPU selects the process with the highest priority for execution. If two or more processes have the same priority, then the scheduling algorithm may use FCFS or SJF as a tiebreaker.

5. Multilevel Feedback Queue: This scheduling algorithm uses multiple queues with different priorities and time slices. Processes are initially assigned to the highest priority queue, and if a process does not complete its execution within its time slice, it is demoted to a lower priority queue. Similarly, if a process completes its execution within its time slice, it is promoted to a higher priority queue.

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. Explain various Disk scheduling algorithms with Illustrations ?

65. Define process and thread. What is PCB ? Explain its various entries with their usefulness ?

66. Discuss advantages and disadvantages of the Buffer cache ?

67. Explain different types of OS with examples of each ?

68. What is an Operating System? Write down its desirable characteristics ?

69. Define a deadlock ? Write down the conditions responsible for deadlock? How can we recover from deadlock ?

70. What are the various services provided by Operating system ?

71. What do you mean by PCB? Where is it used? What are its contents? Explain.

72. What is Binary and Counting semaphores ?

73. What is File? What are the different File attribute and operations?

74. What are System call? Explain briefly about various types of system call provided by an Operating System?

75. Describe necessary conditions for deadlocks situation to arise.

76. What are points to be consider in file system design? Explain linked list allocation in detail?

77. Write a Semaphore solution for dining Philosopher's problem?

78. 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

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 ?