OS Lab Cycles

1. **Cycle-1:** Execute various UNIX system calls

A. Process Management B. File Management C. Input/output System Calls

Need to write table for 5 types of system calls supported in Windows and Unix)

1. **Cycle-2:** Simulate the following CPU scheduling algorithms.

a) FCFS b) SJF d) Priority.

1. **Cycle-3:** Simulate the file allocation strategies:

a) Sequential b) Indexed c) Linked

1. Cycle-4: Simulate MVT and MFT Simulate contiguous memory allocation techniques

a) Worst-fit b) Best fit c) First fit

Memory partitions of 100kb,500 kb,200 kb,300kb,600 kb are available how would best ,worst, first fit algorithm to place processes 212,417,112,426 in order

1. Cycle-6: Simulate Bankers Algorithm for Deadlock Avoidance

Consider the system with the 10 instances of resource type A,5 instances of resource type B and 7 instances of resource type C and snapshot of information related to resources allocation, max and available indicated below

|  |  |  |  |
| --- | --- | --- | --- |
| Process Name | *Allocation* | *Max* | *Available* |
|  | ***A B C*** | ***A B C*** | ***A B C*** |
| **P0** | ***0 1 0*** | ***7 5 3*** | ***3 3 2*** |
| **P1** | *2 0 0* | *3 2 2* |
| **P2** | *3 0 2* | *9 0 2* |
| **P3** | *2 1 1* | *2 2 2* |
| **P4** | *0 0 2* | *4 3 3* |

Need Matrix, Safe sequence and Can request for (3,3,0) by *P*4 be granted?

1. Cycle-7: Simulate disk scheduling algorithms.

a) FCFS b) SCAN c) C-SCAN

a disk queue with requests for I/O to blocks on cylinders98, 183, 37, 122, 14, 124, 65, 67, in that order. If the disk head is initially at cylinder 53. Starting from the current head position, Compute the total distance travelled (in cylinders) by the disk arm to satisfy the requests(For this example need to solve and write in lab exam also)

1. Cycle-8: Programs on process creation and synchronization(fork,sleep,and wait)