**Chapter 4 - Memory**

1. What is the problem with no memory abstraction?

It is possible to run multiple programs without having memory abstraction. The idea is to have just one running process in main memory at any point oftime.

1. What is swapping - batch system?

Swapping is the technique used by an operating system for efficientmanagement of memory space of a computer system.

3. What are the two methods of memory management?

Paging. Swapping.

4. What are the advantages of the linked list method (Section 4.2.1 & 4.2.2)?

Overflow can never occur unless the memory is actually full. Insertions and deletions are easier than for contiguous (array) lists. With large records, moving pointers is easier and faster than moving the items themselves.

5. Understand algorithms to allocate memory: first fit, next fit, best fit, worst fit (Sectio 4.2.2).

First Fit

In the first fit approach is to allocate the first free partition or hole large enough which can accommodate the process. It finishes after finding the first suitable free partition.

Best Fit

The best fit deals with allocating the smallest free partition which meets the requirement of the requesting process. This algorithm first searches the entire list of free partitions and considers the smallest hole that is adequate. It then tries to find a hole which is close to actual process size needed.

Worst fit

In worst fit approach is to locate largest available free portion so that the portion left will be big enough to be useful. It is the reverse of best fit.

Advantage

Reduces the rate of production of small gaps.

Disadvantage

If a process requiring larger memory arrives at a later stage then it cannot be accommodated as the largest hole is already split and occupied.

6. What is the unit of virtual memory, and of physical memory?

7. What is the page table mainly for?

8. What is TLB and what is that for?

9. Differentiate page faults, TLB soft misses and TLB hard misses.

10. What is the essence of PRAs?

**Question for Lab**

1. What is the page table mainly for?
2. What is TLB and what is that for?
3. Differentiate page faults, TLB soft misses and TLB hard misses.
4. A memory free in 4 frames. Which state of the memory after the page 4 is accessed when the requested page as 2 3 2 0 1 5 2 4 5 3 2 5 2 using LRU
5. Assume that the Page Table below is in effect. The number of lines per page is 400. The actual memory location for line 1634 is \_\_34\_\_\_\_ .

|  |  |
| --- | --- |
| Page Number | Page Frame Number |
| 0  1  2  3  4 | 8  10  5  11  0 |