

Assignment7

Please write your student number and name in the assignment when submit it.

1. Given five memory partitions of 100 KB, 500 KB, 200 KB, 300 KB, and 600 KB (in order), how would each of the first-fit, best-fit, and worst-fit algorithms place processes of 212 KB, 417 KB, 112 KB, and 426 KB (in order)? Which algorithm makes the most efficient use of memory?

2. Consider a paging system with the page table stored in memory.

a. If a memory reference takes 200 nanoseconds, how long does a paged memory reference take?

b. If we add TLBs, and 75 percent of all page-table references are found in the TLBs, what is the effective memory reference time? (Assume that finding a page-table entry in the TLBs takes zero time, if the entry is there.)

3. Consider the following segment table:

<u>Segment</u>	<u>Base</u>	<u>Length</u>
0	219	600
1	2300	14
2	90	100
3	1327	580
4	1352	96

What are the physical addresses for the following logical addresses?

a. 0,430

b. 1,10

c. 2,500

d. 3,400

e. 4,112

4. Why are segmentation and paging sometimes combined into one scheme?

5. Consider a logical address space of 32 pages with 1024 words per page; mapped onto a physical memory of 16 frames.

a. How many bits are required in the logical address?

b. How many bits are required in the physical address?

6. Compare the main memory organization schemes of contiguous memory allocation, pure segmentation, and pure paging with respect to the following issues:

a. external fragmentation

b. internal fragmentation

c. ability to share code across processes