

Operating Systems

Homework #6
Due: 2004/6/2

1. Name two differences between logical and physical addresses and explain the difference between internal and external fragmentation.
2. Given memory partitions of 100KB, 500KB, 200KB, 300KB, and 600KB (in order), how would each of the first-fit, best-fit, and worst-fit algorithms place processes of 212KB, 417KB, 112KB, and 426KB (in order)? Which algorithm makes the most efficient use of memory?
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	1952	96

What are the physical addresses for the following logical addresses?

- a. 0430
 - b. 110
 - c. 2500
 - d. 3400
 - e. 4112
4. Consider the following page-replacement algorithms. Rank these algorithms on a five-point scale from “bad” to “perfect” according to their page-fault rate. Separate those algorithms that suffer from Belady’s anomaly from those that do not.
 - a. LRU replacement
 - b. FIFO replacement
 - c. Optimal replacement
 - d. Second-chance replacement