

3. Describe the differences in memory management for uni-programmed and multi-programmed systems.

4. Explain the basics of dynamic address translation.

5. Describe base and bounds address translation.

6. What is fragmentation?

7. Describe the different storage allocation schemes used to combat fragmentation.

8. **Example:** Given the following lists of holes and address space requests:
- Holes: 300 KB, 600 KB, 350 KB, 200 KB, 750 KB, 125 KB
 - Address spaces: 115 KB, 500 KB, 358 KB, 200 KB, 375 KB

How would these processes be placed using (a) first-fit, (b) best-fit, and (c) worst-fit allocation?

9. Explain how segmentation can be used to manage address spaces.

10. What information is included in a typical segment table?

11. **Example:** Given the segment table below:

Segment #	V	Base	Bounds	Access
0	1	219	600	read/write
1	1	2300	14	read/write
2	1	90	100	read/exec
3	1	1327	580	read/write
4	0	1952	96	read

What is the physical address corresponding to each virtual address below? Virtual addresses are specified as a pair of values: the segment number and offset.

a. 0, 430

b. 1, 10

c. 2, 500

d. 3, 400

e. 4, 112

12. Explain the basics of memory management through paging.

13. **Example:** Consider a logical address space of 256 pages with 4 KB page size, mapped onto a physical memory of 64 frames

a. How many bits are in the virtual address?

b. How many bits are in the physical address?

c. What's the total size of each address space (virtual and physical)?