8.2 Consider the following process for generating binaries. A compiler is used to generate the object code for individual modules, and a linkage editor is used to combine multiple object modules into a single program binary. How does the linkage editor change the binding of instructions and data to memory addresses? What information needs to be passed from the compiler to the linkage editor to facilitate the memory binding tasks of the linkage editor?

8.3 Most systems allow programs to allocate more memory to its address space during execution. Data allocated in the heap segments of programs is an example of such allocated memory. What is required to support dynamic memory allocation in the following schemes:
   a. contiguous-memory allocation
   b. pure segmentation
   c. pure paging

8.5 Compare paging with segmentation with respect to the amount of memory required by the address translation structures in order to convert virtual addresses to physical addresses.

8.6 Program binaries in many systems are typically structured as follows. Code is stored starting with a small fixed virtual address such as 0. The code segment is followed by the data segment that is used for storing the program variables. When the program starts executing, the stack is allocated at the other end of the virtual address space and is allowed to grow towards lower virtual addresses. What is the significance of the above structure on the following schemes:
   a. contiguous-memory allocation
   b. pure segmentation
   c. pure paging

8.10 Consider the hierarchical paging scheme used by the VAX architecture. How many memory operations are performed when an user program executes a memory load operation?
8.11
Consider the Intel address translation scheme shown in Figure 8.22.

a. Describe all the steps that the Intel 80386 takes in translating a logical address into a physical address.

b. What are the advantages to the operating system of hardware that provides such complicated memory translation hardware?

c. Are there any disadvantages to this address-translation system? If so, what are they? If not, why is it not used by every manufacturer?