Tutorial 8

Memory Management

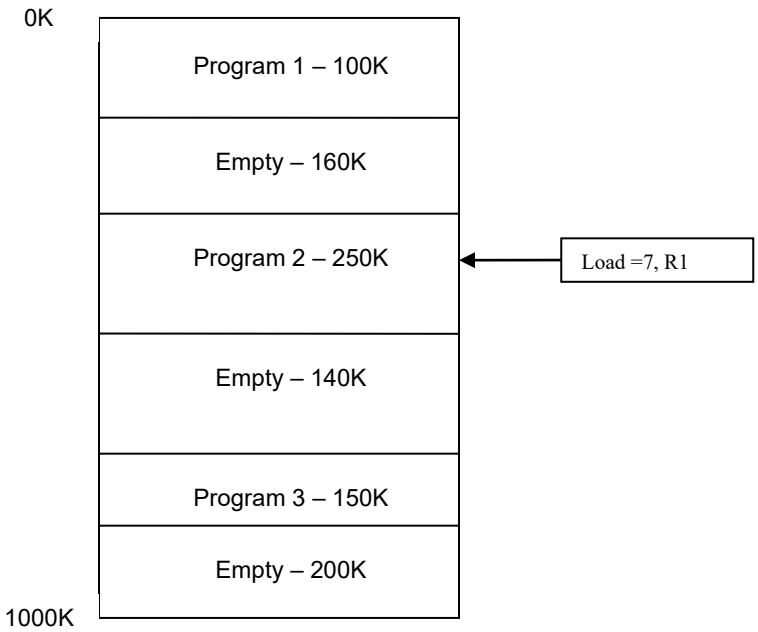
Attempt the following questions before you attend tutorial.

1. What are the 3 ways to assign addresses to the instructions in a computer program? Suppose we have a computer system in which we require to shift the program in memory whenever other programs get terminated or new programs come in. Suggest which method of address binding we can use and why.

2. Under what circumstances do external fragmentation and internal fragmentation occur? Can they occur together?

3. What is compaction? What problem does it solve? Which address-binding method do you think a feature like compaction requires?

4. The following diagram shows a snapshot of the memory at time T_0.



   a) At time T_1, the system undergoes compaction. With the aid of a diagram, show the result after compaction.
   b) What is the value of the relocation register for Program 2 after it is moved during compaction?
   c) Before compaction, the memory address of the instruction 'Load =7, R1' is 368640. What is the new memory address after compaction?