Lecture 09 Assignment Questions

1. Why do computer systems need address binding during a program execution?
2. Briefly describe the importance of *dynamic* address binding in a computer system.
3. What is *dynamic loading*? Briefly describe how the dynamic loading is related to *demand paging*.
4. Describe the term **page fault**? What happens if there is no free memory frame during a page fault (along with your answer, you should cover the details of page table including its valid-invalid control bit)?
5. (3 Points) Under what circumstances do **page faults** occur? Describe the actions taken by the operating system when a page fault occurs.
6. Briefly describe at which situation the *page fault handler routine* of an OS needs a page replacement algorithm. Assume that a **page reference string** of a user process is “**12 3 2 4 2 5 3 4 5 3 2**” and a **three** fixed memory-frames are allocated for this process. Show the performance of **optimal**, **FIFO**, and **LRU** page replacement algorithms in terms of their **page fault**.
7. Assume that a **page reference string** of a user process is “**2 3 2 1 4 2 5 3 4 5 3 2**” and a **three** fixed memory-frames are allocated for this process. Show the performance of **optimal**, **FIFO**, and **LRU** page replacement algorithms in terms of their **page fault**.