Practice Questions

1. Identify the type of coupling exhibited by the following scenarios – 5 points

   a. The bubble sort program uses a global variable to store the length of the array to be sorted. Different functions in the program (like sort, print, generate, etc.) use the global variable.

   b. All the functions of the class POSDevices use functions of infrastructure module OPOS to communicate with POS devices attached to the computer.

   c. In the bubble sort program, the sort() function calls the swap() function.

   d. The software engineer took the entire program's global data and put it on a class/structure and a reference to the object/structure is passed to every function in the program.

   e. The class Lamp() has a function called setLamp() which takes an integer parameter that defines whether the lamp is to be turned on or off.

2. Singleton is implemented to ensure that class has only one instance and to provide a global point of access to it. Can a static class be used for this purpose? If yes, how? If not, why not?
3. Reference Assignment 1, part 2: Implement the strategy pattern so that sorting algorithms can be interchanged easily.
4. Differentiate between composition and aggregation and provide an example each.
5. Explain the concept of SoC in MVC pattern
6. Explain database centric architecture pattern/style and list down its pros and cons.