**Assignment # 6**

Question 1: Define Object Oriented Programming Language?

Everyone knows what an object is: a tangible "something" that we can sense, feel, and manipulate. The definition of an object in software development is not so very different. Objects are not typically tangible somethings that you can pick up, sense, or feel, but they are models of somethings that can do certain things and have certain things done to them. Formally, an object is a collection of data and associated behaviors.

The process of converting such requirements into an implementation specification. The designer must name the objects, define the behaviors, and formally specify what objects can activate specific behaviors on other objects. The design stage is all about how things should be done.

The process of converting this perfectly defined design into a working program that does exactly what the originally requested.

Question 2: List down the Benefits of OOP?

* **Simplicity:** software objects model real-world objects, so the complexity is reduced and the program structure is very clear;
* **Modularity:** each object forms a separate entity whose internal workings are decoupled from other parts of the system.
* **Modifiability:** it is easy to make minor changes in the data representation or the procedures in an OO program. Changes inside a class do not affect any other part of a program since the only public interface that the external world has to a class is through the use of methods;
* **Extensibility:** adding new features or responding to changing operating environments can be solved by introducing a few new objects and modifying some existing ones;
* **Maintainability:** objects can be maintained separately, making locating and fixing problems easier.
* **Re-usability:** objects can be reused in different programs

Question 3: Differentiate between function and method?

Function - A function in an independent piece of code which includes some logic and **must be called independently and are defined outside of class.**

Method - A method is an independent piece of code which is **called in reference to some object and are be defined inside the class.**

Question 4: Define the following terms:

1.Class 2. Object 3. Attribute 4. Behavior

Class:

A class is a template definition of the method s and variable s in a particular kind of object. In another words “A class is a user defined data type which have its own data members and member functions which can be accessed and can be used by creating an instance of a class.

Object:

Objects are the things you think about first in designing a program and they are also the units of code that are eventually derived from the process. In between, each object is made into a generic [class](https://whatis.techtarget.com/definition/class) of object and even more generic classes are defined so that objects can share models and reuse the class definitions in their code. Each object is an instance of a particular class or subclass with the class's own methods or procedures and data variables. An object is what actually runs in the computer.

**Attributes:**

**Attributes**are data stored inside a class or instance and represent the state or quality of the class or instance. In short, attributes store information about the instance. Also, attributes should not be confused with class functions also known as methods. One can think of attributes as noun or adjective, while methods are the verb of the class.

Behavior:

The behavior of an object is defined by its methods, which are the functions and subroutines defined within the object class. Without class methods, a class would simply be a structure.