ASSIGNMENT # 06

Q1) Define Object Oriented Programming?

Object-oriented programming (OOP) is a programming paradigm based on the concept of "objects", which can contain data, in the form of fields (often known as attributes or properties), and code, in the form of procedures (often known as methods). A feature of objects is an object's procedures that can access and often modify the data fields of the object with which they are associated (objects have a notion of "this" or "self").

Q2) Advantages of OOP:-

1. It provides a clear modular structure for programs which makes it good for defining abstract datatypes in which implementation details are hidden
2. Objects can also be reused within an across applications. The reuse of software also lowers the cost of development. More effort is put into the object-oriented analysis and design, which lowers the overall cost of development.
3. It makes software easier to maintain. Since the design is modular, part of the system can be updated in case of issues without a need to make large-scale changes
4. Reuse also enables faster development. Object-oriented programming languages come with rich libraries of objects, and code developed during projects is also reusable in future projects.
5. It provides a good framework for code libraries where the supplied software components can be easily adapted and modified by the programmer. This is particularly useful for developing graphical user interfaces.
6. Better Productivity as OOP techniques enforce rules on a programmer that, in the long run, help her get more work done; finished programs work better, have more features and are easier to read and maintain. OOP programmers take new and existing software objects and "stitch" them together to make new programs. Because object libraries contain many useful functions, software developers don't have to reinvent the wheel as often; more of their time goes into making the new program.

Q3) Differences between Function and Method

A function is a piece of code that is called by name. It can be passed data to operate on (i.e. the parameters) and can optionally return data (the return value). All data that is passed to a function is explicitly passed.

A method is a piece of code that is called by a name that is associated with an object. In most respects it is identical to a function except for two key differences:

A method is implicitly passed the object on which it was called.

A method is able to operate on data that is contained within the class (remembering that an object is an instance of a class - the class is the definition, the object is an instance of that data).

Q4) Define the following terms

Class

The class can be defined as a collection of objects. It is a logical entity that has some specific attributes and methods.

For example: if you have an employee class then it should contain an attribute and method, i.e. an email id, name, age, salary, etc

Object

The object is an entity that has state and behavior. It may be any real-world object like the mouse, keyboard, chair, table, pen, etc.

Attribute

Every class contains attributes and behaviors. Attributes are the characteristics of the class that help to distinguish it from other classes. A person's attributes, for example, include their age, name, and height.

Behavior:

Behaviors are the tasks that an object performs. Behaviors include the fact that a person can speak, run, walk, and eat.