Q.2 What is OOP? List OOP concepts.

* [OOP (Object Oriented Programming)](https://www.simplilearn.com/tutorials/java-tutorial/oops-interview-questions) is an approach or a [programming](https://www.simplilearn.com/tutorials/c-tutorial/coding-vs-progrmming) pattern where the programs are structured around objects rather than functions and logic. It makes the data partitioned into two memory areas, i.e., data and functions, and helps make the code flexible and modular.
* Object-oriented programming mainly focuses on objects that are required to be manipulated. In OOPs, it can represent data as objects that have attributes and functions.
* There are some basic concepts in OOPs follows :

1. Classes and Objects

2. Abstraction

3. Encapsulation

4. Inheritance

5. Polymorphism

* **Classes :-** These contain data and functions bundled together under a unit. In other words class is a collection of similar objects. When we define a class it just creates template or Skelton. So no memory is created when class is created. Memory is occupied only by object.
* **Objects :-** An [Object](https://www.simplilearn.com/tutorials/cpp-tutorial/class-and-object-in-cpp) can be defined as an entity that has a state and behavior, or in other words, anything that exists physically in the world is called an object. It can represent a dog, a person, a table, etc. An object means a combination of data and programs, which further represent an entity.
* **Abstraction :-** [Abstraction](https://www.simplilearn.com/tutorials/cpp-tutorial/abstract-class-in-cpp) helps in the data-hiding process. It helps in displaying the essential features without showing the details or the functionality to the user. It avoids unnecessary information or irrelevant details and shows only that specific part that the user wants to see.
* **Encapsulation :-** The wrapping up of data and functions together in a single unit is known as encapsulation. It can be achieved by making the data member’s scope private and the member function’s scope public to access these data members. Encapsulation makes the data non-accessible to the outside world.
* **Inheritance :-** [Inheritance](https://www.simplilearn.com/tutorials/cpp-tutorial/inheritance-in-cpp) is the process in which two classes have a relationship among each other and objects of one class acquire properties and features of the other class. The class which inherits the features is known as the child class, and the class whose features it inherited is called the parent class. For example, Class Vehicle is the parent class, and Class Bus, Car, and Bike are child classes.
* **Polymorphism :-** [Polymorphism](https://www.simplilearn.com/tutorials/cpp-tutorial/polymorphism-in-cpp) means many forms. It is the ability to take more than one form. It is a feature that provides a function or an operator with more than one definition. It can be implemented using function overloading, operator overload, [function overriding](https://www.simplilearn.com/tutorials/cpp-tutorial/function-overriding-in-cpp) and virtual functions.

Q.3 What is the difference between OOP and POP?

| **OOP (Object-oriented programming)** | **POP (Procedural programming )** |
| --- | --- |
| It mainly focuses on creating objects to represent real-world entities. | It mainly focuses on creating a series of procedures or functions to perform tasks |
| It includes the concept of encapsulation, inheritance, and polymorphism. | It does not include the concept of encapsulation, inheritance, and polymorphism. |
| It supports code reusability modularity and flexibility. | It Emphasizes simplicity, clarity, and speed. |
| It is used for larger, more complex projects with a lot of data to manage. | It is used for smaller, simpler projects with fewer data management requirements. |
| Language includes  Java, Python, C++, etc. | Language includes  C, Pascal, and Fortran . |