**2.What is OOP? list OOP concepts?**

**🡪**OOP**:** standfor **object-oriented programming.**

🡪OOP is a programming approach that are base on class and object

Which can contain data and code, that manipulate that data.

🡪Concepts of oop are:

🡪**Class**: A blueprint for creating objects. It defines a set of attributes and methods that objects created from the class.

🡪**Object**: An instance of a class. Object are the runtime entities that represent real-world entities and can interact with each other.

🡪**Encapsulation**: is an **Object-oriented programming** conceptsthatallows programmers to wrap data and code inside an enclosure. By using Encapsulation program can hide the members of one class from another class.

**🡪Polymorphism:** the term Polymorphism is the combination of poly + morphs which means many forms

🡪Polymorphism is a way in which we can define multiple function in a single name that is single name and multiple meaning.

🡪There are two types of polymorphism.

🡪Compile time of Polymorphism/Static Polymorphism.

🡪Run time polymorphism/Dynamic polymorphism.

🡪**Inheritance:** is a process in which on object acquires all the property and behaviours its parent object automatically.

🡪the property of one class into another class is called inheritance.

Inheritance provides reusability of code.

🡪The class Which inherits the member of another class called derived class/child class/sub class and the class whose members are inherits is called base class /parent class/super class.

🡪There are five types of inheritance:

\***Single:** in single inheritance, A subclass can inherit from only one super class.

\***Multiple:** ASubclass can inherit from more than one Super class.

**\*Multi-level:** in multi-level inheritance, a derived class will be inheriting a base class and as well as the derived class also

**\*Hierarchical:** in Hierarchical inheritance, one class services as a superclass for more than one subclass.

**\*Hybrid:** In Hybrid inheritance, is a combination of two or more types of inheritance.

🡪**Abstraction:** Abstraction and encapsulation are related features in object-oriented programming.

🡪Abstraction can be achieved using abstract method, which are implemented by the derived class.

🡪Abstract classes contain abstract method, which are implemented by the derived class.

🡪An abstract base class cannot be instantiated it means the object of the class cannot be created.

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| **OOP** | **POP** |
| **OOP stand for Object Oriented**  **Programming.** | **POP stand for Procedural Oriented Programming.** |
| **An object-oriented program follows**  **the button-up approach.** | **A procedure-oriented program**  **Follows the top-down approach.** |
| **Access control is supported such as**  **Public, private and protected.** | **No access modifier is supported.** |
| **OOP base on class and object.** | **POP base on function.** |
| **OOP supports code reusability.** | **No code reusability is provided by**  **POP.** |

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