* What is OOP? List OOP concepts.

-> OOP is the Object-oriented programming. there are five concepts of OOP

1. Object : an object can be defined as an entity that has a state and behavior.

2. classes : Class can be defined as a blue point of the object. It is basically a collection of objects which act as building blocks.

3. Abstraction : Abstraction helps in the data hiding process. it helps in displaying the essential features without showing the details or the functionality to the user.

4. Encapsulation : The wrapping up of data and functions together in a single unit is unknown as encapsulation. it can be achieved by making the data member's scope private and the member functions scope public to access these data members.

5. Inheritance : Inheritance is the process in which two classes have an is-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 where features it inherited is called the parent class.

6. **Polymorphism :** Polymorphism 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, virtual function.

---

* What is difference between OOP and POP?

→ The basic difference between OOP and POP both are programming methods. with OOP denoting "Object-Oriented Programming" and POP denoting "Procedure Oriented Programming" OOP and POP both are high level programming languages that solve problems. but they take distinct techniques. programming paradigms are the technical terms for these methodologies.

- OOP has 4 pillars which is mentioned below.
1. Abstraction
2. polymorphism
3. Inheritance
4. Encapsulation

- Advantages of OOP
Maintenance of the Code : this is more of a must for any programming language it saves user time and effort in a variety of ways

→ Security - We are filtering out restricted data to expose through data hiding and abstraction mechanism which means we are keeping security while offering critical data to see.

- Re-usability: it entails repurposing some facilites rather than constructing them from scratch. This is accomplished through the usage of a class.

* Disadvantages of OOP:
- Size: Object-Oriented Applications are significantly larger than other kinds of programs.

- Effort: Object-Oriented Programs require a lot of work to create.

- Speed: Because of their size, object-oriented programs are slower than other applications.

* POP: POP is a step-by-step approach to decompose a task into a set of variables and routines using a set of instructions.

- Advantages of POP

1. Coding: The ability to jump immediately into coding a program without having to construct any objects or classes is a clear advantage of procedural programming.

2. Ability to Grasp: Another benefit of procedural programming is the ease with which it can be learned. Many programmers begin their training by copying code from the internet.

3. structure: The top-down structure is also advantage for those who prefer to work their way through a program rather than planning it at ahead of time.

* Dis-advantages of POP

-) Data is exposed to the entire software, hence there is no data security.

-) Real-world objects are difficult to relate to.

-) Versatility is limited by the difficulty of creating new data kinds.

-> The operation on data is given more weight than the data itself.