Module-4

Opps concept

2. What is OOP? List OOP concepts?

Ans:- Object-Oriented Programming (OOP) is a programming paradigm that uses "objects" to design software. Objects are instances of classes, which are blueprints defining attributes (data) and methods (functions or procedures) that the objects can use. OOP aims to model real-world entities and their interactions, providing a more modular and organized approach to programming.

OOPs Concepts:

- Class
- Objects
- Data Abstraction
- Encapsulation
- Inheritance
- Polymorphism
- Dynamic Binding
- Message Passing

- **1. Class:**
- A class is a user-defined data type. It consists of data members and member functions, which can be accessed and used by creating an instance of that class.

- **2. Object:**
- It is a basic unit of Object-Oriented Programming and represents the real-life entities. An Object is an instance of a Class.
- **3. Data Abstraction:**
- Data abstraction is one of the most essential and important features of object-oriented programming.
- **4. Encapsulation:**
- Encapsulation is defined as the wrapping up of data under a single unit. It is the mechanism that binds together code and the data it manipulates.
- **5. Inheritance:**
- Inheritance is an important pillar of OOP(Object-Oriented Programming). The capability of a class to derive properties and characteristics from another class is called Inheritance.
- **6. Polymorphism:**
- The word polymorphism means having many forms. In simple words, we can define polymorphism as the ability of a message to be displayed in more than one form.
- **7. Dynamic Binding:**
- In dynamic binding, the code to be executed in response to the function call is decided at runtime.
- **8. Message Passing:**
- It is a form of communication used in object-oriented programming as well as parallel programming.
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3. What is the difference between OOP and POP?

Ans:- Object-Oriented Programming (OOP) and Procedural-Oriented Programming (POP) are two different programming paradigms. Here are the main differences between them.

➔ **OOP:-**object oriented programming
➔ **1:** bottom up approach
➔ **2:-**OOP is inheritance support
➔ **3:-**code reusability support
➔ **4:-**data handling is possible in OOP due to programming.
➔ **5:-ex..** C++,java etc…..

➔ **POP:-** procedure oriented programming
➔ **1:**-top down approach
➔ **2:**-POP do not support inheritance
➔ **3:**-code reusability can't support
➔ **4:**-it is less secure then OOP
➔ **Ex…**:-C,fortran