

## Q-3 What is the difference between OOP and POP?

### 1) important:

**OOP (Object Oriented Programming):** It focuses on objects. These objects represent real-world objects, including both data (properties) and functions.

**POP (Procedural Oriented Programming):** It focuses on procedures. These procedures are self-contained blocks of code that perform a specific task. The program is created by dividing it into small step-by-step procedures.

### 2) data stored?

**OOP:** Data is encapsulated inside objects. This protects the data from being misused or altered. Data can be accessed through special methods within the object itself.

**POP:** Data can be global, meaning it can be accessed from any part of the program. Due to this, there is a risk of confusion and error in the data.

### 3) Code reuse?

**OOP:** It is easier to reuse code through inheritance. In this, new classes can adopt the properties and functions of already existing classes. This avoids writing code repeatedly and makes the program easier to manage.

**POP:** Code can be reused through functions, but it can be difficult to manage and maintain when the program is complex.

### 4) Code understanding?

**OOP:** Objects are a kind of modular units that help in better organizing the code and keeping different things separate.

**POP:** Modularity is achieved through functions, but related functions may not always be grouped together.

## **5) Managing complex projects:**

**OOP:** It is more suitable for managing complex projects as it promotes modularity, data protection and code reusability.

**POP:** This can be difficult to manage in complex projects because of data corruption and lack of clear modularity.

### **As an example:**

Suppose you are making a car.

**OOP:** You will define objects like Engine, Wheels, Steering etc. Each object will have its own properties (data) and actions (methods). You can also inherit functionalities from the base Vehicle class for the vehicle.

**POP:** You will have different functions for starting the engine, turning the wheels and steering. These functions can operate on global variables representing vehicle parts, but can cause problems if not managed carefully.

In simple terms, OOP provides a more structured, maintainable, and scalable approach to complex projects than POP.