

# MODULE: 4

## OOPS Concept Assignment

### 1. WAP to print "Hello World" using C++.

```
#include<iostream>
Using namespace std;

int main()
{
    cout << "Hello World";
    return 0;
}
```

### 2. What is OOP? List OOP concepts.

- OOPs stands for Object Oriented Programming System.
  - It is centred around objects, which are instances of classes.
  - The main principles of OOP Inheritance, Encapsulation, Polymorphism and Abstraction.
  - Object-Oriented Programming (OOP) is a programming paradigm that uses classes and object to organize software design.
1. **Class:** A blueprint or template for creating objects. It defines the attributes and methods that the objects created from it will have.
  2. **Object:** An instance of a class. Each object can have different values for its attributes but follows the same structure defined by the class.
  3. **Inheritance:** This allows a new class (derived class) to inherit properties and behaviors from an existing class (base class). It promotes code reusability.

4. **Encapsulation:** The concept of bundling the data (attributes) and methods (functions) that operate on the data into a single unit or class. It also involves restricting access to certain details of the objects, which is done using access specifiers like private, protected, and public.
5. **Polymorphism:** This allows objects to be treated as instances of their parent class. The same function or method can behave differently based on the object that calls it.
6. **Abstraction:** This concept hides complex implementation details and shows only the essential features of an object. It helps in reducing complexity and allows the programmer to focus on interacting with objects at a high level.

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

#### **OOP:**

- OOP focuses on objects, which are instances of classes. These objects represent real-world entities, making the code more intuitive and easier to manage as your programs grow.
- OOP is a programming paradigm that organises software design around data, rather than functions and logic.
- It is a high-level programming language that divides the program into chunks called objects.
- An object is a data field with its own set of properties and behaviour. Rather than needing to start writing code from scratch, programs can be built from standard functioning modules that communicate with one another, which saves time and increases productivity.

## **POP:**

- POP focuses on procedures or functions. The main goal is to execute sequences of tasks, and the program is organized around these tasks.
- Code is organized into functions or procedures. The data is often passed around between functions.
- Procedural Oriented Programming is a programming method that focuses on the functions or procedures needed for computation rather than the data itself.
- Larger programs are broken down into functions, which are smaller programs. The functions are followed by a sequence of sequential computational steps.