Object-Oriented Programming or OOPs refers to languages that use objects in programming. programming paradigm fundamental to many programming languages, including Java and C++. it uses objects that can represent abstract concepts or real-world objects to represent and manipulate data, including the actions that can be performed. In OOP, a program is made up of a collection of objects that communicate with each other by sending messages.An object is an instance which is user defined data type.The main aim of OOP is to bind together the data and the functions that operate on them so that no other part of the code can access this data except that function.

- There are four major benefits to object-oriented programming:
- Encapsulation refers to keeping all relevant information inside an object and letting only a small portion remain visible to the outside environment. The code inside the class template defines the attributes and behaviors. Encapsulation conceals the internal data of objects, as well as the internal software code implementation within a class.
- Abstraction: Abstraction is an extension of encapsulation. Also, it hides the internal information of a program from its users by using classes and objects, which hold data and code. In addition, it helps protect sensitive information that is stored in the source code..
- Inheritance :Child classes inherit data and behaviors from the parent class. They can be created, which will extend the functionality of the parent class and add additional attributes and behaviors to it.
- Basic attributes and behaviors can be defined in a parent class, which allows the creation of child classes
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- Polymorphism: one class can be used to create many objects, all from the same flexible piece of code.
Concept of OOP:

- ## Methods
- The behaviors are represented by methods called actions that can either return information about an object or edit the data associated with it.
- Also, the code for the method is included in the definition of the class.

Attribute

When objects are created, the data for each object is stored in the attributes field. In other words, the stored information is called an attribute.

Why do we need object-oriented programming

To make the development and maintenance of projects more effortless.

To provide the feature of data hiding that is good for security concerns.

We can solve real-world problems if we are using object-oriented programming.

It ensures code reusability.

It lets us write generic code: which will work with a range of data, so we don't have to write basic stuff over and over again.

OOP provides a powerful way to organize code and make it more modular, reusable, maintainable, and scalable.