

# OOPS CONCEPTS

## INTRODUCTION

- ❖ Object Oriented Programming is a fundamental concept in Python, empowering developers to build modular, maintainable and scalable application. There are four main pillars in oops concepts.

## OOPS CONCEPTS IN PYTHON

- Polymorphism
- Encapsulation
- Inheritance
- Abstraction

### 1. Polymorphism

- ❖ Polymorphism is one of the most important concepts in oops. It describes the ability of something to have or to be displayed in more than one forms.

#### Example: A boy/girl

He/she can be many things like

- ✓ Student
- ✓ Developer
- ✓ Son/Daughter

A person with different roles.

### 2. Encapsulation

- ❖ Encapsulation refers to the bundling of data, along with the methods that operates on that data, into a single unit.

#### Example: Company

It can have several departments like

- ✓ Finance
- ✓ Marketing
- ✓ Production

These departments from the company.

### 3. Inheritance

- ❖ Inheritance is a mechanism that allows a class to inherit properties and behaviours from another class.

#### Example: Cats

They can have same similarities like

- ✓ Name
- ✓ Size
- ✓ Colour

But they are distinct cats.

### 4. Abstraction

- ❖ Abstraction is an essential feature of oops, its used to hide unnecessary information and display only necessary information to the users.

#### Example: Laptop

You can do make thing like

- ✓ Coding
- ✓ Play Games
- ✓ Trading

It doesn't reveal the internal process of how it functions.

