

# OOP in Python

To map with real world scenarios, we started using objects in code.

This is called **object oriented programming**.

# Class & Object in Python

Class is a blueprint for creating objects.

#creating class

```
class Student:
```

```
    name = "karan kumar"
```

#creating object (instance)

```
s1 = Student()
```

```
print( s1.name )
```

# Class & Instance Attributes

Class.attr

obj.attr

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# \_\_init\_\_ Function

## Constructor

All classes have a function called `__init__()`, which is always executed when the object is being initiated.

#creating class

```
class Student:  
    def __init__( self, fullname ):  
        self.name = fullname
```

#creating object

```
s1 = Student( "karan" )  
print( s1.name )
```

\*The **self** parameter is a reference to the current instance of the class, and is used to access variables that belongs to the class.

# Methods

Methods are functions that belong to objects.

#creating class

```
class Student:  
    def __init__( self, fullname ):  
        self.name = fullname
```

```
def hello( self ):  
    print( "hello", self.name)
```

#creating object

```
s1 = Student( "karan" )  
s1.hello( )
```

## Let's Practice

Create student class that takes name & marks of 3 subjects as arguments in constructor.  
Then create a method to print the average.

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# Static Methods

Methods that don't use the self parameter (work at class level)

```
class Student:  
    @staticmethod    #decorator  
    def college( ):  
        print( "ABC College" )
```

\*Decorators allow us to wrap another function in order to extend the behaviour of the wrapped function, without permanently modifying it

# Important

## Abstraction

Hiding the implementation details of a class and only showing the essential features to the user.

## Encapsulation

Wrapping data and functions into a single unit (object).



## Let's Practice

Create Account class with 2 attributes - balance & account no.  
Create methods for debit, credit & printing the balance.

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