

Python Classes and Objects An object is simply a collection of data (variables) and methods (functions). Similarly, a class is a blueprint for that object. Python Classes A class is considered a blueprint of objects. We can think of the class as a sketch (prototype) of a house. It contains all the details about the floors, doors, windows, etc. Based on these descriptions, we build the house; the house is the object. Since many houses can be made from the same description, we can create many objects from a class. Define Python Class class ClassName: # class definition class Bike: name = "" gear = 0 Here, Bike - the name of the class name/gear - variables inside the class with default values "" and 0 respectively. Python Objects An object is called an instance of a class. Suppose Bike is a class then we can create objects like bike1, bike2, etc from the class. Here's the syntax to create an object. objectName = ClassName()

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In [1]: # define a class
class Bike:
    name = ""
    gear = 0

# create object of class
bike1 = Bike()

# access attributes and assign new values
bike1.gear = 11
bike1.name = "Mountain Bike"

print(f"Name: {bike1.name}, Gears: {bike1.gear} ")
```

Name: Mountain Bike, Gears: 11

```
In [2]: #Create Multiple Objects of Python Class
# define a class
class Employee:
    # define a property
    employee_id = 0

# create two objects of the Employee class
employee1 = Employee()
employee2 = Employee()

# access property using employee1
employee1.employeeID = 1001
print(f"Employee ID: {employee1.employeeID}")

# access properties using employee2
employee2.employeeID = 1002
print(f"Employee ID: {employee2.employeeID}")
```

Employee ID: 1001

Employee ID: 1002

```
In [ ]: # create a class
class Room:
    length = 0.0
    breadth = 0.0

    # method to calculate area
    def calculate_area(self):
        print("Area of Room =", self.length * self.breadth)

# create object of Room class
study_room = Room()
```

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# assign values to all the properties
study_room.length = 42.5
study_room.breadth = 30.8

# access method inside class
study_room.calculate_area()
```