**INSTITUTE OF TECHNOLOGY AND MANAGEMENT**
**SKILLS UNIVERSITY,**
**KHARGHAR, NAVI MUMBAI**

# PYTHON PROGRAMMING LAB


## Prepared by:

Name of Student: _Shikha singh_____

Roll No: _25_____

Batch: 2023-27

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

| Exp. No | List of Experiment |
|---|---|
| | 1.1 Write a program to compute Simple Interest. |
| | 1.2 Write a program to perform arithmetic, Relational operators. |
| | 1.3 Write a program to find whether a given no is even & odd. |
| | 1.4 Write a program to print first n natural number & their sum. |
| | 1.5 Write a program to determine whether the character entered is a Vowel or not . |
| | 1.6 Write a program to find whether given number is an Armstrong Number. |
| | 1.7 Write a program using for loop to calculate factorial of a No. |
| | 1.8 Write a program to print the following pattern |
| | i)<br>*<br>* *<br>* * *<br>* * * *<br>* * * * * |
| | ii)<br>1<br>2 2<br>3 3 3<br>4 4 4 4<br>5 5 5 5 5 |
| | iii)<br>*<br>* * *<br>* * * * *<br>* * * * * * *<br>* * * * * * * * * |

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| | 2.1 Write a program that define the list of defines the list of define countries that are in BRICS. |
| | 2.2 Write a program to traverse a list in reverse order.<br>1.By using Reverse method.<br>2.By using slicing |
| | 2.3 Write a program that scans the email address and forms a tuple of username and domain. |
| | 2.4 Write a program to create a list of tuples from given list having number and add its cube in tuple.<br>i/p: c= [2,3,4,5,6,7,8,9] |
| | 2.5 Write a program to compare two dictionaries in Python?<br>(By using == operator) |
| | 2.6 Write a program that creates dictionary of cube of odd numbers in the range. |
| | 2.7 Write a program for various list slicing operation.<br><br>a= [10,20,30,40,50,60,70,80,90,100]<br><br>i. Print Complete list<br>ii. Print 4th element of list<br>iii. Print list from0th to 4th index.<br>iv. Print list -7th to 3rd element<br>v. Appending an element to list.<br>vi. Sorting the element of list.<br>vii. Popping an element.<br>viii. Removing Specified element.<br>ix. Entering an element at specified index.<br>x. Counting the occurrence of a specified element.<br>xi. Extending list.<br>xii. Reversing the list. |
| | 3.1 Write a program to extend a list in python by using given approach.<br>i. By using + operator.<br>ii. By using Append () |

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|---|---|
| | iii. By using extend () |
| | 3.2 Write a program to add two matrices. |
| | 3.3 Write a Python function that takes a list and returns a new list with distinct elements from the first list. |
| | 3.4 Write a program to Check whether a number is perfect or not. |
| | 3.5 Write a Python function that accepts a string and counts the number of upper- and lower-case letters.<br>string_test= 'Today is My Best Day' |
| | 4.1 Write a program to Create Employee Class & add methods to get employee details & print. |
| | 4.2 Write a program to take input as name, email & age from user using combination of keywords argument and positional arguments (*args and**kwargs) using function, |
| | 4.3 Write a program to admit the students in the different Departments(pgdm/btech) and count the students. (Class, Object and Constructor). |
| | 4.4 Write a program that has a class store which keeps the record of code and price of product display the menu of all product and prompt to enter the quantity of each item required and finally generate the bill and display the total amount. |
| | 4.5 Write a program to take input from user for addition of two numbers using (single inheritance). |
| | 4.6 Write a program to create two base classes LU and ITM and one derived class. (Multiple inheritance). |
| | 4.7 Write a program to implement Multilevel inheritance, Grandfather□Father-□Child to show property inheritance from grandfather to child. |
| | 4.8 Write a program Design the Library catalogue system using inheritance take base class (library item) and derived class (Book, DVD & Journal) Each derived |

| | |
|---|---|
| | class should have unique attribute and methods and system should support Check in and check out the system. (Using Inheritance and Method overriding) |
| | 5.1 Write a program to create my_module for addition of two numbers and import it in main script. |
| | 5.2 Write a program to create the Bank Module to perform the operations such as Check the Balance, withdraw and deposit the money in bank account and import the module in main file. |
| | 5.3 Write a program to create a package with name cars and add different modules (such as BMW, AUDI, NISSAN) having classes and functionality and import them in main file cars. |
| | 6.1 Write a program to implement Multithreading. Printing “Hello” with one thread & printing “Hi” with another thread. |
| | 7.1 Write a program to use ‘whether API’ and print temperature of any city, also print the sunrise and sunset times for the same humidity of that area. |
| | 7.2 Write a program to use the ‘API’ of crypto currency. |

**Name of Student:** __Shikha singh_____

**Roll Number:** _25_____

**Experiment No: 4.5**

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**Title:**

4.5 Write a program to take input from user for addition of two numbers using (single inheritance).

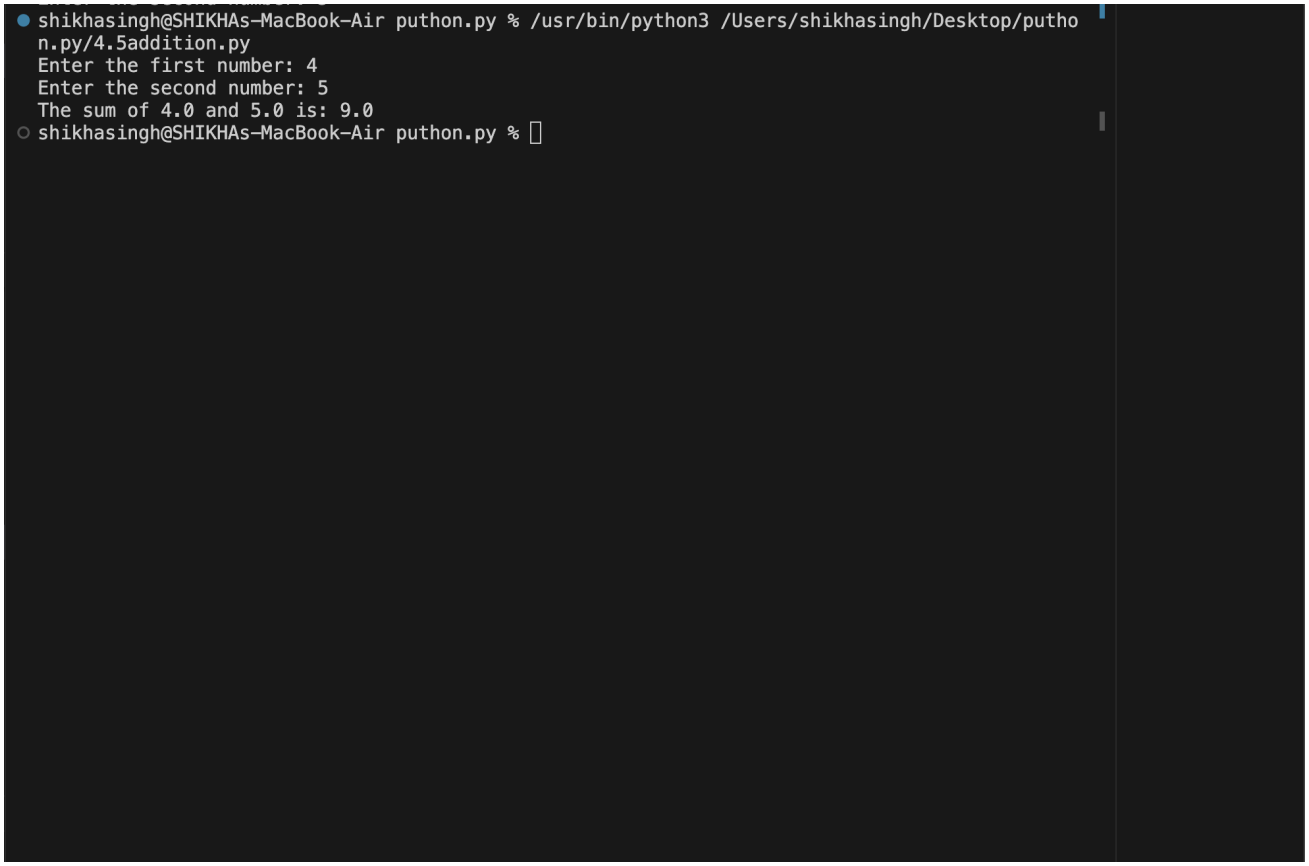
**Theory:**

- **Single Inheritance:**
- **Inheritance is a fundamental concept in object-oriented programming (OOP) that allows a class (subclass/derived class) to inherit properties and behaviors from another class (base class/parent class). Single inheritance, as the name suggests, involves one class inheriting from another.**
- **Classes in the Program:**
  - **InputNumbers Class:**
    - **The InputNumbers class serves as the base class. It has attributes num1 and num2 to store the two numbers.**
    - **The get_numbers method is defined to take user input for these numbers.**
  - **AddNumbers Class:**
    - **The AddNumbers class is derived from InputNumbers using single inheritance.**
    - **It inherits the attributes num1 and num2 from the base class and has a method add to perform addition.**
- **Program Execution:**
  - **An object addition_obj of the AddNumbers class is created.**
  - **The get_numbers method is called to get input from the user for two numbers.**
  - **The add method is called to perform addition and display the result.**

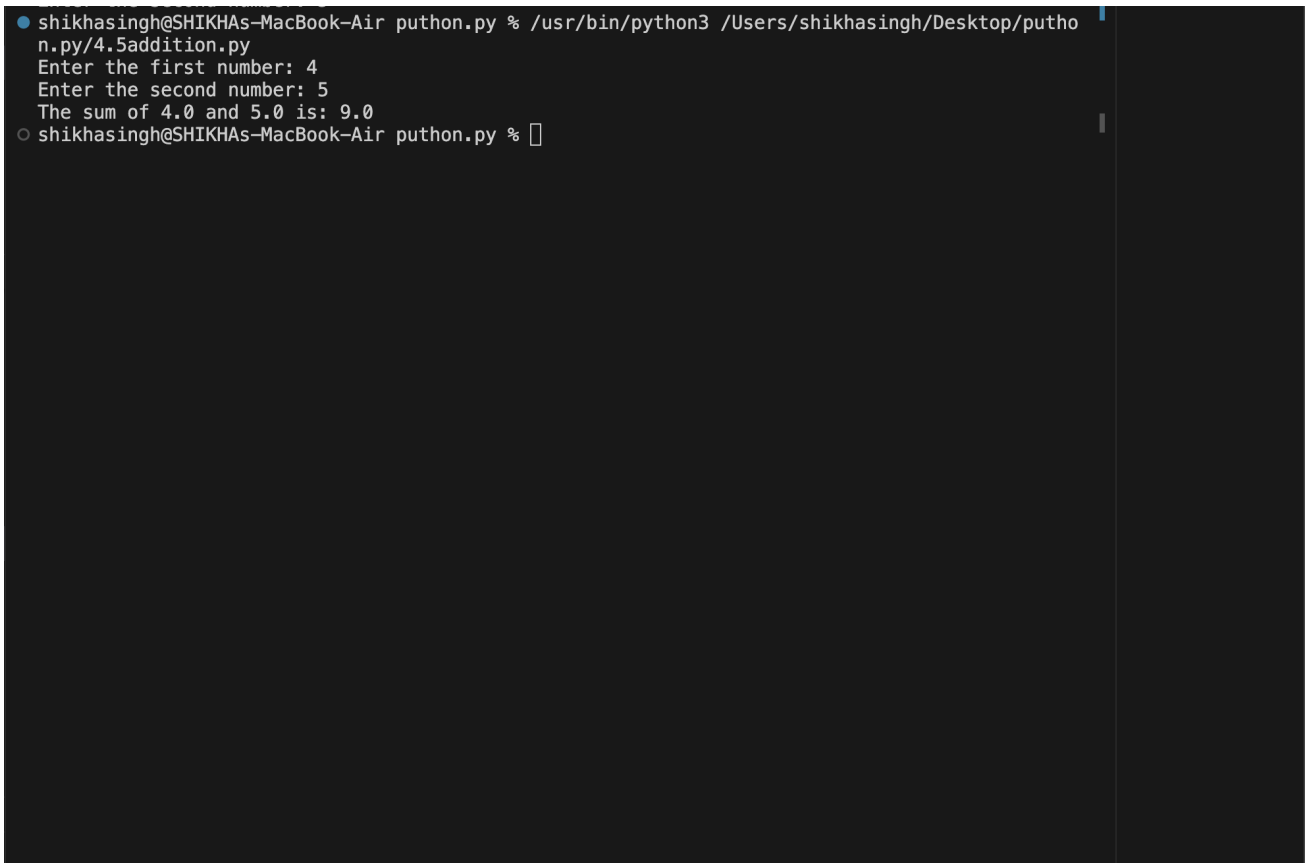
# Code:

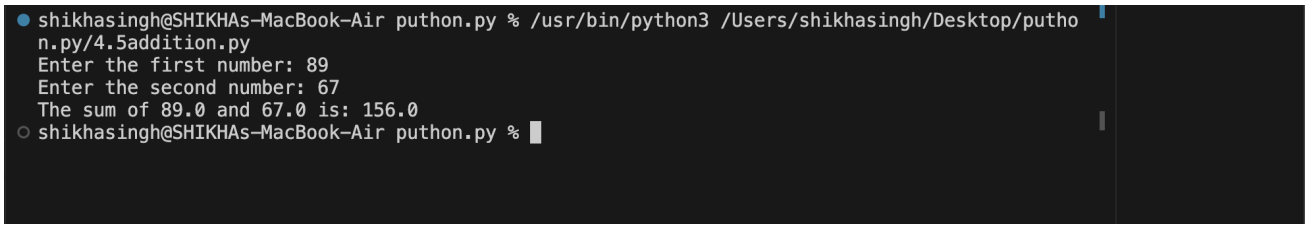
```
class InputNumbers:
    def __init__(self):
        self.num1 = 0
        self.num2 = 0
    def get_numbers(self):
        self.num1 = float(input("Enter the first number: "))
        self.num2 = float(input("Enter the second number: "))
class AddNumbers(InputNumbers):
    def add(self):
        result = self.num1 + self.num2
        print("The sum of {} and {} is: {}".format(self.num1, self.num2, result))


addition_obj = AddNumbers()
addition_obj.get_numbers()
addition_obj.add()
```

## Output: (screenshot)




## Test Case: Any two (screenshot)




## Conclusion:

**In this program, single inheritance is used to create a specialized class AddNumbers that inherits properties and methods from the more general class InputNumbers. This promotes code reusability and reflects the "is-a" relationship between the two classes.**

**The program showcases the basic principles of OOP, including encapsulation (attributes are encapsulated within classes), inheritance (single inheritance between InputNumbers and AddNumbers), and polymorphism (methods like get_numbers and add are polymorphic).**