

LAB CYCLE - 1

Experiment No :1

Date :26/09/2024

Aim :

Write a program that prompts the user to enter his first name and last name and then displays a message “Greetings!!! First name Last name”.

Pseudocode :

```
DISPLAY "Enter your first name: "  
GET first_name  
DISPLAY "Enter your last name: "  
GET last_name  
DISPLAY "Greetings!!!", first_name, " ", last_name
```

Method :

Functions	Description	Syntax
input()	Read the input from the user as a string	variable_name= input(prompt_string)
print()	Display the output as message or variable to the console	print(object)

Source

Code :

```
first_name = input("Enter your first name: ")  
last_name = input("Enter your last name: ")  
print(f"Greetings!!!{first_name} {last_name}")
```

Output :

```
Enter your first name:Anantha  
Enter your last name:Krishna  
Greetings!!! Anantha Krishna
```

Result : The experiment is successfully executed and the output is verified.

Experiment No :2

Date :26/09/2024

Aim :

Write a program to demonstrate the different number data type in python.

Pseudocode :

```
SET a TO 33
SET b TO 35.78
SET c TO 2+5j
DISPLAY "Type of a is: ",type of a
DISPLAY "Type of b is: ", type of b
DISPLAY "Type of c is: ", type of c
```

Method :

Functions	Description	Syntax
f-string	Embeds expression inside the string literals	f'string {expression}'

Source Code :

```
a=33
b=35.78
c=2+5j
print("Type of a is: ", type(a))
print(f"Type of b is: ", type(b))
print("Type of c is: ", type(c))
```

Output :

```
Type of a is: <class 'int'>
Type of b is: <class 'float'>
Type of c is: <class 'complex'>
```

Result : The program is successfully executed and the output is verified.

Experiment No :3

Date :26/09/2024

Aim :

Write a program to calculate the area of the circle by Reading input from the user.

Pseudocode :

```
DISPLAY "Enter the radius of circle: "  
GET r  
SET pi = 3.14  
SET ar = pi * r**2  
DISPLAY "Area is: ", ar
```

Source Code :

```
r=float(input("Enter the radius of circle:"))  
pi=3.14  
ar=pi*r**2  
print("Area is:",ar)
```

Output :

```
Enter the radius of circle: 5  
Area of the circle =78.5
```

Result : The program is successfully executed and the output is verified.

Experiment No :4

Date :26/09/2024

Aim :

Write a program to calculate the salary of an employee given his basic pay
HRA = 10 percent of the basic pay, TA = 5 percent of the basic pay.

Pseudocode :

```
DISPLAY "Enter the basic pay: "  
GET p  
SET hra = 10/100 * p  
SET ta = 5/100 * p  
SET sal = hra + p + ta  
DISPLAY "Salary is: ", sal
```

Source Code :

```
base = float(input("Enter the basic pay: "))  
hra = 10/100*base  
ta = 5/100*base  
salary = base+hra+ta  
print("The employee's salary= ",salary)
```

Output :

```
Enter the basic pay: 25000  
The employee's salary=28750.0
```

Result : The program is successfully executed and the output is verified.

Experiment No :5

Date :26/09/2024

Aim :

Write a program to perform arithmetic operations on two integer numbers.

Pseudocode :

```
DISPLAY "Enter first number: "  
GET n1  
DISPLAY "Enter second number: "  
GET n2  
DISPLAY "Sum: ", n1 + n2  
DISPLAY "Difference: ", n1 - n2  
DISPLAY "Product: ", n1 * n2  
DISPLAY "Division: ", n1 / n2
```

Source Code :

```
n1=float(input("Enter first number:"))  
n2=float(input("Enter second number:"))  
print(f"Sum:{n1+n2}\nDifference:{n1-n2}\nProduct:{n1*n2}\nDivision:{n1/n2}")
```

Output :

```
Enter first number: 20  
Enter second number: 2  
Sum: 22.0  
Difference: 18.0  
Product: 40.0  
Division: 10.0
```

Result : The program is successfully executed and the output is verified.

Experiment No :6

Date :26/09/2024

Aim :

Write a program to get string which is n copies of a given string.

Pseudocode :

```
DISPLAY "Enter a string: "  
GET str  
DISPLAY "Enter the number of repetitions: "  
GET n  
DISPLAY str repeated n times
```

Source Code :

```
str=input("Enter a string: ")  
n=int(input("Enter the number of repetitions:"))  
print(str*n)
```

Output :

```
Enter a string: rit  
Enter the number of repetitions: 3  
ritritrit
```

Result : The program is successfully executed and the output is verified.

Experiment No :7

Date :26/09/2024

Aim :

Write a program to accept an integer 'n' and compute $n+nn+nnn$ and find its sum.

Pseudocode :

```
DISPLAY "Enter the value of n: "  
GET num  
DISPLAY num,'+',num*2,'+',num*3  
SET sum = num + (num*2) + (num*3)  
DISPLAY "Sum = ", sum
```

Source Code :

```
num=input("Enter the value of n: ")  
print(num,'+',num*2,'+',num*3)  
sum=int(num)+int(num*2)+int(num*3)  
print("Sum = ", sum)
```

Output :

```
Enter the value of n:6  
6 + 66 + 666  
Sum = 738
```

Result: The program is successfully executed and the output is verified.

Experiment No :8

Date :26/09/2024

Aim :

Write a program to find the largest among 3 numbers.

Pseudocode :

```
DISPLAY "Enter a first number: "  
GET n1  
DISPLAY "Enter a second number: "  
GET n2  
DISPLAY "Enter a third number: "  
GET n3  
IF n1 > n2 AND n1 > n3 THEN  
SET largest = n1  
ELSE IF n2 > n3 AND n2 > n1 THEN  
SET largest = n2  
ELSE  
SET largest = n3  
DISPLAY "The largest of three number is",largest)
```

Source Code :

```
n1=int(input("Enter a first number: "))  
n2=int(input("Enter a second number: "))  
n3=int(input("Enter a third number: "))  
if(n1>=n2) and (n1>=n3):  
    largest=n1  
elif(n2>=n1) and (n2>=n3):  
    largest=n2  
else:  
    largest=n3  
print("The largest of three number is",largest)
```

Output :

```
Enter a first number: 23  
Enter a second number: 35  
Enter a third number: 18  
The largest of three number is 35
```

Result : The program is successfully executed and the output is verified.

Experiment No :9

Date :26/09/2024

Aim :

Write a program to determine a year is a leap year or not.

Pseudocode :

```
DISPLAY "Enter a year: "  
GET yr
```

```
IF (yr MOD 400 = 0) AND (yr MOD 100 = 0) THEN  
    DISPLAY yr, " is a leap year"  
ELSE IF (yr MOD 4 = 0) AND (yr MOD 100 != 0) THEN  
    DISPLAY yr, " is a leap year"  
ELSE  
    DISPLAY yr, " is not a leap year"
```

Source Code :

```
yr=int(input("Enter a year:"))  
if (yr%400==0) and (yr%100==0):  
    print(f'{yr} is a leap year')  
elif (yr%4==0) and (yr%100!=0):  
    print (f'{yr} is a leap year')  
else:  
    print(f'{yr} is not a leap year')
```

Output :

```
Enter a year: 1788  
1788 is a leap year
```

```
Enter a year: 2002  
2002 is not a leap year
```

Result : The program is successfully executed and the output is verified.

Experiment No :10

Date :03/10/2024

Aim :

Write a program to determine the rate of entry tickets in a trade fair based on ages as follows:

Age < 10	7 rupees
Age >10 and Age < 60	10 rupees
Age > 60	5 Rupees

Pseudocode :

```
DISPLAY "Enter the age: "  
GET age  
IF age < 10 THEN  
    DISPLAY "The Ticket Rate is 7"  
ELSE IF age >= 10 AND age < 60 THEN  
    DISPLAY "The Ticket Rate is 10"  
ELSE IF age >= 60 THEN  
    DISPLAY "The Ticket Rate is 5"  
ELSE  
    DISPLAY "Invalid Entry"
```

Source Code :

```
age=int(input("Enter the age:"))  
if age<10:  
    print("The Ticket Rate is 7")  
elif age>=10 and age<60:  
    print("The Ticket Rate is 10")  
elif age>=60:  
    print("The Ticket Rate is 5")  
else:  
    print("Invalid Entry")
```

OUTPUT :

Enter the age: 35
The Ticket Rate is 10

Enter the age: 7
The Ticket Rate is 7

Enter the age: 76
The Ticket Rate is 5

Result : The program is successfully executed and the output is verified.

Experiment No :11

Date :03/10/2024

Aim :

Write a program to solve a quadratic equation.

Pseudocode :

```
IMPORT cmath
DISPLAY "Enter the coefficient of a: "
GET a
DISPLAY "Enter the coefficient of b: "
GET b
DISPLAY "Enter the coefficient of c: "
GET c

SET d = (b**2) - (4 * a * c)

IF d > 0 THEN
    SET ans1 = (-b -math.sqrt(d)) / (2 * a)
    SET ans2 = (-b + math.sqrt(d)) / (2 * a)
    DISPLAY "The roots are real: ", ans1, "and", ans2
ELSE IF d < 0 THEN
    SET ans1 = (-b -math.sqrt(d)) / (2 * a)
    SET ans2 = (-b + math.sqrt(d)) / (2 * a)
    DISPLAY"The roots are complex: ", ans1, "and", ans2
ELSE
    SET ans1=-b/(2*a)
    DISPLAY "Roots are equal: ",ans1
```

Method :

Functions	Description	Syntax
math.sqrt()	It returns the square root of the number	math.sqrt(x)

Source Code :

```
import cmath
import math
a=float(input("Enter the coefficient of a: "))
b=float(input("Enter the coefficient of b: "))
c=float(input("Enter the coefficient of c: "))
```

```

d=(b**2) - (4*a*c)
if d>0:
    ans1=(-b-math.sqrt(d))/(2*a)
    ans2=(-b+math.sqrt(d))/(2*a)
    print(f"The roots are real: {ans1} and {ans2}")
elif d<0:
    ans1=(-b-cmath.sqrt(d))/(2*a)
    ans2=(-b+cmath.sqrt(d))/(2*a)
    print(f"The roots are complex: {ans1} and {ans2}")
else:
    ans1=-b/(2*a)
    print(f"The roots are equal: {ans1}")

```

Output :

Enter the coefficient of a:1
 Enter the coefficient of b:-3
 Enter the coefficient of c:2
 The roots are real: 1.0 and 2.0

Enter the coefficient of a:1
 Enter the coefficient of b:2
 Enter the coefficient of c:5
 The roots are complex: (-1-2j) and (-1+2j)

Enter the coefficient of a:1
 Enter the coefficient of b:4
 Enter the coefficient of c:4
 The roots are equal: -2.0

Result : The program is successfully executed and the output is verified.