

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 the First Name: "  
GET fn  
DISPLAY "Enter the Last Name: "  
GET ln  
DISPLAY "Greetings!!!", fn, " ", ln
```

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 :

```
fn=input("Enter the First Name:")  
ln=input("Enter the Last Name:")  
print("Greetings!!!",fn,ln)
```

Output :

```
Enter the First name: Harinarayanan  
Enter the Last Name: G  
Greetings!!! Harinarayanan G
```

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 :

```
DISPLAY "Enter an integer value: "  
GET i  
DISPLAY "Enter a float value: "  
GET f  
DISPLAY "Enter the complex number: "  
GET co  
DISPLAY "Float value ", f  
DISPLAY "Integer value ", i  
DISPLAY "Complex number ", co
```

Method :

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

Source Code :

```
i=int(input("Enter an integer value:"))  
f=float(input("Enter a float value:"))  
co=complex(input("Enter the complex number:"))  
print(f"Float value {f} \nInteger value {i}\nComplex number{co}")
```

Output :

```
Enter an integer value:23  
Enter a float value:22.2  
Enter the complex number:10+8j  
Float value 22.2  
Integer value 23  
Complex number (10+8j)
```

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 the Circle: 20  
Area is: 1256
```

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 :

```
p=float(input("Enter the basic pay:"))  
hra=10/100*bp  
ta=5/100*bp  
sal=hra+bp+ta  
print("Salary is:",sal)
```

Output :

```
Enter the basic pay:20000  
Salary is: 23000.0
```

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: 5.0
```

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 s  
DISPLAY "Enter the number of repetitions needed: "  
GET r  
DISPLAY s repeated r times
```

Source Code :

```
s=input("Enter a string:")  
r=int(input("Enter the number of repetitions needed:"))  
print(s*r)
```

Output :

```
Enter a String: hello  
Enter the number of repetitions needed: 2  
hello hello
```

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 an integer: "  
GET n  
DISPLAY n, " + ", n*2, " + ", n*3  
SET sum = n + (n*2) + (n*3)  
DISPLAY "sum is ", sum
```

Source Code :

```
n=input("Enter a integer:")  
print(n,'+',n*2,'+',n*3)  
sum=int(n)+int(n*2)+int(n*3)  
print("sum is",sum)
```

Output :

```
Enter a integer: 20  
20 + 2020 + 202020  
Sum is 20460
```

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 the first number: "  
GET n1  
DISPLAY "Enter the second number: "  
GET n2  
DISPLAY "Enter the third number: "  
GET n3
```

```
IF n1 > n2 AND n1 > n3 THEN  
    DISPLAY n1, " is the biggest"  
ELSE IF n2 > n3 THEN  
    DISPLAY n2, " is the biggest"  
ELSE  
    DISPLAY n3, " is the biggest"
```

Source Code :

```
n1=int(input("Enter the first number:"))  
n2=int(input("Enter the second number:"))  
n3=int(input("Enter the third number:"))  
if n1>n2 and n1>n3:  
    print(f'{n1} is the biggest')  
elif n2>n3:  
    print(f'{n2} is the biggest')  
else:  
    print(f'{n3} is the biggest')
```

Output :

```
Enter the first number: 10  
Enter the second number: 11  
Enter the third number: 22  
22 is the biggest
```

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: 2024  
2024 is a leap year
```

```
Enter a year: 1900  
1900 is not a leap year
```

```
Enter a year: 48  
48 is 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 "Rate is: 7"  
ELSE IF age >= 10 AND age < 60 THEN  
    DISPLAY "Rate is: 10"  
ELSE IF age >= 60 THEN  
    DISPLAY "Rate is: 5"  
ELSE  
    DISPLAY "Invalid age"
```

Source Code :

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

OUTPUT :

```
Enter the age: 21  
Rate is:10
```

Enter the age: 6
Rate is:7

Enter the age: 64
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 :

```
DISPLAY "Enter the first number: "  
GET a  
DISPLAY "Enter the second number: "  
GET b  
DISPLAY "Enter the third number: "  
GET c  
  
SET d = (b*b) - (4*a*c)  
  
IF d == 0 THEN  
    SET root = -b / (2 * a)  
    DISPLAY "Real and equal roots: ", root  
ELSE IF d > 0 THEN  
    SET ans1 = (-b - sqrt(d)) / (2 * a)  
    SET ans2 = (-b + sqrt(d)) / (2 * a)  
    DISPLAY "Real and distinct roots: ", ans1, ans2  
ELSE  
    SET re = -b / (2 * a)  
    SET img = sqrt(abs(d)) / (2 * a)  
    DISPLAY "Complex and distinct roots: ", re, "+", img, "j"  
  
re=-b/2*a  
img=math.sqrt(abs(d))/(2*a)  
print(f"Complex and distinct roots: {re}+{img}j")
```

Method :

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

Source Code :

```
import math
a=float(input("Enter the first number:"))
b=float(input("Enter the second number:"))
c=float(input("Enter the third number:"))
d=(b*b)-(4*a*c)
if d==0:
    root=-b/2*a
    print(f"Real and equal roots: {root}")
elif d>0:
    ans1=(-b-math.sqrt(d))/(2*a)
    ans2=(-b+math.sqrt(d))/(2*a)
    print(f"Real and distinct roots: {ans1} {ans2}")
else:
    re=-b/2*a
    img=math.sqrt(abs(d))/(2*a)
    print(f"Complex and distinct roots: {re}+{img}j")
```

Output :

```
Enter the first number: 1
Enter the second number: 6
Enter the third number: 8
Real and Distinct roots: -4.0  -2.0
```

```
Enter the first number: 1
Enter the second number: -2
Enter the third number: 1
Real and equal roots: 1.0
```

```
Enter the first number: 1
Enter the second number: 2
Enter the third number: 5
complex and Distinct roots: -1.0 + 2.0j
```

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