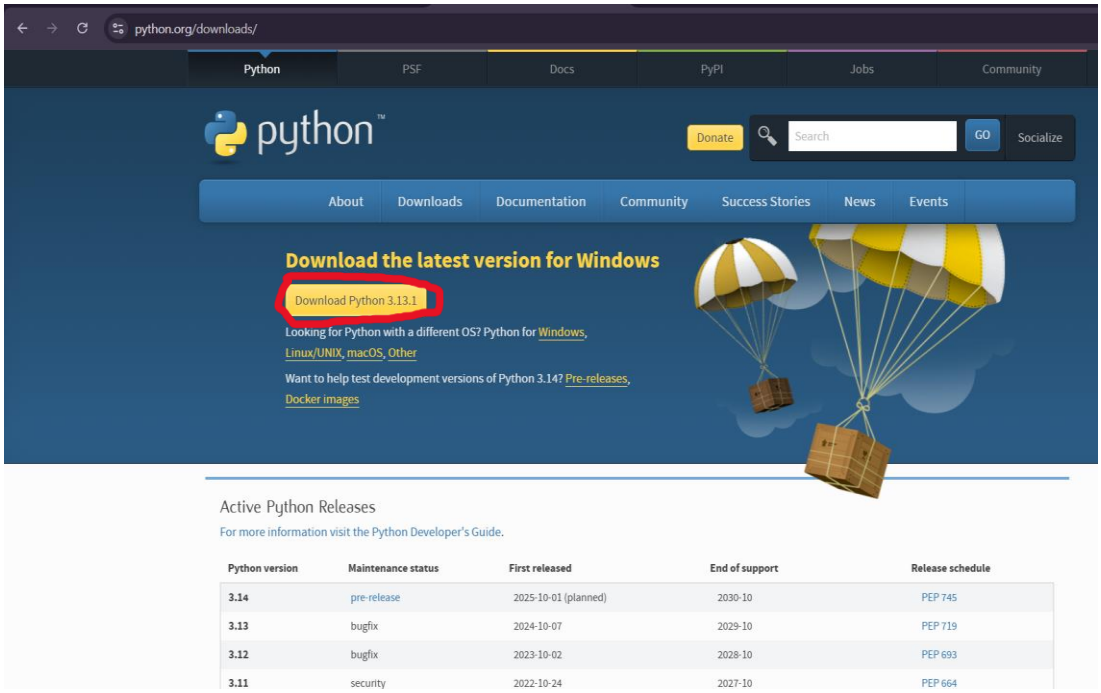
Experiment 1

Question 1

Installing Python and stating the difference between Interactive mode and Scripting mode

Installing Python

- Go to https://www.python.org/downloads/ and click on Download Python 3.13.1 under the heading **'Download the latest version for Windows'** that appears in the banner of the window.



- Python installer will be downloaded. Run the installer, select the installation options and follow the instructions and download the Python application.

Difference between Interactive and Scripting mode

- Interactive mode – In this mode the program is written in the command mode and the statements are executed when it is encountered while typing it.

- Scripting mode – In this mode a python program file is created in text editor and then is executed as a whole.

Question 2 to 7

```
#Qn 2
print("Hello Everyone!!!")
print("Hello \nWorld")
print("Hello \n\tWorld")
bday = r"12\05\1999"
print("Rohit’ s date of birth is",bday)

#Qn 3
x="Hello"
print(x)

#Qn 4
p=10
```

```
q=10.580
r="Hello"
s='H'
print(p)
print(q)
print(r)
print(s)

#Qn 5
a="Swastika"
b="Karmakar"
print(a+" "+b)

#Qn 6 (First and Last name already entered in Qn 5)
c="Ananya"
print(a+ " ( " + c + " ) "+ b)

#Qn 7 (First and Last name already entered in Qn 5)
i="590012371"
dob="28 Aug 2005"
add="UPES \nBidholi Campus \nPincode:"
pin="248007"
pro="AI & ML"
sem="2"
print("NAME:",a.upper()+" "+b.upper())
print("SAP ID:",i)
print("DATE OF BIRTH:",dob)
print("ADDRESS: "+add+pin)
```

```
print("PROGRAMME:",pro)

print("Semester:",sem)
```

Output:

```
PS C:\Users\amale\OneDrive\Desktop> py Exp1.py
Hello Everyone!!!
Hello
World
Hello
        World
Rohit' s date of birth is 12\05\1999
Hello
10
10.58
Hello
H
Swastika Karmakar
Swastika ( Ananya ) Karmakar
NAME: SWASTIKA KARMAKAR
SAP ID: 590012371
DATE OF BIRTH: 28 Aug 2005
ADDRESS: UPES
Bidholi Campus
Pincode:248007
PROGRAMME: AI & ML
Semester: 2
```

Experiment 2

```
#Qn 1

x=9

y=7

print("x=",x)

print("y=",y)

print("x+y=",(x+y))

print("x*y=",(x*y))

print("x/y=",(x/y))

print("x-y=",(x-y))


#Qn 2

import math

print("Calculating area of circle:")

r=float(input("Enter the radius:"))

print("Area of circle=",math.pi*pow(r,2))


#Qn 3

print("Enter the two numbers to compute (a+b)^2:")

a=int(input("Enter the value of a:"))
```

```
b=int(input("Enter the value of b:"))

print("Computing the square of (a+b):", pow(a+b,2))


#Qn 4

print("Enter the two sides of the right angle triangle to compute Hypotenuse:")

u=float(input("Enter the value of the first side:"))

v=float(input("Enter the value of the second side:"))

print("Hypotenuse=",math.sqrt(pow(u,2)+pow(v,2)))


#Qn 5

print("Enter the following parameters to calculate Simple Interest:")

P=float(input("Enter the principal amount:"))

R=float(input("Enter the rate of interest per annum:"))

T=float(input("Enter the time in years:"))

print("Simple Interest=",(P*T*R/100))


#Qn 6

print("Calculating the area of triangle when length of the sides are given:")

p=float(input("Enter the value of first side:"))

q=float(input("Enter the value of second side:"))

r=float(input("Enter the value of third side:"))

s=(p+q+r)/2

print("Area of triangle=",math.sqrt(s*(s-p)*(s-q)*(s-r)))
```

```
#Qn 7

print("Enter the time in seconds to convert in the format hh:mm:ss")

t=int(input("Enter the time in seconds:"))

print("Time in hh:mm:ss
format:",math.floor(t/3600),":",math.floor((t%3600)/60),":",t%60)


#Qn 8

print("Swapping values without using third variable")

m=int(input("Enter the first number:"))

n=int(input("Enter the second number:"))

print("Before swapping:")

print("First number=",m)

print("Second number=",n)

m, n = n, m

print("After swapping:")

print("First number=",m)

print("Second number=",n)


#Qn 9

print("Enter the parameters to find the sum of first n natural numbers:")

n=int(input("Enter the value of n:"))

print("Sum of first n natural numbers=",((n*(n+1))/2))
```

```
#Qn 10

print("Printing the truth table for bitwise operators (&,| and ^ operators)")

print("A\tB\tA&B\tA|B\tA^B")

print("-------------------------------------------")

for i in range(2):

for j in range(2):

print(str(i) + "\t" + str(j) + "\t" + str(i & j) + "\t" + str(i | j) + "\t" + str(i ^ j))


#Qn 11

print("Enter the number to find its left shift and right shift value.")

num=int(input("Enter the number:"))

lim=int(input("Enter the number of bits to perform left shift and right shift:"))

print("Left shift value=",num<<lim)

print("Right shift value=",num>>lim)


#Qn 12

print("Finding whether the input number is in the sequence (10, 20, 56, 78, 89) or not.")

seq = (10, 20, 56, 78, 89)

inp = int(input("Enter a number to be searched in the sequence:"))

if inp in seq:

print(inp, " is present in the given sequence")

else:

print(inp, " is not present in the given sequence")
```

```
#Qn 13

print("Finding whether the input character is in the input string or not.")

string=input("Enter the String:")

character=input("Enter the character to be searched in the given string:")

if character in string:

print(character," is present in ",string)

else:

print(character," is not present in ",string)
```

Output:

```
PS C:\Users\amale\OneDrive\Desktop> py Exp2.py
x= 9
y= 7
x+y= 16
x*y= 63
x/y= 1.2857142857142858
x-y= 2
Calculating area of circle:
Enter the radius:3.5
Area of circle= 38.484510006474 96
Enter the two numbers to compute (a+b)^2:
Enter the value of a:2
Enter the value of b:4
Computing the square of (a+b): 36
Enter the two sides of the right angle triangle to compute Hypotenuse:
Enter the value of the first side:3
Enter the value of the second side:4
Hypotenuse= 5.0
Enter the following parameters to calculate Simple Interest:
Enter the principal amount:5000
Enter the rate of interest per annum:2.5
Enter the time in years:10
Simple Interest= 1250.0
Calculating the area of triangle when length of the sides are given:
Enter the value of first side:3
Enter the value of second side:4
Enter the value of third side:5
Area of triangle= 6.0
Enter the time in seconds to convert in the format hh:mm:ss
Enter the time in seconds:1289000
Time in hh:mm:ss format: 358 : 3 : 20
Swapping values without using third variable
Enter the first number:24
Enter the second number:56
Before swapping:
First number= 24
Second number= 56
After swapping:
First number= 56
Second number= 24
```

```
Enter the parameters to find the sum of first n natural numbers:
Enter the value of n:10
Sum of first n natural numbers= 55.0
Printing the truth table for bitwise operators (&,| and ^ operators)
A       B       A&B     A|B     A^B
-----------------------------------------
0       0       0       0       0
0       1       0       1       1
1       0       0       1       1
1       1       1       1       0
Enter the number to find its left shift and right shift value.
Enter the number:10
Enter the number of bits to perform left shift and right shift:1
Left shift value= 20
Right shift value= 5
Finding whether the input number is in the sequence (10, 20, 56, 78, 89) or not.
Enter a number to be searched in the sequence:90
90  is not present in the given sequence
Finding whether the input character is in the input string or not.
Enter the String:Good Morning
Enter the character to be searched in the given string:e
e  is not present in  Good Morning
```