Assignment on
Python Programming

Name: Abhijit Goenka
Roll no.: R252222003
Sap ID: 500106633
Course: B.C.A AIML Batch 1

School of Computer Science

University of Petroleum and Energy Studies
Dehradun

1.Python Program to Print Hello world.

```
print('Hello, world!')
```

output:

```
Hello, world!
```

2.Python program to add two numbers.

```
num1 = float(input("Enter the first number: "))
num2 = float(input("Enter the second number: "))
sum = num1 + num2
print("The sum of", num1, "and", num2, "is", sum)
```

output:

```
Enter first number: 1.5
Enter second number: 6.3
The sum of 1.5 and 6.3 is 7.8
```

3.**Program to generate a random number between 0 and 9**

```
import random
print(random.randint(0,9))
```

output:

```
5
```

4. Python program to check if the input number is odd or even.

```
num = int(input("Enter a number: "))
if num % 2 == 0:
print(num, "is an even number.")
else:
print(num, "is an odd number.")
```

```
Enter a number: 43
43 is Odd
```

Output 2

```
Enter a number: 18
18 is Even
```

5. Python program to check if year is a leap year or not

```
year = int(input("Enter a year: "))

if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
    print(year, "is a leap year.")
else:
    print(year, "is not a leap year.")
```

```
2000 is a leap year
```

6.To check if a number is prime or not.

```
num = int(input("Enter a number: "))

if num > 1:
    is_prime = True
    for i in range(2, int(num**0.5) + 1):
        if num % i == 0:
            is_prime = False
            break
    if is_prime:
        print(num, "is a prime number.")
    else:
        print(num, "is not a prime number.")
```

```
else:
   print(num, "is not a prime number.")
```

```
29 is a prime number
```

7.To find factorial of a number provided by the user.

```
num = int(input("Enter a number: "))
factorial = 1

if num < 0:
   print("Factorial does not exist for negative numbers.")
elif num == 0:
   print("The factorial of 0 is 1.")
else:
   for i in range(1, num + 1):
      factorial *= i
   print("The factorial of", num, "is", factorial)
```

```
The factorial of 7 is 5040
```

8.To find largest number among the three input numbers.

```
num1 = float(input())
num2 = float(input())
num3 = float(input())

if (num1 >= num2) and (num1 >= num3):
   largest = num1
elif (num2 >= num1) and (num2 >= num3):
   largest = num2
else:
   largest = num3

print(“The largest number is”,num)
```

```
The largest number is 14.0
```

9.

```
import numpy as np
arr = np.array([1, 2, 3, 4, 5])
print(arr)
print(type(arr))
```

```
[1 2 3 4 5]
<class 'numpy.ndarray'>
```

10.

```
import numpy as np
arr = np.array([1, 2, 3, 4, 5, 6, 7])
print(arr[1:5])
```

```
[2 3 4 5]
```

11.

```
import numpy as np
arr = np.array([[1, 2, 3, 4], [5, 6, 7, 8]])
print(arr.shape)
```

```
(2, 4)
```

12.

```
import numpy as np
arr = np.array([1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12])
newarr = arr.reshape(4, 3)

print(newarr)
```

```
[[ 1  2  3]
 [ 4  5  6]
 [ 7  8  9]
 [10 11 12]]
```

13.

```
import numpy as np
arr = np.array([1, 2, 3, 4, 5, 4,4])x=np.where(arr

== 4)

print(x)
```

```
(array([3, 5, 6]),)
```

14. Sort the array:

```
import numpy as np

arr = np.array([3, 2, 0, 1])

print(np.sort(arr))
```

```
[0 1 2 3]
```

15.Create an array from the elements on index 0 and 2:

```
import numpy as np

arr = np.array([41, 42, 43, 44])x = [True, False, True, False] newarr

=arr[x]
```

print(newarr)

Output:

```
[41 43]
```

16.Create a simple Pandas Series from a list:

```
import pandas as pd

    a = [1, 7, 2]

    myvar = pd.Series(a)

    print(myvar)
```

Output:

```
0    1
1    7
2    2
dtype: int64
```

17.Create a simple Pandas DataFrame:

```
import pandas as pd

    data = {
      "calories": [420, 380, 390],
      "duration": [50, 40, 45]
    }

    #load data into a DataFrame object:df =
    pd.DataFrame(data)

    print(df)
```

```
   calories  duration
0       420        50
1       380        40
2       390        45
```

18.Print the DataFrame without the to_string() method:

import pandas as pd

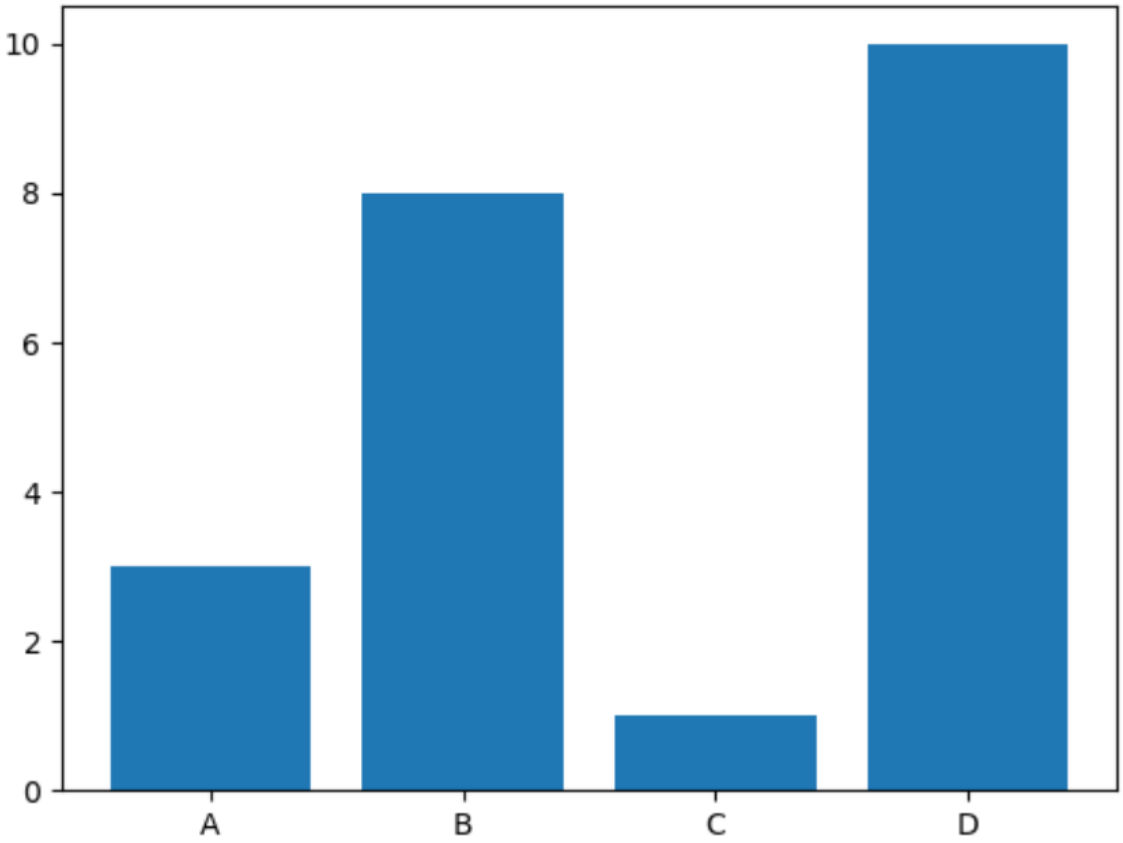
df = pd.read_csv('data.csv')print(df)

```
     Duration  Pulse  Maxpulse  Calories
0          60    110       130     409.1
1          60    117       145     479.0
2          60    103       135     340.0
3          45    109       175     282.4
4          45    117       148     406.0
..        ...    ...       ...       ...
164        60    105       140     290.8
165        60    110       145     300.4
166        60    115       145     310.2
167        75    120       150     320.4
168        75    125       150     330.4

[169 rows x 4 columns]
```

19.Draw 4 bars:

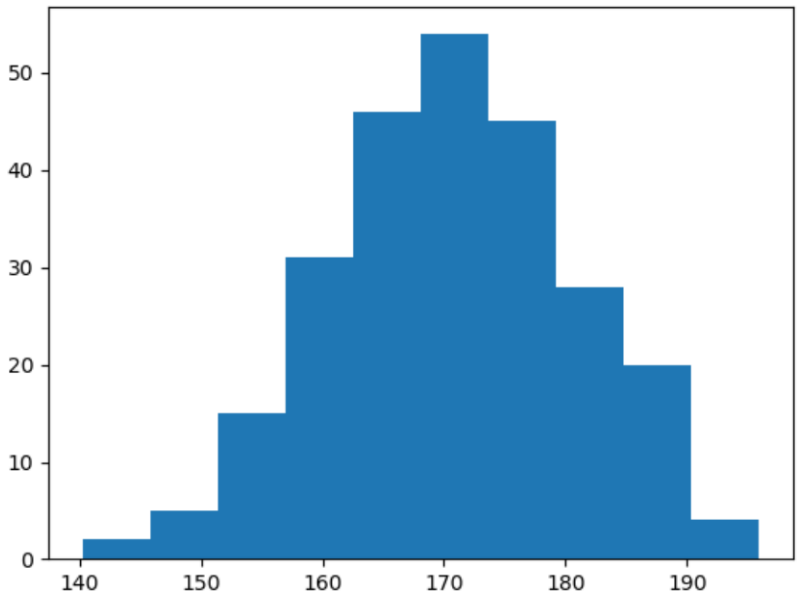
import matplotlib.pyplot as pltimport
numpy as np

```
x = np.array(["A", "B", "C", "D"])
y = np.array([3, 8, 1, 10])

plt.bar(x,y)plt.show()
```



20.A simple histogram:

```
import matplotlib.pyplot as plt
import numpy as np

x = np.random.normal(170, 10, 250)
plt.hist(x)
plt.show()
```



21. A simple pie chart:

```
import matplotlib.pyplot as plt
import numpy as np

y = np.array([35, 25, 25, 15])plt.pie(y)
```