5aWrite a Python program to demonstrate built-in modules (Random,Time, Math, etc,)

```
import random
import math
import time
import sys
import pprint

random_num=random.randrange(10)
print(random_num)

abs_num=math.fabs(-10)
print(abs_num)

t=time.localtime()
print(t)

print(sys.version)

data={"id":1,"name":"amaira","Dob":"24/12/2004","age":18}
pp=pprint.PrettyPrinter()
pp.pprint(data)
```

Output

Output:

```
7
10.0
time.struct_time(tm_year=2023, tm_mon=2, tm_mday=4, tm_hour=6, tm_min=34, tm_sec=45,
tm_wday=5, tm_yday=35, tm_isdst=0)
3.8.10 (default, Nov 14 2022, 12:59:47)
[GCC 9.4.0]
{'Dob': '24/12/2004', 'age': 18, 'id': 1, 'name': 'amaira'}
```

5bCreate a user defined module using python to execute the following a) area of circle b) area of triangle c) area of rectangle.

In area.py

```
def circle_area(r):
    return((22/7)*r*r)
def triangle_area(b,h):
    return((1/2)*b*h)
def rectangle_area(l,b):
    return(l*b)
```

In sample.py

```
import area
c_area=area.circle_area(5)
print(c_area)
t_area=area.triangle_area(5,7)
print(t_area)
r_area=area.rectangle_area(8,9)
print(r_area)
```

Output:

```
78.57
17.5
72
```

6aWrite a python program to create a text file and ask the user to enter 5-6 lines of text. Display the longest and the shortest word from the file. Display the length of these words.

```
def smallest_largest_words(str1):
```

```
    word = "";
    all_words = [];
    str1 = str1 + " ";
    for i in range(0, len(str1)):
        if(str1[i] != ' '):
            word = word + str1[i];
        else:
            all_words.append(word);
            word = "";

    small = large = all_words[0];

#Find smallest and largest word in the str1
    for k in range(0, len(all_words)):
        if(len(small) > len(all_words[k])):
            small = all_words[k];
        if(len(large) < len(all_words[k])):
            large = all_words[k];
    return small,large;

myfile=open("test.txt","w")
line=input("Enter text:")
myfile.write(line)
myfile.close()

myfile=open("test.txt","r")
lines=myfile.read()
#lines=lines.split()

small, large = smallest_largest_words(lines)

print("Smallest word: " + small);
```

```
print("Length of the shortest word=",len(small))

print("Largest word: " + large);

print("Length of the longest word=",len(large))
```

6a output:

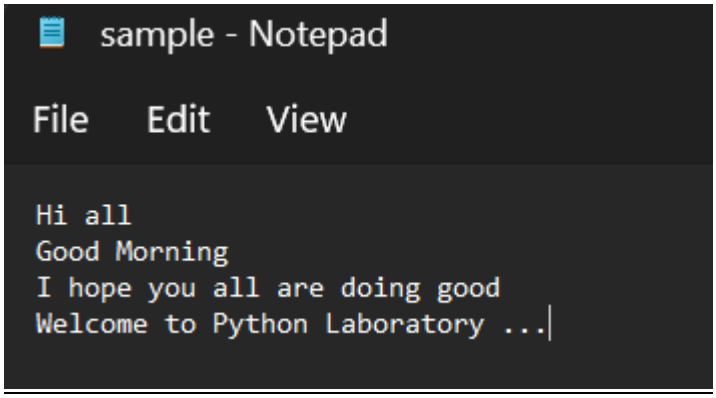
```
Enter text:Welcome to python Laboratory
Smallest word: to
Length of the shortest word= 2
Largest word: Laboratory
Length of the longest word= 10
```

6bDevelop a python program to sort the contents of a text file and write the sorted contents into a separate text file. [Hint: Use string methods strip(), len(), list methods sort(), append(), and file methods open(), readlines(), and write()].

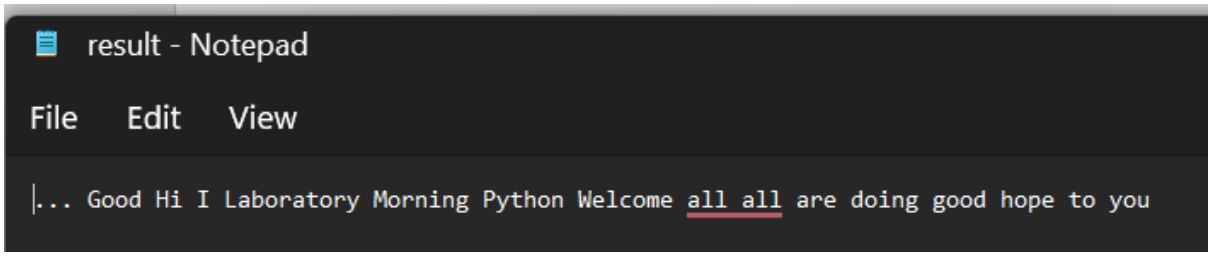
```
def sorting(filename):

infile=open(filename)

   words=[]

   for line in infile:

      temp=line.split()

      for i in temp:

words.append(i)

infile.close()

words.sort()

   outline=open("result.txt","w")

   for i in words:

outline.writelines(i)

outline.writelines(" ")

outline.close()


sorting("sample.txt")
```

Output

Input file


sample - Notepad
File Edit View
Hi all
Good Morning
I hope you all are doing good
Welcome to Python Laboratory ...

Output file


result - Notepad
File Edit View
... Good Hi I Laboratory Morning Python Welcome all all are doing good hope to you