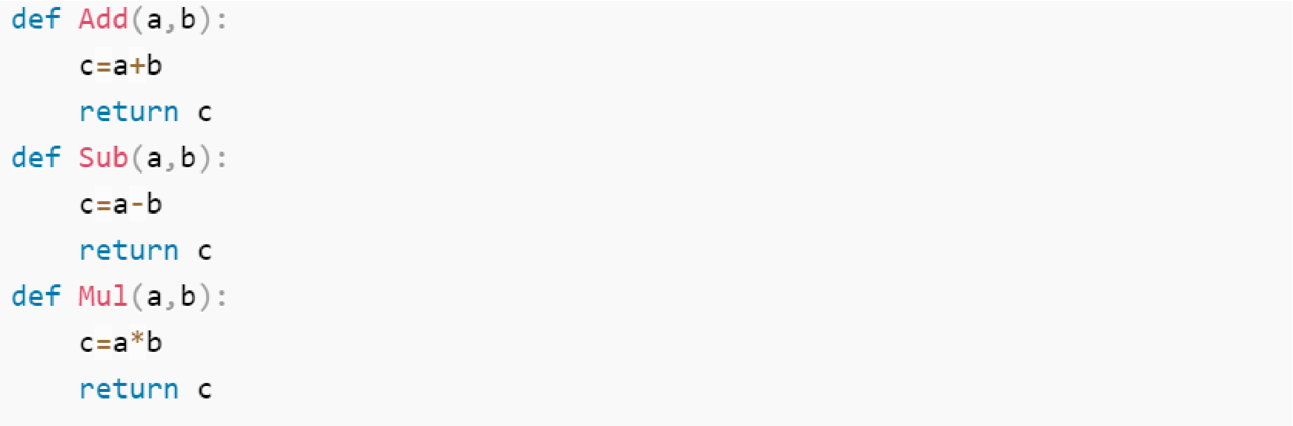
WEEK – 9

1. Write a python program to define a module and import a specific function in that module to another program.

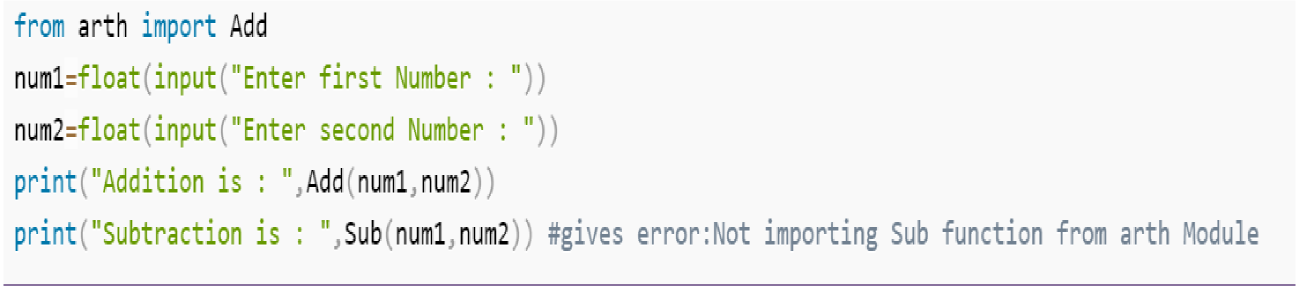
Source code:-

arth.py



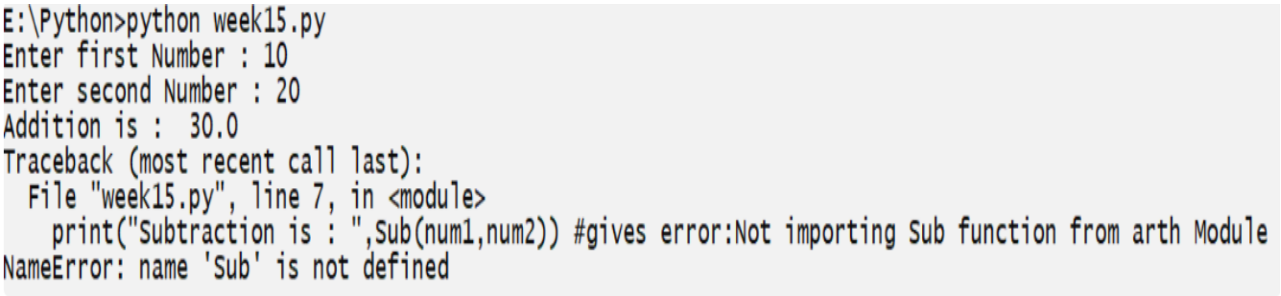
```
def Add(a,b):
    c=a+b
    return c
def Sub(a,b):
    c=a-b
    return c
def Mul(a,b):
    c=a*b
    return c
```

Main.py



```
from arth import Add
num1=float(input("Enter first Number : "))
num2=float(input("Enter second Number : "))
print("Addition is : ",Add(num1,num2))
print("Subtraction is : ",Sub(num1,num2)) #gives error:Not importing Sub function from arth Module
```

Output:-



```
E:\Python>python week15.py
Enter first Number : 10
Enter second Number : 20
Addition is :  30.0
Traceback (most recent call last):
  File "week15.py", line 7, in <module>
    print("Subtraction is : ",Sub(num1,num2)) #gives error:Not importing Sub function from arth Module
NameError: name 'Sub' is not defined
```

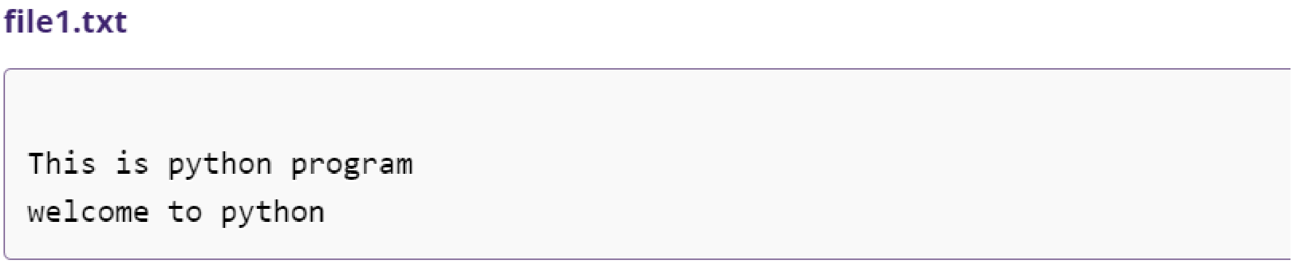
Description:-

- We can import the definitions inside a module to another module or the interactive interpreter in Python.
- We use the import keyword to do this. To import our previously defined module arth, we type the following in the Python prompt.

```
import arth
```

2. Write a script named copyfile.py. This script should prompt the user for the names of two text files. The contents of the first file should be input and written to the second file.

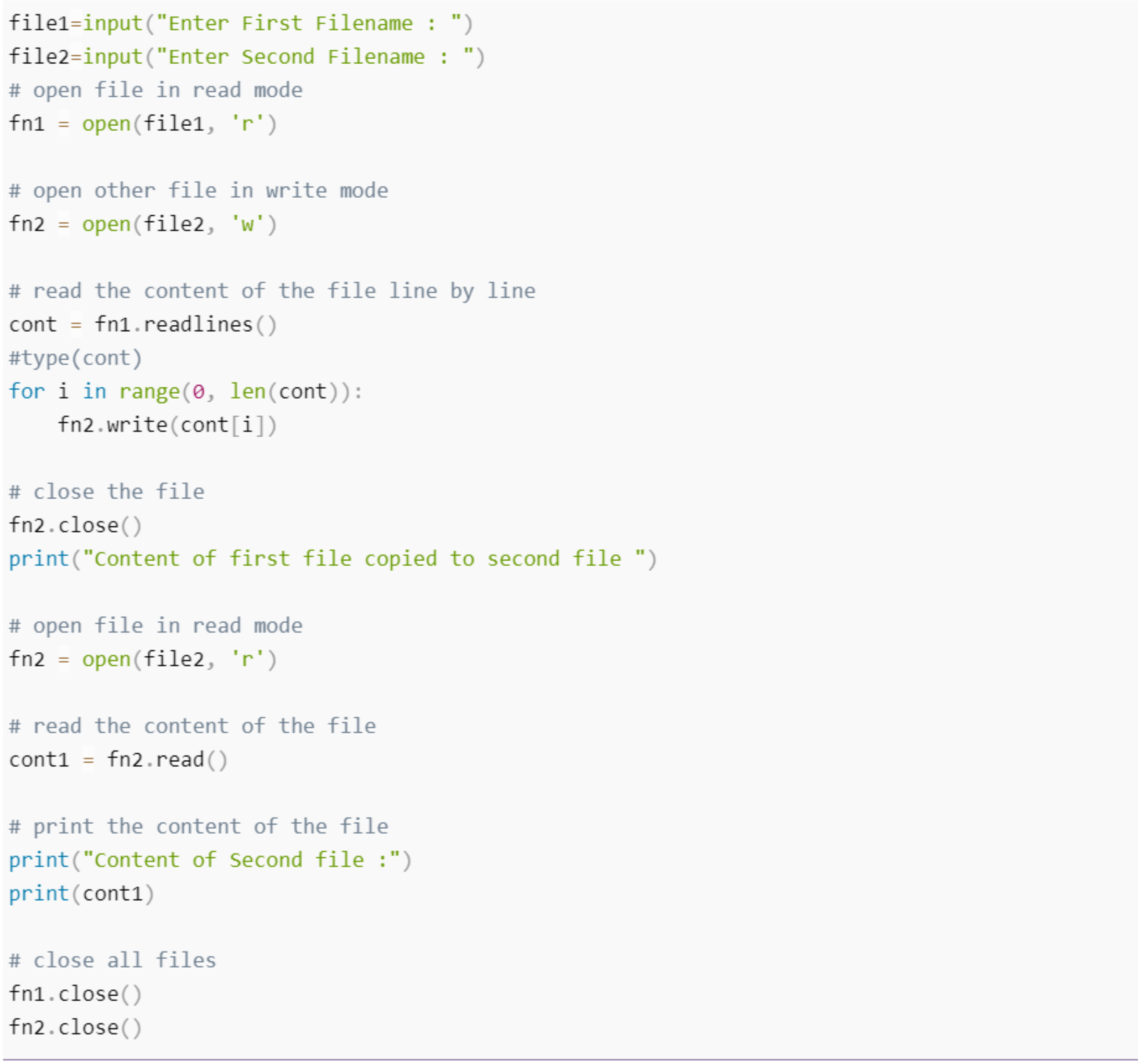
Source code:-



file1.txt

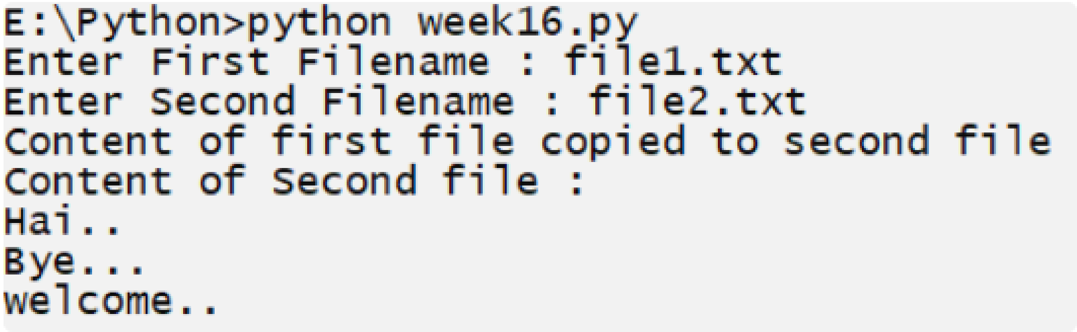
```
This is python program
welcome to python
```

copyfile.py



```
file1=input("Enter First Filename : ")
file2=input("Enter Second Filename : ")
# open file in read mode
fn1 = open(file1, 'r')

# open other file in write mode
fn2 = open(file2, 'w')

# read the content of the file line by line
cont = fn1.readlines()
#type(cont)
for i in range(0, len(cont)):
    fn2.write(cont[i])

# close the file
fn2.close()
print("Content of first file copied to second file ")

# open file in read mode
fn2 = open(file2, 'r')

# read the content of the file
cont1 = fn2.read()

# print the content of the file
print("Content of Second file :")
print(cont1)

# close all files
fn1.close()
fn2.close()
```

Output:-



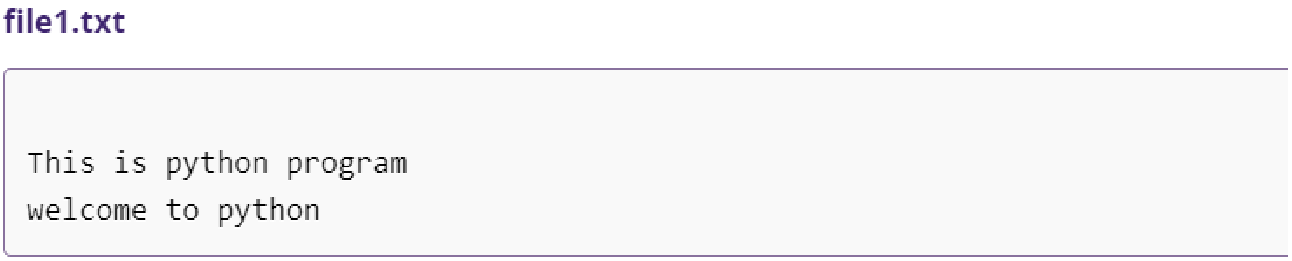
```
E:\Python>python week16.py
Enter First Filename : file1.txt
Enter Second Filename : file2.txt
Content of first file copied to second file
Content of Second file :
Hai..
Bye...
welcome..
```

Description:-

- Create a file named copyFile.py.
- Create two text files. Name them file1.txt and file2.txt. Leave example-2.txt blank and put this in the first line of file1.txt: "copy me!"
- Prompt the user for the names of the 2 text files.
- Write code to output each individual name.
- Try it out, make sure you see the output you're expecting.
- If it works, make sure your work gets saved (If you're using git, now's a good time to commit) and go to step 7. If it doesn't work, go back to step 4 and fix it.
- Write the code to open the first file and print its contents.
- Try it out by using example-1.txt and example-2.txt as the inputs you give it.
- If it works, save your progress and go to step 10. If not, go back to step 7 and fix it.
- Write the code to open the second file and print its contents.
- Try it out by using example-1.txt and example-2.txt as the inputs you give it.
- If it works, save your progress and go to step 13. If not, go back to step 10 and fix it.
- Keep following this same general process until you've successfully coded all the requirements of your assignment.

3. Write a program that inputs a text file. The program should print all of the unique words in the file in alphabetical order.

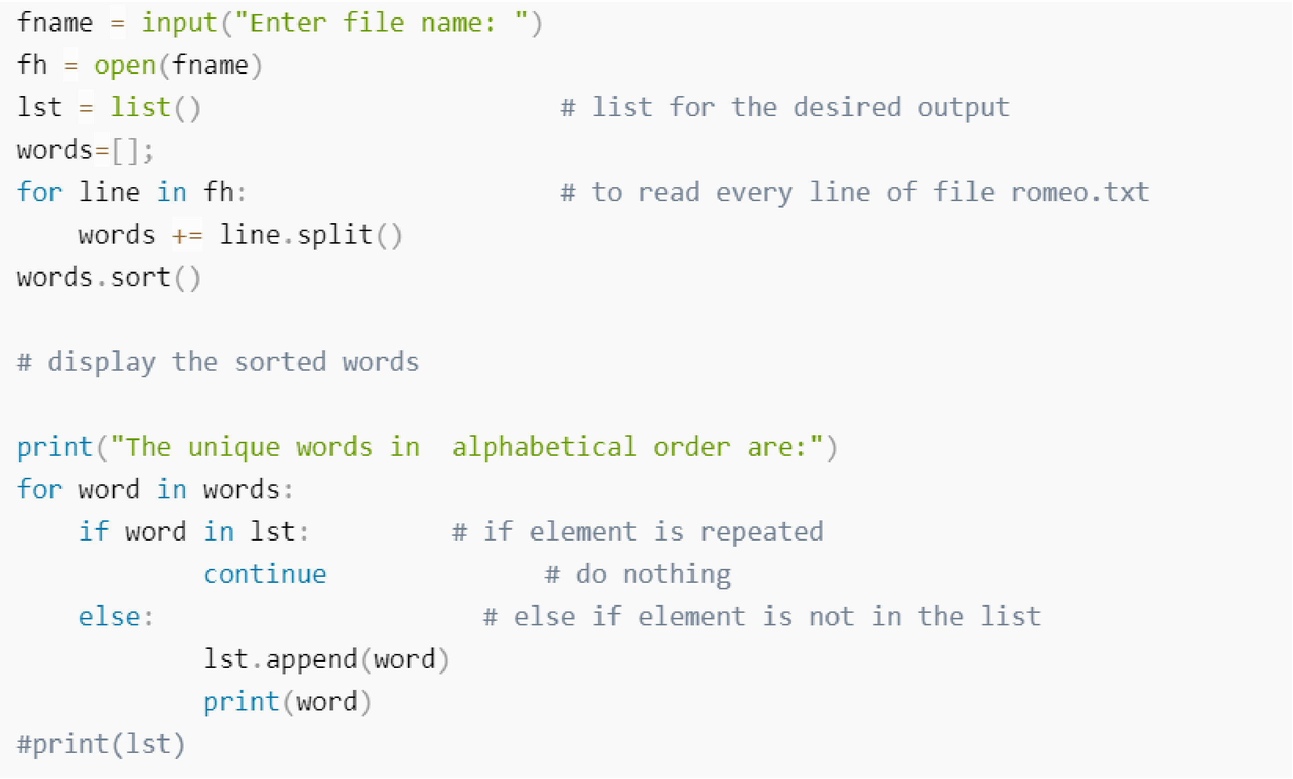
Source code:-



file1.txt

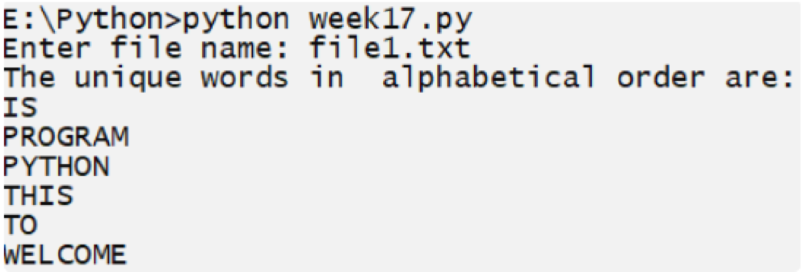
```
This is python program
welcome to python
```

Main.py



```
fname = input("Enter file name: ")
fh = open(fname)
lst = list()                          # list for the desired output
words=[];
for line in fh:                       # to read every line of file romeo.txt
    words += line.split()
words.sort()

# display the sorted words

print("The unique words in  alphabetical order are:")
for word in words:
    if word in lst:           # if element is repeated
            continue                # do nothing
    else:                       # else if element is not in the list
            lst.append(word)
            print(word)
#print(lst)
```

Output:-



```
E:\Python>python week17.py
Enter file name: file1.txt
The unique words in  alphabetical order are:
IS
PROGRAM
PYTHON
THIS
TO
WELCOME
```

Description:-

1. Take the file name from the user.
2. Read each line from the file and split the line to form a list of words.
3. Find the length of items in the list and print it.
4. Exit.

4. Python Program to draw Bar Graphs For Data Visualization

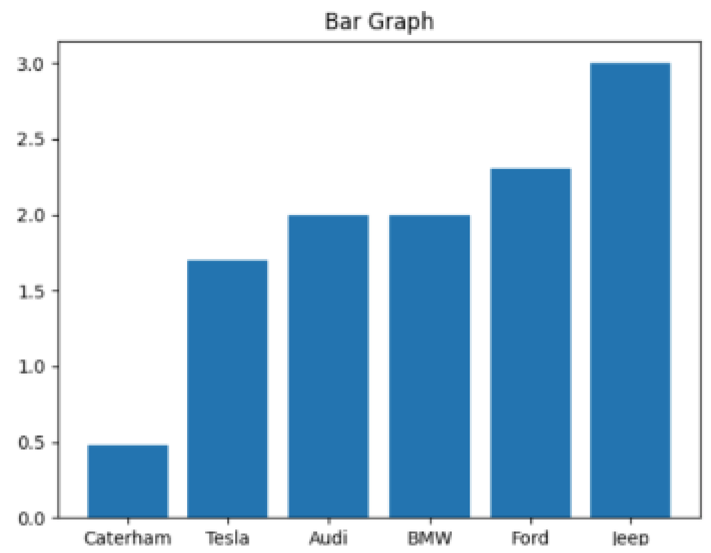
We'll be using the dataset of cars to visualize data.

Car	Weight
Caterham	0.48 tons
Tesla	1.7 tons
Audi	2 tons
BMW	2 tons
Ford	2.5 tons
Jeep	3 tons

Source code:-

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

car = np.array(["Caterham", "Tesla", "Audi",  "BMW", "Ford", "Jeep"])
weight = np.array([0.48, 1.7, 2, 2, 2.3, 3 ])

# create a bar graph
plt.bar(car, weight)

plt.title('Bar Graph')

plt.show()
```

Output:-

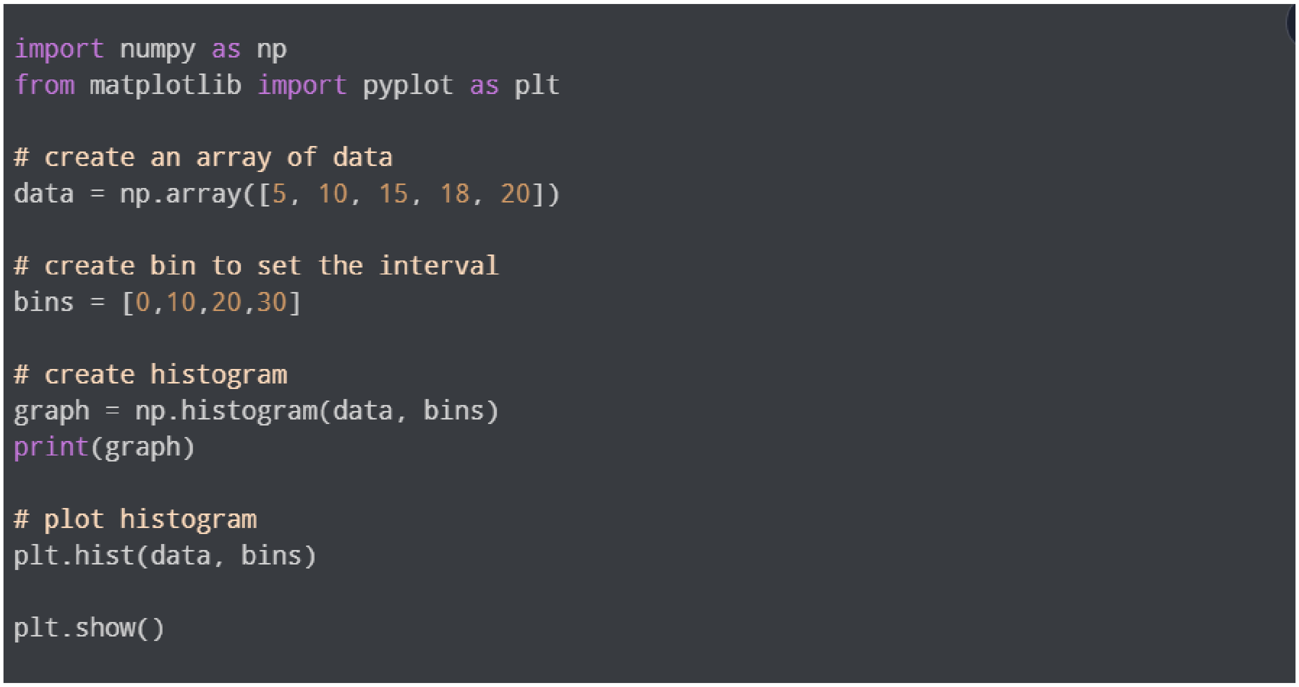


Description:-

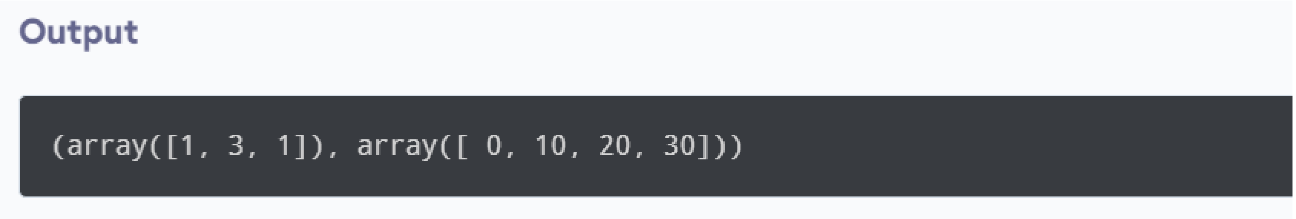
- Bar Graphs represent data using rectangular boxes. Numpy has a bar() function to plot data in a bar graph.
- Here, we have used the bar() function to plot the bar graph and passed two arrays car and weight as its argument.

5. Python program to Plot the Histogram

Source code:-

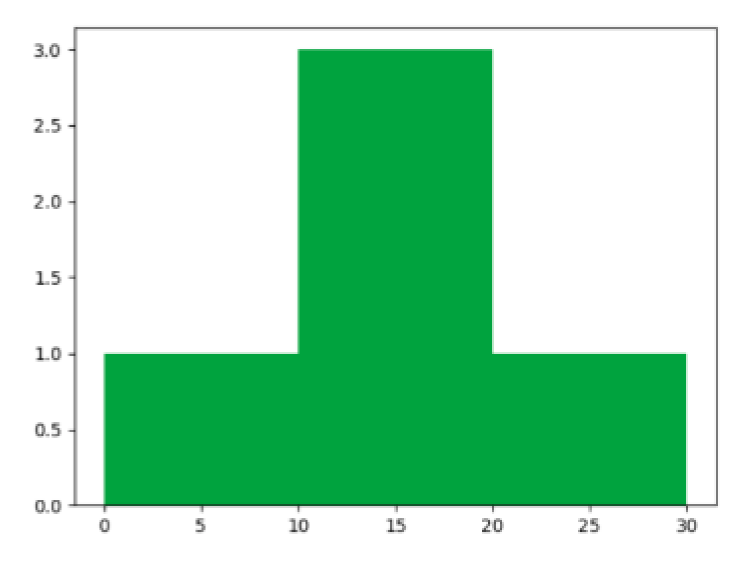


```python
import numpy as np
from matplotlib import pyplot as plt

# create an array of data
data = np.array([5, 10, 15, 18, 20])

# create bin to set the interval
bins = [0,10,20,30]

# create histogram
graph = np.histogram(data, bins)
print(graph)

# plot histogram
plt.hist(data, bins)

plt.show()
```



Output

```
(array([1, 3, 1]), array([ 0, 10, 20, 30]))
```



Plotting a Histogram

Description:-

- We can use the plt() function to plot the numerical value returned by the histogram.
- The plt() is a function provided by Matplotlib. To use plt(), we need to import the Matplotlib.
- In the above example, we used the histogram() function to calculate the frequency distribution of data and then plotted the resulting histogram using the plt.hist() function from the matplotlib library.