EX.NO: 01 **DATE:** 17.07.24	**ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION**

1. Write a program for addition, subtraction, multiplication, and division of two numbers.

AIM:

To write a program for addition, subtraction, multiplication, and division of two numbers.

ALGORITHM:

STEP 1: Display choice of operation in screen, “Choice 1: Add, 2: Sub, 3: Div, 4: Mul, 5: Quit”.

STEP 2: Receive input choice from the user.

STEP 3: Convert the input to integer (num = int (n1)).

STEP 4: If choice of option is 1 then receive input for A and B, Initiate operation c = A + B.

STEP 5: If choice of option is 2 then receive input for A and B, Initiate operation c = A - B.

STEP 6: If choice of option is 3 then receive input for A and B, Initiate Operation c = A / B.

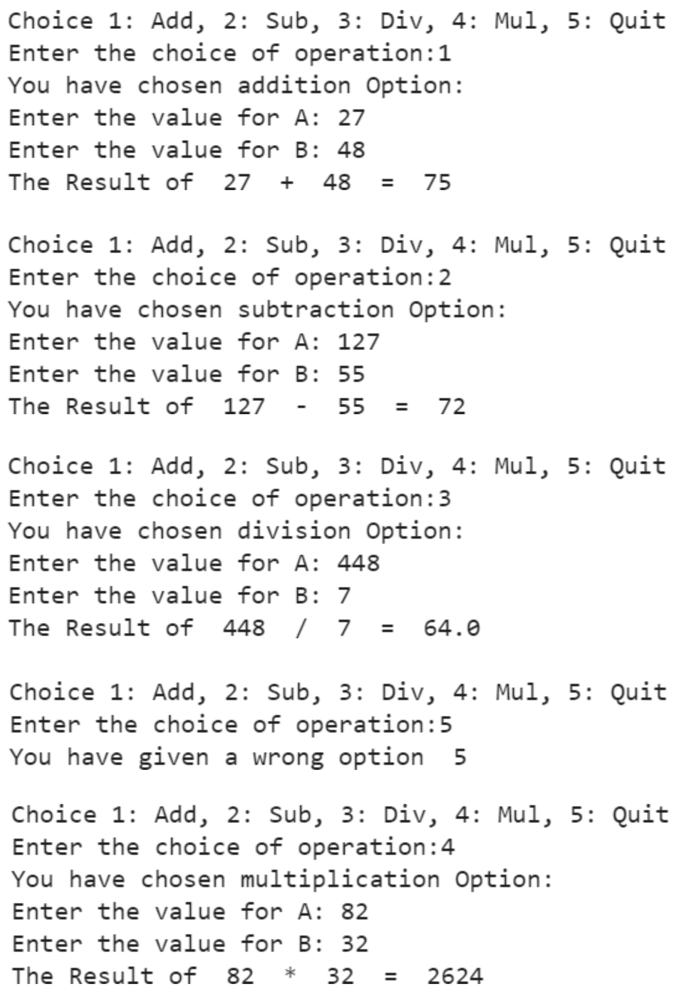
STEP 7: If choice of option is 3 then receive input for A and B, Initiate operation c = A * B.

PROGRAM:

```
print("Choice 1: Add, 2: Sub, 3: Div, 4: Mul, 5: Quit")
n = int(input("Enter the choice of operation :"))
a = int(input("Enter the value for AA :"))
b = int(input("Enter the value for B :"))
if(n == 1):
    print("You have chosen addition Option :")
    c = a + b
    print("The Result",a,"+",b,"=",c)
elif(n == 2):
    print("You have chosen subtraction Option :")
    c = a - b
    print("The Result",a,"-",b,"=",c)
elif(n == 3):
    print("You have chosen division Option :")
    c = a / b
    print("The Result",a,"/",b,"=",c)
elif(n == 4):
    print("You have chosen multiplication Option :")
    c = a * b
    print ("The Result",a,"*",b,"=",c)
```

```
elif(n==5):
        print("You have given a wrong option", n)
        exit ()
```

OUTPUT:



```
Choice 1: Add, 2: Sub, 3: Div, 4: Mul, 5: Quit
Enter the choice of operation:1
You have chosen addition Option:
Enter the value for A: 27
Enter the value for B: 48
The Result of  27  +  48  =  75

Choice 1: Add, 2: Sub, 3: Div, 4: Mul, 5: Quit
Enter the choice of operation:2
You have chosen subtraction Option:
Enter the value for A: 127
Enter the value for B: 55
The Result of  127  -  55  =  72

Choice 1: Add, 2: Sub, 3: Div, 4: Mul, 5: Quit
Enter the choice of operation:3
You have chosen division Option:
Enter the value for A: 448
Enter the value for B: 7
The Result of  448  /  7  =  64.0

Choice 1: Add, 2: Sub, 3: Div, 4: Mul, 5: Quit
Enter the choice of operation:5
You have given a wrong option  5

Choice 1: Add, 2: Sub, 3: Div, 4: Mul, 5: Quit
Enter the choice of operation:4
You have chosen multiplication Option:
Enter the value for A: 82
Enter the value for B: 32
The Result of  82  *  32  =  2624
```

RESULT:

Thus, the program has been executed successfully and verified.

EX.NO: 02 (i) **DATE:** 24.07.24	**FIBONACCI SERIES**

2.i) Write a program to print Fibonacci number series

AIM:

To write a program to print Fibonacci number series.

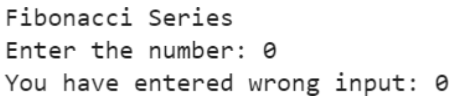
ALGORITHM:

```
STEP 1: Display "Fibonacci Series"
STEP 2: Prompt the user to enter the number (i.e., 1 to n, any
        integer number).
STEP 3: Convert the input n from string to integer (num =
        int(n1)).
STEP 4: If the received input (num) is greater than zero, then
        Initialize f = 0, s = 1, I = 0, and next = 0.
STEP 5: While the value of I is in the range of 0 to n+1, do
        Check whether i <= 1:
         If yes, then
            Print the value of I (i.e., 0).
         If i is not less than 1, then
             Calculate the next number as the sum of f and s.
             Swap the values for f and s (i.e., f = s, s = next).
             Print the value in the next number.
        Increment I by 1.
STEP 6: Break.
STEP 7: If the received input is not an integer, then Display
        "You have entered the wrong input".
```

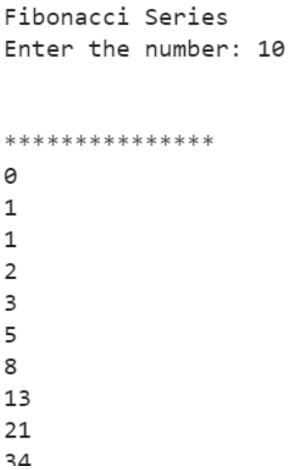
PROGRAM:

```
print("Fibonacci Series")
n = int(input("Enter the number :"))
if(n>0):
    f = 0
    s = 1
    i = 0
    next = 0
while(1):
    print("\n\n***********************************************")
    for i in range (n+1):
         if (i<=1):
            print(i)
         else:
            next = f + s
            f = s
            s = next
            print (next)
     i = i + 1
     break
else:
     print("You have entered wrong input", n)
```

OUTPUT:



```
Fibonacci Series
Enter the number: 0
You have entered wrong input: 0
```



```
Fibonacci Series
Enter the number: 10


***************
0
1
1
2
3
5
8
13
21
34
```

RESULT:

Thus, the program has been executed successfully and verified.

EX.NO: 2 (ii) **DATE:** 24.07.24	**FIZZ BUZZ PROGRAM**

2.ii) Write a program to incorporate FIZZ for any number divisible by 3 and BUZZ for any number divisible for 5 and FIZZBUZZ for any number divisible by 3 and 5 as well.

AIM:

To write a program to incorporate FIZZ for any number divisible by 3 and BUZZ for any number divisible for 5 and FIZZBUZZ for any number divisible by 3 and 5 as well.

ALGORITHM:

STEP 1: Display "Fizz Buzz Program:" to prompt the user.

STEP 2: Prompt the user to enter a number and store it in the variable n'.

STEP 3: Convert 'n' to an integer and store it in the variable 'num'.

STEP 4: Initialize a loop variable 'i' and iterate through numbers from 0 to 'num'.

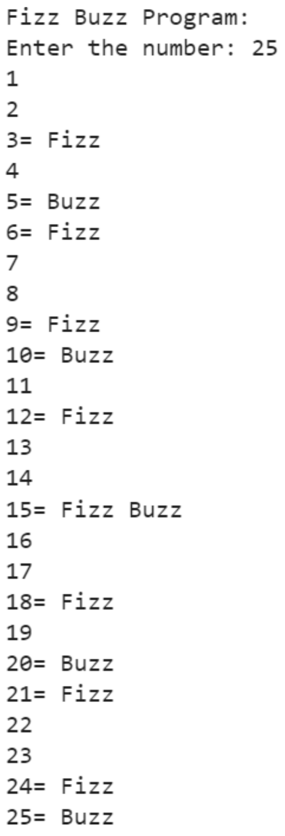
STEP 5: Inside the loop, check if 'i' is divisible by both 3 & 5:
If yes, print 'i = Fizz Buzz'.
If not, check if 'i' is divisible by 3:
If yes, print 'i = Fizz'.
If not, check if 'i' is divisible by 5:
If yes, print 'i = Buzz'.
If none of the conditions are met, print the current value of 'i'.

STEP 6: End the loop.

PROGRAM:

```
print("Fizz Buzz Program :")
n = int(input("Enter the number :"))
i = 1
for i in range (n+1):
    if (i % 3 == 0 and i % 5 == 0):
        print (str(i) + "= Fizz Buzz")
    elif (i % 3 == 0):
        print (str(i) + "= Fizz ")
    elif (i % 5 == 0):
        print(str(i) +"= Buzz ")
    else:
        print(i)
```

OUTPUT:



```
Fizz Buzz Program:
Enter the number: 25
1
2
3= Fizz
4
5= Buzz
6= Fizz
7
8
9= Fizz
10= Buzz
11
12= Fizz
13
14
15= Fizz Buzz
16
17
18= Fizz
19
20= Buzz
21= Fizz
22
23
24= Fizz
25= Buzz
```

RESULT:

Thus, the program has been executed successfully and verified.

EX.NO: 03 **DATE:** 31.07.24	**CROWD COMPUTING**

3. Write a program to collect approximate cost for a material or object and store the same in the array. Remove first and last 10% of the listed cost from the array and compute the mean value of the array items.

AIM:

To write a program to collect approximate costs for a material or object, store them in an array, remove the first and last 10% of the listed costs, and compute the mean value of the remaining array items.

ALGORITHM:

STEP 1: Import the 'mean' function from the 'statistics' module.

STEP 2: Print "CROWD COMPUTING"

STEP 3: Create an array name "Elements" and store list of items.

STEP 4: Print the values stored in array elements

STEP 5: Use the library statistics and import mean "from statistics import mean"

STEP 6: Remove first and last 10 % of the listed cost from the array

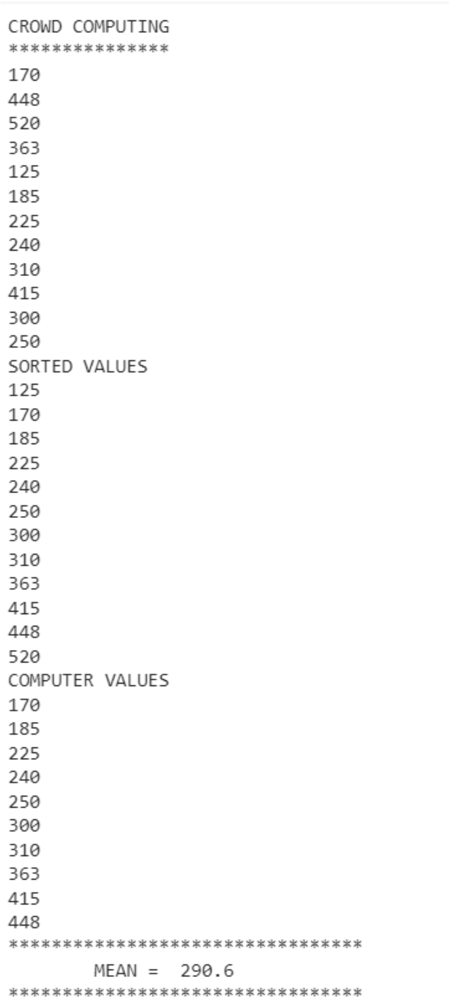
STEP 7: Print the values stored in array elements after removal of the first and last 10% of the listed values.

STEP 8: Calculated the mean value of the array items.

PROGRAM:

```
from statistics import mean

print("CROWD COMPUTING")

print("***************")

Estimates = [200, 100 ,250, 375 ,300 ,500 ,800 ,900 ,200 ,100 ,600, 90,250,300,350,363,397,450,500,700,275,125,125,185,225,240,310,415,300,250,300,2000,2500]

i = 0

for i in range (len(Estimates)):

        print (Estimates[i])

Estimates.sort()

print ("SORTED VALUES")

for i in range (len(Estimates)):

        print (Estimates[i])

tv = int (0.1 * len(Estimates))

Estimates = Estimates [tv:len(Estimates)-tv]

print ("COMPUTER VALUES")

for i in range (len(Estimates)):

        print (Estimates[i])

print ("\t", mean(Estimates))
```

OUTPUT:



```
CROWD COMPUTING
***************
170
448
520
363
125
185
225
240
310
415
300
250
SORTED VALUES
125
170
185
225
240
250
300
310
363
415
448
520
COMPUTER VALUES
170
185
225
240
250
300
310
363
415
448
*********************************
        MEAN =  290.6
*********************************
```

RESULT:

Thus, the program has been successfully executed and verified.

EX.NO: 04 **DATE:** 07.08.24	**JUMBLED WORDS**

4. Write a program to create a play game called jumbled word.

AIM:

To write a program to create a play game called jumbled word.

ALGORITHM:

STEP 1: Define a function named 'choose' to randomly select a word from a predefined list.

STEP 2: Define a function named 'jumble' to shuffle the characters of a word and create a jumbled version.

STEP 3: Define a function named 'thank' to print the scores and a thank-you message at the end of the game.

STEP 4: Define a function named 'play' to implement the game logic.

STEP 5: Inside the 'play' function, initialize player names, scores and a turn counter.

STEP 6: Use a while loop to continue the game until a player decides to quit.

STEP 7: Inside the loop, randomly select a word using the 'choose' function and create a jumbled version using the 'jumble' function.

STEP 8: Alternate turns between Player 1 and Player 2.

STEP 9: Prompt the current player to enter their guess and check if it matches the original word.

STEP10: Update the player’s score and provide feedback based on the correctness of the guess.

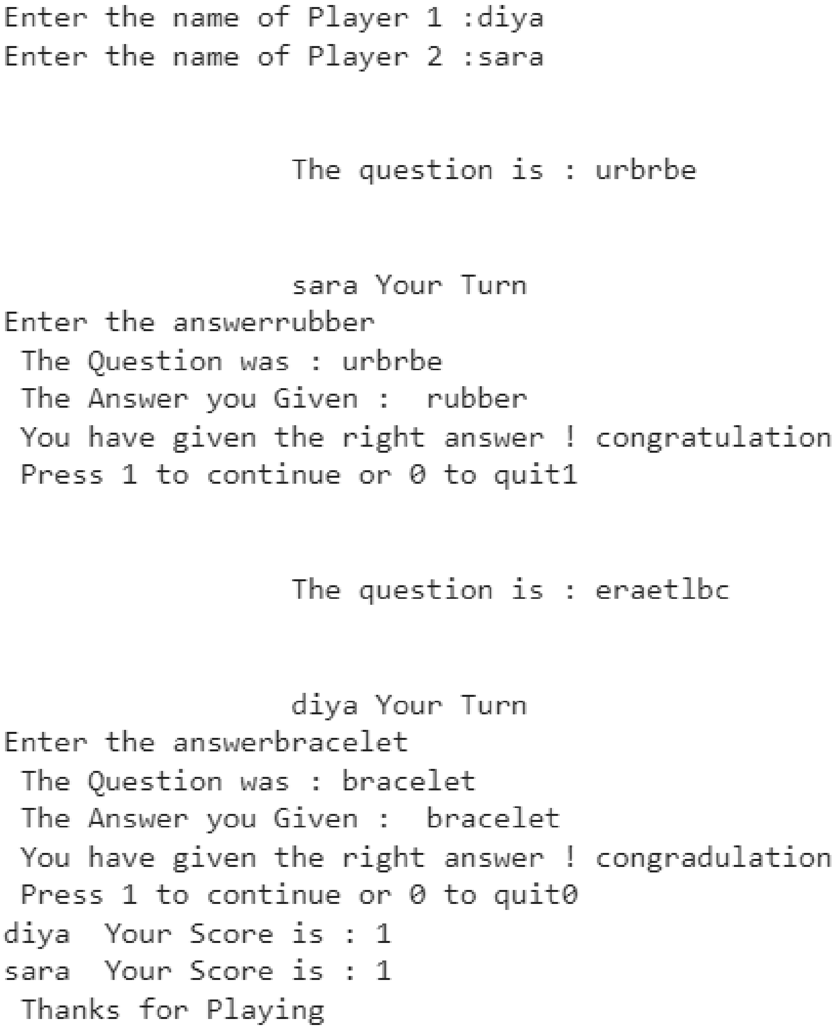
PROGRAM:

```
import random
def choose ():
    words =
['rainbow','computer','water','ice','type','light','zebra','arab']
    pick = random.choice(words)
    return pick
def jumble (word):
    jumbled = "".join(random.sample(word,len(word)))
    return jumbled
def thank (p1n,p2n,p1,p2):
    print (p1n, " Your Score is : ", p1)
    print (p2n,"Your Score is :", p2)
    print ("Thanks for Playing ")
def play():
    p1name = input ("Enter the name of Player 1 :")
    p2name = input ("Enter the name of Player 2 :")
    pp1 = 0
    pp2 = 0
```

```
turn = 0
while (1):
    picked_word = choose()
    qn = jumble(picked_word)
    print ("\n\n\t\t The question is :",qn)
    #player 2
    if (turn % 2 == 0):
        print ("\n\n\t\t",p2name, "Your Turn")
        ans = input ("Enter the answer")
    if (ans == picked_word):
        pp2 = pp2 + 1
        print ("The Question was :", qn)
        print ("The Answer you Given : ", ans)
        print ("You have given the right answer ! congratulation")
    else:
        print ("Wrong answer ! Better Luck Next Time")
        c = int (input (" Press 1 to continue or 0 to quit"))
        if (c == 0):
            thank(p1name,p2name,pp1,pp2)
            break
       else:
            print("\n\n\t\t",p1name, "Your Turn")
```

```
                ans = input("Enter the answer")
                if (ans == picked_word):
                    pp1 = pp1 + 1
                    print(" The Question was : ", picked_word)
                    print(" The Answer you Given : ", ans)
                    print(" You have given the right answer !")
                else:
                    print(" You have given the wrong answer !")
                    c = input("Press 1 to continue or 0 to quit")
                    if( c == 0):
                        thank(p1name,p2name,pp1,pp2)
                        break
turn = turn + 1
play()
```

OUTPUT:



```
Enter the name of Player 1 :diya
Enter the name of Player 2 :sara


                 The question is : urbrbe


                 sara Your Turn
Enter the answerrubber
 The Question was : urbrbe
 The Answer you Given :  rubber
 You have given the right answer ! congratulation
 Press 1 to continue or 0 to quit1


                 The question is : eraetlbc


                 diya Your Turn
Enter the answerbracelet
 The Question was : bracelet
 The Answer you Given :  bracelet
 You have given the right answer ! congradulation
 Press 1 to continue or 0 to quit0
diya  Your Score is : 1
sara  Your Score is : 1
 Thanks for Playing
```

RESULT:

Thus, the program has been successfully executed and verified.

EX.NO: 05 **DATE:** 14.08.24	**BIRTHDAY PARADOX**

5. Write a program to random generate 50 birth dates and find how many of have same day of the year.

AIM:

To write a program to random generate 50 birth dates and find how many of have same day of the year.

ALGORITHM:

STEP 1: Create an array variable birthday without any array elements.

STEP 2: Create a while loop to execute 50 times and generate year,month,day.

STEP 3: Create a variable dd and store year,month and day usingdatetime.date function.

STEP 4: Convert the birthdate stored in the dd variable to day of the year using dd.timetuple().tm_yday and store it in the variable day_of_year

STEP 5: Append the day_of_year into the array birthday [] (i.e. birthday.append [day_of_year])

STEP 6: Similarly generate another 49 values for Variable day_of_year and append the same in the array birthday.

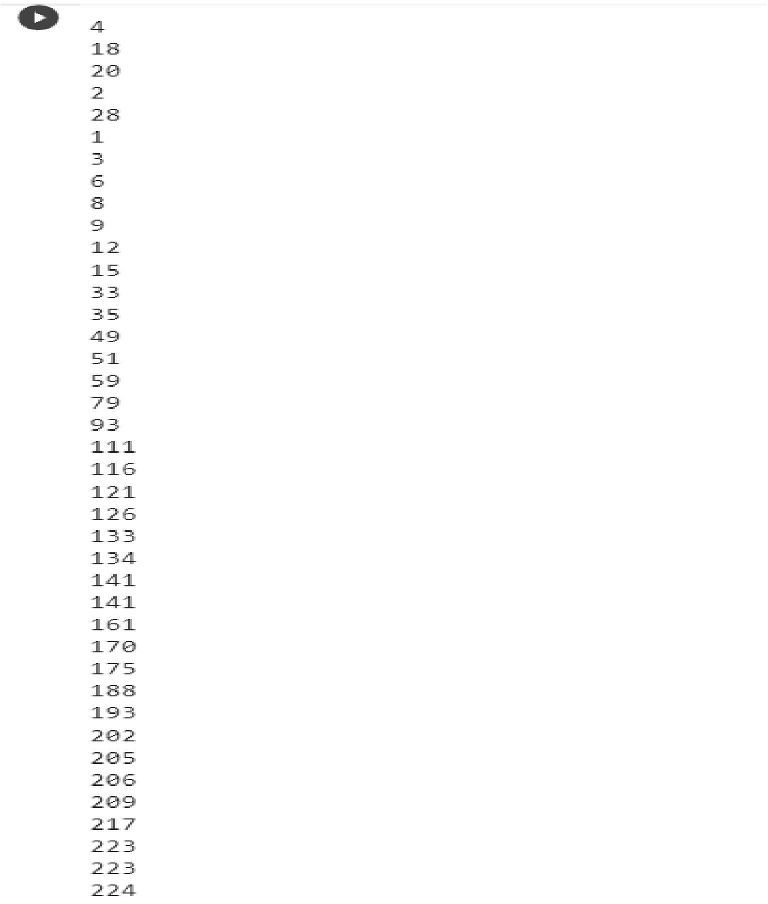
STEP 7: Sort the array elements using sort function (i.e. birthday.sort())

STEP 8: Print all the elements in the birthday array. You can easy notice elements having same day of the year.

PROGRAM:

```
import random

import datetime

birthday=[]

i=0

while(i<5):

        year=random.randint(1875,2019)

        if (year % 4 == 0 and year % 100 == 0 or year % 400 == 0):

            leap = 1

        else:

            leap = 0

        month = random.randint(1,12)

        if (month==2 and leap ==1):

            day = random.randint(1,29)

            print(day)

        elif (month == 2 and leap == 0):

            day = random.randint(1,29)

            print(day)

        elif (month == 7 and month == 8):

            day = random.randint(1,31)
        elif (month %2 != 0 and month < 7):
            day = random.randint(1,31)
        elif (month %2 != 0 and month < 7 and month < 12):
            day = random.randint(1,31)
        else:
            day = random.randint(1,30)
            dd = datetime.date(year,month,day)
day_of_year = dd.timetuple().tm_yday
i = i+1
birthday.append(day_of_year)
birthday.sort()
i=0
while(i<50):
        print(birthday[i])
        i = i + 1
```

OUTPUT:



```
4
18
20
2
28
1
3
6
8
9
12
15
33
35
49
51
59
79
93
111
116
121
126
133
134
141
141
161
170
175
188
193
202
205
206
209
217
223
223
224
```

RESULT:

Thus, the program has been successfully executed and verified.

EX.NO: 06

DATE: 21.08.24

LIST PROGRAMS

6. Write a program for the following:

i) Display of list with elements.

ii) Finding the range of the lists.

iii) Indexing in the lists (including negative indexing)

iv) Use of loop in the lists.

v) Adding, removing and joining two lists.

AIM:

To Write a python program to implement List Programs

- Display of List with elements.
- Finding the range of the Lists.
- Indexing in the Lists (Including Negative Indexing).
- Use of Loop in the Lists.
- Adding, removing and Joining two Lists

ALGORITHM:

STEP 1: To display a list with elements first create a list with elements i.e, my_list, to display the list simply print(my_list).

STEP 2: To find the range, calculate its range by subtracting the minimum value from maximum value.

STEP 3: For indexing use index starting from 0 to access elements. Negative indexing access elements from the end of the list.

STEP 4: Use a for loop for iterating throughout the list.

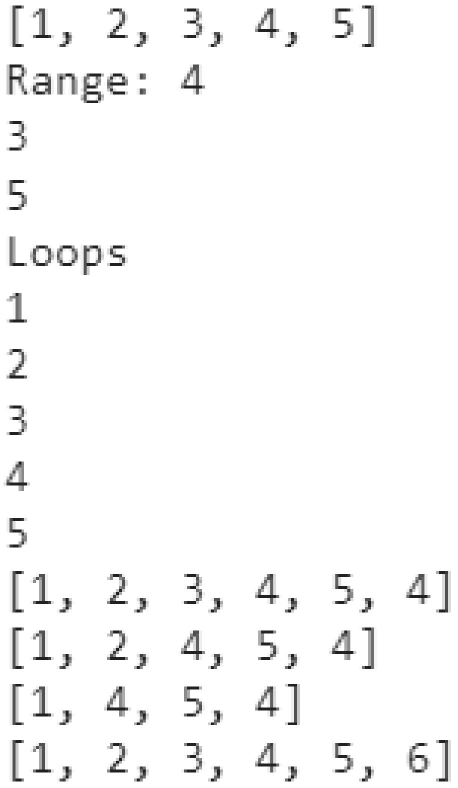
STEP 5: To add an element to the end of the list, use the append() method. To remove an element by value use remove() & by index use the del keyword by list & index. To join two lists use extend() method or the '+' operator to concatenate them into new list.

PROGRAM:

```
my_list = [1, 2, 3, 4, 5]

print("Original list:", my_list)

# Calculate the range of the list

list_range = max(my_list) - min(my_list)

print("Range:", list_range)

# Access the element at index 2

element = my_list[2]

print ("Element at index 2:", element)

# Access the last element

element = my_list[-1]

print ("Last element:", element)

print ("\nLoop through the list:")

for item in my_list:

print(item)
```

```
# Append 4 to the end of the list
my_list.append(4)
print("\nAfter appending 4:", my_list)
# Remove the first occurrence of 3
my_list.remove(3)
print("After removing the first occurrence of 3:", my_list)
# Remove the element at index 1
del my_list[1]
print("After deleting element at index 1:", my_list)
# Combine list1 and list2 using extend
list1 = [1, 2, 3]
list2 = [4, 5, 6]
list1.extend(list2)
print("\nCombined list1 and list2:", list1)
```

OUTPUT:



```
[1, 2, 3, 4, 5]
Range: 4
3
5
Loops
1
2
3
4
5
[1, 2, 3, 4, 5, 4]
[1, 2, 4, 5, 4]
[1, 4, 5, 4]
[1, 2, 3, 4, 5, 6]
```

RESULT:

Thus, the program has been successfully executed and verified.

EX.NO: 07 **DATE:** 28.08.24	**TUPLE PROGRAMS**

7. Write a program for the following:

i) Creation of tuple with values.

ii) Finding the range of the tuple.

iii) Indexing in the tuple(including negative indexing)

iv) Use of loop in the tuple.

v) Adding, removing and joining two tuple.

AIM:

To Write a python program to implement Tuple Programs

- Display of Tuple with elements.
- Finding the range of the Tuple.
- Indexing in the Tuple (Including Negative Indexing).
- Use of Loop in the Tuple.
- Adding, removing and Joining two Tuple

ALGORITHM:

STEP 1: To create a tuple, define a tuple by enclosing values in parenthesis.

STEP 2: Calculate the range of tuple by subtracting the min value & max value.

STEP 3: For indexing use index starting from 0 to access elements. Negative indexing access elements from the end of the list.

STEP 4: Use a for loop for iterating throughout the tuple's elements.

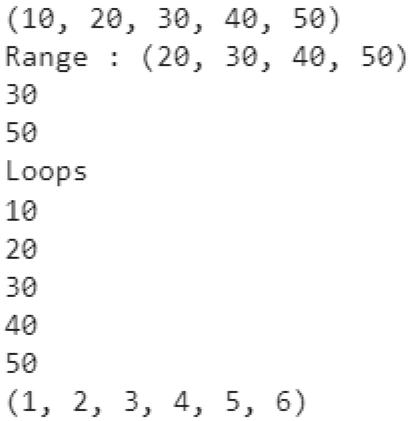
STEP 5: Tuples are immutable, which means we cannot add or remove elements to an existing tuple.

STEP 6: To join two lists use extend() method or the '+' operator to concatenate them into new list.

PROGRAM:

```
my_tuple = (10, 20, 30, 40, 50)
print("Original tuple:", my_tuple)
# Print a range
print("Range (index 1 to 4):", my_tuple[1:5])
# Access the element
element = my_tuple[2]
print("Element at index 2:", element)
# Access the last element
element = my_tuple[-1]
print("Last element:", element)
# Loop through the tuple and print each item
print("\nLoop through the tuple:")
for item in my_tuple:
print(item)
# Combine two tuples
tuple1 = (1, 2, 3)
tuple2 = (4, 5, 6)
combined_tuple = tuple1 + tuple2
print("\nCombined tuple:", combined_tuple)
```

OUTPUT:



```
(10, 20, 30, 40, 50)
Range : (20, 30, 40, 50)
30
50
Loops
10
20
30
40
50
(1, 2, 3, 4, 5, 6)
```

RESULT:

Thus, the program has been successfully executed and verified.

EX.NO: 08 **DATE:** 25.08.24	**DICTIONARY PROGRAMS**

8.Write a program for the following:

i) Display of unordered elements.

ii) Accessing the elements in the dictionary.

iii) Use of loop in the dictionary.

iv) Adding,removing and joining two dictionary.

AIM:

To Write a python program to implement Dictionary Programs.

- Display of unordered elements.
- Accessing the elements in the dictionary.
- Use of Loop in the Dictionary.
- Adding, removing and Joining two Dictionary

ALGORITHM:

STEP 1: Create a dictionary with key value pairs. Dictionaries in python are unordered.

STEP 2: Access elements in a dictionary by specifying the key enclosed in square brackets.

STEP 3: Use a for loop for iterating throughout the keys or key value pairs in the dictionary.

STEP 4: To add a new key value pair, simply assign a value to the new key.

STEP 5: To remove a key value pair from a dictionary, use the pop() method or del keyword.

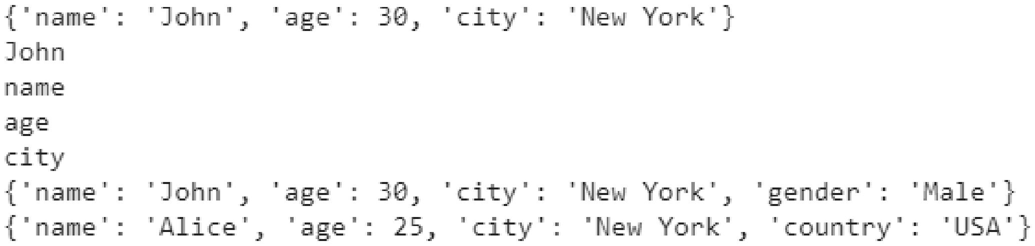
STEP 6: To combine two dictionaries, create a new dictionary and update it with the key_value pairs from both the dictionaries using update() method.

PROGRAM:

```
my_dict = {'name': 'John', 'age': 30, 'city': 'New York'}
print("Original dictionary:", my_dict)

# Accessing the value of the key
name = my_dict['name']
print("Name:", name)

# Loop through the dictionary and print keys
print("\nKeys in the dictionary:")
for key in my_dict:
print(key)

# Adding a new key-value pair
my_dict['gender'] = 'Male'
print("\nAfter adding gender:", my_dict)

# Removing the key-value pair
my_dict.pop('age')
```

```
print("After removing age:", my_dict)

# Combining two dictionaries
dict1 = {'name': 'Alice', 'age': 25}
dict2 = {'city': 'New York', 'country': 'USA'}

# Creating a new dictionary and combining them
combined_dict = dict1.copy()  # Create a copy of dict1
combined_dict.update(dict2)    # Update it with dict2

# Display the combined dictionary
print("\nCombined dictionary:", combined_dict)
```

OUTPUT:



```
{'name': 'John', 'age': 30, 'city': 'New York'}
John
name
age
city
{'name': 'John', 'age': 30, 'city': 'New York', 'gender': 'Male'}
{'name': 'Alice', 'age': 25, 'city': 'New York', 'country': 'USA'}
```

RESULT:

Thus, the program has been successfully executed and verified.

EX.NO: 09 **DATE:** 09.10.24	**SPEECH TO TEXT**

9. Write a python program to convert speech to text.

AIM:

To write a python program to convert speech to text.

ALGORITHM:

STEP 1: Install Speech Recognition API of Google using anaconda command prompt type the command “pip install SpeechRecognition”.

STEP 2: Import speech recognition library as sr.

STEP 3: Create a audio file with WAV extension and assign the audio file to a source variable.

STEP 4: Initialize recognizer.

STEP 5: Read the audio file using the sr.AudioFile.

STEP 6: Print the audio file using print statement.

PROGRAM:

```
import speech_recognition as sr
AUDIO_FILE = ("harvard.wav")
#use audio file as source
r=sr.Recognizer() # initialize Recognizer
with sr.AudioFile(AUDIO_FILE) as source:
    audio=r.record(source)
#reads the audio file
try:
    print("audio file contains" +r.recognize_google(audio))
except sr.UnknownValueError:
    print (" Google Speech Recognition not understood the file uploaded")
except sr.RequestError:
    print ("Couldn't get the result from Google Recognition")
```

OUTPUT:

```
audio file contains the stale smell of old beer lingers it takes heat to
bring out the odor a cold dip restores health and zest a salt pickle
taste fine with ham tacos al pastor are my favorite a zestful food is
the hot cross bun
```

RESULT:

Thus, the program has been successfully executed and verified.

EX.NO: 10 **DATE:** 23.10.24	**MONTE HALL_3 – DOORS AND A TWIST**

10. Write a program to create a game “Monte Hall_3 – Doors and a Twist.

AIM:

To write a program to create a game “Monte Hall_3 – Doors and a Twist”. This comprises of three doors. In which two doors contain GOAT and one door contain BMW. User has to pick his/her choice of door. If the choice of door contains BMW then user WINS otherwise LOST.

ALGORITHM:

STEP 1: Importing random library as we are using random choice in the program

STEP 2: Create an array doors[0] * 3(Initializing the array as doors[0]=0, doors[1]=0,doors[2]=0)

STEP 3: Create an array goatdoors=[]

STEP 4: Initializing a variable swap=0, don’t_swap=0 & j=0

STEP 5: Create a while loop to execute the loop instructions for 10 times

STEP 6: Declaring a variable x and initializing with random number from 0 to 2

STEP 7: Passing the value of x as an array item number to array variable doors[] and store “BMW” i.e., doors[0 or 1 or 2]=”BMW”

STEP 8: Create a for loop with variable i to execute three times (for i in range (0,3)) and check if i equals to x then continue, otherwise store “Goat” in array doors[] (i.e., doors[i]=”Goat”)

STEP 9: Accept user choice of input to the variable choice, user input choice to be 0 or 1 or 2

STEP 10: Open a door that comprises of goat by creating a variable door_open and apply random.choice function to select a random item from array goatdoor[] and store it in door_open variable (i.e., door_open = random.choice(goatdoor))

STEP 11: Accept user choice of swap to the variable ch as either YorN

STEP 12: If user choice of swap is yes (i.e., ch==’Y’), then check user given choice door contain “Goat”. If user door choice contains “Goat” then declare user “Player Wins”. Increment swap variable with 1

STEP 13: If user choice for swap is no (i.e., ch==’N’), then check user given choice door contain “Goat”. If user door choice contains “Goat” then declare user “Player Wins”. Increment swap variable with 1

STEP 14: Increment j=j+1

STEP 15: Print “no of swap wins” and “no of don’t swap wins”

PROGRAM:

```
import random
doors=[0]*3, goatdoor=[]*2, swap=0
dont_swap=0, j=0
while(j<10):
      x=random.randint(0,2)
      doors[x]="BMW"
      for i in range (0,3):
          if (i==x):
               continue
          else:
               doors[i]="Goat"
               goatdoor.append(i)
choice=int(input("Enter your choice 0,1,2 : " ))
door_open=random.choice(goatdoor)
while(door_open==choice):
        door_open=random.choice(goatdoor)
        ch = input("Do you want to swap? y/n: ")
        if(ch=='y'):
               if(doors[choice]=='Goat'):
                     print ("Players wins")
                     swap=swap+1
               else:
                     print("player lost")
```

```
    else:
        if (doors[choice]=='Goat'):
            print("Player lost")
        else:
            print("Player wins")
            dont_swap=dont_swap+1
             j=j+1
print("No of swap wins",swap)
print("No of dont swap wins",dont_swap)
```

OUTPUT:

```
Enter your choice 0,1,2 : 1
Do you want to swap? y/n: y
player lost
Enter your choice 0,1,2 : 0
Do you want to swap? y/n: y
player lost
Enter your choice 0,1,2 : 1
Do you want to swap? y/n: n
Player lost
Enter your choice 0,1,2 : 1
Do you want to swap? y/n: y
Players wins
```

RESULT:

Thus, the program has been successfully executed and verified.

EX.NO: 11 **DATE:** 29.10.24	**PLOTS**

11. Write a program to plot values in chart with x-axis and y-axis.

AIM:

To write a program to plot values in chart with x-axis and y-axis.

ALGORITHM:

STEP 1: Import plotting library <matplotlib.pyplot> as plt

STEP 2: Print “* PLOTTING VALUES IN CHART WITH X-AXIS AND Y-AXIS *”

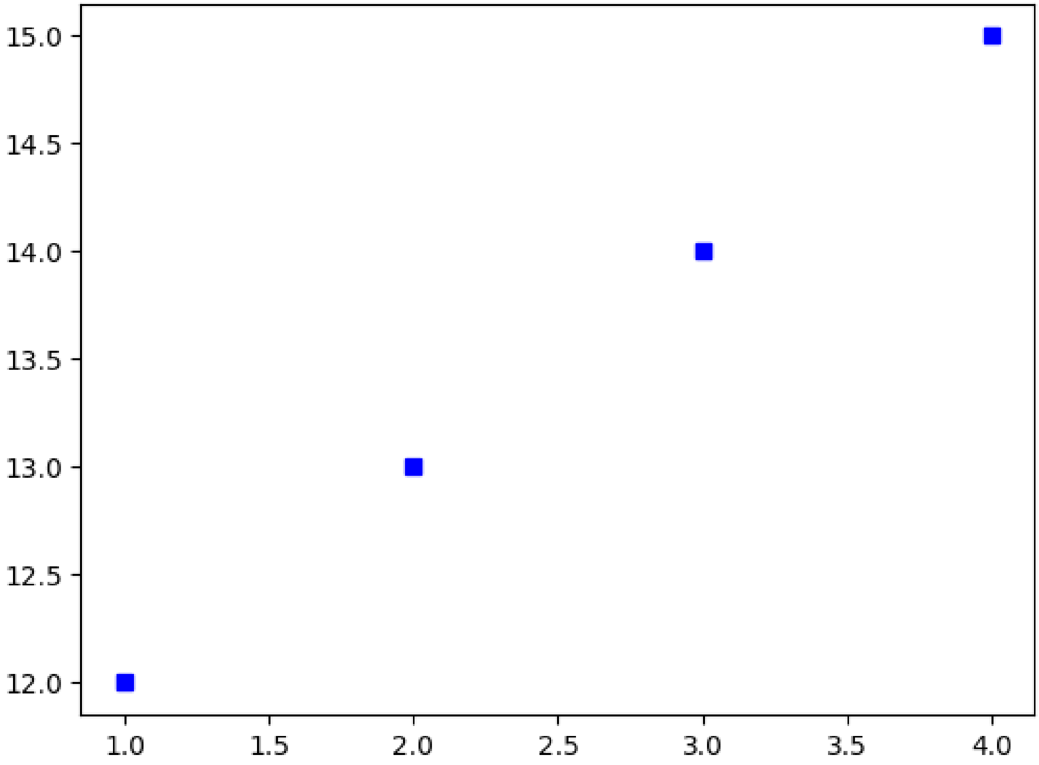
STEP 3: Plot values X-axis (1,2,3,4) and Y-axis (10,13,20,25) with blue Square symbol

PROGRAM:

```
import matplotlib.pyplot as plt

print(“***************************************************************”)

print(“*                                                             *”)

print(“* PLOTTING VALUES IN CHART WITH X-AXIS AND Y-AXIS*”)

print(“*                                                             *”)

print(“***************************************************************”)

plt.plot([1,2,3,4],[10,13,20,25],’bs’)
```

OUTPUT:

```
*******************************************************
* *
* PLOTTING VALUES IN CHART WITH X-AXIS AND Y-AXIS *
* *
*******************************************************
[<matplotlib.lines.Line2D at 0x7acf9038e6e0>]
```



RESULT:

Thus, the program has been successfully executed and verified.

EX.NO: 12 **DATE:** 29.10.24	**PANDAS DATAFRAME**

12. Write a python program using pandas library to perform the following operation.

AIM: To write a python program using pandas library to perform the following operations.

- Create Data Frame
- Manipulate the values in Data Frame
- Bar Charts
- Pie Charts
- Scatter Plots

ALGORITHM:

STEP 1: Import the Pandas library and Matplotlib for plotting

STEP 2: Create a dictionary with data for the Data Frame, including ‘Age’, ’Weight’, and ‘Blood Pressure’.

STEP 3: Manipulation the values in the data frame (split the Blood Pressure column into two columns and Calculate BMI)

STEP 4: Display the modified Data Frame.

STEP 5: Generate a bar chart for BMI, a pie chart for Systolic Blood Pressure, and a scatter plot for BMI vs Systolic Blood Pressure GDP growth.

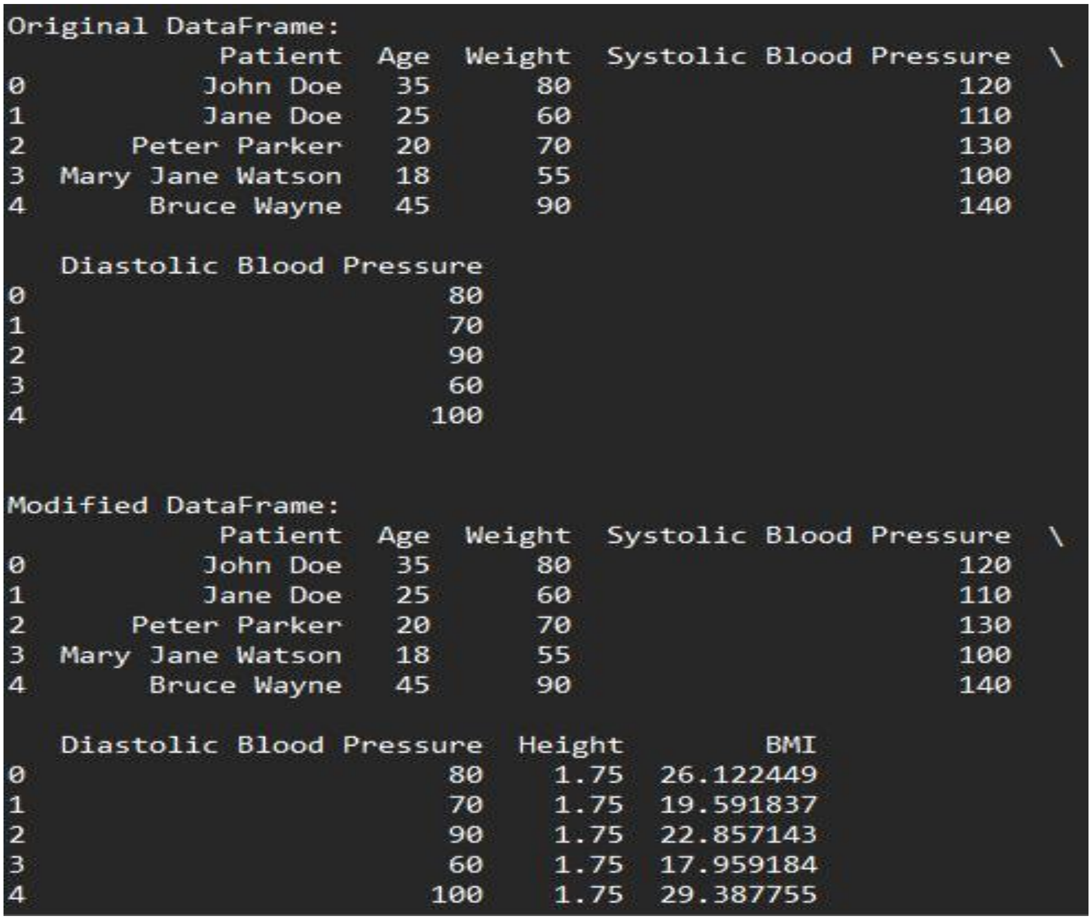
STEP 6: Display the plots using plt.show()

PROGRAM:

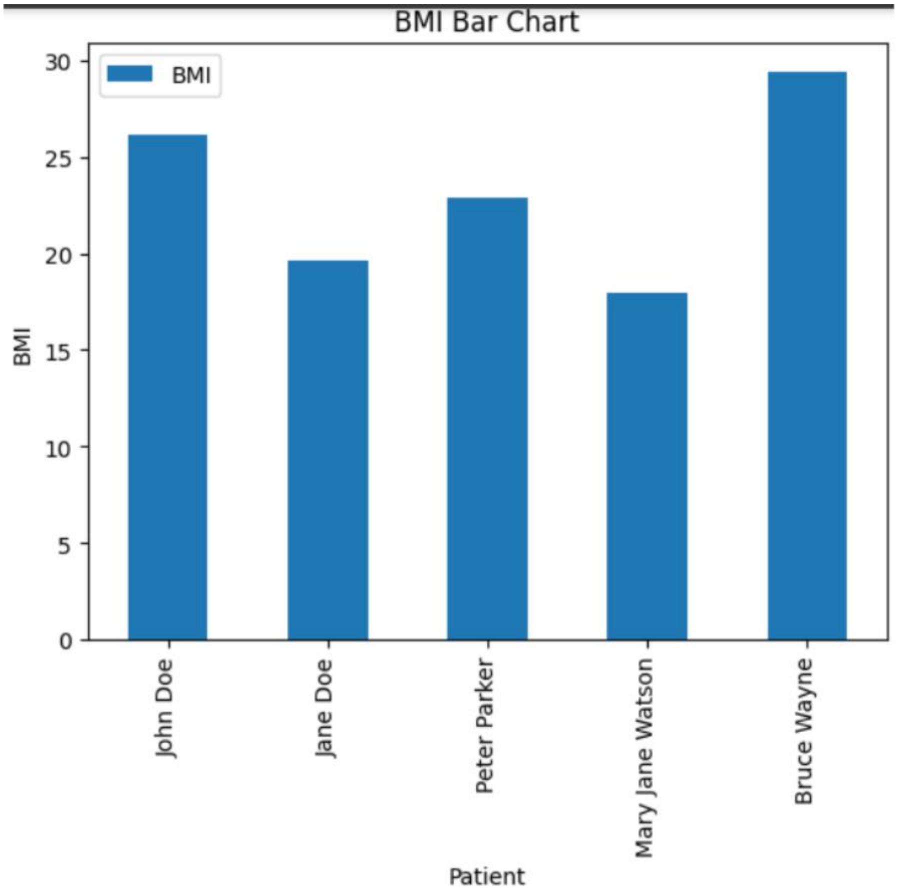
```
import pandas as pd
import matplotlib.pyplot as plt

# Create a DataFrame
data = {'Patient': ['John Doe', 'Jane Doe', 'Peter Parker', 'Mary Jane
                    Watson', 'Bruce Wayne'],
        'Age': [35, 25, 20, 18, 45],
        'Weight': [80, 60, 70, 55, 90],
        'Systolic Blood Pressure': [120, 110, 130, 100, 140],
        'Diastolic Blood Pressure': [80, 70, 90, 60, 100]}
df = pd.DataFrame(data)

# Display the Original DataFrame
print("Original DataFrame:")
print(df)
print("\n")

# Split the Blood Pressure column into two columns
df['Systolic Blood Pressure'] = pd.to_numeric(df['Systolic Blood
Pressure'])
df['Diastolic Blood Pressure'] = pd.to_numeric(df['Diastolic Blood
Pressure'])

# Calculate BMI
df['Height'] = 1.75 # Assume all patients are 1.75 meters tall
df['BMI'] = df['Weight'] / (df['Height'] * df['Height'])
```

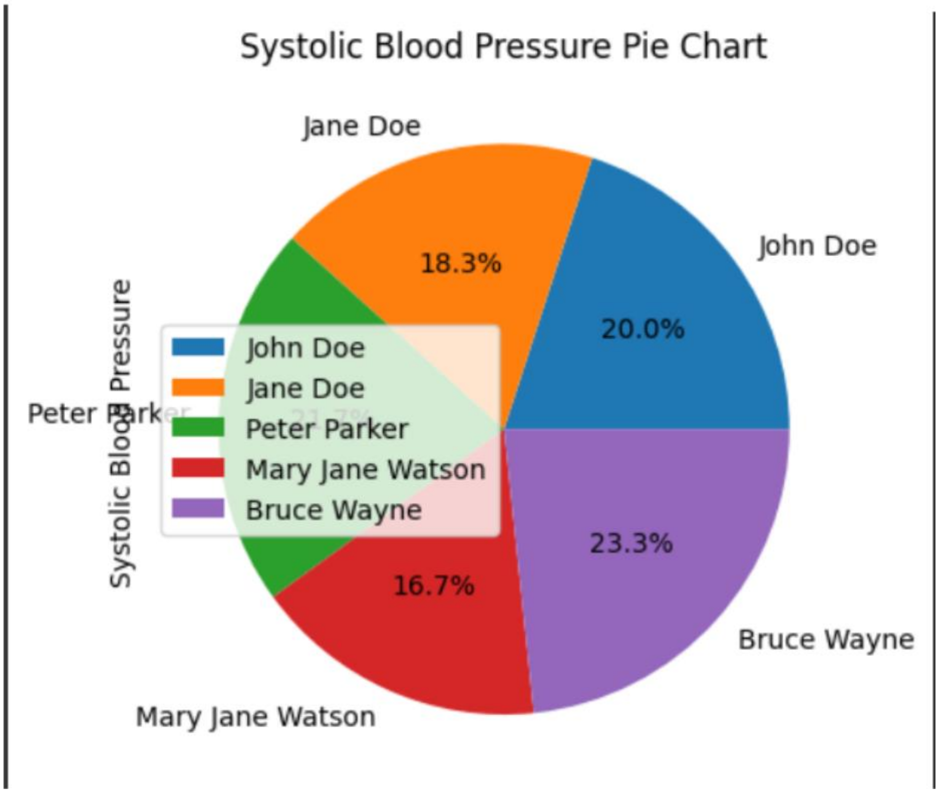
```
# Display the modified DataFrame
print("Modified DataFrame:")
print(df)
print("\n")

# Create a bar chart for BMI
df.plot(kind='bar', x='Patient', y='BMI', title='BMI Bar Chart')
plt.xlabel('Patient')
plt.ylabel('BMI')
plt.show()

# Create a pie chart for Systolic Blood Pressure
df.plot.pie(y='Systolic Blood Pressure', labels=df['Patient'],
autopct='%1.1f%%',
title='Systolic Blood Pressure Pie Chart')
plt.show()

# Create a scatter plot for BMI vs Systolic Blood Pressure
df.plot(kind='scatter', x='BMI', y='Systolic Blood Pressure',
title='BMI vs Systolic Blood Pressure Scatter Plot')
plt.xlabel('BMI')
plt.ylabel('Systolic Blood Pressure')
plt.show()
```

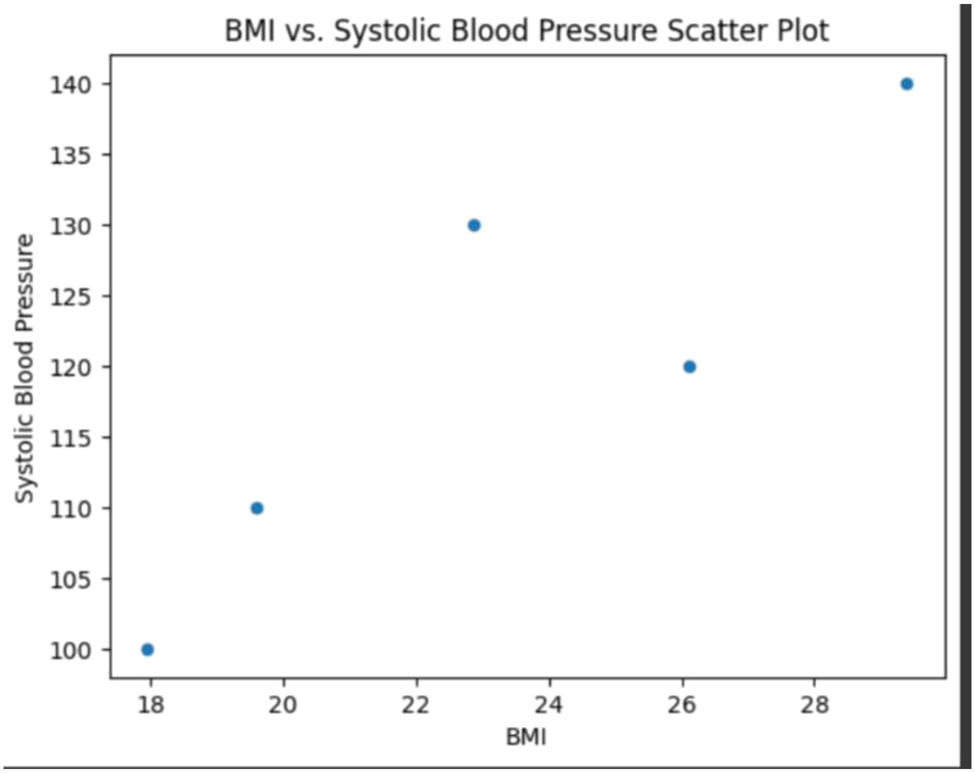
OUTPUT:



```
Original DataFrame:
             Patient  Age  Weight  Systolic Blood Pressure  \
0           John Doe   35      80                      120
1           Jane Doe   25      60                      110
2       Peter Parker   20      70                      130
3  Mary Jane Watson   18      55                      100
4        Bruce Wayne   45      90                      140

   Diastolic Blood Pressure
0                        80
1                        70
2                        90
3                        60
4                       100


Modified DataFrame:
             Patient  Age  Weight  Systolic Blood Pressure  \
0           John Doe   35      80                      120
1           Jane Doe   25      60                      110
2       Peter Parker   20      70                      130
3  Mary Jane Watson   18      55                      100
4        Bruce Wayne   45      90                      140

   Diastolic Blood Pressure  Height        BMI
0                        80    1.75  26.122449
1                        70    1.75  19.591837
2                        90    1.75  22.857143
3                        60    1.75  17.959184
4                       100    1.75  29.387755
```


BMI Bar Chart
BMI
30
25
20
15
10
5
0
BMI
John Doe
Jane Doe
Peter Parker
Mary Jane Watson
Bruce Wayne
Patient


Systolic Blood Pressure Pie Chart
Jane Doe
John Doe
Peter Parker
Mary Jane Watson
Bruce Wayne
18.3%
20.0%
21.7%
16.7%
23.3%
Systolic Blood Pressure
John Doe
Jane Doe
Peter Parker
Mary Jane Watson
Bruce Wayne



RESULT:

Thus, the program has been successfully executed and verified.