JAMAL MOHAMED COLLEGE (AUTONOMOUS)

College with Potential for Excellence
Accredited (3rd Cycle) with 'A' Grade by NAAC
DBT Star College Scheme & DST-FIST Funded
(Affiliated to Bharathidasan University)
TIRUCHIRAPPALLI – 620 020

DEPARTMENT OF COMPUTER APPLICATIONS

M.C.A. [WOMEN]

SEMESTER – III

PYTHON PROGRAMMING LAB

CERTIFICATE

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Register Number : 20MCA091

This is to certify that this is the bonafide record of a practical work done in the Computer Centre of Jamal Mohamed College, Tiruchirappalli - 20 during the Year 2021 - 2022.

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Submitted for the M.C.A Practical Examination held at Jamal Mohamed College, Tiruchirappalli - 20, on 06-10-2021.

Tiruchirappalli - 20
Date: 06-10-2021

Internal Examiner External Examiner

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RegisterNumber: 20MCA091	Demonstrate the usage of built-in mathematical functions
Exercise No: 1	
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Aim:

To write a Python program to demonstrate the use of built-in mathematical functions.

Procedure:

1. Start the program
2. Import math module
3. Print the output of various built-in mathematical functions
4. Stop the program

Program:

```
import math
print("math.ceil(x)", math.ceil(5.3))
print("math.copysign(x, y)", math.copysign(5,-2))
print("math.factorial(x)", math.factorial(6))
print("math.floor(x)", math.floor(5.3))
print("math.fmod(x, y)", math.fmod(5,2))
print("math.gcd(7,35)", math.gcd(7,35))
print("math.lcm(7,35)", math.lcm(7,35))
print("math.perm(n,k)", math.perm(5,2))
print("math.remainder(x,y)", math.remainder(5,4))
print("math.trunc(x)", math.trunc(5.4))
print("math.log2(X)", math.log2(32))
print("math.log10(x)", math.log10(100))
print("math.pow(x,y)", math.pow(2,4))
print("math.sqrt(x)", math.sqrt(64))
print("math.fabs(x)", math.fabs(-10.4))
```

Output:

math.ceil(x)= 6

math.copysign(x, y) = -5.0

math.factorial(x)= 720

math.floor(x) = 5

math.fmod(x, y) = 1.0

math.gcd(7,35) = 7

math.lcm(7,35) = 35

math.perm(n,k) = 20

math.remainder(x,y) = 1.0

math.trunc(x) = 5

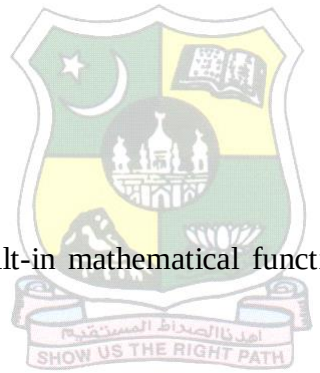
math.log2(X) = 5.0

math.log10(x) = 2.0

math.pow(x,y) = 16.0

math.sqrt(x) = 8.0

math.fabs(x) = 10.4



Result:

Thus, the usage of Python built-in mathematical functions was demonstrated and executed successfully.

RegisterNumber: 20MCA091	Find the prime numbers from 1 to 100 using condition statements
Exercise No: 2	
Page No: 03	

Aim:

To develop a Python program to find the prime numbers from 1 to 100 using condition statements.

Procedure:

1. Start the program
2. Using for loop, get the value for variable ‘num’ and check the condition for prime numbers
3. Print the output
4. Stop the program

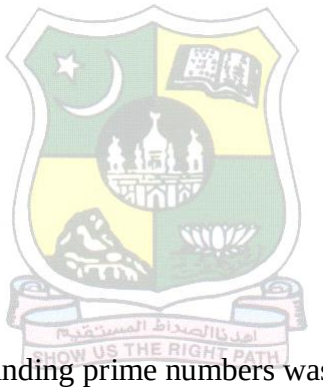
Program:

```
for num in range(1,101):
  if num >= 1:
     for i in range(2,num):
        if (num % i) == 0:
           break
     else:
        print(num)
```

Output:

1
2
3
5
7
11
13
17

19
23
29
31
37
41
43
47
53
59
61
67
71
73
79
83
89
97



Result:

Thus, the Python program for finding prime numbers was developed and executed successfully.

RegisterNumber:20MCA091	Count the number of digits using condition statements for 8 digits
Exercise No: 3	
Page No: 05	

Aim:

To develop a Python program to count the number of digits using condition statements.

Procedure:

1. Start the program
2. Read the n value
3. Count the number of digits in the given ‘n’ value using while loop
4. Print the count
5. Stop the program

Program:

```
n=int(input("Enter number:"))
count=0
while(n>0):
    count=count+1
    n=n//10
print("The number of digits in the number are:",count)
```

Output

Enter number: 345678

The number of digits in the number are: 6

Result:

Thus, the Python program for counting the number of digits was developed and executed successfully.

RegisterNumber: 20MCA091	Reverse the number and sum of the digits
Exercise No: 4	
Page No: 06	

Aim:

To develop a Python program to reverse and find the sum of digits.

Procedure:

1. Start the program
2. Read the num value
3. Initialize rev=0 and sum=0
4. Calculate the no of digits and sum value using while loop
5. Print the value of rev and sum
6. Stop the program

Program:

```
num = int(input("Enter a number"))
rev = 0
sum = 0
while num > 0:
  rem = num % 10
  sum = sum+rem
  rev = (rev*10) + rem
  num = num//10
print("%d" %rev)
print("%d"  %sum)
```

Output:

Enter a number 45678

87654

30

Result:

Thus, the Python program for reversing and finding the sum of digits was developed and executed successfully.

RegisterNumber: 20MCA091	Demonstrate various functions of Strings
Exercise No: 5	
Page No: 07	

Aim:

To develop a Python program to demonstrate the various functions of strings.

Procedure:

1. Start the program
2. Use the various string functions
3. Print the output
4. Stop the program

Program:

```
var='This is a good example'
str='was'
print("Replace", var.replace('is',str))
print("Split", var.split())
print("len", len(var))
print("count", var.count("is"))
print("rfind", var.rfind("is",0,10))
print("index", var.index("is"))
print("find", var.find("is"))
print("title", var.title())
print("swapcase", var.swapcase())
print("upper", var.upper())
print("lower", var.lower())
print("capitalize", var.capitalize())
print("center", var.center(50,'*'))
print("ljust", var.ljust(50,'*'))
print("rjust", var.rjust(50,'*'))
```

Output:

Replace: Thwas was a good example

Split: ['This', 'is', 'a', 'good', 'example']

len: 22

count: 2

rfind: 5

index: 2

find: 2

title: This Is A Good Example

swapcase: tHIS IS A GOOD EXAMPLE

upper: THIS IS A GOOD EXAMPLE

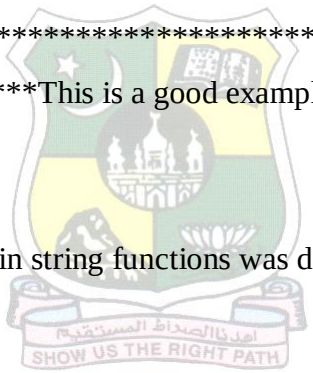
lower: this is a good example

capitalize: This is a good example

center: **********This is a good example**********

ljust: This is a good example**********

rjust: **********This is a good example



Result:

Thus, the usage of Python built-in string functions was demonstrated and executed successfully.

RegisterNumber: 20MCA091	Check the bigger of the two input Strings
Exercise No: 6	
Page No: 9	

Aim:

To develop a Python program to check the bigger of the two input strings.

Procedure:

1. Start the program
2. Read the string inputs from the user
3. Compare the strings using the compare_strings_len(s1,s2) function
4. Print the output
5. Stop the program

Program:

```
def compare_strings_len(s1, s2):
    if len(s1) > len(s2):
        print('String 1 is longer: ', s1)
    elif len(s1) < len(s2):
        print('String 2 is longer: ', s2)
    else:
        print('Strings length are equal!')
str1=raw_input("Enter the first string")
str2=raw_input("Enter the second string")
compare_strings_len(str1,str2)
```

Output:

```
Enter the first string: hajira
Enter the second string: basha
String 1 is longer:   hajira
```

Result:

Thus, the Python program for checking the bigger of two strings was developed and executed successfully.

RegisterNumber:20MCA091	Count the number of vowels in the given Sentence
Exercise No: 7	
Page No: 10	

Aim:

To develop a Python program to count the number of vowels in the given sentence.

Procedure:

1. Start the program
2. Read the string input from the user
3. Using List data type and for loop, count the number of vowels present in the given sentence
4. Print the count
5. Stop the program

Program:

```
sentence=raw_input("Enter the sentence")
string = sentence.lower()
print(string)
count=0
list1=["a","e","i","o","u"]
for char in string:
    if char in list1:
        count=count+1
print("The number vowels in given sentence is:",count)
```

Output:

```
Enter the sentence: i love my country
i love my country
The number vowels in given sentence is: 5
```

Result:

Thus, the Python program for counting the number of vowels in the given sentence was developed and executed successfully.

RegisterNumber: 20MCA091	Sort words entered by user in alphabetical order
Exercise No: 8	
Page No: 11	

Aim:

To develop a Python program to sort the words in alphabetical order.

Procedure:

1. Start the program
2. Read the string input from the user
3. Split the given string using split() function
4. Sort the split words in alphabetical order using sort()
5. Print the output
6. Stop the program

Program:

```
my_str = raw_input("Enter a string: ")
words = my_str.split()
words.sort()
for word in words:
  print(word)
```

Output:

```
Enter a string: my favorite color is black
black
color
favorite
is
my
```

Result:

Thus, the Python program for sorting the words in alphabetical order was developed and executed successfully.

RegisterNumber: 20MCA091	Compute the sum of Odd and Even numbers for a given range in a List
Exercise No: 9	
Page No: 12	

Aim:

To develop a Python program to compute the sum of odd and even numbers for a given range in a List.

Procedure:

1. Start the program
2. Initialize the variables NumList = 0, Even_sum=0, Odd_sum=0
3. Read the number value from the user
4. Apply the logic of finding odd and even numbers and then add the values of odd and even numbers
5. Print the Even_sum and Odd_sum
6. Stop the program

Program:

```
NumList = []
Even_Sum = 0
Odd_Sum = 0
Number = int(input("Please enter the Total Number of List Elements: "))
for i in range(1, Number + 1):
    value = int(input("Please enter the Value of %d Element : " %i))
    NumList.append(value)
for j in range(Number):
    if(NumList[j] % 2 == 0):
        Even_Sum = Even_Sum + NumList[j]
    else:
        Odd_Sum = Odd_Sum + NumList[j]
print("\nThe Sum of Even Numbers in this List =  ", Even_Sum)
print("The Sum of Odd Numbers in this List =  ", Odd_Sum)
```

Output:

Please enter the Total Number of List Elements: 5

Please enter the Value of 1 Element : 34

Please enter the Value of 2 Element : 45

Please enter the Value of 3 Element : 23

Please enter the Value of 4 Element : 78

Please enter the Value of 5 Element : 90

The Sum of Even Numbers in this List = 202

The Sum of Odd Numbers in this List = 68

Result:

Thus, the Python program for computing the sum of odd and even numbers for a given range in a list was developed and executed successfully.

RegisterNumber:20MCA091	Sum and average of the given numbers using Lists
Exercise No: 10	
Page No: 14	

Aim:

To develop a Python program to compute the sum and average of the given numbers using Lists.

Procedure:

1. Start the program
2. Read the number value from the user
3. Compute the sum and average of the given numbers using for loop
4. Print the sum and avg
5. Stop the program

Program:

```
NumList = []
Number = int(input("Please enter the Total Number of List Elements: "))
for i in range(1, Number + 1):
    value = int(input("Please enter the Value of %d Element : " %i))
    NumList.append(value)
count = 0
for i in NumList:
        count += i
avg = count/len(NumList)
print("sum = ", count)
print("average = ", avg)
```

Output:

Please enter the Total Number of List Elements: 5

Please enter the Value of 1 Element : 45

Please enter the Value of 2 Element : 12

Please enter the Value of 3 Element : 89

Please enter the Value of 4 Element : 90

Please enter the Value of 5 Element : 23

sum = 259

average = 51.8

Result:

Thus, the Python program for computing the sum and average of the given numbers using lists was developed and executed successfully.

RegisterNumber: 20MCA091	Using Tuple to input Student details, the program should accept a given student's Roll number and display his specific records
Exercise No: 11	
Page No: 16	

Aim:

To develop a Python program to prepare the student mark list.

Procedure:

1. Start the program
2. Read the n, roll, reg, name and perce value from the user
3. Print the mark list using for loop
4. Stop the program

Program:

```
record = dict ()
i=1
n= int (input ("How many records u want to enter: "))
while(i<=n):
    roll = raw_input("Enter Roll number: ")
    reg = raw_input("Enter Register Number: ")
    name = input("Enter Name :")
    perc = float(input("Enter Percentage : "))
    t = (reg,name, perc)
    record[roll] = t
    i = i + 1
Nkey = record.keys()
for i in Nkey:
    print("\nRollno- ", i, " :")
    r = record[i]
    print("Reg No\t", "Name\t", "Percentage\t")
    for j in r:
        print(j, end = "\t")
```

Output:

How many records u want to enter: 2

Enter Roll number: 101

Enter Register Number: 12302

Enter Name :aaa

Enter Percentage : 78

Enter Roll number: 102

Enter Register Number: 12303

Enter Name :bbb

Enter Percentage : 89

Rollno- 101 :

Reg No Name Percentage

12302 aaa 78.0

Rollno- 102 :

Reg No Name Percentage

12303 bbb 89.0

Result:

Thus, the Python program for preparing student mark list was developed and executed successfully.

RegisterNumber: 20MCA091	Using Dictionary to accept a sentence and generate the frequency of words for the same
Exercise No: 12	
Page No: 18	

Aim:

To develop a Python program to accept a sentence and generate the frequency of words using dictionary.

Procedure:

1. Start the program
2. Read the input_line from the user
3. Split the given sentence and display the key values with formatting
4. Stop the program

Program:

```
input_line=raw_input("Enter a sentence:")
words_dict={}
for word in input_line.split():
   words_dict[word]=words_dict.get(word,0)+1
for key in sorted(words_dict):
   print("{}:{}".format(key,words_dict[key]))
```

Output:

```
Enter a sentence: hi hello how are you
are:1
hello:1
hi:1
how:1
you:1
```

Result:

Thus, the Python program for accepting a sentence and generate the frequency of words using dictionary was developed and executed successfully.

RegisterNumber: 20MCA091	Compute the number of lines, words and characters in a given a File
Exercise No: 13	
Page No: 19	

Aim:

To develop a Python program to compute the number of lines, words and characters in a given file.

Procedure:

1. Start the program
2. Read the input file from the user as the command line argument
3. Count the number of lines, words and characters in a file using split() and splitlines() function
4. Print the number of lines, words and characters
5. Stop the program

Program:

```
import sys
fname=sys.argv[1]
lines = 0
num_words = 0
space=0
letters = 0
with open(fname,'r')as f:
 data=f.read()
 num_words=data.split()
 lines=data.splitlines()
 spaces=data.split(" ")
print("lines:",len(lines))
print("words:",len(num_words))
print("Letters:", (len(data)-len(spaces)))
```

Output:

lines: 12

words: 35

Letters: 269

Result:

Thus, the Python program for computing the number of lines, words and characters in a given file was developed and executed successfully.

RegisterNumber:20MCA091	Copy file contents from one file to another
Exercise No: 14	
Page No: 21	

Aim:

To develop a Python program to copy the file contents from one file to another.

Procedure:

1. Start the program
2. Read the source file and write the contents of the source file to the destination file
3. Stop the program

Program:

```
with open('C:\\Users\\Kadar\\Desktop\\mod1_exercise.txt','r') as firstfile,
open('C:\\Users\\Kadar\\Desktop\\mod2_exercise.txt','a') as secondfile:
    for line in firstfile:
        secondfile.write(line)
```

Result:

Thus, the Python program for copying the file contents from one file to another was developed and executed successfully.

RegisterNumber: 20MCA091	Send a message from one system to another using Sockets
Exercise No: 15	
Page No: 22	

Aim:

To develop a Python program to send a message from one system to another using Sockets.

Procedure:

1. Start the program
2. Import socket module
3. Establish a connection to the server and receive a message from the server
4. Print the message
5. Stop the program

Program:

client.py

```
import socket
host = 'local host'
port = 5000
s = socket.socket(socket.AF_INET,socket.SOCK_STREAM)
s.connect(('127.0.0.1', port))
msg = s.recv(1024)
while msg:
   print('Received:' + msg.decode())
   msg = s.recv(1024)
s.close()
```

server.py

```
import socket
host = 'local host'
port = 5000
s = socket.socket(socket.AF_INET,socket.SOCK_STREAM)
s.bind(('', port))
s.listen(1)
c, addr = s.accept()
print("CONNECTION FROM:", str(addr))
c.send(b"HELLO, How are you ? \Welcome to JMC")
```

```
msg = "Bye....."
c.send(msg.encode())
c.close()
```

Output:

```
CONNECTION FROM: ('127.0.0.1', 64686)
Received:HELLO, How are you ? \Welcome to JMC
Received:Bye.....
```

Result:

Thus, the Python program for sending a message from one system to another using Sockets was developed and executed successfully.