GURU NANAK COLLEGE
(AUTONOMOUS)
Chennai – 600 042.

BACHELOR OF COMPUTER SCIENCE

[DEPARTMENT OF COMPUTER SCIENCE]

2021 - 2022

Name : _____

Reg. No : _____

Year : **III** **Semester: VI**

Subject Code : **19UCSC314**

Subject : **PYTHON PROGRAMMING**

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BONAFIDE CERTIFICATE

NAME : _____

REG. NO : _____

CLASS : _____

This is to certify that this is the bonafide record of the practical work done in _____ *at Guru Nanak College Computer Lab, during the Year 2021 - 2022.*

Staff-In-Charge **Head of the Department**

Submitted for the _____

B.Sc., Computer Science Practical Examination held on _____

at Guru Nanak College, Chennai - 42.

Internal Examiner **External Examiner**

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Temperature Conversion

```
print("1.Fahrenheit to Celsius" '\n' "2.Celsius to Fahrenheit"
'\n') c=int(input("Enter your choice" '\n'))
if c==1:
    f=float(input("Enter the temperature in Fahrenheit"
    '\n')) c=((f-32)*5)/9
    print("Celsius= ",c)
elif c==2:
    c=float(input("Enter the temperature in Celsius" '\n'))
    f=(c*9/5)+32
    print("Fahrenheit= ",f)
```

Output

```
1.Fahrenheit to Celsius
2.Celsius to Fahrenheit

Enter your choice
1
Enter the temperature in Fahrenheit
75
Celsius=  23.88888888888889
```

Student Mark Details

```
print("Enter the marks")
mark1=int(input("Mark1: "))
mark2=int(input("Mark2: "))
mark3=int(input("Mark3: "))
total=mark1+mark2+mark3
print("Total = ",total)
perc=total/3
print ("Percentage = ",perc) if
(perc>=90 and perc<=100):
    print("Grade is : A") elif
(perc>=70 and perc<90):
    print("Grade is : B")
elif (perc>=50 and perc<70):
    print("Grade is : C")
elif (perc>=35 and perc<50):
    print("Grade is : D")
elif (perc>=20 and perc<35):
    print("Grade is : E")
elif (perc>=0 and perc<20):
    print("Grade is : F")
```

Output

```
Enter the marks
Mark1: 75
Mark2: 80
Mark3: 85
Total =  240
Percentage =  80.0
Grade is : B
```

Sum of the elements

```
start=int(input(“Enter the starting value “))
end=int(input(“Enter the ending value”))
sum=0
if(start>0 and end>0):
    for num in range(start,end):
        sum+=num
    print(“Sum = “,sum)
else:
    print(“The starting and ending value must be positive numbers”)
```

Output

```
Enter the starting value 5
Enter the ending value10
Sum =  35
```

Sum of positive and negative numbers using array

```
num=[ ]
posum=0
negsum=0
positive=[ ]
negative= [ ]
i=0
n=int(input("Enter the limit:"))
while(i<n):
       a=int(input("Enter the number :"))
       num.append(a)
       i=i+1 for i
 in num :
     if (i>0) :
          positive.append(i)
          posum+=i
      else :
          negative.append(i)
          negsum+=i
print("The given list is :",num)
print("The list of positive numbers :",positive)
print("The list of negative numbers :",negative)
print("The sum of positive numbers :",posum)
print("The sum of negative numbers :",negsum)
```

Output:

```
Enter the limit:5
Enter the number :10
Enter the number :-20
Enter the number :30
Enter the number :-40
Enter the number :50
The given list is : [10, -20, 30, -40, 50]
The list of positive numbers : [10, 30, 50]
The list of negative numbers : [-20, -40]
The sum of positive numbers : 90
The sum of negative numbers : -60
```

Sum and Difference of two matrices

```
r=int(input("Enter the no. of rows :"))
c=int(input("Enter the no. of columns :"))
mat1=[ ]
print("Enter the elements for 1st Matrix :")
for i in range(r) :
    mat1.append([ ])
    for j in range(c) :
        num=int(input())
        mat1[i].append(num)
print("Matrix 1 is : ")
for i in range(r):
    for j in range(c) :
        print(mat1[i][j],end=" ")
    print()
mat2=[ ]
print("Enter the elements for 2nd Matrix :")
for i in range(r) :
    mat2.append([ ])
    for j in range(c) :
        num=int(input())
        mat2[i].append(num)
print("Matrix 2 is : ")
for i in range(r):
    for j in range(c) :
        print(mat2[i][j],end=" ")
    print()
mat3=[ ]
for i in range(r) :
    mat3.append([ ])
    for j in range(c) :
        sum=0
        sum=(mat1[i][j] + mat2[i][j])
        mat3[i].append(sum)
print("\nAddition Result of Two given Matrix is :")
for i in range(r):
    for j in range(c) :
        print(mat3[i][j],end=" ")
    print()
```

Output:

```
Enter the no of rows : 2
Enter the no of columns : 2
Enter Elements for First Matrix:
10
20
30
40
matrix 1 is :
10 20
30 40
Enter Elements for Second Matrix:
50
60
70
80
matrix 2 is :
50 60
70 80

Addition Result of Two Given Matrix is:
60 80
100 120

Multiplication Result of Two Given Matrix is:
500 1200
2100 3200
```

Quadrative Equeation

```
import math
print(“Program to calculate quadratic equation”)
a=int(input(“Enter a:”))
b=int(input(“Enter b:”))
c=int(input(“Enter c:”))
if a==0:
    print(“Value of “,a,”should not be zero”)
    print(“\n Aborting!!!”)
else:
    delta=b*b-4*a*c if
    delta>0:
        root1=(-b+math.sqrt(delta))/(2*a)
        root2=(-b-math.sqrt(delta))/(2*a)
        print(“Roots are Real & Unequal”)
        print(“Root1=”,root1,”Root2=”,root2)
    elif delta==0:
        root1=-b/(2*a)
        print(“Roots are Real & Equal”)
        print(“Root1=”,root1,”Root2=”,root1)
    else:
        print(“Roots are Complex & Imaginary”)
```

Output:

```
Program to calculate quadratic equation
Enter a:10
Enter b:20
Enter c:3
Roots are Real & Unequal
Root1= -0.16333997346592444
Root2= -1.8366600265340758
```

String Palindrome

```
def reverse(ch):
   a=ch[::-1]
   if(a==ch):
      print(ch," is a
   palindrome") else:
      print(ch," is not a
palindrome") str=input("Enter the
string: ") reverse(str)
```

Output:

```
====== RESTART: C:/Users/LAB/AppData/Local/Programs/Pyt
Enter the string: malayalam
malayalam  is a palindrome
```

Vowels Counting- Dictionary.

```
line=input()
vowel=”aeiou
” vow=[]
count=0
space=0
for i in line:
    line=line.lower(
    ) if i in vowel:
        vow.append(i
        ) count+=1
    if i==’ ‘:
        space+=
        1
per=count/5
dic={“No. of letters”:len(line)-
       space, ”No. of
       Vowels”:count,
       “Percentage”:per*100
      }
print(dic)
```

Output:

```
Computer science
{'No. of letters': 15, 'No. of Vowels': 6, 'Percentage': 120.0}
```

Pangram finding

```
 import string
def ispangram(str):
    alphabet="abcdefghijklmnopqrstuvwxyz"
    for char in alphabet:
        if char not in str.lower():
            return False
    return True
string=input("Enter the string")
if(ispangram(string)==True):
    print("Yes")
else:
    print("No")
```

Output:

```
Enter the string the quick brown fox jumps over the lazy dog
Yes
```

Area of shapes using user defined function

```
def
   rectangle(l,b):
   area=l*b
   print("area=",area,"cm²)
def square(a):
   area=a*a
   print("area=",area,"cm²)
def circle(r): area=3.14*r*r
   print("area=",area,"cm²")
def triangle(b,h):
   area=0.5*b*h
   print("area=",area,"cm²")
ch=int(input("1.rectangle\n2.square\n3.circle\n4.triangle\nenter your choice:"))
if(ch==1):
   l=float(input("enter length:"))
   b=float(input("enter
   breadth:")) rectangle(l,b)
elif(ch==2):
   a=float(input("Enter the side length:"))
   square(a)
elif(ch==3):
   r=float(input("Enter the radius of circle:"))
   circle(r)
elif(ch==4):
   b=float(input("enter breadth:"))
   h=float(input("enter height:"))
   triangle(b,h)
else:
   print("Invalid choice.Choose from 1-4")
```

Output:

```
1.rectangle
2.square
3.circle
4.triangle
enter your choice:1
enter length:40
enter breadth:20
area= 800.0 cm²
```

Fibonacci Series

```
nterm=int(input("Enter how many terms "))
n1,n2=0,1
count=0
if nterm<=0:
   print("Enter the positive number")
elif nterm==1:
   print("Fibonacci sequence upto ", nterm)
   print(n1)
else:
   print("Fibonacci Series")
   while count<nterm:
      print(n1)
      nth=n1+n2
      n1=n2
      n2=nth
      count+=1
```

Output:

```
Enter how many terms 5
Fibonacci Series
0
1
1
2
3
```

Sum of the following series for n terms: 1 – 2/2! + 3/3! - -- - - n/n!

Coding:

```
n=int(input("Enter the value of n: "))
for i in range(n + 1) :
   fact=1
   for j in range(1,i+1) :
      fact*=j
   term=(i / fact)
sum=1-term
print("Sum=",sum)
```

Output:

```
Enter the value of n: 3
Sum= 0.5
```

Python program using Object Oriented Programming Concept

```
class MyTime:

    def __init__(self, hrs=0, mins=0, secs=0):
        """ Create a MyTime object initialized to hrs, mins, secs """
        self.hours = hrs
        self.minutes = mins
        self.seconds = secs

    def __str__(self):
        timeString = ""
        if self.hours < 10:
            timeString += "0"
        timeString += str(self.hours) + ":"
        if self.minutes < 10:
            timeString += "0"
        timeString += str(self.minutes) + ":"
        if self.seconds < 10:
            timeString += "0"
        timeString += str(self.seconds)
        return timeString

def add_time(t1, t2):
    h = t1.hours + t2.hours
    m = t1.minutes + t2.minutes
    s = t1.seconds + t2.seconds
    sumTime = MyTime(h, m, s)
    return sumTime

currentTime = MyTime(9, 14, 30)
breadTime = MyTime(3, 35, 0)
doneTime = add_time(currentTime, breadTime)
print(doneTime)
```

Output:

```
12:49:30
```

Illustration of List

```
fruits=[]
colour=[]
numbers=[1,2,3,4,5,6,7,8,9]
n=int(input("Enter the list count: "))
for i in range(0,n):
    name=input("Enter the fruit name: ")
    fruits.append(name)
print(fruits)

for i in range(0,n):
    name=input("Enter the colour name: ")
    colour.append(name)
print(colour)

print("List concatenation")
print(fruits+colour)
print("List repetition")
print(fruits*3)
print("List membership operator")
print('apple' in fruits)
print('banana' not in fruits)
print(fruits[0])
print(fruits[2:3])
print(fruits[-1::])
```

Output:

```
Enter the list count: 3
Enter the fruit name: apple
Enter the fruit name: orange
Enter the fruit name: banana
['apple', 'orange', 'banana']
Enter the colour name: red
Enter the colour name: green
Enter the colour name: blue
['red', 'green', 'blue']
List concatenation
['apple', 'orange', 'banana', 'red', 'green', 'blue']
List repititon
['apple', 'orange', 'banana', 'apple', 'orange', 'banana', 'apple', 'orange', 'banana']
List membership operator
True
False
apple
['banana']
['banana']
```

Illustration of Exception handling

```
try:
    print("try block")
    x=int(input("Enter a number: "))
    y=int(input("Enter another number: "))
    z=x/y
except ZeroDivisionError:
    print("except ZeroDivisionError block")
    print("Division by 0 not accepted")
else:
    print("else block")
    print("Division = ",z)
finally:
    print("finally block")
    x=0
    y=0
print("Out of try,except,else and finallyblocks.")
```

Output:

```
try block
Enter a number: 4
Enter another number: 2
else block
Division =  2.0
finally block
Out of try,except,else and finallyblocks.
```