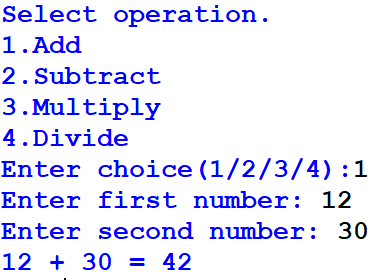
**5**

**Q1: Write a Program to make a simple calculator that can add, subtract, multiply and divide using functions**

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first=float(input("Enter first number: "))

second=float(input("Enter second number: "))

def calculator(first,second):

if(second==0):

return "second number shouldn't be zero"

choice=int(input(''' Enter choice-

1(add);

2(subtract);

3(multiplication);

4(division)

:'''))

match choice:

case 1:

print(f"addition: {first+second}")

case 2:

print(f"subtraction: {first-second}")

case 3:

print(f"multiplication: {first\*second}")

case 4:

print(f"division: {first/second}")

case \_\_:

print(f"Exit")

calculator(first,second)

Q 2: Write a Function of version of a palindrome recognizer that also accepts phrase palindromes such as "Go hanga salami I'm a lasagna hog.", "Was it a rat I saw?", "Step on no pets", "Sit on a potato pan, Otis", "LisaBonet ate no basil", "Satan, oscillate my metallic sonatas", "I roamed under it as a tired nude Maori","Rise to vote sir", or the exclamation "Dammit, I'm mad!". Note that punctuation, capitalization, andspacing are usually ignored.

import string

sentence=input("Enter senence: ")

def sentPalindromeCheck(s):

s=s.upper()

# punctuations=""" !()-[]{};:'"\,<>./?@#$%^&\*\_~ """

punctuations=string.punctuation

print(punctuations)

for i in s:

if i in punctuations:

s=s.replace(i,"")

s=s.replace(" ","")

s1=s[::-1]

if(s==s1):

print("Given sentence is palindrome")

else:

print("Given sentence is not palindrome")

sentPalindromeCheck(sentence)

Q3. A pangram is a sentence that contains all the letters of the English alphabet at least once, forexample: The quick brown fox jumps over the lazy dog. Your task here is to write a function to check asentence to see if it is a pangram or not.

sentence=input("Enter senence: ")

def pangramCheck(s):

s=s.upper()

alphabets=['A','B','C','D','E','F','G','H','I','J','K','L','M','N','O','P','Q','R','S','T','U','V','W','X','Y','Z']

for i in alphabets:

if i in s:

return 1

else:

return -1

if(pangramCheck(sentence)!=-1):

print("Given sentence is a pangram")

else:

print("Given sentence is not a pangram")

Q4. Define a function overlapping() that takes two lists and returns True if they have at least onemember in common, False otherwise.

list1=[1,3,4,45,26]

list2=[29,25,99,66,44,3]

def overlapping(l1,l2):

l1=set(l1)

l2=set(l2)

if(l1&l2):

print("common elements : ",l1&l2)

print("At least one member is common.")

else:

print("No member is common.")

overlapping(list1,list2)

Q5. Write a function find\_longest\_word() that takes a list of words and returns the length of the

longest one.

l=['apples','oranges','bananas','mangoes','grapes','strawberry']

def find\_longest\_word(l):

for i in range(len(l)-1):

longest=len(list(l[i]))

if(len(list(l[i]))<len(list(l[i+1]))):

longest=len(list(l[i+1]))

print(f"length of the Longest in the list: {longest}")

find\_longest\_word(l)

Q6: write a Program to display the Fibonacci sequence up to n-th term where n is provided by the user

n = int(input("Enter number: "))

num1 = 0

num2 = 1

next\_number = num2

count = 1

print(0,",",1,",",end=" ")

while count < n-1:

print(next\_number,",",end=" ")

count += 1

num1, num2 = num2, next\_number

next\_number = num1 + num2

print(next\_number)

Q7: Write a Python Program to Display Powers of 2 Using Anonymous Function

( Lambda function). Take number of terms from user

first=float(input("Enter number: "))

second=float(input("Enter power: "))

power= lambda a, b : a\*\*b

power(first,second)

# Q8: Write a Python Program to find numbers divisible by thirteen from a list using anonymous function

li=[13,23,45,26,33,88,39]

div=list(filter(lambda x:(x%13==0),li))

print(div)

Q9. Write a program that simulates a traffic light . The program should consist of the following:

1. A user defined function trafficLight( ) that accepts input from the user, displays an error message if the user enters anything other than RED, YELLOW, and GREEN. Function light() is called and following is displayed depending upon return value from light().

a) “STOP, your life is precious” if the value returned by light() is 0.

b) “Please WAIT, till the light is Green “ if the value returned by light() is 1

c) “GO! Thank you for being patient” if the value returned by light() is 2.

2. A user defined function light() that accepts a string as input and returns 0 when the input is RED, 1 when the input is YELLOW and 2 when the input is GREEN. The input should be passed as an argument.

3. Display “ SPEED THRILLS BUT KILLS” after the function trafficLight( ) is executed.

choice=input("Enter RED or YELLOW or GREEN only: ").upper()

def trafficLight(choice):

if (choice=="RED"):

print(f"Your choice is {choice}.")

elif (choice=="YELLOW"):

print(f"Your choice is {choice}.")

elif (choice=="GREEN"):

print(f"Your choice is {choice}.")

else:

print("Invalid choice.")

return("SPEED THRILLS BUT KILLS")

def c(choice):

if (choice=="RED"):

return 0;

elif (choice=="YELLOW"):

return 1

elif (choice=="GREEN"):

return 2

else:

return ("Invalid choice.")

def light():

if (c(choice)==0):

return ("STOP, your life is precious")

elif (c(choice)==1):

return ("Please WAIT, till the light is Green " )

elif (c(choice)==2):

return ("GO! Thank you for being patient ")

else:

return ("Invalid choice.")

print(trafficLight(choice))

print(light())

Q10: Write a Python program to display the Fibonacci sequence up to n-th term by using recursive functions

FibArray = [0, 1]

n=int(input("Enter series upto: "))

def fibonacci(n):

if n < 0:

print("Incorrect input")

elif n < len(FibArray):

return FibArray[n]

else:

FibArray.append(fibonacci(n - 1) + fibonacci(n - 2))

return FibArray[n]

print(fibonacci(n))

print(FibArray)

Q11: Write a Python program to find the sum of natural numbers up to n using recursive function

def sumNat(n):

if n<0:

return "invalid"

elif n==1:

return 1

return n+sumNat(n-1)

num=int(input("Enter number: "))

sumNat(num)