#Assignment 10

#Topic: Series

#Description: To find cosine of an angle

#DOS: 12.09.2019

import math

sign=1

Sum=0

print("FINDING COSINE OF ANGLE")

a=int(input("Enter the angle: "))

n=int(input("Enter the precision required: "))

x=math.radians(a)

Pow=0

for i in range(2,n+1,2):

Pow,fact=1,1

for j in range (1,i+1):

Pow\*=x

fact\*=j

Sum+=(Pow/fact)\*sign

sign\*=-1

cos=1-Sum

print("cos(",a,")=",cos)

**OUTPUT:**

FINDING COSINE OF ANGLE

Enter the angle: 90

Enter the precision required: 1

cos( 90 )= 1

FINDING COSINE OF ANGLE

Enter the angle: 90

Enter the precision required: 10

cos( 90 )= -4.6476600834566284e-07

#Assignment 11

#Topic: Menu driven program

#Description: Stimulate an arithmetic calculator for complex numbers

#DOS: 13.09.2019

print("ARITHMETIC CALCULATOR FOR COMPLEX NUMBERS")

con="y"

while con=="y":

r1=int(input("Enter the real component of a number: "))

i1=int(input("Enter the imaginary component of a number: "))

r2=int(input("Enter the real component of another number: "))

i2=int(input("Enter the imaginary component of another number: "))

print("CALCULATOR")

print("+: ADDITION")

print("- : SUBTRACTION")

print("x: MULTIPLICATION")

print('/ : DIVISION')

choice=input("\nWhich operation would you like? ")

if choice =='+':

print("\t ",r1,"+",i1,"j",sep="")

print("\t ",r2,"+",i2,"j",sep="")

print("\t + \_\_\_\_")

print("\t = ",r1+r2,"+",i1+i2,"j",sep="")

elif choice =='-':

print("\t ",r1,"+",i1,"j",sep="")

print("\t ",r2,"+",i2,"j",sep="")

print("\t - \_\_\_\_")

print("\t = ",r1-r2,"+",i1-i2,"j",sep="")

elif choice =='x'

a=r1\*r2

c=i1\*i2\*-1

b=r1\*i2

d=i1\*r2

finalr=a+c

finali=b+d

print("\t ",r1,"+",i1,"j",sep="")

print("\t ",r2,"+",i2,"j",sep="")

print("\t x \_\_\_\_")

print("\t = ",finalr,"+",finali,"j",sep="")

elif choice =='/':

r3=r2

i3=-i2

a=r1\*r3

c=i1\*i3\*-1

b=r1\*i3

d=i1\*r3

finalr=a+c

finali=b+d

div=r2\*\*2+(i2\*\*2)

print("\t ",r1,"+",i1,"j",sep="")

print("\t \_\_\_\_")

print("\t ",r2,"+",i2,"j", "=",(finalr/div),"+",(finali/div),"j",sep="")

con=input("Do you wish to continue? (Y/N)")

if con=="N":

print("THANK YOU")

break

**OUTPUT:**

ARITHMETIC CALCULATOR FOR COMPLEX NUMBERS

Enter the real component of a number: 1

Enter the imaginary component of a number: 2

Enter the real component of another number: 3

Enter the imaginary component of another number: 4

CALCULATOR

+: ADDITION

- : SUBTRACTION

x: MULTIPLICATION

/: DIVISION

Which operation would you like? +

1+2j

3+4j

+ \_\_\_\_

= 4+6j

Do you wish to continue? Y

Enter the real component of a number: 1

Enter the imaginary component of a number: 2

Enter the real component of another number: 3

Enter the imaginary component of another number: 4

CALCULATOR

+: ADDITION

- : SUBTRACTION

x: MULTIPLICATION

/: DIVISION

Which operation would you like?-

1+2j

3+4j

- \_\_\_\_

= -2+-2j

Do you wish to continue? Y

Enter the real component of a number: 1

Enter the imaginary component of a number: 2

Enter the real component of another number: 3

Enter the imaginary component of another number: 4

CALCULATOR

+: ADDITION

- : SUBTRACTION

x: MULTIPLICATION

/: DIVISION

Which operation would you like? x

1+2j

3+4j

x \_\_\_\_

= -5+10j

Do you wish to continue? Y

Enter the real component of a number: 1

Enter the imaginary component of a number: 2

Enter the real component of another number: 3

Enter the imaginary component of another number: 4

CALCULATOR

+: ADDITION

- : SUBTRACTION

x: MULTIPLICATION

/: DIVISION

Which operation would you like? /

1+2j

\_\_\_\_

3+4j = 0.44+0.08j

Do you wish to continue? N

THANK YOU

#Assignment 12

#Topic: String

#Description: To check whether a given sentences is a palindrome

#DOS: 13.09.2019

print("PALINDROME")

str=input("Enter a sentence: ")

word=""

for i in range(len(str)):

if str[i]!=" ":

word+=str[i]

print(word)

for j in range(len(word)//2):

if word[j]!=word[len(word)-j-1]:

print(str," is not a palindrome")

break

else:

print(str,"is a palindrome")

**OUTPUT:**

PALINDROME

Enter a sentence: taco cat

tacocat

taco cat is a palindrome

PALINDROME

Enter a sentence: was it a rat i saw

wasitaratisaw

was it a rat i saw is a palindrome

PALINDROME

Enter a sentence: was it jahnavi i saw

wasitjahnaviisaw

was it jahnavi i saw is not a palindrome

#Assignment 13

#Topic: String

#Description: To input a number a string and from the given string, extract the digits in order and display the sum of the given number and the extracted digit

#DOS: 13.09.2019

print("EXTRACTING DIGIT FROM STRING AND DISPLAYING THE SUM")

string=input("Enter a string: ")

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

store=""

for i in string:

if i>="0" and i<="9":

store+=i

store=int(store)

print(store,"+",number,"=",store+number)

**OUTPUT:**

EXTRACTING DIGIT FROM STRING AND DISPLAYING THE SUM

Enter a string: i123has321

Enter a number: 6

123321 + 6 = 123327

EXTRACTING DIGIT FROM STRING AND DISPLAYING THE SUM

Enter a string: jj6758

Enter a number: 12

6758 + 12 = 6770

#Assignment 14

#Topic: String

#Description: To rotate a string

#DOS: 13.09.2019

print(" ROTATING A STRING")

string=input("Enter a string:\n")

store=""

store1=""

for i in range(1,len(string)+1):

store=string[len(string)-1:]

store1=store+string[0:len(string)-1]

print(store1)

string=store1

**OUTPUT:**

ROTATING A STRING

Enter a string:

sona

ason

naso

onas

sona

ROTATING A STRING

Enter a string:

jahnavi

ijahnav

vijahna

avijahn

navijah

hnavija

ahnavij

jahnavi