ADVANCE MATHEMATICAL FUNCTION CALCULATOR

CODE:

#!/usr/bin/python

# -\*- coding: utf-8 -\*-

# Advanced Mathematical Functions Calculator

# Banking Operations

# This function finds the Annual Percentage Yield

# r is stated annual interest rate

# n is number of times compounded

def APY(r, n):

return 1 + r / n ^ n - 1

# This function gives Debt to Income Ratio

# m is Monthly debt payments

# g is gross monthly income

def DIR(m, g):

return m / g

# This function finds the profit

# s is selling price

# c is cost price

def profit(s, c):

return s - c

# This function finds the loss

def loss(s, c):

return c - s

# This function finds the compound interest

# p is principal amount

# r is rate per period

# n is number of periods

def CI(p, r, n):

return (p(1 + r) ^ n) - 1

# This function finds the simple interest

# p is principal amount

# r is rate per period

# t is time

def SI(p, t, r):

return p \* t \* r / 100

# Temperature Conversions

# This function converts temperature from celsius to fahrenheit

# c is temperature in celsius

# f is temperature in fahrenheit

# k is temperature in kelvin

def ctof(c):

return c \* 9 / 5 + 32

# This function converts temperature from celsius to kelvin

def ctok(c):

return c + 273.15

# This function converts temperature from fahrenheit to celsius

def ftoc(f):

return (f - 32) \* 5 / 9

# This function converts temperature from fahrenheit to kelvin

def ftok(f):

return (f - 32) \* 5 / 9 + 273.15

# This function converts temperature from kelvin to celsius

def ktoc(k):

return k - 273.15

# This function converts temperature from kelvin to fahrenheit

def ktof(k):

return k - 273.15

# Operations related to measurements

# This function finds area of circle

# r is radius of the circle

def area\_circle(r):

return 3.147 \* a \* a

# This function finds area of square

# x is the one of the side of the square

def area\_square(x):

return x \* x

# This function finds perimeter of square

# a is side of the square

def peri\_square(a):

return 4 \* a

# This function finds perimeter of circle

# r is radius of the circle

def peri\_circle(r):

return 2 \* 3.147 \* r

# This function finds area of triangle

# h is height of the triangle

# b is base of the triangle

def area\_triangle(h, b):

return h \* b / 2

# This function finds area of rectangle

# a is smaller side of rectangle

# b is larger side of rectangle

def area\_rectangle(a, b):

return a \* b

# This function finds perimeter of rectangle

# l is length of the rectangle

# w is width of the rectangle

def peri\_rectangle(l, w):

return 2 \* (l + w)

# This function finds perimeter of triangle

# a is first side of the triangle

# b is second side of the triangle

# c is third side of the triangle

def peri\_triangle(a, b, c):

return a + b + c

print ('Select operation:')

print ('1.APY')

print ('2.DIR')

print ('3.profit')

print ('4.loss')

print ('5.CI')

print ('6.SI')

print ('7.ctof')

print ('8.ctok')

print ('9.ftoc')

print ('10.ftok')

print ('11.ktoc')

print ('12.ktoc')

print ('13.area\_circle')

print ('14.area\_square')

print ('15.peri\_square')

print ('16.peri\_circle')

print ('17.area\_triangle')

print ('18.area\_rectangle')

print ('19.peri\_triangle')

print ('20.peri\_rectangle')

while True:

# Take input from the user

choice = input('Enter choice: ')

# Check if choice is one of the four options

if choice in (

'7',

'8',

'9',

'10',

'11',

'12',

'13',

'14',

'15',

'16',

):

num1 = float(input('Enter first number: '))

if choice == '7':

print (ctof(num1))

elif choice == '8':

print (ctok(num1))

elif choice == '9':

print (ftoc(num1))

elif choice == '10':

print (ftok(num1))

elif choice == '11':

print (ktoc(num1))

elif choice == '12':

print (ktof(num1))

elif choice == '13':

print (area\_circle(num1))

elif choice == '14':

print (area\_square(num1))

elif choice == '15':

print (peri\_square(num1))

elif choice == '16':

print (peri\_circle(num1))

break

elif choice in (

'1',

'2',

'3',

'4',

'17',

'18',

'20',

):

num1 = float(input('Enter first number: '))

num2 = float(input('Enter second number: '))

if choice == '1':

print (APY(num1, num2))

elif choice == '2':

print (DIR(num1, num2))

elif choice == '3':

print (profit(num1, num2))

elif choice == '4':

print (loss(num1, num2))

elif choice == '17':

print (area\_triangle(num1, num2))

elif choice == '18':

print (area\_rectangle(num1, num2))

elif choice == '20':

print (peri\_rectangle(num1, num2))

break

elif choice in ('5', '6', '19'):

num1 = float(input('Enter first number: '))

num2 = float(input('Enter second number: '))

num3 = float(input('Enter third number: '))

if choice == '5':

print (CI(num1, num2, num3))

elif choice == '6':

print (SI(num1, num2, num3))

elif choice == '19':

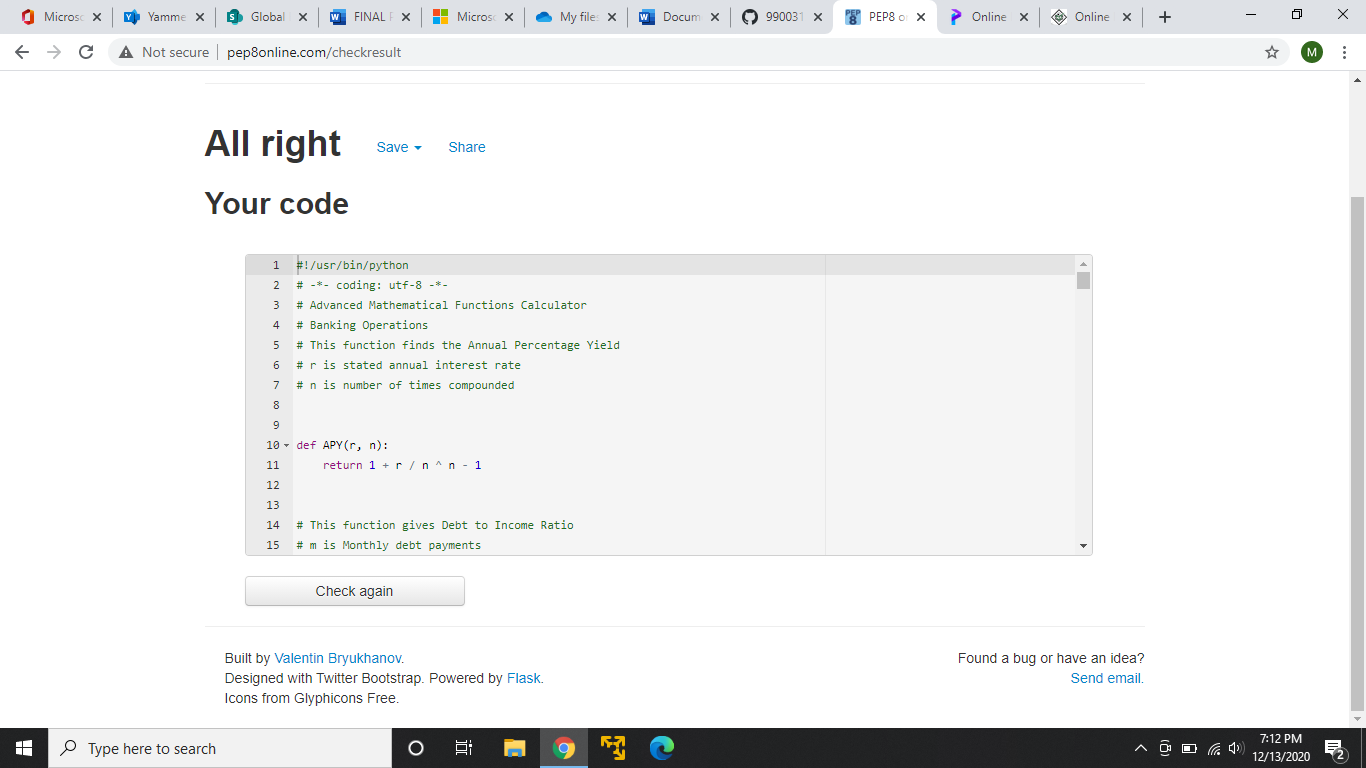
print (peri\_triangle(num1, num2, num3))

break

else:

print ('Invalid Input')

PEP8 ONLINE CHECK:



GITHUB LINK: https://github.com/99003154/Python.Mini