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# Name: Mike Torchia

# Assigment: Homework 1

# Access ID: dz7995

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import hashlib

import math

\_KEY=(hash("mypassword")%541)

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# Question 1

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print('Question 1')

#variables

taxRate=0.06 #6% tax rate

standDeduc=100.0 #100 standard deduction

deducPer=50.0 #50 per dependent

taxableIncome=0.0 #calculated later

incomeTax=0.0 #calculated later

#inputs

grossInc = float(input('Enter your gross income: '))

if grossInc < 0:

print('Error: Gross income cannot be less than 0')

numOfDepend=float(input('Enter number of dependents: '))

if numOfDepend < 0:

print('Error: Number of dependents cannot be less than 0')

#calculations

taxableIncome = grossInc - standDeduc - (deducPer \* numOfDepend)

incomeTax= taxableIncome \* taxRate

#outputs

print('The Income Tax is: ', incomeTax)

print()

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# Question 2

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print('Question 2')

firstNum=float(input('Enter left operand: '))

secondNum=float(input('Enter right operand: '))

print(firstNum, ' times ' , secondNum, ' equals ' , firstNum\*secondNum)

print('The smallest of the two numbers is: ', min(firstNum,secondNum))

print('The largest of the two numbers is: ', max(firstNum,secondNum))

print()

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# Question 3

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print('Question 3')

numOfTries=0

print('You have 3 tries to guess the password. Good Luck')

while(numOfTries<3):

userPassword=input('Enter the password: ')

userHash=(hash(userPassword)%541)

if userHash==\_KEY: #check if the user password matches the key

print('You guessed the right password')

numOfTries=3 #breaks the while loop

else:

if numOfTries>=2: #this is so after the last try it says game over instead of try again

print('Sorry. Game Over')

numOfTries+=1

else:

print('Sorry. Try Again')

numOfTries+=1

print()

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# Question 4

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print('Question 4')

sqrNum=float(input('Enter a number: '))

print('Using import math the square root of that number is: ',math.sqrt(sqrNum))

#guess=float(input('Using Newtons Method, enter a guess for the square root of your number: '))

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#Newtons method

#(1/2)\*(guess)+(number being rooted)/(guess)

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x=float(input("Enter a number: "))

tolerance=0.00001

guess=x/2

while not (abs(guess\*guess-x)< tolerance):

guess=(guess+(x/guess))/2.0

print('Using Newtons method the square root of that number is: ',(guess))

#newton=(1/2)\*((guess)+(sqrNum/guess))

#print('The estimation using Newtons Method is: ',newton)

#print('Square root of number using python: ',math.sqrt(sqrNum))