import math #Math.pi is a requirement for the circle and ellipise so i had to add them.

def price(perimeter, area): # get the prices that I need all in one fucntion then individual ones

tax = 1.0635 # added the one so that way i get not just the tax but the total after tax is added

sqft = 53.80 # price per square foot

stone = 38.50 #price per foot of stone

install = area \* sqft #price calculation for the total square foot

stoneWork = stone \* perimeter #price calculation for the total perimeter

total = (install+stoneWork)\*tax #final price

print("\nThe cost for this size pool is : $" + format(install, '.2f'))

print("The cost of the stonework for this size pool is: $" + format(stoneWork, '.2f')) #information for customer

print("The total cost of the pool will be: $"+format(total,'.2f'))

def getPoolType(): #determining what type of pool

poolType = int(input("Would type of pool would you like? Circular, Elliptical, or Square?\nEnter 1 for Circular, 2 for Elliptical, 3 for Square: "))

while poolType<1 or poolType>3 :

poolType = int(input("Invalid input. Please enter Circular, Elliptical or Square: ")) #input validation so only 1, 2 and 3 are taken

if poolType == 1:

circle()

elif poolType == 2:

ellipse()

else: #because only three options are avaialable i dont need to indicate that 3 is square because 1 and 2 are already assigned values

square()

def circle():

print("\nYou have selected circular.\n")

d=int(input("How wide would you like your pool?(in feet): ")) #asking for diameter because it makes more sense than asking fro the radius

r2 = d/2 #Making the diameter radius so that way i can use it in my caluclations

area = math.pi\*(r2\*\*2)

circum=(2\*math.pi\*r2)

print("\nThe area of the pool is about:", format(area, '.2f'), "square ft") #printing information for the customers.

print("The circumfrence of the pool is about:", format(circum, '.2f'), "ft")

price(circum, area)#calling price and giving the appropriate values.

def ellipse():

print("\nYou selected elliptical.\n")

A = float(input("How wide would you like your pool? (in feet): "))#asking for diameter because it makes more sense than asking fro the radius

B = float(input("How long would you like your pool? (in feet): "))

a = A/2#Making the diameter radius so that way i can use it in my caluclations

b = B/2

area = (math.pi\*a\*b)

numer = a\*\*2 + b\*\*2 #numerator

circum= (math.pi\*2)\* math.sqrt(numer/2) #circumfrence calulations

print("\nThe area of the pool is about:", format(area, '.2f'), "square ft")

print("The circumfrence of the pool is about:", format(circum, '.2f'), "ft")

price(circum, area) #calling the price function and sending the values needed to calulate the total price.

def square():

print("\nYou selected square.\n")

side = int(input("How wide would u like your pool? (in feet): "))

perimeter = 4\*side

area= side\*\*2

print("\nThe area of the pool is about:", format(area, '.2f'), "square ft") #calculates total area

print("The Perimeter of the pool is about:", format(perimeter, '.2f'), "ft") #caluclates total perimeter

price(perimeter, area) #sends the calculations to price for customer

def main():

print("Welcome to the virtual pool builder!") #I added an introduction just for presentation and general information

print("Here you can build your own custom pool and Get an estimate on price!")

print("Each foot of stone work will cost $38.50.")

print("Installation will cost $53.80 per square foot.")

print("Estimates may be rounded up or down to the nearest hundreth.\nThe total price is a relflection of actual total resorce costs before rounding.")

print("in Connecticut sales tax is 6.35%")

print("Lets get Started!\n")

getPoolType() #starts the process of making a pool.

main()#initial function call.