HOMEWORK WEEK 5

# **Introduction:**

*This homework introduces you to take a closer look at User Input. To deepen your understanding of Python you are required to attempt all activities and questions presented within this homework.*

# **Activity 1 – Simple Programs**

**These programs will relate directly to contact covered in previous session.**

1. Write a program to prompt for a file name, and then read through the file line-by-line

2. Write a program which will calculate the cost of petrol based on a road trip in kilometers.

# **Activity 2 – Challenging Programs**

**These programs will challenge what you have learnt in today’s session. You may wish to pseudocode or flow chart them before programming**

1. Write a program which simulates a basic vending machine and provides change based on the users monetary input and item price. Your change total must be represented in dollars and cents.

2. Create a file called Homework.txt. First add a new line to the file:” *This is a Homework, Activity 2, Question 3”* and finally print the content of Homework.txt.

#1.1 Write a program to prompt for a file name,

#and then read through the file line-by-line

user\_input = input("Please enter your file name (no file extension required):")

#add .txt extension to filename

x = user\_input + '.txt'

print("Your filename is: ", "\"",str(x),"\"")

print("\n")

#create file in 'write' mode

f = open(x, "w+")

#write content into file

f.write('\n\n\n')

f.write("""CONGRATULATIONS!

HERE IS THE FILE YOU HAVE JUST CREATED!!!""")

f.write('\n')

f.write("(And... here is some meaningless text on a different line...)")

f.write('\n\n')

f.write("It was great to have your input in this file given that you created it...")

f.write("You should be proud!")

f.write('\n\n')

f.write("Here is the text YOU added:\n\n")

#request additional text from user to append file

y = input("In fact, why not make this file more personal to you? Please enter some text of your own to add to this file:")

#append file with user text

f = open(x, "a")

#create a 'thank you' message

f.write("\"")

f.write(y)

f.write("\"")

f.write("\n\n\nThank you for your input.")

f = open(x, "r")

#print the text from the file

print(f.read())

#close the file

f.close()

#1.2 Write a program which will calculate the cost of petrol

#based on a road trip in kilometers.

#introduction

print("Welcome to the Cost of Petrol calculator!\n")

#request user inputs

a = float(input("Please enter the number of kms you will be travelling:"))

b = float(input("Please enter the cost of fuel in the following format \"dollars/L\":"))

c = float(input("Please enter the fuel economy of your car in km/L:"))

cost = a/c\*b

#Round result to 2 decimal places

format\_cost = "{:.2f}".format(cost)

print("The cost of petrol for your trip is: $",format\_cost)

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#2.1 Write a program which simulates a basic vending machine

#and provides change based on the users monetary input and item price.

#Your change total must be represented in dollars and cents.

#list item with price

#user input select item

#user input - enter payment

#return change

#format change as dollars and cents

Items = ["Peanuts", "Crisps", "Chocolate Bar", "Juice Box"]

Prices = [2,2.50,3.10,1.50]

x = Items[0]

print("""Please choose your delicious item by entering the numerical code:

0: Peanuts - $2.00

1: Crisps - $2.50

2: Chocolate Bar - $3.10

3: Juice Box - $1.50""")

#user selection

y = input()

z = Items[int(y)]

#feedback to user

print("Your item is:", z)

a = Prices[int(y)]

#Round result to 2 decimal places

format\_cost = "{:.2f}".format(a)

print("The price of your item is: $"+format\_cost)

print("\n")

#ask user to enter payment

print("Please enter the amount you are paying in the following format: \"x.yy\" where \'x\' is dollars and \'yy\' is cents")

user\_input = input()

#convert user input to float

c = float(user\_input)

#calculate change for user

change = c-a

format\_change = "{:.2f}".format(change)

print("Your change is: $"+format\_change)

print("\n")

print("Thank you for using our vending machine.")

#2.2

x = "Homework.txt"

g = open(x, "w+")

g.write("This is a Homework, Activity 2, Question 3")

g = open(x, "r")

print(g.read())

g.close()

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#use this to ensure entry is an integer

while True:

try:

x=int(input("Please enter your first integer and press \"return\":"))

except ValueError:

print('\n'+"Error: this is not an integer - please try again."'\n')

continue

else:

print('n',x,'is your first integer')

break

print('\n')