CSC1015F Assignment 0: Introduction

Assignment Instructions

The first two questions in this assignment give you practice in typing in and editing programs. The third question is slightly more substantial and involves creating your first real program.

Question 1 [20 marks]

Copy the following program into a file called `secret.py` and test that it runs. The program must be identical, down to the last bit of punctuation, including the spaces at the beginning of some lines!

You may need to create directories as per the instructions in the orientation manual.

```
# program to guess a secret number
# hussein suleman
# 10 february 2011

secret_number = 42    # create secret number in program
guess = 0             # variable to store user's guess

# as long as we have not found the secret number
while guess != secret_number:
    # get a new guess from user
    guess = eval(input("? "))
    # check if guess is too low
    if guess < secret_number:
        print ("lo")
    # or too high
    elif guess > secret_number:
        print ("hi")

print ("Correct!")    # print message indicating success
```

This program is a classic from the early days of Computer Science. A user is expected to guess numbers until he or she converges to a secret internal number. At each incorrect guess, the system lets the user know if the number is too high or too low.

Sample Input/Output:

```
? 22
lo
? 55
hi
? 42
Correct!
```

Question 2 [40 marks]

Edit the program from Question 1 so that the messages printed are more user-friendly. You need to copy the secret.py file from the first question to a file called `secret_2.py`.

Change each of the messages printed to the screen to be the same as the example output below.

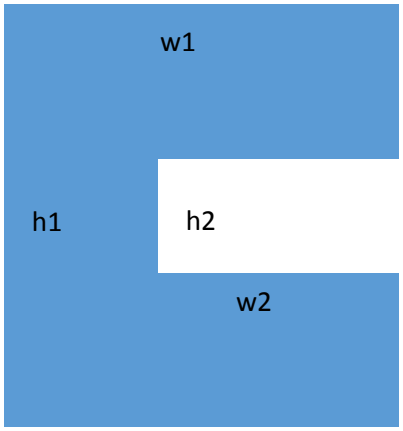
User-friendliness of programs was a concept that gained popularity in the 1980s, where programs were made easier for human beings to identify with. This has since grown into the current field of Usability Engineering, which you will learn about while studying Computer Science.

Sample Input/Output:

```
What is the secret number? 14
That is way too low. Please try again.
What is the secret number? 337
That is much too high. Please try again.
What is the secret number? 48
That is much too high. Please try again.
What is the secret number? 40
That is way too low. Please try again.
What is the secret number? 0
That is way too low. Please try again.
What is the secret number? 42
Congratulations, you have guessed the secret number!
```

Question 3 [40 marks]

Write a program to work out the total fence required to fence off the perimeter in the following diagram, as well as the total cost of the fence.



The user must input values for the widths, heights and price per metre in the order: `w1`, `h1`, `w2`, `h2`, price per metre. The program must then print out the total number of metres of fence and the associated cost.

Sample Input/Output:

```
Enter width 1: 4
Enter height 1: 5
```

```
Enter width 2: 1
Enter height 2: 2
Enter price per metre: 3
The total fence required = 20 metres
The total price = R 60
```

Save your program as `perimeter.py`.

Submission

Create and submit a Zip file called `ABCXYZ123.zip` (where ABCXYZ123 is YOUR student number) containing `secret.py`, `secret_2.py` and `perimeter.py`.