Programming Assignment 1

COMP 206 (T4 - 2020)

Login into your account using your first name, except for Nikhil A Pinto and Nikil J Misquith whose usernames are `nikilap` and `nikhiljm` respecteively.

```
ssh username@ec2-15-206-211-63.ap-south-1.compute.amazonaws.com
```

Execute the following instructions in order on the server.

1. Open the interpreter:

   ```
   [ubuntu ~]$ coin
   C0 interpreter (coin) 0.3.3 'Nickel' (r590, Mon Aug 29 12:04:13 UTC 2016)
   Type `#help' for help or `#quit' to exit.
   -->
   ```

2. Create an `int` named `tempC` and assign it value of `37`.

3. `tempC` stores temperature in celsius. Convert it into fahrenheit using the formula `(tempC × 9/5) + 32 = tempF`.

4. The formula above can be written in two different ways, which are equivalent mathematically.

   - (Way 1) `(tempC × 9)/5 + 32 = tempF`
   - (Way 2) `tempC × (9/5) + 32 = tempF`

5. Experiment with different values of `tempC` and answer the following questions:

   - Are the formulas the same in C_0 ? Why?
   - Which one is a better approximation of the actual value?
   - How much is the error produced by the better formula of the two above?

Writing Functions

We will now convert the formulae above into functions.

1. Change to the directory named coding : `cd coding\`
2. Using nano create a new file named a1.c0 : `nano a1.c0`

3. Using `nano`, create a function named `way1` it takes an `int` and converts it from celsius to fahrenheit using formula 1. Keep the following steps in mind.
    - Every expression has a type. What is the type of the expression `(tempC * 9)/5 + 32`? What should the type of the function `way1` be?
    - Using `//comments`, document the input and output of the function.
4. Similarly, create another function named `way2` in the same file `a1.c0`.

Following tasks is to be submitted before Wednesday 3:30 pm

Inverse

You wake up one fine morning. You look at the mirror but you do not know who you are. You see $108^{\circ}F$ flashing on a thermometer attached to your hand. You quickly log into your computer and find a file named `a1.c0` in the `coding` folder. A hazy memory appears about coverting numbers from celsius to fahrenheit. You were going to forget all about it, when your eyes get fixated on a message on the wall, "When temperature is more than $42^{\circ}C$ drink the purple vial to remember your name". To remember your name: Write a function named `toCelsius` which converts from fahrenheit to celsius and returns it. Write a comment describing the amount of error in the value returned by the function? Save the function in a file `t1.c0` and save it in the `submit` folder (`cp t1.c0 ~/submit/`).