Tutorial 3

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Agenda

1. Exercises in Pycharm
2. Intro to python (variables/expressions/IO)
3. Exercise of getting input/casting/math/print
4. Introduction to Assignment 1

1. Exercises in PyCharm (Optional)

PyCharm Edu has some interactive courses which give you exercises to practice programming concepts.

For opening the interactive learning course.

1. Click on `File` in the toolbar.
2. Goto `learn` > `Browse Crouses`.
3. Select a course from the list and click on `start` button on the right panel.

2. Intro to python

1. **Variables**
    - Variables allow us to store some data in the computers memory for later use.
    - Variables are created with a name and can be accessed using that name later in the code. e.g.:

```
my_variable = 123
my_variable = 456
```

    - Variables are destroyed when the program terminates
    - Variables can hold data of different types. eg:

```
# Integer
a = 5
# Floating Point
b = 3.12
# String
s = "1.234"
s_as_num = float(s)
```

2. **Expressions**

- An expression is a combination of values, variables, operators, operands, and calls to functions which evaluate to some result during execution.
- Expressions can appear at the right hand side of variable assignment. In that case the result of the expression is stored in the variable.
- Operators: +, -, *, /, ** (exponentiation), // (integer division), % (remainder)
- e.g.
  - `1+2`
  - `(2*a) + (3*b)`

3. **IO**
   - Input: Take input from the user using the in built input() function. e.g.:

     ```
     user_name = input("Enter your name")
     ```

   - Output: Print using the in built print() function. e.g.:

     ```
     print("Welcome to CPSC 217", "Good Morning")
     print("The user's name is", user_name)
     ```

4. **Casting**
   - In order to convert from one data type to another we use casting functions in python: **int(), float(), str()**, etc
   - When we call the input() function, it evalutes to a string data type. If we need to take in floating point input we will have to wrap the input() function inside a float() casting function. e.g.:

     ```
     number = float(input("Enter a number"))
     ```

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3. Exercise

Write a python program to

1. Get the current temperature in fahrenheit from the user
2. Convert it to celsius
3. Print the converted temperature

$$C = \frac{(F - 32) * 5}{9}$$

Solution

```
# 1. Get the current temperature in fahrenheit from the user
temp_f = float(input("Enter the temperature in fahrenheit: "))
# 2. Convert it to celsius
temp_c = ((temp_f - 32) * 5) / 9
# 3. Print the converted temperature
print("Temperature in celsius:", temp_c)
```