TUTORIAL #1 - INTRODUCTION TO NOTEBOOKS & PYTHON I/O

#1. NOTEBOOK INSTRUCTIONS

In this notebook, we cover:

1. How to use notebooks/Google Colab
2. An overview of the content - basic input & output in Python
3. A mini-task that you need to complete and upload

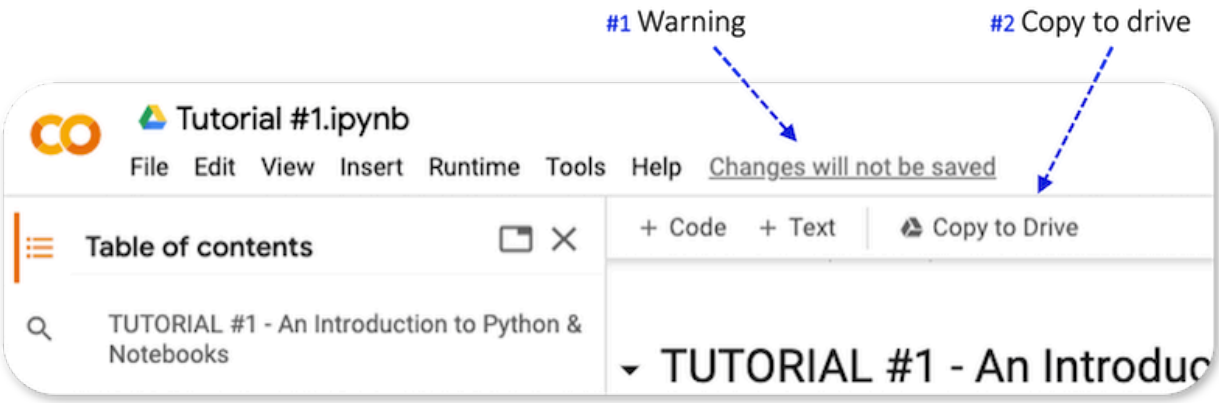
Note #1: Throughout the semester the tutorials will be relatively similar to this. The learning content provided in the Notebook will only be a short re-cap of the information covered in the lectures/workshop/LMS book and is there to give you a quick hands-on experience and reference.

Note #2: If you are confident with your abilities feel free to skip down to the activities in the 'YOUR TURN' section of the notebook.

#1.1 - Saving Notebooks

When you open Google Colab notebooks from the LMS, you are viewing the main authors version - which means that it is read-only and any changes you make wont be saved.

Therefore, when you open a notebook to work on please ensure that you firstly copy this file to your own drive by clicking the link at the top of this page. This will ensure that you always have a copy saved.



#1.2 - Running Code

To write and run Python code you need to work in a code section (as opposed to a text section).

A code section looks like the following:

```
Start coding or generate with AI.
```

When you hover your mouse over a code section, the 'play' button will appear - which allows you to run the block of code

```
# Program 1 - Simple output

print("Hello World!")
```

And when you click the play button the code will execute below

```
[1] # Program 1 - Simple output

    print("Hello World!")

    Hello World!
```

#2. PYTHON INPUT & OUTPUT

Here we will cover some examples of how we can show information on the screen (output) or take information in from the user (input)

#2.1 Simple Output

We can use the `print()` function to display the content between the circle braces `()` to the screen

Program: Output | Hello World!

The following 'Hello World!" program is a tradition in programming for being the first code you execute - so go ahead and click the play button!

Note: The first time you run code in a notebook there can be a delay as you connect to the server. Running code after this initial connection will be much faster.

```
print("Hello World!")
```

```
Hello World!
```

#2.2 Input

To get user input we use the `input()` function - which allows us to specify a prompt message, and then will return the user's input into the variable assigned.

`var_data = input("Here is the prompt message")`

Program: Simple input & output | Input name

An example of taking in a user's name (a String) can be seen in the following program

```
name = input("What's your name? ")
print("Hello", name, "!")
```

```
What's your name? joe
Hello joe !
```

Program: Three inputs | Purchasing Items

If we want to take numbers in, we need to *cast* the input take in as the desired data-type - either integer (`int()`) or float (`float()`).
The following progrma shows an example of how this can be done:

```
name = input("What item do you want to buy? ")
price = float(input("How much does one cost? "))
amount = int(input("How many do you want to buy? "))

total_price = price * amount

print("You can buy",amount,name,"at $",price,"each for $",total_price)
```

```
What item do you want to buy? apples
How much does one cost? 1
How many do you want to buy? 1
You can buy 1 apples at $ 1.0 each for $ 1.0
```

#3. YOUR TURN

PROGRAM #1 | BMI Calculator

Create a program that calculates a user's BMI. To do this, you will need to take in the users:

1. name
2. height (in meters; e.g., 1.8)
3. weight (in kg; e.g., 60)

and then insert the values into the equation: $BMI = \frac{weight}{height^2}$

(Note: You can square the height by either multiplying by itself, or using `height**2`)

The output is expected to be similar to:

`Hi Luke, your BMI is 23.0`

Your Answer

```
# Student Name:   Hector
# Student Number: 1037110

# INSERT YOUR ANSWER BELOW
name = input("What's your name? ")
height = float(input("What is your height? "))
weight = int(input("What is your weight? "))
bmi = weight / height**2
print("Hi",name, "your BMI is",bmi)
```

```
What's your name? Alex
What is your height? 1.8
What is your weight? 80
Hi Alex your BMI is 24.691358024691358
```

Submission

When you believe you have the program correctly working, please run the program and enter valid details for height and weight (you don't need to use your own if you do not want to) to get the output of BMI to show.

When you are ready to submit please go to `File` -> `Print` -> `Print PDF` and then upload and submit in the LMS.

Please save your file to GitHub via: `File` -> `Save a copy in GitHub`