

Practical

Please complete all the problems that should be done in Jupyter Notebook in only one Jupyter Notebook called **Practical1.ipynb**, specifying the problem number at the top of each problem.

Problem 1 (Github)

- 1) Create a Github account
- 2) Create an **Intro to Python** repository in your account
- 3) Clone the repository in your computer
- 4) Add a **week1** folder to the repository, the folder should contain **test.txt** file with the following content: "some text". Update your Github repository to contain these files and use "First Update" as a commit text for your commit.

Problem 2 (Variables)

Complete this problem in the **Practical1.ipynb** Jupyter notebook.

- 1) Create a variable **course** of type String and assign it the value **"Intro to Python"**.
- 2) Create a variable **student** of type String and assign it your name and last name as a value **"Your_name your_last_name"**.
- 3) Create a variable **nickname** of type String and assign it the value **"Your_prefered nickname"** (e.g. **"Superwoman/Superman"** :D)
- 4) Create a variable **grade** of type int and assign it any value **1-100**.
- 5) Create a boolean variable **python_expert** and assign it **True** or **False**. (whichever you prefer)
- 6) Print **variable_name: variable** value pairs on separate lines.

Your output should be similar to this:

```
course: Python
student: Harry Potter
nickname: Chocolate expert
grade: 100
python_expert: True
```

Problem 3 (Variables)

Complete **Problem 2** in a **Problem2.py** file instead of Jupyter Notebook and run it from the terminal.

Problem 4 (Operators)

Complete this problem in the **Practical1.ipynb** Jupyter notebook.

We are given a right-angled triangle ABC. $AB = 3$, $AC = 4$, find the length of the side BC, which is the hypotenuse of the triangle. ($AB^2 + AC^2 = BC^2$)

- 1) Create variables **AB** and **AC** and assign values 3 and 4 respectively.
- 2) Create a variable **BC** and assign it an operation to find BC.
- 3) Print:

The hypotenuse of the triangle ABC = the_value_that_you_got

Problem 5 (Operators)

Complete **Problem 4** in a **Problem4.py** file instead of Jupyter Notebook and run it from the terminal.

Problem 6

Add the following files to a separate folder in your Github **Intro to Python** repository:
Practical1.ipynb; Problem2py; Problem4.py.

Homework

Please complete all the problems that should be done in Jupyter Notebook in only one Jupyter Notebook called **Homework1.ipynb**, specifying the problem number at the top of each problem.

Problem 1 (Variables)

Complete this problem in the **Homework1.ipynb** Jupyter notebook.

- 1) Create a variable **project** of type String and assign it the value **"cake"**.
- 2) Create a variable **difficulty** of type int and assign it any value **1-5**.
- 3) Create a variable **ingredients** and assign it the value **["flour", "butter", "sugar", "eggs", "cocoa powder", "baking powder"]**
- 4) Check if the list **ingredients** contains **"apples"** and print the result
- 5) Check if the list **ingredients** contains **"butter"** and print the result
- 6) Check if the list **ingredients** contains **either "eggs" or "margarine"** and print the result
- 7) Check if the list **ingredients** contains **both "eggs" and "margarine"** and print the result
- 8) Now create separate variables **flour, butter, sugar, eggs, cocoa_powder** and **baking_powder** and assign the values **175, 175, 100g, 2, 1ts, 0.5** respectively. (e.g. flour = 175, butter = 175 etc.)
- 9) Print the names of the ingredients and their values on separate lines in the following format:
Apples - 100g
Grapes - 200g
etc.

Problem 2 (Variables)

Complete **Problem 1** in a **Problem1.py** file instead of Jupyter Notebook and run it from the terminal.

Problem 3 (Operators)

Complete this problem in the **Homework1.ipynb** Jupyter notebook.

Calculate the following expressions in Python, where a = 15, b = 8, c = 2:

$$5a^2 - ab + (a\%2) - \frac{a}{5}$$

$$b^3 + 3ab - 10c$$

Problem 4 (Operators)

Complete this problem in the **Homework1.ipynb** Jupyter notebook.

Get a number as a user input, using the `input()` function, and check if the number is even or odd.

Add the following files to a separate folder in your Github **Intro to Python** repository:
Homework1.ipynb; **Problem1py**.