Assignment: Introduction to Python Data Types

Section 1: Number

1. Declare two integer variables, ***a*** and ***b*****.** Find:
    - Sum of a and b
    - Difference between a and b
    - Product of a and b
    - Quotient when a is divided by b (use floor division)
    - Remainder when a is divided by b
    - raised to the power of b
2. Declare a float, x. Convert it to a string and display its type.

Section 2: Strings (str)

3. Declare a string **full_name**. Perform the following:
    - Extract the first character.
    - Extract the last character.
    - Extract first name and last name.
    - Get the length of **full_name**.
4. Concatenate first name and last name with a space in between.

Section 3: Boolean (bool) & None

6. Declare x = True and y = False. Perform the following:
    - Find x AND y.
    - Find x OR y.
    - Find NOT x.
7. Assign a variable z = None. Print its type.

Section 4: List (list)

8. Declare a list of numbers. Perform the following:
    - Retrieve the first element.
    - Retrieves the last element.
    - Extract a sublist.
    - Append 100 to the list.
    - Remove 2nd element from the list.
    - Add 101 at 1st index

Section 5: Tuple (tuple)

10. Declare a tuple. Perform the following:
    - Retrieve the third element.
    - Extract a sub-tuple
    - Find the length of tup.

Section 6: Set (set)

Declare two sets:

11.
    - Find the union of set1 and set2.
    - Find the intersection of set1 and set2.
    - Add 7 to set1.
    - Remove 2 from set1.

Section 7: Range (range)

12. Create a range object that starts at 5 and ends at 20, with a step of 3. Convert it to a list and print it.

Section 8: Dictionary (dict)

Declare a dictionary that holds the student data:

    - Retrieve the value of a key.
    - Add a new key "grade" with the value "A".
    - Delete the key "age".
    - Update "course" to "Mathematics".

Submission Guidelines:

- Write your answers in a Jupyter Notebook.
- Add a Cover page on it using Markdown
- Describe each section before writing code. For example, in the number section, write about number data types
- Convert the Notebook to PDF and Upload it to GAP