Homework Assignment: Exploring Python Variables and Data Types

Objective: The main objective of this assignment is to introduce students to the concept of variables and explore different data types in Python, including integers, strings, floats, and booleans. Additionally, students will become familiar with relevant programming vocabulary.

Problem 1: Understanding Variables and Data Types

1. Write a Python script that declares variables for the following information:
   - Your age (an integer)
   - Your full name (a string)
   - The temperature outside (a float)
   - Whether it's sunny or not (a boolean)

2. Use the `print()` function to display the values of these variables in a formatted sentence. For example:
   - "My age is ____."
   - "My name is ____."
   - "The temperature outside is ____ degrees."
   - "It is sunny: True/False."

3. In comments, explain the purpose of each variable and its corresponding data type.

Problem 2: Exploring Data Type Conversions

4. Create a Python script that prompts the user to enter their age using the `input()` function. Convert the input to an integer and store it in a variable.

5. Ask the user to enter a temperature in Celsius. Convert the input to a float and store it in another variable.

6. Use the `print()` function to display the user's age and the converted temperature in a formatted sentence. For example:
   - "You are ____ years old."
   - "The temperature in Celsius is ____ degrees."

Vocabulary:

1. Variable: A named storage location in a program where you can store data for later use.

2. Data Type: Specifies the type of data that a variable can store. Common data types include integers, strings, floats, and booleans.

3. Integer: A data type representing whole numbers without decimal points in Python.

4. String: A data type representing a sequence of characters (text) in Python.

5. Float: A data type representing numbers with decimal points in Python.

6. Boolean: A data type representing the binary values True or False.

7. Data Type Conversion: The process of converting a value from one data type to another, such as converting a string to an integer.