Understanding Variables

Variables are like containers that store information in a program. They allow programmers to keep track of data, reuse it, and perform operations on it. Think of a variable as a **labelled box** where you can put something (like a number, text, or result of a calculation) and later use it again by referring to its name.

■ Why Do We Need Variables?

Without variables, we would have to repeatedly write values every time we need them, which is inefficient. Variables make programs shorter, cleaner, and easier to understand.

■ Example

Imagine you are calculating the area of a rectangle. Instead of writing numbers again and again, you can store them in variables:

Without Variables	With Variables
Area = 5 × 10	length = 5 width = 10 area = length × width

■ Types of Variables

Variables can hold different types of data: - **Integer** (whole numbers): 10, -5, 1000 - **Float** (decimal numbers): 3.14, -0.5, 2.7 - **String** (text): "Hello", "Python" - **Boolean** (True/False values)

■ Rules for Naming Variables

1. Variable names must start with a letter or underscore (_). 2. They cannot start with a number. 3. They can only contain letters, numbers, and underscores. 4. Variable names are case-sensitive (e.g., "Age" and "age" are different).

■ Real-Life Analogy

Imagine a **school locker**: - The locker itself is the variable. - The items inside (books, pens, etc.) are the data (values). - The locker number is the variable name that helps you find it quickly.