Lesson 2 - Hello World and Variables

What are Variables?

Data is used to perform tasks. Numbers, Words, Dates, and other kinds of data. This data is stored in a variable. A variable reserves space in memory for storing this data. We call this a variable because we can change what is stored in that space while we run the program.

A variable must be declared with a name and a data type. The name of the variable is called an identifier, and it can contain letters, numbers, underscore (_), however it can only start with a letter or an underscore, not a number. It cannot contain special characters. Identifiers should be descriptive.

The datatype of a variable defines what kind of data the variable can store, how much memory space to reserve for it and what functions and operations we can do using that variable.

Data Group	Data Type	Memory Used	Sample
INTEGER	int	4 Bytes	int myAge = 21;
	uint	4 Bytes	uint myAge = 21;
	long	8 Bytes	long myAge = 21L;
	short	2 Bytes	short myAge = 21;
FLOATING POINT	float	4 Bytes	float myWeight = 75.5F;
	double	8 Bytes	double myWeight = 75.5;
CHARACTER	char	2 Bytes	char firstAlphabet = 'a';
BOOLEAN	bool	1 bit	bool isOnline = true;
STRING	string	2 Bytes / char	string fullName = "Talha Salman";

Naming Conventions

PascalCase
camelCase
snake_case

Hello World!

For writing our first program, we will create a Console Application in Visual Studio. Components of a basic program:

- Import statements
- Namespace declaration
- Class definition
- Main method

> Main method: `static void Main(string[] args) {}`

Output to the Console

Your application will probably require some input and will give you some output. You can use Console.Write and Console.WriteLine methods to output information from the application to the console.

Taking User Input

You can use `Console.ReadLine()` to read and assign input to a string. To convert it another type, use `Convert.ToInt32`, `Convert.ToDouble()`, and other similar methods. In case the conversion fails, you will get an error.

Assignment 1

Create a C# Console Application that will take your first name, last name, date of birth, and then output a welcome message and then display you user information.

Sample output: