Tutorial 3 - Variables & Comments in C++

Key Concepts:

1. **Variables in C++**:
   - **Definition**: Variables are containers used to store data.
   - Analogy: Like bottles store water or boxes store sugar.
   - **Data Types**:
     - `int` : Stores integers (e.g., 6).
     - `float` : Stores decimal numbers.
     - `char` : Stores single characters.
     - More types will be covered later.
   - **Example**: `int sum = 6;`
     - `sum` is a variable of type `int` and stores the value `6` .

2. **Comments in C++**:
   - **Definition**: Human-readable text in the code, ignored by the compiler.
   - **Types**:
     i. **Single-Line Comment**: Starts with `//` .
        - Example: `// This is a comment.`
     ii. **Multi-Line Comment**: Starts with `/*` and ends with `*/` .
        - Example:

```
1  /* This is
2     a multi-line
3     comment */
4
```

Improved Code:

```
1   #include <iostream>
2   using namespace std;
3   // This is a single-line comment: The program displays "Hello World" and the value of sum.
4   /* This is a multi-line comment:
5      This program was created as part of C++ Tutorials.
6      It demonstrates variables and comments in C++. */
7   int main() {
8       int sum = 6; // Variable declaration and initialization
9       cout << "Hello World " << sum; // Output the string and the value of 'sum'
10      return 0; // Successful program termination
11  }
12
```

Short Notes for Notebook:

Variables:

1. **Definition**: Containers to store data (e.g., integers, floats).
2. **Syntax**:
   - `int varName = value;`
     Example: `int sum = 6;`
3. **Purpose**: Store and use data in the program.

Comments:

1. **Purpose**: Explain code; ignored by the compiler.
2. **Types**:
   - **Single-Line**: Use `//`. Example: `// This is a single-line comment.`
   - **Multi-Line**: Use `/* */`. Example:

```
1   /* Multi-line
2      comment example */
```