

Tutorial 1 - Introduction to C++: Installing VS Code, g++, and Writing First Program

Key Topics Covered

1. **What is programming and why C++?**
 2. **Installation of Visual Studio Code.**
 3. **Installation of g++ compiler.**
 4. **Writing and executing the first program.**
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What is Programming and Why C++?

1. **Programming:**
 - Giving instructions to a computer to solve real-world problems.
 - Programming languages bridge the gap between human instructions and machine understanding.
 2. **Why Learn C++?**
 - Developed by **Bjarne Stroustrup**, an enhanced version of C.
 - Features:
 - **Close to hardware:** Easier to give system-level instructions.
 - **Object-Oriented:** Makes it ideal for real-world applications.
 - Still relevant despite being an 80s language due to its versatility and efficiency.
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Installing Visual Studio Code

1. **What is Visual Studio Code?**
 - A free, lightweight, and feature-rich source code editor maintained by Microsoft.
 2. **Installation Steps:**
 - Visit the [VS Code Official Website](#).
 - Download the installer based on your operating system (e.g., Windows).
 - Install it like any other application.
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Installing g++ Compiler

1. **What is g++?**
 - A compiler that converts C++ source code into machine-executable files.
 2. **Installation Steps:**
 - a. Search "**MinGW install**" on Google.
 - b. Download MinGW and start the installation.
 - c. During installation, select "bin" packages and click **Apply Changes** to install.
 - d. Add MinGW's `bin` directory to the **Path Environment Variable**:
 - Go to **System Properties > Advanced System Settings > Environment Variables**.
 - Add the path (e.g., `C:\MinGW\bin`) to the **Path** variable.
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Writing and Executing the First Program

1. Steps:

- Create a folder and open it with VS Code (right-click > "Open with Code").
- Install **C/C++ Extension** from the Extensions Marketplace for code suggestions.
- Install **Code Runner Extension** to execute programs easily.

2. Create a New File:

- Go to File > New File. Name it `tutorial1.cpp`.

3. Write Code:

```
1 #include <iostream>
2 int main() {
3     std::cout << "Hello World";
4     return 0;
5 }
6
```

4. Run the Code:

- Click the "Run" button or use the Code Runner extension.

Short Notes for Notebook

1. What is Programming and Why C++?

- **Programming**: Giving instructions to a computer to solve problems.
- **Why C++?**:
 - **Efficient** and close to hardware.
 - **Object-Oriented**, ideal for real-world systems.
 - Still widely used despite being developed in the 1980s.

Installing VS Code

• Steps:

- a. Download from [VS Code Official Website](#).
- b. Install like any other application.

Installing g++ Compiler

1. **Search** "MinGW install" and download MinGW.
2. **Install** required packages from the installer.
3. Add the MinGW `bin` folder path to the **Environment Variables**.

First Program:

1. Create a new file in **VS Code** named `tutorial1.cpp`.
2. Write the code:

```
1 #include <iostream>
2 int main() {
3     std::cout << "Hello World";
4     return 0;
5 }
6
```

3. Run it using the **Code Runner extension** or terminal.
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Output

```
1 Hello World
```