Prompt Kickstart: Building a Beginner's Toolkit for C++ (CLI Fundamentals)

1. Title & Objective

Technology Chosen: C++ (Programming Language)

Why C++?

C++ is a powerful, high-performance programming language widely used in systems programming, game development, embedded systems, and performance-critical applications. Learning C++ provides a strong foundation in memory management, compilation, and low-level program execution.

End Goal:

To build and run a simple interactive CLI greeting tool on Linux (Ubuntu) using C++, demonstrating how to write, compile, and execute a basic program from the terminal.

2. Quick Summary of the Technology

What is C++?

C++ is a general-purpose, compiled programming language that supports procedural, object-oriented, and generic programming.

Where is it used?

- Operating systems and system utilities
- Game engines (e.g., Unreal Engine)
- Embedded systems
- High-performance applications

Real-World Example:

Parts of the Linux operating system and popular game engines are written in C++ due to its efficiency and control over system resources.

3. System Requirements

- Operating System: Linux (Ubuntu)
- Compiler: g++ (GNU C++ Compiler)

- Editor: VS Code / Nano / Vim (any text editor)
- Terminal: Bash or compatible shell

4. Installation & Setup Instructions

Step 1: Update package list

```
sudo apt update
```

Step 2: Install g++ compiler

```
sudo apt install g++
```

Step 3: Verify installation

```
g++ --version
```

Expected output: g++ version information displayed in the terminal.

5. Minimal Working Example

Description:

The program prompts the user for their name and prints a personalized greeting message in the terminal.

Source Code (main.cpp):

```
#include <iostream>
#include <string>

int main() {
    std::string name;

    // Prompt user for input
    std::cout << "Enter your name: ";
    std::getline(std::cin, name);

    // Display greeting
    std::cout << "Hello, " << name << "! Welcome to C++ CLI programming." << std::endl;

    return 0;
```

}

Compile the program:
g++ main.cpp -o greeting

Run the program:
./greeting

Expected Output:
Enter your name: Ian
Hello, Ian! Welcome to C++ CLI programming.

6. AI Prompt Journal
Prompt 1
Prompt Used:
"Explain how to write and compile a simple C++ program on Ubuntu for a beginner."

AI Response Summary:
The AI explained the structure of a basic C++ program, how the main() function works, and how to compile code using the g++ compiler.

Reflection:
The AI was helpful in scaffolding the initial setup and clarifying the compilation process, which reduced confusion for a first-time learner.

Prompt 2
Prompt Used:
"Create a beginner-friendly C++ CLI program that accepts user input and prints output."

AI Response Summary:
The AI generated a simple program using cin and cout and explained each part of the code.

Reflection:
This helped reinforce how input/output streams work in C++ and how to interact with users via the

terminal.

7. Common Issues & Fixes

Issue 1: g++: command not found

Cause: Compiler not installed.

Fix: sudo apt install g++

Issue 2: Permission denied when running program

Cause: Incorrect execution command.

Fix: Use: ./greeting

8. Peer Feedback (To Be Added)

- Peer Name:
- Feedback Summary:
- Improvements Suggested:

9. References

- C++ Official Documentation
- GNU g++ Manual
- Linux Command Line Basics Tutorials