# **📘 Structure of a C++ Program**

Every C++ program follows a **standard structure**:

## **🔹 1. Preprocessor Directives**

* Begin with #.
* Used to include libraries before compilation.

Example:  
  
 #include <iostream> // for input and output

#include <cmath> // for math functions

👉 Think of this as “**toolkit imports**” before writing your program.

## **🔹 2. Namespace Declaration**

* using namespace std; allows direct use of standard library objects (cout, cin) without prefixing std::.

Example:  
  
 using namespace std;

## **🔹 3. main() Function**

* Every C++ program **must have a main() function**.
* Execution starts from here.

Example:  
  
 int main() {

// code here

return 0;

}

👉 return 0; means program ran successfully.

## **🔹 4. Variable Declarations**

* Variables are defined inside main() or globally.

Example:  
  
 int age = 20;

float marks = 88.5;

## **🔹 5. Input and Output**

* Done using cin (input) and cout (output).

Example:  
  
 cout << "Enter your name: ";

cin >> name;

## **🔹 6. Statements & Logic**

* Actual code (calculations, conditions, loops).

Example:  
  
 if(age >= 18)

cout << "You are an adult.";

else

cout << "You are a minor.";

## **🔹 7. Functions (Optional in Small Programs)**

* Reusable blocks of code outside main().

Example:  
  
 int add(int a, int b) {

return a + b;

}

# 

# **📌 Example: Simple C++ Program**

#include <iostream> // 1. Preprocessor directive

using namespace std; // 2. Namespace

// 7. Function

int add(int x, int y) {

return x + y;

}

int main() { // 3. Main function

// 4. Variable declaration

int a, b;

// 5. Input

cout << "Enter two numbers: ";

cin >> a >> b;

// 6. Logic + Output

cout << "Sum = " << add(a, b);

return 0; // End of program

}

✅ **In simple words**

A C++ program is like writing an **essay**:

* **Header (Preprocessor)** → What tools you’re using.
* **Introduction (main function)** → Starting point.
* **Body (statements, logic)** → Actual work.
* **Conclusion (return 0)** → End of program.