

C++ PRIMER BOOK SUMMARY

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Chapter 1

Getting started

When designing any problem implementation, there are subproblems we think about:

1. Define variables.
2. Do input and output.
3. Use a data structure to hold the data.
4. Test whether two records has the same ISBN.
5. Contain a loop that will process every record in the transaction file.

The first simple C++ program:

```
1  #include<bits/stdc++.h>
2  using namespace std;
3
4  int main()
5  {
6      return 0;
7  }
8
```

This is the simplest C++ program where:

1st line \Rightarrow is a library that includes most of built-in functions that be used regularly \Rightarrow It tells the compiler that we want to use the iostream library, which is called a **header**.

4th line \Rightarrow is a function that tells the operating system to start the program running/ execution.

6th line \Rightarrow is the only statement in the program which is considered as the termination of the program execution. This statement return 0 to the operating systems in case of no errors. The value returned must be compatible with the return type. For example, here it returns 0 which is an int.

\rightarrow The value returned from the main is a **status indicator**. 0 indicates success. Ordinarily, a nonzero return indicates what kind of error occurred,

Compiling and Executing program

Many PC-based compilers are run from an integrated development environment (IDE) that bundles the compiler with build and analysis tools.

The program file is called the source file which ends with a suffix (such as `cpp`) which tells the operating system that this file is a `c++` file [for example: `Firstprogram.cpp`]

After compiling the program, the compiler generates an executable file which is `file.exe` [such as: `Firstprogram.exe`]

Input/Output (IO)

- There is a library called `iostream` that provide IO and other facilities.
 - `IOStream` has two parts input and output streams. Streams mean a sequence of characters read from or written to IO device.
 - The stream is intended to suggest that the characters read are generated or consumed over time.
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- To handle input we use an object of type `istream` named `cin`, this object is known as standard input.
 - To handle output, we use an object of type `ostream` named `cout`, this object is known as standard output.

Input/Output (IO)

- The ostream supports two other objects which are `cerr` and `clog`.
- `Cerr` \Rightarrow refer to the standard error, for warning and error messages.
- `Clog` \Rightarrow for general information about the execution of the program.
- The system associates each of these object with the window of the running program. So, when we read using `cin`, the system reads inputs from the window of the current program in which the program is executing.

String literal \Rightarrow sequence of characters enclosed in double quotation marks.

Endl \Rightarrow called a manipulator which helps flushing the buffer to ensure that all the output has been printed. Thus, it helps in debugging.