

5 INTRODUCTION TO C++

C++ is a high-performance programming language that is widely used for building software applications. It was developed by Bjarne Stroustrup in 1979 as an extension of the C programming language. C++ is an object-oriented language, which means that it provides features for organizing and modularizing code in the form of “objects.” C++ is also a compiled language, which means that the source code is converted into machine code by a compiler before it can be run on a computer.

Here are some basic concepts in C++:

Variables: A variable is a named location in memory that stores a value. In C++, you must specify the data type of a variable when you declare it. For example:

```
1  int x;           // declares a variable x of type int
2  float y;         // declares a variable y of type float
3  char c;          // declares a variable c of type char
```

Operators: Operators are special symbols that perform specific operations on one or more operands. C++ has a variety of operators, including arithmetic operators (e.g., +, -, *, /), comparison operators (e.g., ==, !=, >, <), and logical operators (e.g., &&, ||, !).

Control structures: Control structures are statements that control the flow of execution in a program. C++ has several types of control structures, including if statements, for loops, and while loops.

Functions: A function is a block of code that performs a specific task. C++ has a large standard library of functions, and you can also define your own functions. A function definition has the following syntax:

```
1  return_type function_name(parameter list) {
2      // function body
3  }
```

Object-oriented programming: As I mentioned earlier, C++ is an object-oriented language, which means that it provides features for organizing and modularizing code in the form of “objects.” An object is a self-contained unit of code that represents a real-world entity, such as a person, a car, or a bank account. Objects have attributes (data) and behaviors (functions). In C++, you can define classes to create objects.