Chapter 8

GETTING STARTED WITH C

8.1 OVERVIEW

A computer is a device that follows the instructions given to it. A well-defined set of instructions given to the computer is called a *computer program.* A computer program is written in a programming language. Since the emergence of computer, many programming languages have been developed but the effect of C on the computer world is everlasting. This book will remain incomplete without describing the history of the C. That's why before going into detail; let us have an overview of the history of C.

History of C

The **C** programming language was developed by Dennis Ritchie in 1972 at AT & T Bell Laboratories. It was derived from an earlier programming language named *B*. The B was developed by Ken Thompson in 1969-70 and provided the basis for the development of C. The C was originally designed to write system programs under UNIX® operating system. But over the years its power and flexibility have made it popular in industry for a vide range of applications. The earlier version of C was known as K&R (Kernighan and Ritchie) C. As the language further developed, the ANSI (American National Standards Institute) developed a standard version of the language known as ANSI C.

8.2 DEVELOPING A C PROGRAM (A STEPWISE APPROACH)

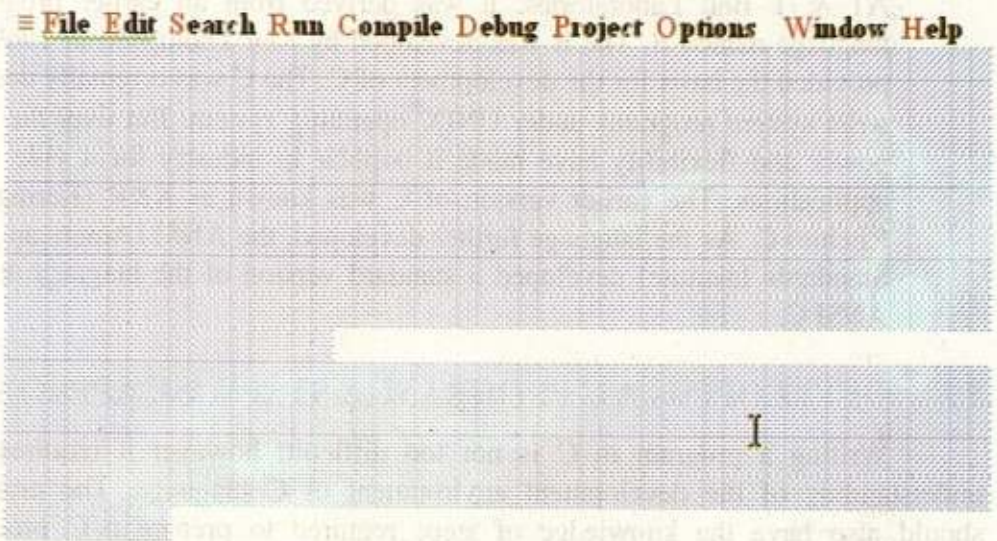
Writing a program in C is not too difficult; however it requires a good understanding of the development environment of C language. The programmer should also have the knowledge of steps required to prepare a C program for execution.

As a first step, install a compiler for the C language on the computer so that the source program can be compiled and executed. Many compilers for C language are available from number of vendors. Any of them can be used, but we recommend using Turbo C++.

8.2.1 Turbo C++ (A Compiler for the C language)

Turbo C++ is a Borland International's implementation of a compiler for C language. In addition to a compiler, TC provides a complete IDE (**I**ntegrated **D**evelopment **E**nvironment) to create, edit and save programs is called TC editor (Fig. 8.1). It also provides a powerful debugger that helps in detecting and removing errors in the program.

Once the TC (Turbo C) has been installed, it is very easy to write C programs in its editor. The IDE can be invoked by typing **tc** on the DOS prompt or by double clicking the TC shortcut. The menu bar of the IDE contains menus to create, edit, compile, execute (Run) and debug a C program. A menu can be opened by either clicking the mouse on it or pressing the first highlighted character of the name of the menu in conjunction with the *Alt* key. For example to open *File* menu, press *Alt+F* (hold down Alt key and then press F key).



8.2.2 Creating and Editing a C Program

To write the first C program, open the *edit* window of the Turbo C++ IDE. This can be done by selecting *File|New* option from the menu bar. A window

appears on the screen (Fig. 8.2). This window has a double-lined border, and a cursor inside the window represents the starting point to write a program.

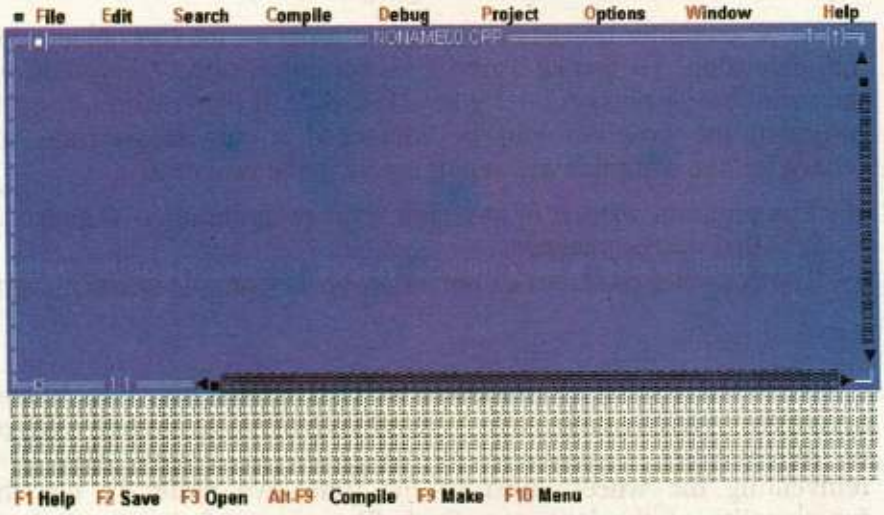


Fig. 8.2 Create, Edit and Save a Program

We can expand this window by clicking the arrow in the upper right corner, or by selecting *Window\Zoom* from the menu bar. We can also navigate through the program by using the vertical and horizontal scroll bars or by using arrow keys.

8.2.3 Saving a C Program

After writing the C program, we should save it on the disk. This can be done by selecting *File\Save* command from the menu bar or pressing the *F2* key. When we select *File\Save*, a dialogue box will appear. At the top of this dialogue box, there is a text box with caption *Save File As*. Type the name of the file in it and press the Enter key. The default path for saving the file is BIN folder. The TC assigns a default name NONAME00.cpp to the file (Fig. 8.2). To save the file in a specific folder / location with a different file name, one has to specify the absolute path.

Note:

Turbo C++ is a compiler for C++ programming language – an extension to C. Therefore it can compile programs of both C and C++. When we save a program with .cpp extension, it can use many additional features that are not supported in ANSI C. *As this course is designed just for C, not C++, therefore it is suggested to always save the programs with .c extension.* When a program is saved with .c extension, the Turbo C++ compiler restricts it to only use standard features of C.

8.2.4 Compiling a C Program

The computer does not understand source program because instructions in the program are meaningless to the microprocessor, as it