

# Chapter 1: Console Thyself

## Overview

In that succinct and (perhaps consequently) much-beloved classic tutorial *The C Programming Language*, authors Brian Kernighan and Dennis Ritchie begin by presenting what has come to be known as the hello-world program:<sup>[1]</sup>

```
#include <stdio.h>

main()
{
    printf("hello, world\n");
}
```

While such a program hardly exploits the power of today's computers, it's certainly useful on the practical level because it gives the eager student programmer the opportunity to make sure that the compiler and all its associated files are correctly installed. The hello-world program also reveals the overhead necessary in a particular programming language: hello-world programs can be a single line in some languages but quite scary in others. The hello-world program is also helpful to the author of a programming book because it provides an initial focal point to begin the tutorial.

As all C programmers know, the entry point to a C program is a function named *main*, the *printf* function displays formatted text, and *stdio.h* is a header file that includes definitions of *printf* and other standard C library functions. The angle brackets, parentheses, and curly braces are used to enclose information or to group collections of language statements.

The traditional hello-world program is designed to be run in a programming environment that supports a quaint and old-fashioned type of text-only computer interface known as a *command line*, or *console*. This type of interface originated on a machine called the *teletypewriter*, which was itself based on an early word processing device known as the *typewriter*. As a user types on the teletypewriter keyboard, the device prints the characters on a roll of paper and sends them to a remote computer. The computer responds with characters of its own, which the teletypewriter receives and also displays on the paper. In this input/output model, there's no concept of positioning text on the page. That's why the *printf* function simply displays the text wherever the teletypewriter print head (or the cursor of a video-based command line) happens to be at the time.

A command-line interface exists in Microsoft Windows in the form of an application window called MS-DOS Prompt or Command Prompt. While the command-line interface has been largely obsoleted by graphical interfaces, command-line programs are often simpler than programs written for graphical environments, so they remain a good place to begin learning a new programming language.

<sup>[1]</sup> Brian W. Kernighan and Dennis M. Ritchie, *The C Programming Language*, 2nd ed. (Englewood Cliffs, NJ: Prentice Hall, 1988). The hello-world program in the first edition (1978) was the same but without the *#include* statement.

## The C# Version

In this book, I'll be using a programming language called C# (as in C-sharp, like the key of Beethoven's *Moonlight Sonata*). Designed by Anders Hejlsberg at Microsoft, C# is a modern object-oriented programming language that incorporates elements from C, C++, Java, Pascal, and even BASIC. This chapter presents a whirlwind (but necessarily incomplete) tour of the language.

C# source code files have the filename extension *.cs* ("c sharp"). My first C# version of the hello-world program is the file *ConsoleHelloWorld.cs*.

```
ConsoleHelloWorld.cs

//-----
// ConsoleHelloWorld.cs © 2001 by Charles Petzold
//-----
```