Six quick reference guides — one great price!

C

ALL-IN-ONE DESK REFERENCE FOR DUMMIES®

6 BOOKS IN 1

- Designing and Developing a Program
- Writing Source Code
- Compiling Your Code
- Creating the Executable Program
- Debugging
- Deployment

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About the Author

Dan Gookin has been writing about technology for 20 years. He has contributed articles to numerous high-tech magazines and written more than 90 books about personal computing technology, many of them accurate.

He combines his love of writing with his interest in technology to create books that are informative and entertaining, but not boring. Having sold more than 14 million titles translated into more than 30 languages, Dan can attest that his method of crafting computer tomes does seem to work.

Perhaps Dan's most famous title is the original *DOS For Dummies,* published in 1991. It became the world's fastest-selling computer book, at one time moving more copies per week than the *New York Times* number-one best seller (although, because it's a reference book, it could not be listed on the *NYT* best seller list). That book spawned the entire line of *For Dummies* books, which remains a publishing phenomenon to this day.

Dan's most recent titles include *PCs For Dummies,* 9th Edition; *Buying a Computer For Dummies,* 2005 Edition; *Troubleshooting Your PC For Dummies; Dan Gookin's Naked Windows XP;* and *Dan Gookin's Naked Office.* He publishes a free weekly computer newsletter, "Weekly Wambooli Salad," and also maintains the vast and helpful Web site www.wambooli.com.

Dan holds a degree in communications and visual arts from the University of California, San Diego. He lives in the Pacific Northwest, where he enjoys spending time with his four boys in the gentle woods of Idaho.

Publisher's Acknowledgments

We're proud of this book; please send us your comments through our online registration form located at www.dummies.com/register/.

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Contents

Introduction

C ongratulations on your purchase of *C All-in-One Desk Reference For Dummies* — a tome that not only sits fat and looks impressive on your computer bookshelf, but also teaches you a heck of a lot about the C programming language.

Because few people read book introductions, I have decided to fill the following six pages with filthy limericks, most of which are patronizing to immigrants and women.

Seriously, now that I have your attention, I thought that I would ramble on briefly about this book and what you can expect from its contents.

This book provides a solid overview of the C programming language, from the basics on up through advanced concepts and topics that third-year university students would pay real money to have someone else suffer through.

Despite the *For Dummies* text on the cover, this book takes a swifter approach to learning the C language than my book *C For Dummies,* 2nd Edition. This massive work assumes, for example, that you may have a wee bit of programming experience or are just more eager to find out more about the C language or perhaps need that extra training in those advanced topics that are skimpily covered in other programming books. If that's you, you

have found your book! If that’s not you, you should still buy this book because three of my kids need braces badly.

Above all, the bottom line in this book is about having fun. I take things easy, introducing the C language one tidbit at a time. Rare is the long, involved program in this book. Short, punchy (and often silly) programs make finding out about C quick and easy. After all, you need only a few lines of text to see how a function or concept in C works. And, everything is peppered with a modicum of irreverence and a dash of humor. Or, could it be the other way around? Anyway, you get the idea.

Why Bother with C When C++ Is Obviously Blah-Blah-Blah?

The C programming language is like the Latin of the computer world. As with Latin, if you know C, learning other programming languages is a snap. Each of the following programming languages (and many more) has its base in C:

- C++
- Perl
- Java
- Python

When you know C, learning any of these languages is simple and painless.

Unlike Latin, however, the C language is far from dead. As one of the older computer languages, C has a rich history and a full library of routines, programs, documentation, help, and other whatnot — a rich treasure of resources for you to draw on. Rare is the program that cannot be written using simple C programming. From graphics to games and from networking to building new operating systems, you have no limitation on what you can do in C.

Most of my C language students use my books as a foundation for leaping into C++ programming — mostly because many C++ books lack the gentle hand-holding approach that my books have. In fact, if you read this book from cover to cover, I promise you that any C++ (or other programming language) book will be that much easier for you to grasp. It may not be written with my dynamic wit, but the concepts will be easier to understand.

The bottom line, of course, is *programming*. Becoming a programmer means that you have ultimate control over your computer. *You* are finally in charge, telling the dang thing exactly what to do with itself. And, like the fast idiot it is, the computer dutifully obeys your every whim.

Plus, programming gives you instant feedback. Some folks find that benefit so addicting that they end up growing beards; wearing sandals and Hawaiian shirts;

consuming coffee, stale doughnuts and Doritos; and never leaving the confines of their house. And that's just the women!

About This Here Dummies Approach

Don't you hate buying a programming book and having to read through 50 pages of this and that, background information, trivia, why the author thinks he's important, and all that other crap, only to discover that the first program in the book is five pages long and really (honestly) doesn't teach you one single thing about programming?

Yeah! I hate that too!

You know what else I hate? Those burr stickers that get into your socks and you can't pull them out because they poke into your fingertips. And, how about stockbrokers?

Unlike other programming books, this one starts out right away with something to do, something to type, something to learn. You want to get started right away. I can't blame you. Right away, this book has you doing things — right there on Page 11, you're typing something and finding out how to program.

Also unlike other books, this book keeps programs small and tidy. The best way to learn about something is one

piece at a time. Baby steps! Therefore, you won't find me cramming several topics into one program or putting things into the demo programs that I don't discuss until "later."

Small program. Easy to type. Quick feedback. Instant response. That's the best way to figure out how to program. This book tells you how.

To keep you on your toes, I give you various exercises. Some chapters have many exercises, and some chapters have few or none. The idea is to see whether you can go off on your own and use your programming skills to solve a puzzle or come up with something new. Answers or suggested solutions are all offered in the back of this book — in Appendix C. I think.

How This Book Works

This book covers the C programming language, which is an activity that is, for the most part, independent of your computer's operating system. Therefore, this book covers both Windows and Unix computers.

Whether you have Linux (any flavor), FreeBSD (or any *BSD), Mac OS X, or any other flavor of Unix, I refer to it as Unix in this book.

Note that I do not cover Sun's Solaris here. That's because Sun has never sent me a free computer despite years of my never having asked for one.

The most important thing you need to do to work the examples in this book is *read Appendix A*. It covers the details on how you need to set up your computer for programming, selecting and using a text editor, and then fixing up the compiler.

Note that information on choosing a compiler is available on this book's companion Web page: `www.c-for-dummies.com`.

Generally speaking, stuff in this book that appears on the screen looks like this :

```
I am text on the screen. La-di-da.
```

This is how text appears in a program listing:

```
Remove soiled diaper.
```

```
Clean baby.
Apply clean diaper.
```

Line numbers aren’t specified or used in C. Your editor should have a line number command or let you jump to line numbers, however. (It depends on the editor.) That way, when I refer to line 36 in the text, for example, you can use your editor to find and view that specific line.

Because this book is only so wide, some lines in a program may *wrap*. They look like this:

```
This is an example of a very long line that
 was painfully split in two by this book’s c
 ruel typesetters.
```

When you see that, *don’t* type two lines. Just keep typing, and everything will fit on one line in your editor.

Elements of a program or source code may appear in a special `monospaced font`. I use it so that you understand that `a`, for example, is a part of the program and not a rogue article my editor ignored after imbibing too much wine.

If you need to press a certain key combination on your keyboard, it’s listed like this: Press Ctrl+C. Ctrl is the name of the control key on your keyboard. C is the C key. A + (plus sign) means to press both keys together. Note that Ctrl+C and Ctrl+Shift+C are two different key combinations.

Source code files are available from this book's companion Web site, `www.c-for-dummies.com`. Go there to download all the source code files at one time or individually. The files are organized by "books," just as this entire volume is organized into books.

Note that many programs are updated throughout this book. Although you will update the same source code, I keep each source code file separate. For example, the OZ.C series of source files starts with OZ.C in this book. But, in the source code file reference on the Web, you find OZ1.C for the first update, OZ2.C for the second, OZ3.C for the third, and so on. This file-naming scheme is used in Appendix C too.

Icons Used in This Book

Technical information you can merrily skip over like something brown and smoldering on the sidewalk.

Something you should remember to do, like check for lettuce on your teeth before that job interview.

Something you should remember not to do, like rip off a toenail with your teeth in court.

A healthy suggestion, like *get out and exercise!*

Final Thots

Noli nothis permittere te terere.

Learning C is a journey. Enjoy it! Discover new things. Try new ways of doing things. Give yourself a challenge. *Remember:* If you can imagine it happening on your computer screen, you can program it. It may not run as fast as you imagine, but it will work!

Above all, keep on trying! You can explore so many different pockets of programming, from graphics to operating systems to networking to games — the variety is endless.

Occasionally, in your quest for knowledge, you may meet some arrogant member of what I call the Programmer Priesthood. Its members are people who are knowledgeable, but unwilling to help — almost to the point of cruelty. If you find people like that, in real life or on the Internet, quickly pass them by and seek out someone else for help. Not everyone who holds the keys is a jerk.

For myself, I can offer you this book's companion Web page:

```
www.c-for-dummies.com
```

This Web page has more information about programming, some excellent books I recommend, plus bonus programs and materials from myself as well as feedback from other readers. Check it out when you have time.

I make myself available to answer questions via e-mail. I view this as part of my duty to you as a reader of my books. My e-mail address is

```
dan@c-for-dummies.com
```

I’m willing to help with some programming stuff, but I won’t write your programs for you, and I cannot help you with university assignments (especially stacks or binary trees) or C++ programming. But I am willing to return your message and say “Hello!”

Good luck with your C programming!