

A Multimedia Introduction to C++

by Glenn D. Blank

Preface

The goal of this book is to provide an introduction to computer programming, enough to give an adequate background for continuation to a second-semester course in computer science, without disenfranchising students lacking previous programming experience. Students will learn to program in C++, a modern programming language widely used for developing large software systems.

Because C++ (unlike other languages such as Pascal, BASIC or LOGO) was not intended as an instructional language, it can be rather daunting for beginners. That's why we created the multimedia that accompanies this text. The multimedia reviews the salient material of each chapter, then reinforces concepts with interactive exercises. The multimedia also provides a tool called LOOKOUT, a programming environment with an editor (a modified version of Micro-Emacs) and a C++ compiler (the DJGPP implementation of the Free Software Foundation's gxx compiler). LOOKOUT is so called because it will also "look out" for errors in your C++ programs, providing "error message help" to help beginners understand the compiler errors. The F4 function key runs a "preprocessor" that looks for programs in a subset of C++, in order to avoid some of the more obscure error messages produced by a full compiler. Whether you use the LOOKOUT preprocessor or press F5 to invoke the gxx compiler directly, pressing F6 will show you the context of your error message, and F7 will explain most common error messages. The multimedia also integrates many programs that LOOKOUT is ready to display, compile and execute to help you learn programming concepts, by observing and by doing. LOOKOUT also comes with a small library of software "classes" which will facilitate problem solving using simple graphical shapes, musical notes, external files, strings and arrays that catch "out of bounds" errors. The LOOKOUT environment automatically links these classes into any program that needs them. (The multimedia also includes instructions about how to link the LOOKOUT library using compilers supplied by other vendors.)

This book is intended as a supplement to *The Universal Computer: Introducing Computer Science with Multimedia* (hence the chapter and page numbers of this start as if they were at the end of that book, facilitating some cross-references), though it can also be used independently. (If there is enough interest, the next edition could indeed stand alone.) The multimedia for both books are included in the CDROM for *The Universal Computer*. Unlike the multimedia for *The Universal Computer*, this multimedia will only play from the CDROM, not from the web.

Acknowledgments

"Give thanks to the LORD, for He is good, and His love endures forever." Psalm 118:1

Thanks to all who helped with *The Universal Machine* (WCB.McGraw-Hill, 1998), from which this book and multimedia originated: to Robert F. Barnes, my esteemed co-author, to Connie Coleman, our multimedia art director, to Charlie Parker, who created the "Starship UM" cartoons for the multimedia, to Linda Farrell, the voice of the multimedia narrator, to multimedia developers Jennifer Birch, Scott Brown, Peter Grundy and Mike Rhyne of Digital Creators Inc., to student multimedia developers John Chapman, Scott Fitch, James Nixon, Lingan Nguyen, Jason Stanford and Beau Sullivan, and to Knobby's World and LOOKOUT programmers Paul Martino, Venkatesh Rao, Louis Tanzos, and Jesse Thilo, and to Betsy Jones, our sponsoring editor. Finally, I especially thank my family and friends, for their love and patience while I worked on the project!

G.D.B.