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An introduction to ANSI C on UNIX
Wang P., Wadsworth Publ. Co., Belmont, CA, 1992. Type: Book (9780534142322)

Date Reviewed: Aug 1 1993

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It is the last appropriate time to write a new book about ANSI C--the next edition should be about ANSI C++ and should come out this year. C++ is better than Smalltalk because it enables object-oriented programming but does not impose it unconditionally. Classes could also encapsulate the complexity of MS-Windows, hiding details of the message traffic. The preface states that C should be a second language, but which should be the first? BASIC? Assembler? It is not only the language itself, but the incremental interactive programming environment that boosts software development. This book presents the *vi* and EMACS editors, the freeware Gnu *gcc* compiler, and the *dbx* debugger under UNIX. Users on other platforms can also benefit from it, although some examples do not work under MS-DOS.

While I prefer a bottom-up approach, the top-down presentation method used here may be better: a quick overview followed by a thorough study, and finally appendices containing a summary. The book begins with a three-chapter primer bootstrapping readers' knowledge about UNIX, C in general, and its fundamental constructs. The next five chapters cover the core of C in depth: the macro preprocessor, the standard library, pointer arithmetic, structures, and I/O. This section is not a complete course, because some topics (such as expressions) are described only in the primer. The author illustrates all the usual programming techniques, such as arrays, lists, and hash tables, without going into unnecessary theoretical background that can be found elsewhere. The same examples (basic routines for adding, deleting, searching, and sorting) appear several times (with the same error) to illustrate similarities and differences; the advent of classes is welcome here. Additional topics include separate compilation and a portable way to write functions with a variable number of parameters.

Chapters 9 to 12 cover platform-dependent topics: debugging, I/O under UNIX, the compiler and *make*, forking, and pipes. The huge gap between the first and last chapters is methodically crossed, but the speed of explanations accelerates in the last chapters, leaving off examples, explanations of error returns, and necessary header files. More advanced library functions are left for the exercises and are not included in the index. Over a dozen bugs occur in printouts of programs. Was the material tested with students? I had no opportunity to test an accompanying diskette (available for $15).

This book is a useful learning tool for a two-semester course on C and UNIX, but will not serve as a reference guide afterwards. It has no bibliography. Over 15 exercises complement each chapter, but they lack estimates of difficulty. Some

non-trivial projects would also be handy. The book has 12 appendices, but none lists routines contained in particular header files, and the "construct summary" includes neither expressions nor declarations. Also, some program options for *cc* and *make* are omitted from tables, although they are described in the text. The figures are well designed, however. Almost every italicized word is placed in the index, which omits several other items.

Reviewer: J. Klaczak   Review #: CR116012

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