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# Preface

The computing world has undergone a revolution since the publication of
*The C Programming Language* in 1978. Big computers are much bigger, and
personal computers have capabilities that rival mainframes of a decade ago.
During this time, C has changed too, although only modestly, and it has
spread far beyond its origins as the language of the UNIX operating system.

The growing popularity of C, the changes in the language over the years, and
the creation of compilers by groups not involved in its design, combined to
demonstrate a need for a more precise and more contemporary definition of the
language than the first edition of this book provided. In 1983, the American
National Standards Institute (ANSI) established a committee whose goal was to
produce ``an unambiguous and machine-independent definition of the language
C'', while still retaining its spirit. The result is the ANSI standard for C.

The standard formalizes constructions that were hinted but not described in
the first edition, particularly structure assignment and enumerations. It
provides a new form of function declaration that permits cross-checking of
definition with use. It specifies a standard library, with an extensive set
of functions for performing input and output, memory management, string
manipulation, and similar tasks. It makes precise the behavior of features
that were not spelled out in the original definition, and at the same time
states explicitly which aspects of the language remain machine-dependent.

This Second Edition of *The C Programming Language* describes C as
defined by the ANSI standard. Although we have noted the places where the
language has evolved, we have chosen to write exclusively in the new form.
For the most part, this makes no significant difference; the most visible
change is the new form of function declaration and definition. Modern
compilers already support most features of the standard.

We have tried to retain the brevity of the first edition. C is not a big
language, and it is not well served by a big book. We have improved the
exposition of critical features, such as pointers, that are central to C
programming. We have refined the original examples, and have added new
examples in several chapters. For instance, the treatment of complicated
declarations is augmented by programs that convert declarations into words
and vice versa. As before, all examples have been tested directly from the
text, which is in machine-readable form.

Appendix A, the reference manual, is not the standard, but our attempt to
convey the essentials of the standard in a smaller space. It is meant for
easy comprehension by programmers, but not as a definition for compiler
writers -- that role properly belongs to the standard itself. Appendix B is a
summary of the facilities of the standard library. It too is meant for
reference by programmers, not implementers. Appendix C is a concise summary
of the changes from the original version.

As we said in the preface to the first edition, C ``wears well as one's
experience with it grows''. With a decade more experience, we still feel that
way. We hope that this book will help you learn C and use it well.

We are deeply indebted to friends who helped us to produce this second
edition. Jon Bently, Doug Gwyn, Doug McIlroy, Peter Nelson, and Rob Pike gave
us perceptive comments on almost every page of draft manuscripts. We are
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and Dave Kristol provided us with an ANSI C compiler for final testing. Rich
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