

CAMBRIDGE WWW.cambridge.org

local bookseller please order from your

## 3

#### new features

- A new, easy-to-use software project, available now to preview
- Solution sets for exercises available to lecturers
- Expanded coverage of object-oriented concepts
- Difficult sections re-written for even greater clarity

# modern eompiler mplemenbation in Java

new edition coming October 2002

andrew w. appel

CAMBRIDGE UNIVERSITY PRESS

Lecturers
please see
over to order
your free
inspection
copy

# modern compiler implementation in Java

## andrew w. appel princeton university

with jens palsberg, purdue university

Covering all phases of a compiler, this popular textbook represents excellent coverage of current techniques in code generation and register allocation. It even covers the compilation of functional and object-oriented languages missing from most books. Using actual Java Classes for illustration, the book's efficient description of accepted and successful techniques means it avoids becoming a dull catalogue of every possible variant.

The first part of the book, Fundamentals of Compilation, is suitable for a one-semester first course in compiler design while part two, Advanced Topics, includes material suitable for a second-semester or graduate course. This new edition, developed with contributions from Jens Palsberg and Vids Samanta, has been rewritten to include more discussion of Java and object-oriented programming concepts, such as visitor patterns. A unique feature is the newly redesigned compiler project in Java, for a subset of Java itself. The project includes both front-end and back-end phases, so that students can build a complete working compiler in one semester.

"... a textbook example of an excellent textbook." Infoworld

"...written in a simple style that makes a technical book so much easier to read.'

CVu

'Serves its intended purpose as a classroom textbook, fitting comfortably and usefully between cookbooks and encyclopedias on compilation.'

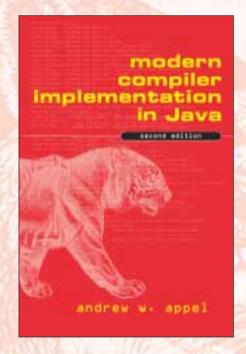
**Computing Reviews** 

"...the book is a pleasure to read or study ... warmly recommended'

Science of Computer Programming

Have you adopted Modern Compiler Implementation in Java (1st edition)? Please note that the first edition will be going out of print in September 2002. For more information, please contact Graham Robertson at gsr100@cambridge.org

## second edition



October 2002 246 x 156mm 560pp 135 exercises 0 521 82060 X £30.00

#### contents >

Part I. Fundamentals of Compilation:

- 1. Introduction; 2. Lexical analysis;
- 3. Parsing; 4. Abstract syntax;
- 5. Semantic analysis; 6. Activation records; 7. Translation to intermediate code; 8. Basic blocks and traces; 9. Instruction selection: 10. Liveness analysis; 11. Register allocation; 12. Putting it all together; Part II. Advanced Topics: 13. Garbage collection: 14. Object-oriented languages; 15. Functional programming languages; 16. Polymorphic types;
- 17. Dataflow analysis; 18. Loop optimisations; 19. Static singleassignment form; 20. Pipelining and scheduling; 21. The memory hierarchy; Appendix: Mini-Java reference manual.

You can preview the new compiler project and find out how to obtain the solution sets at: www-cambridge-org/computerscience/appel