Introduction To Computing And Programming With Java: A Multimedia Approach
Synopsis

Mark Guzdial and Barb Ericson have a most effective method for teaching computing and Java programming in a context that readers find interesting: manipulating digital media. Readers get started right away by learning how to write programs that create interesting effects with sounds, pictures, web pages, and video. The authors use these multimedia applications to teach critical programming skills and principles like how to design and use algorithms, and practical software engineering methods “all in the context of learning how to program in Java. Mark and Barb also demonstrate how to communicate compatibly through networks and do concurrent programming. The book also includes optional coverage of rudimentary data structures and databases using Java and comes with a CD-ROM containing all the code files referenced in the text and required for media manipulation. Allows readers to use their own media, such as personal sound or picture files. Demonstrates how to manipulate media in useful ways, from reducing red eye and splicing sounds to generating digital video special effects. The book also includes optional coverage of rudimentary data structures and databases using Java and comes with a CD-ROM containing all the code files referenced in the text and required for media manipulation. For beginners interested in learning more about basic multimedia computing and programming.

Book Information

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Customer Reviews

This is the first of the books I've read that tries to teach computer science via Java to programming novices that I think actually does a good job. It is intended to introduce computing, including
programming, to students with no prior programming experience. This book is full of interesting projects and programs such as splicing words into sentences, reversing sounds to make interesting effects, removing red eye from images, and writing programs to generate web pages from data in databases. There are also lessons and projects that create animations and movies using special effects similar to those found in the movies. This book is not just about programming to manipulate media. Media manipulation programs are hard to write, and can behave in unexpected ways. Thus, answering questions about speed, writing for testability, and other issues of program efficiency and software engineering are handled in the last two chapters of the book.

When dealing with media, apparently the authors did a very good thing and did not have the student attempt to work with Sun's tragically abandoned Java Media Framework, which malfunctions to such a degree that it would discourage even an experienced programmer. Instead the author uses something called "MediaTools", which is in much better shape and is included on the CD along with the development environment, DrJava. With both the development and media-handling utilities already handled for the new programmer, he/she can concentrate on what is important - which is how to accomplish interesting tasks in Java while learning the basics of computer programming. I highly recommend this as a textbook for any introductory programming class.

I used this book to teach a college-level course in Java Programming this year. 70% of the students had taken a 'CS1' level course in Java, and I didn't want to bore them with the same examples. At the same time, the students new to Java needed to get over the syntax and OO hurdles. The author introduces DrJava early in the book (chapter 2), and provides a set of simple classes that students extend by adding their own methods. The use of Turtle graphics (Turtle class) really helped students 'see' what was happening, and the Picture class allowed them to view and manipulate graphic images as well as learn about arrays. The Picture class is used extensively, which allowed students to build their own set of methods to manipulate pictures, and use them in a big project to build a collage. Pictures provide a way to get interesting data into a program without reverting to using random() or keyboard input. DrJava allowed students to write their new methods in the 'Definitions' pane, and then test them using the 'Interactions' pane. Integrating web pages using the URL class as the basis for File I/O is also a great idea. It connects programming to 'real' pages that the students can see in their browser. The only concerns I have about teaching Java using this book are:

1) Strings are covered quite late and not very deeply (chapter 12)
2) No Swing GUI coverage (students want to write GUIs)
3) Late coverage of 'main' method (p.