JAVA™ IN 60 MINUTES A DAY

Rich Raposa

- *Master Java with a book and online workshop given by an expert trainer*
- *Reinforce lessons from the book with online lectures and code listings*
- *Learn Java in 19 lessons — each only 1 hour long*

A REVOLUTIONARY VIRTUAL CLASSROOM

Java™ in 60 Minutes a Day

Java™ in 60 Minutes a Day

Richard F. Raposa

Wiley Publishing, Inc.

Executive Publisher: Robert Ipsen
Vice President and Publisher: Joe Wikert
Senior Editor: Ben Ryan
Editorial Manager: Kathryn A. Malm
Developmental Editor: Jerry Olsen
Production Editor: Vincent Kunkemueller
Media Development Specialist: Angie Denny
Text Design & Composition: Wiley Composition Services

Copyright © 2003 by Richard F. Raposa. All rights reserved.

Published by Wiley Publishing, Inc., Indianapolis, Indiana

Published simultaneously in Canada

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning, or otherwise, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 646-8700. Requests to the Publisher for permission should be addressed to the Legal Department, Wiley Publishing, Inc., 10475 Crosspoint Blvd., Indianapolis, IN 46256, (317) 572-3447, fax (317) 572-4447, E-mail: permcoordinator@wiley.com.

Limit of Liability/Disclaimer of Warranty: While the publisher and author have used their best efforts in preparing this book, they make no representations or warranties with respect to the accuracy or completeness of the contents of this book and specifically disclaim any implied warranties of merchantability or fitness for a particular purpose. No warranty may be created or extended by sales representatives or written sales materials. The advice and strategies contained herein may not be suitable for your situation. You should consult with a professional where appropriate. Neither the publisher nor author shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages.

For general information on our other products and services please contact our Customer Care Department within the United States at (800) 762-2974, outside the United States at (317) 572-3993 or fax (317) 572-4002.

Trademarks: Wiley, the Wiley logo and related trade dress are trademarks or registered trademarks of Wiley in the United States and other countries, and may not be used without written permission. The Gearhead Press trademark is the exclusive property of Gearhead Group Corporation. Java is a trademark of Sun Microsystems, Inc. All other trademarks are the property of their respective owners. Wiley Publishing, Inc., is not associated with any product or vendor mentioned in this book.

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Library of Congress Cataloging-in-Publication Data: See Publisher

ISBN: 0-471-42314-9

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

A Note from the Consulting Editor

Instructor-led training is proven to be an effective and popular tool for training engineers and developers. To convey technical ideas and concepts, the classroom experience is shown to be superior when compared to other delivery methods. As a technical trainer for more than 20 years, I have seen the effectiveness of instructor-led training firsthand. *60 Minutes a Day* combines the best of the instructor-led training and book experience. Technical training is typically divided into short and discrete modules, where each module encapsulates a specific topic; each module is then followed by "questions and answers" and a review. *60 Minutes a Day* titles follow the same model: each chapter is short, discrete, and can be completed in 60 minutes a day. For these books, I have enlisted premier technical trainers as authors. They provide the voice of the trainer and demonstrate classroom experience in each book of the series. You even get an opportunity to meet the actual trainer: As part of this innovative approach, each chapter of a *60 Minutes a Day* book is presented online by the author. Readers are encouraged to view the online presentation before reading the relevant chapter. Therefore, *60 Minutes a Day* delivers the complete classroom experience—even the trainer.

As an imprint of Wiley Publishing, Inc., Gearhead Press continues to bring you, the reader, the level of quality that Wiley has delivered consistently for nearly 200 years.

Thank you.

Donis Marshall
Founder, Gearhead Press
Consulting Editor, Wiley Technology Publishing Group

To my wife, Susan, for her motivation and support, and to our children, Megan, Ryan, Katelyn, and Emma, for letting me use the computer for hours at a time.

Contents

Acknowledgments		**xix**
About the Author		**xxi**
Introduction		**xxiii**
Chapter 1	**Getting Started with Java**	**1**
	Why Java?	1
	The Java Virtual Machine	2
	The Editions of Java	4
	J2SE	4
	J2ME	5
	J2EE	5
	Downloading the Java 2 SDK	6
	Installing the SDK	7
	Running the SDK Tools	8
	Running the javac Compiler	9
	Running the JVM	10
	A Simple Java Program	10
	Step 1: Write the Source Code	11
	Step 2: Compile the Program	13
	Step 3: Run the Program	14
	Summary	17
Chapter 2	**Java Fundamentals**	**21**
	Java Keywords	21
	Identifiers	22
	Java's Eight Primitive Data Types	23
	Variables	24
	Assigning Variables	25
	Integral Types	27