Pro Perl

PETER WAINWRIGHT

Pro Perl

Copyright © 2005 by Peter Wainwright

All rights reserved. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage or retrieval system, without the prior written permission of the copyright owner and the publisher.

ISBN (pbk): 1-59059-438-X

Printed and bound in the United States of America 987654321

Trademarked names may appear in this book. Rather than use a trademark symbol with every occurrence of a trademarked name, we use the names only in an editorial fashion and to the benefit of the trademark owner, with no intention of infringement of the trademark.

Lead Editor: Jason Gilmore

Technical Reviewer: Andrew Lester

Editorial Board: Steve Anglin, Dan Appleman, Ewan Buckingham, Gary Cornell, Tony Davis,

Jason Gilmore, Jonathan Hassell, Chris Mills, Dominic Shakeshaft, Jim Sumser

Assistant Publisher: Grace Wong Project Manager: Tracy Brown Collins Copy Manager: Nicole LeClerc

Copy Editor: Ami Knox

Production Manager: Kari Brooks-Copony

Production Editor: Ellie Fountain

Compositor: Dina Ouan

Proofreaders: Carol Pinchefsky, Linda Seifert

Indexer: Michael Brinkman

Artist: Kinetic Publishing Services, LLC

Cover Designer: Kurt Krames Cover Photo: Carol Pinchefsky

Manufacturing Manager: Tom Debolski

Distributed to the book trade in the United States by Springer-Verlag New York, Inc., 233 Spring Street, 6th Floor, New York, NY 10013, and outside the United States by Springer-Verlag GmbH & Co. KG, Tiergartenstr. 17, 69112 Heidelberg, Germany.

In the United States: phone 1-800-SPRINGER, fax 201-348-4505, e-mail orders@springer-ny.com, or visit http://www.springer-ny.com. Outside the United States: fax +49 6221 345229, e-mail orders@springer.de, or visit http://www.springer.de.

For information on translations, please contact Apress directly at 2560 Ninth Street, Suite 219, Berkeley, CA 94710. Phone 510-549-5930, fax 510-549-5939, e-mail info@apress.com, or visit http://www.apress.com.

The information in this book is distributed on an "as is" basis, without warranty. Although every precaution has been taken in the preparation of this work, neither the author(s) nor Apress shall have any liability to any person or entity with respect to any loss or damage caused or alleged to be caused directly or indirectly by the information contained in this work.

The source code for this book is available to readers at http://www.apress.com in the Downloads section.

Contents at a Glance

| About the Author . | | xix |
|--------------------|--|-------|
| About the Technica | al Reviewer | xxi |
| Introduction | | xxiii |
| CHAPTER 1 | Introducing Perl | 1 |
| CHAPTER 2 | Basic Concepts | 31 |
| CHAPTER 3 | Scalars: Integers, Floating-Point Numbers, and Strings | 49 |
| CHAPTER 4 | Operators | 85 |
| CHAPTER 5 | Arrays, Hashes, References, and Typeglobs | 109 |
| CHAPTER 6 | Structure, Flow, and Control | 165 |
| CHAPTER 7 | Subroutines | 203 |
| CHAPTER 8 | Scope and Visibility | 243 |
| CHAPTER 9 | Using Modules | 261 |
| CHAPTER 10 | Inside Modules and Packages | 277 |
| CHAPTER 11 | Interpolation and Regular Expressions | 321 |
| CHAPTER 12 | Input and Output with Filehandles | 393 |
| CHAPTER 13 | Files and Directories | 447 |
| CHAPTER 14 | Command Line and Shell Interaction | 501 |
| CHAPTER 15 | Terminal Input and Output | 539 |
| CHAPTER 16 | Warnings and Errors | 573 |
| CHAPTER 17 | Debugging, Testing, and Profiling | 593 |
| CHAPTER 18 | Text Processing, Documentation, and Reports | 659 |
| CHAPTER 19 | Object-Oriented Perl | 713 |
| CHAPTER 20 | Extending and Embedding Perl | 815 |
| CHAPTER 21 | Processes, Signals, and Threads | 853 |
| CHAPTER 22 | Networking | 909 |
| CHAPTER 23 | Unicode, Locale, and Internationalization | 955 |
| INDEV | | 001 |