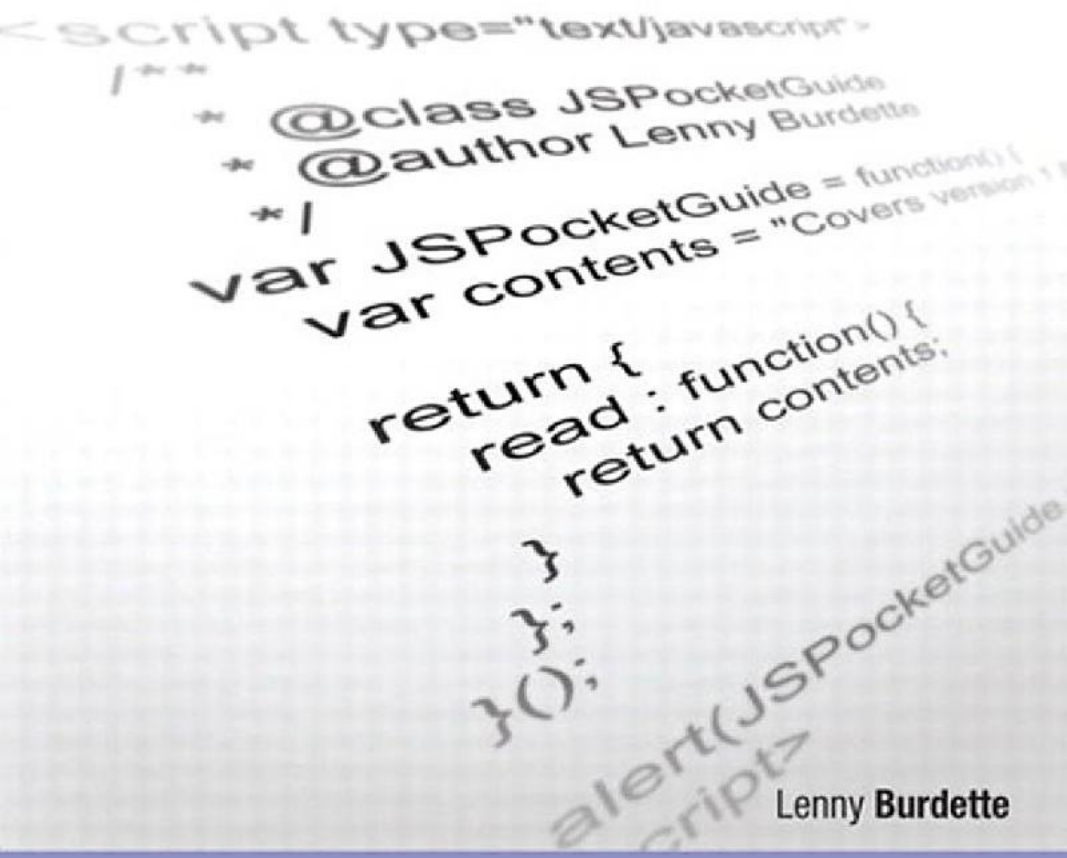
The JavaScript PocketGuide



Lenny **Burdette**

Ginormous knowledge, pocket-sized.

The JavaScript PocketGuide

Lenny**Burdette**

Ginormous knowledge, pocket-sized.

Peachpit Press

The JavaScript Pocket Guide

Lenny Burdette

Peachpit Press
1249 Eighth Street
Berkeley, CA 94710
510/524-2178
510/524-2221 (fax)

Find us on the Web at: www.peachpit.com
To report errors, please send a note to: errata@peachpit.com

Peachpit Press is a division of Pearson Education.
Copyright © 2010 by Lenny Burdette

Executive Editor: Clifford Colby
Editor: Kim Wimpsett
Production Editor: Cory Borman
Compositor: David Van Ness
Indexer: Jack Lewis
Cover Design: Peachpit Press
Cover Illustrator: Lenny Burdette and Aren Howell
Interior Design: Peachpit Press

Notice of Rights
All rights reserved. No part of this book may be reproduced or transmitted in any form by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher. For information on getting permission for reprints and excerpts, contact permissions@peachpit.com.

Notice of Liability
The information in this book is distributed on an "As Is" basis without warranty. While every precaution has been taken in the preparation of the book, neither the author nor Peachpit 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 instructions contained in this book or by the computer software and hardware products described in it.

Trademarks
Many of the designations used by manufacturers and sellers to distinguish their products are claimed as trademarks. Where those designations appear in this book, and Peachpit was aware of a trademark claim, the designations appear as requested by the owner of the trademark. All other product names and services identified throughout this book are used in editorial fashion only and for the benefit of such companies with no intention of infringement of the trademark. No such use, or the use of any trade name, is intended to convey endorsement or other affiliation with this book.

ISBN-13: 978-0-321-70095-7
ISBN-10: 0-321-70095-3

9 8 7 6 5 4 3 2 1

Printed and bound in the United States of America

To my mom and dad

About the Author

In the seventh grade, Lenny Burdette checked out the book *Teach Yourself HTML in 24 Hours* from the public library, and the rest, as they say, is history. Since graduating from UCLA, Burdette has worked at Schematic in Los Angeles, California, where he is the reigning Guitar Hero champion. Schematic (*http://www.schematic.com*) is a digital marking agency that has given him opportunities to develop JavaScript for Web sites, e-commerce platforms, TV, and mobile.

Acknowledgments

I'd first like to thank Cliff Colby and Bruce Hyslop for the opportunity to write this book as well the faith that I could. Huge thanks go to editor Kim Wimpsett and the rest of the team at Peachpit Press for making the process go more smoothly than I ever imagined it would.

Adam Luikart's feedback and sharp eye were invaluable throughout the writing process. All of my colleagues at Schematic, especially Richard Herrera and the rest of IEG, are a wealth of inspiration and support. Additionally, Nick Rodriguez and Dan Duvall were incredibly gracious to look over my work; I own them both many beers.

I wouldn't be where I am without all the teachers I've had through my life, from Mrs. Rhea all the way to Casey Reas. Much thanks to Mr. Fairchild especially, since it was in his class where my love of the Web began.

And of course, thanks to my family, Mom, Dad, Julie, and Rachel, for their love and support.

Contents

Introduction ..... **xvii**

Why JavaScript Is Cool xviii

Who Should Read This Book xix

What You Need to Follow Along xix

What's in This Book xix

What's Not in This Book xx

Resources xx

Writing JavaScript Code xxi

- Case Sensitivity xxi
- Comments xxi
- Semicolons xxii
- Whitespace and New Lines xxii
- Reserved Words xxii
- Balanced Brackets and Quotes xxiv

Firebug xxiv

Chapter 1: JavaScript Basics **1**

Expressions and Statements 2

Variables and Data 3

- Values 4
- Comparison 5
- Truthiness and Falsiness 6

Functions and Objects 8

- Objects 9

Loops 10

Control Flow 11

if/if-else/else 11

switch/case 12

try/catch/finally 13

throw 13

break and continue 14

Compound Expressions 15

Boolean Operators 15

Logical NOT: ! 15

Logical AND: && 16

Logical OR: || 17

Combining Boolean Operators 18

Ternary Expressions 19

Chapter 2: Numbers 21

Basic Math 22

Number Formats 24

Constants and Functions 25

The Math Object 25

Even More Properties and Methods 26

Generating Random Integers 26

Conversion 26

Number Precision 29

Chapter 3: Strings 31

Escape Characters 32

Operators 32

Properties 33

Methods 33
Changing Case: toUpperCase(), toLowerCase() 34
Extracting Parts of a String 34
charAt(x), charCodeAt(x) 34
slice(x[, y]*)* 35
substr(x[, y]*)* 36
Converting Strings to Arrays: split(*[delimiter, limit]*) 36
Search and Replace 37
indexOf(substring[, start]*)* 37
lastIndexOf(substring[, start]*)* 39
search(regexp) 40
match(regexp) 40
replace(pattern, replacement) 40
Helper Functions 42
stringTrim() 42

Global Functions 42
escape(string), unescape(string) 42
encodeURI(string), decodeURI(string) 43
encodeURIComponent(string), decodeURIComponent(string) 43

Chapter 4: Arrays 45

Creating Arrays 46

Properties 46

Looping Over Arrays 47
forEach(loopFunc) 48

Methods 49
Adding Items to Arrays 49
concat(x[, y , z ...]*)* 50
push(x[, y, z ...]*)* 50
unshift(x[, y, z ...]*)* 50

Removing Items from Arrays ... 51
pop() ... 51
shift() ... 51
Extracting Items from Arrays ... 51
slice(x[, y]*)* ... 52
splice(start[, length, newValue ...]*)* ... 52
Ordering Arrays ... 53
reverse() ... 54
sort([func]*)* ... 54
Converting Arrays to Strings ... 55
join([delimiter]*)* ... 55
toString() ... 56

Chapter 5: Functions ... 57

Creating Functions ... 58
Declarations ... 58
Expressions ... 58
Self-invoking Functions ... 59
Arguments ... 60
Default Values for Arguments ... 61
Objects as Arguments ... 63
Return Values ... 65
Functions as Methods ... 66
Context Binding ... 68
Closures ... 70
Recursion ... 74
Caching ... 75
Memoization ... 77

Chapter 6: Objects **79**

Basics 80
Looping Over Properties 81
Enumerable Properties *83*
Deleting Properties 85

Constructor Functions 86

Prototypes 87
Changing Built-in Prototypes 89
Adding Modern JavaScript to Older Browsers *90*
Prototypes for Custom Data Types 91
How to Understand Constructor Functions and Prototypes 92

Object-Oriented Patterns 94

Namespacing 96
Local References 98

Chapter 7: The Global Object **99**

Global Variables 100
Accidentally Creating Global Variables *101*

Global Functions 102
Timers 102
setTimeout(func, delay) *102*
setInterval(func, delay) *103*
clearInterval(id), clearTimeout(id) *104*

Chapter 8: Client-Side Scripting **107**

Script Tags 108
Inline Scripts 108
Remote Scripts 108
Where to Include the <script> Tag 109