

Part 2: Web Development with Python

Real Python Part 2: Web Development with Python

Michael Herman

Contents

1	Preface	9
	Acknowledgements	9
	Thank you	10
	About the Author	11
	About the Editor	12
	License	13
2	Introduction	14
	Why Python?	15
	Who should take this Course?	16
	How to use this Course	17
	Conventions	18
	Errata	20
3	Getting Started	21
	Python Review	21
	Development Environments	23
	Installing SQLite	27
	Installing easy_install and pip	28
	Installing virtualenv	30
	Web Browsers	32
	Version Control	34

4	Interlude: Modern Web Development	39
	Overview	39
	Front-end, Back-end, and Middleware	40
	Model-View-Controller (MVC)	41
5	Flask: Quick Start	43
	Overview	44
	Installation	45
	Hello World	46
	Dynamic Routes	49
	Response Object	51
	Debug Mode	53
6	Interlude: Database Programming	55
	SQL and SQLite Basics	56
	Creating Tables	58
	Inserting Data	61
	Searching	66
	Updating and Deleting	68
	Working with Multiple Tables	70
	SQL Functions	74
	Example Application	76
	Summary	80
7	Flask Blog App	81
	Project Structure	82
	Model	84
	Controller	85
	Views	87
	Templates	89

	Run the server!	91
	User Login	92
	Sessions and Login_required Decorator	96
	Show Posts	101
	Add Posts	103
	Style	105
	Conclusion	107
8	Interlude: Debugging in Python	108
	Workflow	109
	Post Mortem Debugging	116
9	Flask: FlaskTaskr	118
	Overview	118
	Setup	120
	Configuration	121
	Database	122
	Controller	124
	Templates and Styles	126
	Running our app	131
	Tasks	133
	Test	138
	Extensions	139
	Database Management via SQLAlchemy	140
	User Registration	147
	User Login	153
	Database Relationships	155
	Managing Sessions	164
	Error Handling	166
	Unit Testing	171

10	Interlude: Introduction to HTML and CSS	176
	HTML	177
	CSS	180
	Chrome Developer Tools	183
11	Flask: FlaskTaskr (continued)	184
	Templates and Styling	184
	Blueprints	191
	Test Coverage	205
	Logging	207
	Deploying on Heroku	209
	Fabric	212
	Building a REST API	217
	Boilerplate Template and Workflow	223
12	Flask: Behavior-Driven Development with Behave	226
12	Flask: Behavior-Driven Development with Behave Behavior-Driven Development	
12	Behavior-Driven Development	227
12	Behavior-Driven Development	227 230
12	Behavior-Driven Development	227 230 231
12	Behavior-Driven Development	227 230 231 232
12	Behavior-Driven Development	227 230 231 232 233
12	Behavior-Driven Development	227 230 231 232 233 235
12	Behavior-Driven Development Project Setup	227 230 231 232 233 235 237
12	Behavior-Driven Development Project Setup	227 230 231 232 233 235 237 239
12	Behavior-Driven Development Project Setup	227 230 231 232 233 235 237 239
12	Behavior-Driven Development Project Setup Introduction to Behave Feature Files First Feature Environment Control Next steps Login and Logout Second Feature	227 230 231 232 233 235 237 239 242 246

13 Interlude: Web Frameworks, Compared	254
Overview	254
Popular Frameworks	256
Components	257
What does this all mean?	258
14 web2py: Quick Start	259
Overview	259
Installation	261
Hello World	262
Deploying on PythonAnywhere	267
seconds2minutes App	269
15 Interlude: APIs	272
Introduction	272
Retrieving Web Pages	274
Web Services Defined	277
Working with XML	281
Working with JSON	285
Working with Web Services	290
Rotten Tomatoes API	301
16 web2py: QuickStart (continued)	305
Sentiment Analysis	305
Sentiment Analysis Expanded	317
Movie Suggester	329
Plog App	007

17 web2py: py2manager				340
Introduction		• •		340
Setup		• •		342
Database	•		•	344
URL Routing		• •		352
Initial Views		• •		354
Profile Page		• •		358
Add Projects		• •		360
Add Companies		• •		362
Homepage		• •		363
More Grids	•		•	365
Notes		• •		367
Error Handling		• •		370
Final Word	•	• •		371
18 Interlude: Web Scraping and Crawling HackerNews (BaseSpider)				372 376
Scrapy Shell				380
Wikipedia (BaseSpider)				382
Socrata (CrawlSpider and Item Pipeline)				386
Web Interaction				392
9 web2py: REST Redux				395
Introduction		•		395
Basic REST		•		397
Advanced REST				
20 Django: Quick Start				406
Overview				406
Installation				409
Hello World!				410

21	Interlude: Introduction to Javascript and jQuery	420	
	Handling the Event	422	
	Append the text to the DOM	424	
	Remove text from the DOM	426	
22	Bloggy: A blog app	428	
	Setup	429	
	Model	430	1
	Setup an App	431	
	Django Shell	434	
	Unit Tests for models	439	
	Django Admin	441	
	Custom Admin View	442	
	Templates and Views	443	
	Friendly Views	448	
	Django Migrations	450	,
	Styles	454	
	Update the Index View	458	
	Forms	462	
	Stretch Goals	470	
23	Django Workflow	471	
24	Django: Ecommerce Site	474	
	Overview	474	
	Rapid Web Development	475	
	Prototyping	476	
	Setup your Project and App	478	
	Add a landing page	481	
	Bootstrap	489	,

Add an about page	 490
Contact App	 494
User Registration with Stripe	 499
Appendix A: Installing Python	51 7
Windows	 518
Mac OS X	 520
Linux	 521
Appendix B: Supplementary Materials	522
Working with FTP	 522
Working with SFTP	 527
Sending and Receiving Email	530