

深入浅出Servlet & JSP (影印版)

# Head First Servlets & JSP™

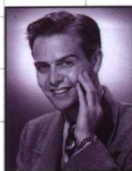
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Bryan Basham, Kathy Sierra & Bert Bates 著

深入浅出Servlet & JSP™ (影印版)

# Head First Servlets & JSP™



Wouldn't it be dreamy if  
there were a Servlets book  
that was more stimulating than  
deleting spam from your inbox?  
It's probably just a fantasy...

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- 《深入浅出 EJB》(影印版)
- 《深入浅出 Servlet & JSP》(影印版)

## **Advance praise for *Head First Servlets & JSP™***

“This Head First Servlets & JSP book is as good as the Head First EJB book, which made me laugh AND gave me 97% on the exam!”

— **Jef Cumps, J2EE consultant, Cronos**

“For our Servlet/JSP classes, we bought more than ten books, without finding any one really satisfying our teaching needs... Until we found the pedagogical gem you now hold in your hands! Head First books simply make us better teachers.”

— **Philippe Maquet: Senior Instructor at Loop Factory, Brussels.**

## **Praise for *Head First EJB™* and the *Head First* approach**

“Java technology is everywhere—in mobile phones, cars, cameras, printers, games, PDAs, ATMs, smart cards, gas pumps, sports stadiums, medical devices, Web cams, servers, you name it. If you develop software and haven’t learned Java, it’s definitely time to dive in—*Head First*.”

— **Scott McNealy, Sun Microsystems Chairman, President and CEO**

[Note from marketing: this is the best you could get from Scott? See if you can get him to add something like, “If we’d had Head First books two years ago, we might still have that bubble...”]

“Astoundingly enjoyable book on this complex, involved body of knowledge.

As a Professor at Purdue University, specializing in advanced software development using Java-based technologies, I am always on the lookout for motivational background materials that provide comprehensive subject matter examination while at the same time does not put students to sleep. “Head First EJB” overwhelmingly fits the bill! Books like this are extremely rare.

I have added this book as one of the required texts for future offerings of my advanced undergraduate “Enterprise Application Development” course. Kudos to the authors; Keep up the great work!”

— **Dan Gill, Professor, Purdue University, Department of Computer Technology**

“Beyond the engaging style that drags you forward from know-nothing into exalted Java warrior status, Head First Java covers a huge amount of practical matters that other texts leave as the dreaded “exercise for the reader...” It’s clever, wry, hip and practical—there aren’t a lot of textbooks that can make that claim and live up to it while also teaching you about object serialization and network launch protocols. ”

— **Dr. Dan Russell, Director of User Sciences and Experience Research  
IBM Almaden Research Center (and teaches Artificial Intelligence at Stanford University)**

What a fantastic way to learn!!! I CAN NOT PUT THIS BOOK DOWN!!! My 3 year old woke up at 1:40 a.m. this morning, and I put him back to bed with book in hand and a flashlight so I could continue to read for about another hour.

— **Ross Goldberg**

“Kathy and Bert’s ‘Head First Java’ transforms the printed page into the closest thing to a GUI you’ve ever seen. In a wry, hip manner, the authors make learning Java an engaging ‘what’re they gonna do next?’ experience.”

— **Warren Keuffel, Software Development Magazine**

## **Praise for the *Head First* approach**

"It's fast, irreverent, fun, and engaging. Be careful—you might actually learn something!"

— **Ken Arnold, former Senior Engineer at Sun Microsystems**  
Co-author (with James Gosling, creator of Java), "**The Java Programming Language**"

"I passed the exam SCBCD with 94%. Really this "HF EJB" Rocks! I completed reading this book in 10 days..."

— **Basavaraj Devershetty**

"...the only way to decide the worth of a tutorial is to decide how well it teaches. Head First Java excels at teaching. OK, I thought it was silly... then I realized that I was thoroughly learning the topics as I went through the book."

"The style of Head First Java made learning, well, easier."

— **slashdot (honestpuck's review)**

"I could not have imagined a person smiling while studying an IT book! Using Head First EJB materials, I got a great score (91%) and set a world record as the youngest SCBCD, 14 years."

— **Afsah Shafquat (world's youngest SCBCD)**

"This stuff is so fricking good it makes me wanna WEEP! I'm stunned."

— **Floyd Jones, Senior Technical Writer/Poolboy, BEA**

"If you want to *learn* Java, look no further: welcome to the first GUI-based technical book! This perfectly-executed, ground-breaking format delivers benefits other Java texts simply can't... Prepare yourself for a truly remarkable ride through Java land."

— **Neil R. Bauman, Captain & CEO, Geek Cruises ([www.GeekCruises.com](http://www.GeekCruises.com))**

"If anyone in the world is familiar with the concept of 'Head First,' it would be me. This book is so good, I'd marry it on TV!"

— **Rick Rockwell, Comedian**  
**The original FOX Television "Who Wants to Marry a Millionaire" groom**

"Head First Java is like Monty Python meets the gang of four... the text is broken up so well by puzzles and stories, quizzes and examples, that you cover ground like no computer book before."

— **Douglas Rowe, Columbia Java Users Group**

" 'Head First Java' ... gives new meaning to their marketing phrase 'There's an O'Reilly for that.' I picked this up because several others I respect had described it in terms like 'revolutionary' and a described a radically different approach to the textbook. They were (are) right... In typical O'Reilly fashion, they've taken a scientific and well considered approach. The result is funny, irreverent, topical, interactive, and brilliant... Reading this book is like sitting in the speakers lounge at a view conference, learning from – and laughing with – peers... If you want to UNDERSTAND Java, go buy this book."

— **Andrew Pollack, [www.thenorth.com](http://www.thenorth.com)**

“Remember when you were in kindergarten? No? Well, how about when you were first learning your ABC’s? Can’t think back that far? Well, no matter. Read Head First Java and you will once again experience fun in learning...For people who like to learn new programming languages, and do not come from a computer science or programming background, this book is a gem... This is one book that makes learning a complex computer language fun. I hope that there are more authors who are willing to break out of the same old mold of ‘traditional’ writing styles. Learning computer languages should be fun, not onerous.”

— **Judith Taylor, Southeast Ohio Macromedia User Group**

“A few days ago I received my copy of Head First Java by Kathy Sierra and Bert Bates. I’m only part way through the book, but what’s amazed me is that even in my sleep-deprived state that first evening, I found myself thinking, ‘OK, just one more page, then I’ll go to bed.’ “

— **Joe Litton**

“FINALLY - a Java book written the way I would’a wrote it if I were me. Seriously though - this book absolutely blows away every other software book I’ve ever read... A good book is very difficult to write... you have to take a lot of time to make things unfold in a natural, “reader oriented” sequence. It’s a lot of work. Most authors clearly aren’t up to the challenge. Congratulations to the Head First EJB team for a first class job!

P.S. When is Head First J2EE architect coming out! And Head First Web Component Developer! And how can I make my VCR record a football game while I’m at work?”

— **Wally Flint**

“If you’re relatively new to programming and you are interested in Java, here’s your book...Covering everything from objects to creating graphical user interfaces (GUI), exception (error) handling to networking (sockets) and multithreading, even packaging up your pile of classes into one installation file, this book is quite complete...If you like the style...I’m certain you’ll love the book and, like me, hope that the Head First series will expand to many other subjects!”

— **LinuxQuestions.org**

“When I read “Head First Java” by the same author I thought, it is just impossible to write another book (that too on EJB) in that lucid way. But now they have left us amazed by this even more lovable book. The Head First Books are now acting like something necessary (MUST) on every topic. I wish I were a child, so that I could learn every thing the HF way.”

— **Anshu Mishra**

I worked in EJB about 4 years ago and found it to be a counter intuitive mess. After reading the 2.1 and 2.0 specs I found it’s just a steaming t\*\*\* that got bigger. Your book answered most of the zillions of questions banging around in my peanut sized brain and allowed me to pass the test with a 92% score...

Handily beating that 14 year old dude by 1 point. :-) Thanks alot,

— **Jim Steiner**

“I was ADDICTED to the book’s short stories, annotated code, mock interviews, and brain exercises.”

— **Michael Yuan, author, Enterprise J2ME**



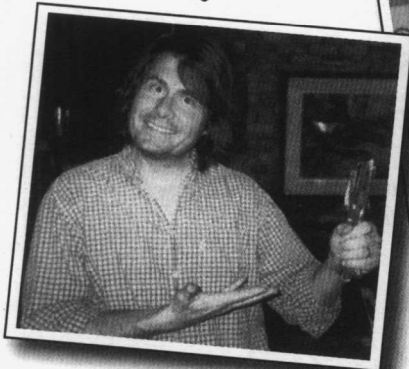
## **Other Java books from O'Reilly**

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Java™ Cookbook  
Java™ in a Nutshell  
Java™ Network Programming  
Java™ Servlet & JSP Cookbook  
Java™ Swing  
JavaServer Faces™  
JavaServer Pages™  
Programming Jakarta Struts  
Tomcat: the Definitive Guide

**Be watching for more books in the Head First series!**

## Perpetrators of the Head First series (and this book)

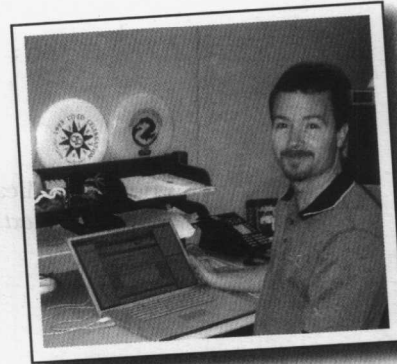
Bert Bates



Kathy Sierra



Bryan Basham



**Bert** is a long-time software developer and architect, but a decade-long stint in artificial intelligence drove his interest in learning theory and technology-based training. He spent the first decade of his software career traveling the world to help broadcasting clients like Radio New Zealand, the Weather Channel, and the Arts and Entertainment Network (A&E). He's currently a member of the development team for several of Sun's Java Certification exams, including the new SCWCD.

Bert is a long-time, hopelessly addicted *go* player, and has been working on a *go* program for way too long. Java may finally be a language expressive enough for him to finish the project. He's a fair guitar player and is now trying his hand at banjo. His latest adventure is the purchase of an Icelandic horse which should give his training skills a new challenge...

**Kathy** has been interested in learning theory and the brain since her days as a game designer (she wrote games for Virgin, MGM, and Amblin') and an AI developer. She developed much of the Head First format while teaching New Media Interactivity for UCLA Extension's Entertainment Studies program. More recently, she's been a master trainer for Sun Microsystems, teaching Sun's Java instructors how to teach the latest Java technologies, and developing several of Sun's certification exams, including the SCWCD. Together with Bert Bates, she has been actively using the Head First concepts to teach thousands of developers. She founded one of the largest Java community websites in the world, javaranch.com, which won a 2003 and 2004 Software Development magazine Productivity Award. She likes running, skiing, horses, skateboarding, and weird science.

**Bryan** has over twenty years of software development experience including time at NASA developing advanced automation software using AI techniques. He also worked for a consulting firm developing custom OO business apps. Currently, Bryan is a Course Developer for Sun, concentrating on Java and OO design principles. He's worked on a large range of Sun's Java courses including those on JDBC, J2EE, Servlets and JSP, and OO Software Development. He was also the lead designer of both the original and new version of the SCWCD exam.

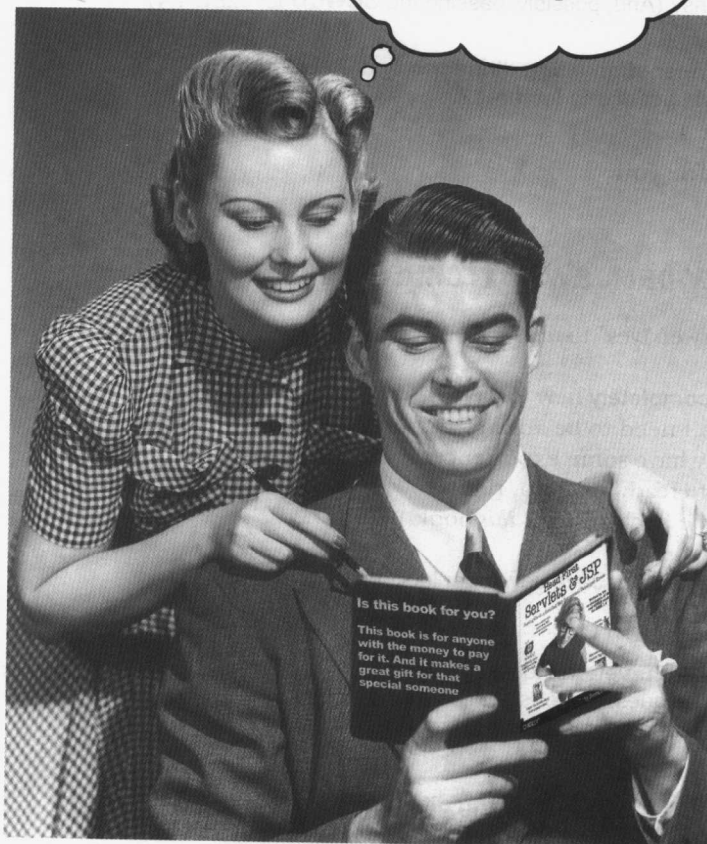
Bryan is a practicing Zen Buddhist, Ultimate Frisbee player, audiophile, and telemark skier.

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how to use this book

# Intro

I can't believe they put *that* in a programming book!



In this section, we answer the burning question:  
"So, why DID they put that in a programming book?"

## Who is this book for?

If you can answer “yes” to *all* of these:

- 1 Do you know Java? (You don't need to be a guru.)
- 2 Do you want to **learn, understand, and remember** servlets and JSPs, with a goal of developing web components for web applications? (And, possibly, passing the **SCWCD** for J2EE 1.4.)
- 3 Do you prefer **stimulating dinner party conversation to dry, dull, academic lectures?**

this book is for you.

## Who should probably back away from this book?

If you can answer “yes” to any *one* of these:

- 1 **Are you completely new to Java?**  
(You don't need to be advanced, but you should definitely have some experience. If not, go get a copy of Head First Java, right now, today, and then come back and get *this* book.)
- 2 Are you a kick-butt Java developer looking for a **reference book?**
- 3 Are you a **J2EE veteran** looking for ultra-advanced server techniques, server-specific how-to's, enterprise architecture, and complex, robust real-world code?
- 4 Are you **afraid to try something different?** Would you rather have a root canal than mix stripes with plaid? Do you believe that a technical book can't be serious if Java components are anthropomorphized?

this book is *not* for you.



[note from marketing: this book is for anyone who can afford it.]

## We know what you're thinking.

"How can *this* be a serious programming book?"

"What's with all the graphics?"

"Can I actually *learn* it this way?"

"Do I smell pizza?"



## And we know what your brain is thinking.

Your brain craves novelty. It's always searching, scanning, *waiting* for something unusual. It was built that way, and it helps you stay alive.

Today, you're less likely to be a tiger snack. But your brain's still looking. You just never know.

So what does your brain do with all the routine, ordinary, normal things you encounter? Everything it *can* stop them from interfering with the brain's *real* job—recording things that *matter*. It doesn't bother saving the boring things; they never make it past the "this is obviously not important" filter.

How does your brain *know* what's important? Suppose you're out for a day hike and a tiger jumps in front of you, what happens inside your head and body?

Neurons fire. Emotions crank up. *Chemicals surge.*

And that's how your brain knows...

### This must be important! Don't forget it!

But imagine you're at home, or in a library. It's a safe, warm, tiger-free zone. You're studying. Getting ready for an exam. Or trying to learn some tough technical topic your boss thinks will take a week, ten days at the most.

Just one problem. Your brain's trying to do you a big favor. It's trying to make sure that this *obviously* non-important content doesn't clutter up scarce resources. Resources that are better spent storing the really *big* things. Like tigers. Like the danger of fire. Like how you should never again snowboard in shorts.

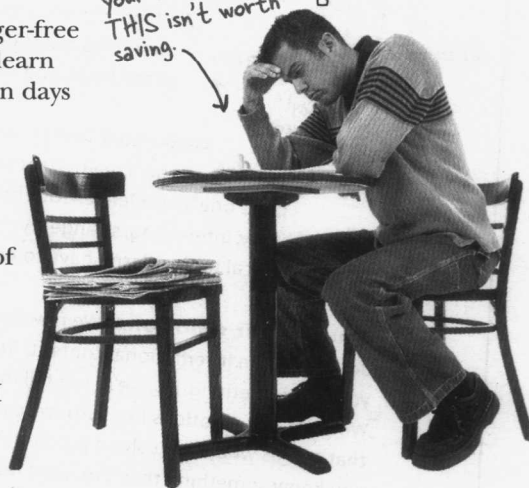
And there's no simple way to tell your brain, "Hey brain, thank you very much, but no matter how dull this book is, and how little I'm registering on the emotional Richter scale right now, I really *do* want you to keep this stuff around."

your brain thinks  
THIS is important.



Great. Only  
637 more dull, dry,  
boring pages.

your brain thinks  
THIS isn't worth  
saving.



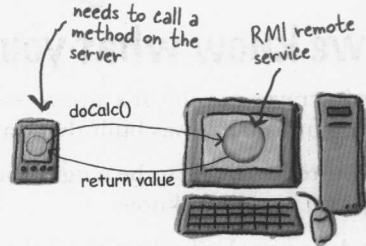
# We think of a "Head First" reader as a learner.

So what does it take to *learn* something? First, you have to *get* it, then make sure you don't *forget* it. It's not about pushing facts into your head. Based on the latest research in cognitive science, neurobiology, and educational psychology, *learning* takes a lot more than text on a page. We know what turns your brain on.

## Some of the Head First learning principles:



**Make it visual.** Images are far more memorable than words alone, and make learning much more effective (up to 89% improvement in recall and transfer studies). It also makes things more understandable. **Put the words within or near the graphics** they relate to, rather than on the bottom or on another page, and learners will be up to *twice* as likely to solve problems related to the content.



It really sucks to be an abstract method. You don't have a body.

**Use a conversational and personalized style.** In recent studies, students performed up to 40% better on post-learning tests if the content spoke directly to the reader, using a first-person, conversational style rather than taking a formal tone. Tell stories instead of lecturing. Use casual language. Don't take yourself too seriously. Which would *you* pay more attention to: a stimulating dinner party companion, or a lecture?



`abstract void roam();`

No method body!  
End it with a semicolon.

**Get the learner to think more deeply.** In other words, unless you actively flex your neurons, nothing much happens in your head. A reader has to be motivated, engaged, curious, and inspired to solve problems, draw conclusions, and generate new knowledge.

And for that, you need challenges, exercises, and thought-provoking questions, and activities that involve both sides of the brain, and multiple senses.

Does it make sense to say Tub IS-A Bathroom? Bathroom IS-A Tub? Or is it a HAS-A relationship?



**Get—and keep—the reader's attention.** We've all had the "I really want to learn this but I can't stay awake past page one" experience. Your brain pays attention to things that are out of the ordinary, interesting, strange, eye-catching, unexpected. Learning a new, tough, technical topic doesn't have to be boring. Your brain will learn much more quickly if it's not.

**Touch their emotions.** We now know that your ability to remember something is largely dependent on its emotional content. You remember what you care about. You remember when you feel something. No, we're not talking heart-wrenching stories about a boy and his dog. We're talking emotions like surprise, curiosity, fun, "what the...?", and the feeling of "I Rule!" that comes when you solve a puzzle, learn something everybody else thinks is hard, or realize you know something that "I'm more technical than thou" Bob from engineering *doesn't*.



## Metacognition: thinking about thinking

If you really want to learn, and you want to learn more quickly and more deeply, pay attention to how you pay attention. Think about how you think. Learn how you learn.

Most of us did not take courses on metacognition or learning theory when we were growing up. We were *expected* to learn, but rarely *taught* to learn.

But we assume that if you're holding this book, you want to learn servlets. And you probably don't want to spend a lot of time. And since you're going to take the exam, you need to *remember* what you read. And for that, you've got to understand it. To get the most from this book, or *any* book or learning experience, take responsibility for your brain. Your brain on *this* content.

The trick is to get your brain to see the new material you're learning as Really Important. Crucial to your well-being. As important as a tiger. Otherwise, you're in for a constant battle, with your brain doing its best to keep the new content from sticking.

### So just how **DO** you get your brain to treat servlets like it's a hungry tiger?

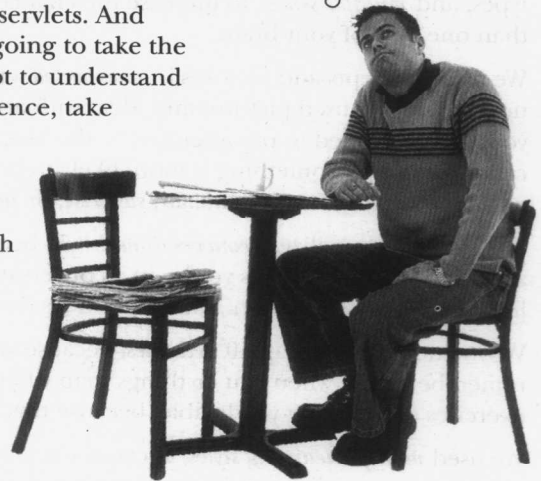
There's the slow, tedious way, or the faster, more effective way. The slow way is about sheer repetition. You obviously know that you *are* able to learn and remember even the dullest of topics, if you keep pounding on the same thing. With enough repetition, your brain says, "This doesn't *feel* important to him, but he keeps looking at the same thing *over and over* and *over*, so I suppose it must be."

The faster way is to do *anything that increases brain activity*, especially different *types* of brain activity. The things on the previous page are a big part of the solution, and they're all things that have been proven to help your brain work in your favor. For example, studies show that putting words *within* the pictures they describe (as opposed to somewhere else in the page, like a caption or in the body text) causes your brain to try to makes sense of how the words and picture relate, and this causes more neurons to fire. More neurons firing = more chances for your brain to *get* that this is something worth paying attention to, and possibly recording.

A conversational style helps because people tend to pay more attention when they perceive that they're in a conversation, since they're expected to follow along and hold up their end. The amazing thing is, your brain doesn't necessarily *care* that the "conversation" is between you and a book! On the other hand, if the writing style is formal and dry, your brain perceives it the same way you experience being lectured to while sitting in a roomful of passive attendees. No need to stay awake.

But pictures and conversational style are just the beginning.

I wonder how I can trick my brain into remembering this stuff...



## Here's what WE did:

We used *pictures*, because your brain is tuned for visuals, not text. As far as your brain's concerned, a picture really *is* worth 1024 words. And when text and pictures work together, we embedded the text *in* the pictures because your brain works more effectively when the text is *within* the thing the text refers to, as opposed to in a caption or buried in the text somewhere.

We used *repetition*, saying the same thing in different ways and with different media types, and *multiple senses*, to increase the chance that the content gets coded into more than one area of your brain.

We used concepts and pictures in *unexpected* ways because your brain is tuned for novelty, and we used pictures and ideas with at least *some emotional content*, because your brain is tuned to pay attention to the biochemistry of emotions. That which causes you to *feel* something is more likely to be remembered, even if that feeling is nothing more than a little *humor, surprise, or interest*.

We used a personalized, *conversational style*, because your brain is tuned to pay more attention when it believes you're in a conversation than if it thinks you're passively listening to a presentation. Your brain does this even when you're *reading*.

We included more than 40 *activities*, because your brain is tuned to learn and remember more when you *do* things than when you *read* about things. And we made the exercises challenging-yet-do-able, because that's what most *people* prefer.

We used *multiple learning styles*, because *you* might prefer step-by-step procedures, while someone else wants to understand the big picture first, while someone else just wants to see a code example. But regardless of your own learning preference, *everyone* benefits from seeing the same content represented in multiple ways.

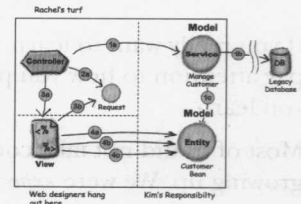
We include content for *both sides of your brain*, because the more of your brain you engage, the more likely you are to learn and remember, and the longer you can stay focused. Since working one side of the brain often means giving the other side a chance to rest, you can be more productive at learning for a longer period of time.

And we included *stories* and exercises that present *more than one point of view*, because your brain is tuned to learn more deeply when it's forced to make evaluations and judgements.

We included *challenges*, with exercises, and by asking *questions* that don't always have a straight answer, because your brain is tuned to learn and remember when it has to *work* at something. Think about it—you can't get your *body* in shape just by *watching* people at the gym. But we did our best to make sure that when you're working hard, it's on the *right* things. That *you're not spending one extra dendrite* processing a hard-to-understand example, or parsing difficult, jargon-laden, or overly terse text.

We used *people*. In stories, examples, pictures, etc., because, well, because *you're* a person. And your brain pays more attention to *people* than it does to *things*.

We used an *80/20* approach. We assume that if you're going for a PhD in JSP, this won't be your only book. So we don't talk about *everything*. Just the stuff you'll actually *need*.



BE the Container



BULLET POINTS







## Here's what YOU can do to bend your brain into submission

So, we did our part. The rest is up to you. These tips are a starting point; listen to your brain and figure out what works for you and what doesn't. Try new things.

cut this out and stick it on your refrigerator.

### 1 Slow down. The more you understand, the less you have to memorize.

Don't just *read*. Stop and think. When the book asks you a question, don't just skip to the answer. Imagine that someone really is asking the question. The more deeply you force your brain to think, the better chance you have of learning and remembering.

### 2 Do the exercises. Write your own notes.

We put them in, but if we did them for you, that would be like having someone else do your workouts for you. And don't just *look* at the exercises. Use a pencil. There's plenty of evidence that physical activity *while* learning can increase the learning.

### 3 Read the "There are No Dumb Questions"

That means all of them. They're not optional side-bars—they're *part of the core content!* Don't skip them.

### 4 Don't do all your reading in one place.

Stand-up, stretch, move around, change chairs, change rooms. It'll help your brain *feel* something, and keeps your learning from being too connected to a particular place. Remember, you won't be taking the exam in your bedroom.

### 5 Make this the last thing you read before bed. Or at least the last *challenging* thing.

Part of the learning (especially the transfer to long-term memory) happens *after* you put the book down. Your brain needs time on its own, to do more processing. If you put in something new during that processing-time, some of what you just learned will be lost.

### 6 Drink water. Lots of it.

Your brain works best in a nice bath of fluid. Dehydration (which can happen before you ever feel thirsty) decreases cognitive function. Beer, or something stronger, is called for when you pass the exam.

### 7 Talk about it. Out loud.

Speaking activates a different part of the brain. If you're trying to understand something, or increase your chance of remembering it later, say it out loud. Better still, try to explain it out loud to someone else. You'll learn more quickly, and you might uncover ideas you hadn't known were there when you were reading about it.

### 8 Listen to your brain.

Pay attention to whether your brain is getting overloaded. If you find yourself starting to skim the surface or forget what you just read, it's time for a break. Once you go past a certain point, you won't learn faster by trying to shove more in, and you might even hurt the process.

### 9 Feel something!

Your brain needs to know that this *matters*. Get involved with the stories. Make up your own captions for the photos. Groaning over a bad joke is *still* better than feeling nothing at all.

### 10 Take the final Coffee Cram Mock Exam only AFTER you finish the book.

If you take it too soon, you won't get a clear picture of how ready you are for the exam. Wait until you think you're close to ready, then take the exam, giving yourself exactly 135 minutes—the length of the real SCWCD.