

One Click Textbooks

CSE 454

By Mark, Nick, and Ken

Aspiration

- ▣ Slick, one-stop search website for buying textbooks for UW classes at cheapest prices
 - Include shipping price and tax
 - Eliminate or add books on the fly
 - Include images of all books returned
 - Link to UW to verify books returned
 - Links to carts full of needed books

Reality

- ▣ Working one-stop search website for buying textbooks for UW classes at cheapest prices
 - New or Used search
 - Includes shipping price
 - Eliminates duplicate books
 - Links to cart from supplier

Distribution of Work

- ▣ Mark:
 - Wrote crawler combining information from UW and the UW bookstore's website
 - Used to populate SQL database
- ▣ Nick:
 - Used the web APIs to query Amazon, Ebay, Half.com
 - Web front page and results page and redirects frame
- ▣ Ken:
 - Sent result of database query to servlet
 - Converted java to Tomcat

Class Source

University of Washington Course Descriptions - Mozilla Firefox

http://www.washington.edu/students/crsct/

UNIVERSITY of WASHINGTON

UW Home > Discover UW > Student Guide

UW Bothell Course Descriptions UW Tacoma Course Descriptions

Improved Course Catalog Search (Beta) Find just the class you want, when you want it. Or, search course descriptions with Google Custom Search:

Google Custom Search Search

University of Washington Course Descriptions

The UW Course Descriptions are updated monthly during the academic year (Last updated December 11, 2010.) All announcements in the General Catalog are subject to change without notice and do not constitute an agreement between the University of Washington - Seattle and the student. Students should assume the responsibility of consulting the appropriate academic unit or adviser for more current or specific information.

For an explanation of the symbols and abbreviations used in the Course Descriptions, select the [Glossary](#) link on this page or any of the Course Description pages. The [University of Washington - Bothell](#) and [University of Washington - Tacoma](#) Course Descriptions are also available online.

[Architecture & Urban Planning](#) | [Arts & Sciences](#) | [Built Environments](#) | [Business Administration](#) | [Dentistry](#) | [Education](#) | [Engineering](#) | [Environment](#) | [Friday Harbor](#) | [The Information School](#) | [Interdisciplinary Graduate Program](#) | [Interschool & Intercollege Program](#) | [Law](#) | [Medicine](#) | [Nursing](#) | [Pharmacy](#) | [Public Affairs](#) | [Public Health](#) | [ROTC](#) | [Social Work](#) | [Undergrad Interdisciplinary Program](#)

Undergraduate Interdisciplinary Programs

- [Honors \(HONORS\)](#)
- [Program on the Environment \(ENVIR\)](#) -- See [College of the Environment](#)
- [Quantitative Science \(Q SCI\)](#) -- See [College of the Environment](#)

[College of Architecture and Urban Planning](#) (See [College of Built Environments](#))

[College of Arts and Sciences](#)

- [American Ethnic Studies](#)
 - [Afro-American Studies \(AFRAM\)](#)
 - [American Ethnic Studies \(AES\)](#)
 - [Asian-American Studies \(AAS\)](#)
 - [Chicano Studies \(CHSTU\)](#)
 - [Swahili \(SWA\)](#)
 - [Tagalog \(TAGLG\)](#)
- [American Indian Studies \(AIS\)](#)
- [Anthropology](#)
 - [Anthropology \(ANTH\)](#)

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University of Washington Time Schedule - Mozilla Firefox

http://www.washington.edu/students/timeschd/WIN2011/

UNIVERSITY of WASHINGTON

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[Bothell Time Schedule](#) [Tacoma Time Schedule](#) [University Professional & Continuing Education Time Schedule](#)

University of Washington Time Schedule

Winter Quarter 2011

The UW Time Schedule lists credit classes offered at the University of Washington - Seattle. It is updated daily and is subject to change. (Last updated December 11, 2010.) You can get the up-to-the-minute status of any section by clicking on the five-digit Schedule Line Number. The University reserves the right to (1) add or delete courses from its offerings; (2) change times, days, or locations of courses; (3) change academic calendars; (4) cancel any courses for insufficient registration or academic/administrative decision without notice.

For further information on the Time Schedule and Registration process, visit the [Registration Resources](#) page.

[Architecture and Urban Planning](#) | [Arts & Sciences](#) | [Built Environments](#) | [Business School](#) | [Dentistry](#) | [Education](#) | [Engineering](#) | [Environment](#) | [Friday Harbor](#) | [The Information School](#) | [Interdisciplinary Graduate Program](#) | [Interschool & Intercollege Program](#) | [Law](#) | [Medicine](#) | [Nursing](#) | [Ocean & Fishery Science](#) | [Pharmacy](#) | [Public Affairs](#) | [Public Health](#) | [ROTC](#) | [Social Work](#) | [Undergrad Interdisciplinary Program](#)

Undergraduate Interdisciplinary Programs

- [Exploration Seminars](#)
- [Honors \(HONORS\)](#)
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- [Quantitative Science \(Q SCI\)](#) -- See [College of the Environment](#)

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College of Arts and Sciences

- [American Ethnic Studies](#)
 - [Afro-American Studies \(AFRAM\)](#)
 - [American Ethnic Studies \(AES\)](#)
 - [Asian-American Studies \(AAS\)](#)
 - [Chicano Studies \(CHSTU\)](#)
 - [Swahili \(SWA\)](#)
 - [Tagalog \(TAGLG\)](#)
- [American Indian Studies \(AIS\)](#)

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Sample Page

COMPUTER SCIENCE & ENGINEERING - Mozilla Firefox

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http://www.washington.edu/students/crscat/cse.html

COLLEGE OF ENGINEERING COMPUTER SCIENCE & ENGINEERING

Detailed course offerings (Time Schedule) are available for

- Autumn Quarter 2010
- Winter Quarter 2011

To see the detailed Instructor Class Description, click on the underlined instructor name following the course description.

CSE 100 Fluency in Information Technology (5) QSR
Introduces skills, concepts, and capabilities necessary to effectively use information technology. Includes logical reasoning, managing complexity, operation of computers and networks, and contemporary applications such as effective Web searching and database manipulation, ethical aspects, and social impacts of information technology. Offered: jointly with INFO 100.
Instructor Course Description: [Darleen A. Clements](#)

CSE 142 Computer Programming I (4) NW, QSR
Basic programming-in-the-small abilities and concepts including procedural programming (methods, parameters, return values), basic control structures (sequence, if/else, for loop, while loop), file processing, arrays and an introduction to defining objects. Offered: AWSpS.
Instructor Course Description: [Jessica K Miller](#)

CSE 143 Computer Programming II (5) NW, QSR
Continuation of 142. Concepts of data abstraction and encapsulation including stacks, queues, linked lists, binary trees, recursion, instruction to complexity and use of predefined collection classes. Prerequisite: CSE 142. Offered: AWSpS.
Instructor Course Description: [Benson N Limketkai](#)

CSE 190 Current Topics in Computer Science and Engineering (1-5, max. 15)
Instructor Course Description: [Raven Avery](#), [Lawrence Snyder](#), [Martin Stepp](#)

CSE 303 Concepts and Tools for Software Development (3)
Introduction to key concepts and tools in the development of software not introduced in the introductory programming courses. Includes programming with explicit memory management and layout (e.g. C or C++), techniques for group software development, modern design, implementation, and testing patterns and strategies, and societal impact. Can not be taken for credit if credit received for CSE 374. Prerequisite: CSE 143.

CSE 311 Foundations of Computing I (4) QSR
Examines fundamentals of logic, set theory, induction, and algebraic structures with applications to computing; finite state machines; and limits of computability. Prerequisite: CSE 143; either MATH 126 or MATH 136.

CSE 312 Foundations of Computing II (4) QSR
Examines fundamentals of enumeration and discrete probability; applications of randomness to computing; polynomial-time versus NP; and NP-completeness. Prerequisite: CSE 311; CSE 332, which may be taken concurrently.

CSE 321 Discrete Structures (4)
Fundamentals of set theory, graph theory, enumeration, and algebraic structures, with applications in computing. Prerequisite: CSE 143; either MATH 126, MATH 129, or MATH 136.

CSE 322 Introduction to Formal Models in Computer Science (3)
Finite automata and regular expressions; context-free grammars and pushdown automata; nondeterminism; Turing machines and the halting problem.

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http://www.washington.edu/students/timeschd/WIN2011/cse.html

UNIVERSITY of WASHINGTON

Search Directories Reference Tools

UW Home > Discover UW > Student Guide > Time Schedule

Winter 2011 Time Schedule

Winter Quarter 2011 Time Schedule

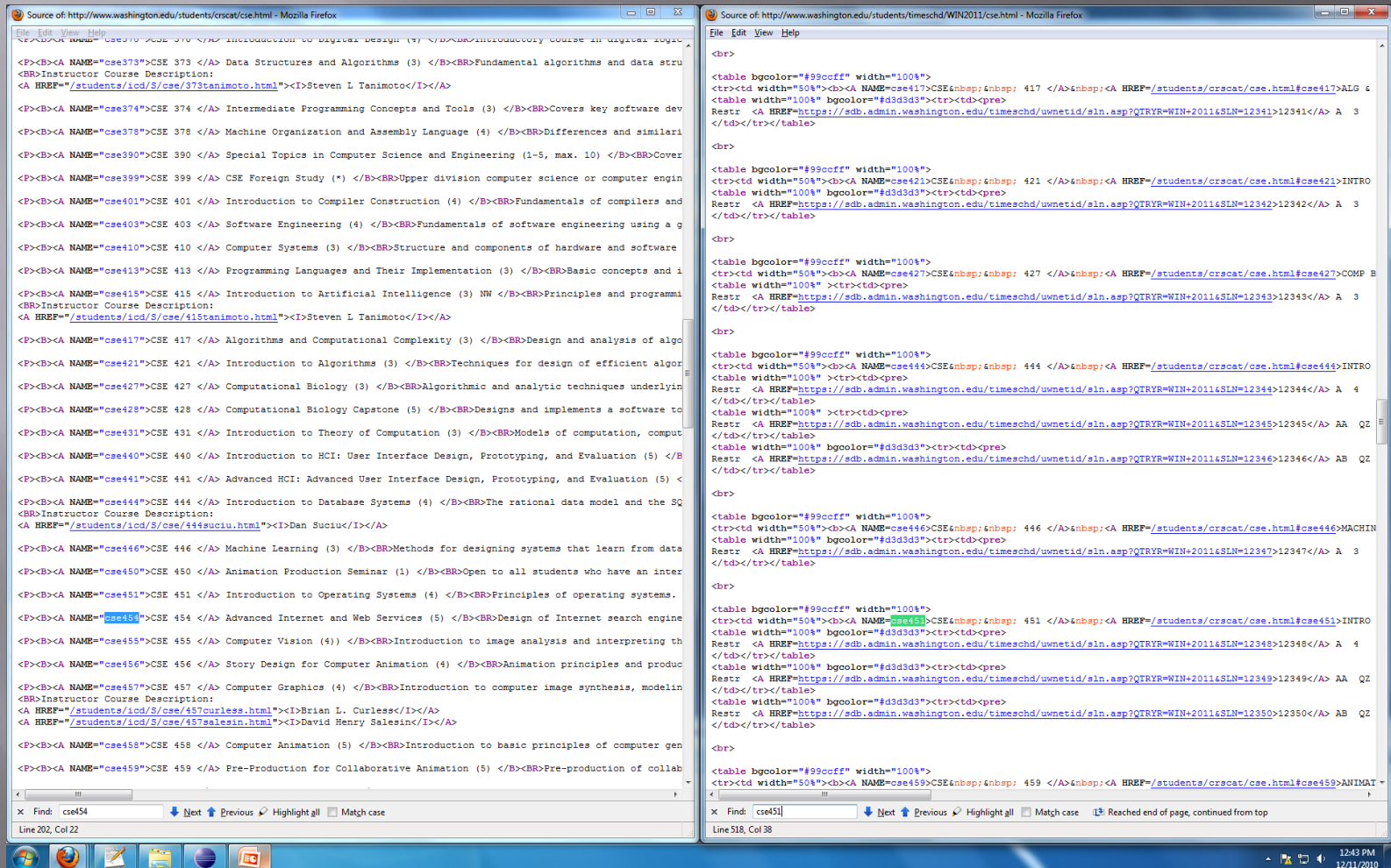
**COMPUTER SCIENCE & ENGINEERING
(COLLEGE OF ENGINEERING)**

Enrollment and status (open/closed) were accurate when this page was created (12:06 am December 11, 2010) but may have changed since then. For current enrollment and status, check the [Enrollment Summary](#). (UW NetID required.)

[Help with the UW Time Schedule](#)

Enrl Restr	SLN	Sect ID	Cred	Meeting Times	Bldg/Rm	Instructor	Status	Enrl/Lim	Grades	Crs Fee	Other
CSE 100 COMPUTER FLUENCY (QSR)											
	12245	A	5	MWF 1230-120	EEB 105	CLEMENTS, DARLEEN A.	Closed	72 / 72			
STUDENTS UNABLE TO REGISTER FOR CSE 100 SHOULD STRONGLY CONSIDER TAKING CSE 190E. FOR INFO GO TO: HTTP://TINYURL.COM/2774DMT											
	12246	AA	QZ	TTh 930-1020	MGH 058		Closed	12 / 12			
	12247	AB	QZ	TTh 1230-120	MGH 058		Closed	12 / 12			
	12248	AC	QZ	TTh 130-220	MGH 058		Closed	12 / 12			
	12249	AD	QZ	TTh 230-320	MGH 058		Closed	12 / 12			
	12250	AE	QZ	MW 130-220	MGH 058		Closed	12 / 12			
	12251	AF	QZ	MW 230-320	MGH 058		Closed	12 / 12			
CSE 142 COMPUTER PRGRMNG I (NW,QSR)											
	12253	A	4	MWF 930-1020	BAG 131	REGES, STUART THOMAS	Open	242 / 260			
CONTACT CSE142@U.WASHINGTON.EDU WITH REGISTRATION QUESTIONS											

Regex Grabs Tags



ISBN Source

Students - UW Seattle Campus - University Book Store - Mozilla Firefox

http://www.bookstore.washington.edu/student_faculty/student_faculty.taf?page=uwseattle

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University Book Store.

SEATTLE, WASHINGTON

STUDENTS & FACULTY HUSKY SHOP BOOKS EVENTS TECH CENTER

textbook buyback!

DECEMBER 6-17

CHOOSE CASH OR GET AN EXTRA 10% WITH STORE CREDIT. UW ID REQUIRED.

ODEGAARD LIBRARY

DECEMBER 6 - 9 • 10am - 6pm
DECEMBER 10 • 10am - 5pm
DECEMBER 11 & 12 • 1Pm - 5pm
DECEMBER 13 - 15 • 9am - 6pm
DECEMBER 16 • 10am - 6pm
DECEMBER 17 • 10am - 4pm

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2010 - 2011 UW COMMON BOOK

UW SEATTLE

Quarter:

UW Seattle Course #: ARCH350

UW Seattle SLN Code: 1121

Author (Last Name): Williams

Title (Key Words): Art

ISBN: 0130447021

- Click here for store hours.
- Information presented through this service is subject to change daily.
- Unless an instructor has required the CDs sometimes packaged with textbooks for their course, we cannot guarantee that they will be bundled with a used title.
- All online textbook orders are shipped UPS, FedEx, or USPS Priority mail. Shipping charges will apply. View our Textbooks Shipping Rates.

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Intermediate Results


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 **University Book Store.**
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UW Seattle Winter Quarter Coursebook Search

There are 6 matches. Displaying matches 1 through 6.

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UW Winter Coursebook Search by Course Number & Section
Click on the course number to see detailed information.

Course	Sections	Instructor	Title	Author
ENGL111	A,B			
ENGL111	C-X			
ENGL111	M	ANDERSON		
ENGL111	N	TERRY		
ENGL111	P	SPESE		
ENGL111	R	CAMPBELL		

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TEXTBOOKS FAQ

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Can I use my financial aid money to purchase textbooks?
Can I return my textbooks?
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UW RESOURCES

- Student Guide
- UW Course Catalog
- Quarterly Time Schedules
- Colleges, Schools, Academic Departments, and Degree Programs
- MyUW

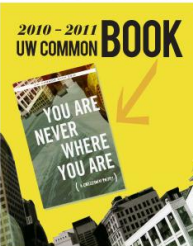
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2010 - 2011 UW COMMON BOOK



YOU ARE NEVER WHERE YOU ARE
(L. M. JOHNSON)

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Results

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http://www3.bookstore.washington.edu/_text/TextDisplay taf?INSTRUCTOR2=&DEPT COURSE2=ENGL111&SECTIONS2=A%2CB

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University Book Store.

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UW Winter Coursebook Search by Course Number & Section

Please click on the "New Price" or "Used Price" button to add the title to your book list.
If a button is not active, it is because copies of the particular new or used book are currently unavailable.
When you have completed your selection, click the "Buy Books" button below.

Course #:	ENGL111	Sections:	A,B
ISBN:	9780312666781		
Title:	2 PIs BriefEd, Acts Of Inquiry W/ Getting Th		
Author:	Bawarshi		
<input checked="" type="radio"/> New Price:	\$ 34.00	(UW Customer Rebate: \$ 3.40)	
<input type="radio"/> Used	To be determined - No used books are available at this		
Price:	time		
Notes:	Required		

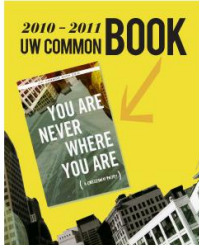


Course #:	ENGL111	Sections:	A,B
ISBN:	9780312664848		
Title:	Everyday Writer (2009Mia Updates & 2010 Apa		
Author:	Lunsford		
<input checked="" type="radio"/> New Price:	\$ 63.75	(UW Customer Rebate: \$ 6.38)	
<input type="radio"/> Used	\$ 47.85	(UW Customer Rebate: \$ 4.79)	
Price:			
Notes:	No Advance Purchases		

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Database

The screenshot shows the phpMyAdmin interface for the 'oneclick' database. The left sidebar lists the database and its tables: bclasses, bmaps, books, sclasses, smaps, tcclasses, and tmaps. The main area displays a table overview with columns for Table, Action, Records, Type, Collation, Size, and Overhead. The 'Sum' row indicates 7 tables with a total of 6,516 records and 398.5 KiB size.

Table	Action	Records	Type	Collation	Size	Overhead
bclasses		846	MyISAM	latin1_swedish_ci	64.4 KiB	-
bmaps		1,643	MyISAM	latin1_swedish_ci	105.5 KiB	-
books		1,333	MyISAM	latin1_swedish_ci	43.5 KiB	-
sclasses		844	MyISAM	latin1_swedish_ci	65.3 KiB	-
smaps		1,721	MyISAM	latin1_swedish_ci	106.5 KiB	-
tcclasses		43	MyISAM	latin1_swedish_ci	4.2 KiB	-
tmaps		86	MyISAM	latin1_swedish_ci	9.2 KiB	-
7 table(s)	Sum	6,516	MyISAM	latin1_swedish_ci	398.5 KiB	0 B

Buttons: Check All / Uncheck All, With selected: [v]

Print view, Data Dictionary

Create new table on database oneclick

Name: [] Number of fields: [] [Go]

i ¹ May be approximate. See FAQ 3.11

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Open APIs

The image shows two browser windows side-by-side. The left window displays an eBay product page for the book "Building Java Programs: A Back to Basics Approach" by Marty Stepp and Stuart Reges. The right window shows the source code of the page, which is an XML feed containing product details and seller information.

Product Page Details:

- Product:** Building Java Programs: A Back to Basics Approach
- Author:** Marty Stepp, Stuart Reges
- Format:** Other
- ISBN-10:** 0136091814
- ISBN-13:** 9780136091813
- Publisher:** Addison Wesley
- Edition:** 2
- Language:** English
- Best Price:** \$63.75
- List Price:** \$108.00
- Savings:** Save 40%

Items for Sale (29):

Price	Buy!	Seller Feedback	Comments
\$83.03	Buy!	collegebooksdirect-half (89203) 99%	FAST SHIPPING! Text still in shrink wrap. Order shipped same if rec'd...
\$83.69	Buy!	textbooks-now (175231) 98%	Fast shipping! Great customer service! Quality books. Upgrade shipping...
\$90.00	Buy!	eivenmay91 (17) 100%	Brand new! Never Used!!
\$90.42	Buy!	etextshop (33459) 99%	CD Included. Choose expedited shipping for fast delivery. 30 Da money back...

Like New:

Price	Buy!	Seller Feedback	Comments
\$83.00	Buy!	bookbyte (155177) 98%	Almost new condition. SKU:9780136091813-2-0
\$88.40	Buy!	etextshop (33459) 99%	CD Included. Choose expedited shipping for fast delivery. Two wee money...
\$99.24	Buy!	a_teambooks (13218) 98%	Proven Seller with Excellent Customer Service. Choose expedited shipping...

Source Code Snippets:

```
<Value>Stuart Reges</Value>
</NameValueList>
<NameValueList>
  <Name>Format</Name>
  <Value>Other</Value>
</NameValueList>
</ItemSpecifics>
<ItemArray>
  <Item>
    <ItemID>341750341721</ItemID>
    <ViewItemURLForNaturalSearch>http://product.half.ebay.com/Building-Java-
Programs-Marty-Stepp-Stuart-Reges-Other-
2010_W0QQprZ79742395QQtgZvidetailsQQitemZ341750341721</ViewItemURLForNaturalSearch
h>
    <Location>Greenville, Texas</Location>
    <Quantity>1</Quantity>
    <Seller>
      <FeedbackScore>89203</FeedbackScore>
      <PositiveFeedbackPercent>98.7</PositiveFeedbackPercent>
    </Seller>
    <CurrentPrice currencyID="USD">83.03</CurrentPrice>
    <Storefront>
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half_W0QQsellerZcollegebooksdirect-half</StoreURL>
      <StoreName>collegebooksdirect-half</StoreName>
    </Storefront>
    <Country>US</Country>
    <HalfItemCondition>BrandNew</HalfItemCondition>
    <SellerComments>FAST SHIPPING! Text still in shrink wrap. Order shipped
same day if rec&apos;d by 1PM</SellerComments>
    </Item>
    <Item>
      <ItemID>341852758488</ItemID>
      <ViewItemURLForNaturalSearch>http://product.half.ebay.com/Building-Java-
Programs-Marty-Stepp-Stuart-Reges-Other-
2010_W0QQprZ79742395QQtgZvidetailsQQitemZ341852758488</ViewItemURLForNaturalSearch
h>
      <Quantity>2</Quantity>
      <Seller>
        <FeedbackScore>175231</FeedbackScore>
        <PositiveFeedbackPercent>98.4</PositiveFeedbackPercent>
      </Seller>
      <CurrentPrice currencyID="USD">83.69</CurrentPrice>
      <Storefront>
        <StoreURL>http://shops.half.ebay.com/textbooks-now_W0QQsellerZtextbooks-
now</StoreURL>
        <StoreName>textbooks-now</StoreName>
      </Storefront>
```


Front End

- Connects Everything Together.

One Click Textbooks

Please select your classes for winter quarter.

Hit submit and the total price of all your books as well as links to checkout carts will be displayed.

School: New or Used: Buy Optional Texts:

Class #1:

Class #2:

Class #3:

Class #4:

Class #5:

*This webpage was a class project. We do not guarantee information on this website is correct or complete please double check MYUW.
*Occasionally two books have the same isbn number. so double check your carts before purchasing.

```
1 <?php
2 $school = $_GET["school"];
3 $condition = $_GET["condition"];
4 $optional = $_GET["optional"];
5 $dept1 = $_GET["dept1"];
6 $class1 = $_GET["class1"];
7 $sect1 = $_GET["sect1"];
8 $dept2 = $_GET["dept2"];
9 $class2 = $_GET["class2"];
10 $sect2 = $_GET["sect2"];
11 $dept3 = $_GET["dept3"];
12 $class3 = $_GET["class3"];
13 $sect3 = $_GET["sect3"];
14 $dept4 = $_GET["dept4"];
15 $class4 = $_GET["class4"];
16 $sect4 = $_GET["sect4"];
17 $dept5 = $_GET["dept5"];
18 $class5 = $_GET["class5"];
19 $sect5 = $_GET["sect5"];
20 if($optional == "No"){
21     $opt = " AND optional < 1";
22 }else{
23     $opt = "";
24 }
25
26 if($condition == "New"){
27     $used = False;
28 }else{
29     $used = True;
30 }
31 $maps = substr($school, 0, 1) . "maps";
32 # connect to mysql database server on local computer
33 $db = mysql_connect("localhost", "xtinoue3", "2pyTaaF2");
34 if (!$db) {
35     die("Error, could not connect to server!" . mysql_error());
36 }
37
38 # USE database_name;
39 if (!$mysql_select_db("mjordan7_oneclick")){
40     die("Error, could not choose the db!" . mysql_error());
41 }
42 $outfile = "";
43 $notNull = true;
44 $price = 0.0;
45 $classes = "(";
46
47 # execute a SQL query on the database
48 if ($sect1) {
49     $classes .= "(id = cid AND shortName = \"\" . $dept1 . \"\" AND num = \"\"
50     . $class1 . \"\" AND sect = \"\" . $sect1 . \"\")";
```

Surprises

- ▣ UW Bookstore displays ISBN as image
- ▣ Bookstore doesn't have complete class data
- ▣ Half.com doesn't have shopping cart API
- ▣ Web APIs are not designed for intuitive use
- ▣ Shipping costs complicated
- ▣ Web taxes are complex
- ▣ Cookies
- ▣ Java doesn't work on web servers

TomCat



Apache Tomcat



The Apache Software Foundation

<http://www.apache.org/>

Administration

[Status](#)
[Tomcat Manager](#)

Documentation

[Release Notes](#)
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[Tomcat Documentation](#)

Tomcat Online

[Home Page](#)
[FAQ](#)
[Bug Database](#)
[Open Bugs](#)
[Users Mailing List](#)
[Developers Mailing List](#)
[IRC](#)

Miscellaneous

[Servlets Examples](#)
[JSP Examples](#)
[Sun's Java Server Pages Site](#)
[Sun's Servlet Site](#)

If you're seeing this page via a web browser, it means you've setup Tomcat successfully. Congratulations!

As you may have guessed by now, this is the default Tomcat home page. It can be found on the local filesystem at:

```
 catalina_home/webapps/ROOT/index.html
```

where "\$CATALINA_HOME" is the root of the Tomcat installation directory. If you're seeing this page, and you don't think you should be, then you're either a user who has arrived at new installation of Tomcat, or you're an administrator who hasn't got his/her setup quite right. Providing the latter is the case, please refer to the [Tomcat Documentation](#) for more detailed setup and administration information than is found in the INSTALL file.

NOTE: For security reasons, using the manager webapp is restricted to users with role "manager". Users are defined in `catalina_home/conf/tomcat-users.xml`.

Included with this release are a host of sample Servlets and JSPs (with associated source code), extensive documentation, and an introductory guide to developing web applications.

Tomcat mailing lists are available at the Tomcat project web site:

- users@tomcat.apache.org for general questions related to configuring and using Tomcat
- dev@tomcat.apache.org for developers working on Tomcat

Thanks for using Tomcat!

Powered by



TOMCAT

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Lessons Learned

- ▣ Writing a crawler
- ▣ Emulating a browser with post requests
- ▣ How to use open APIs
- ▣ Javascript
- ▣ Php
- ▣ Having a well written plan is crucial
- ▣ New web technologies – Tomcat
- ▣ Whitespace

Experiments and Testing

- ▣ Subjects were given website address and told to find books for next quarter
- ▣ Subjects found books faster than their traditional methods, and still much cheaper than the UW bookstore
- ▣ Subjects found several points confusing, so we improved the UI and provided instructions
- ▣ Further testing showed satisfaction with product for classes that UW bookstore listed

Demo

- ▣ Check it out!
- ▣ Now showing in a classroom near you