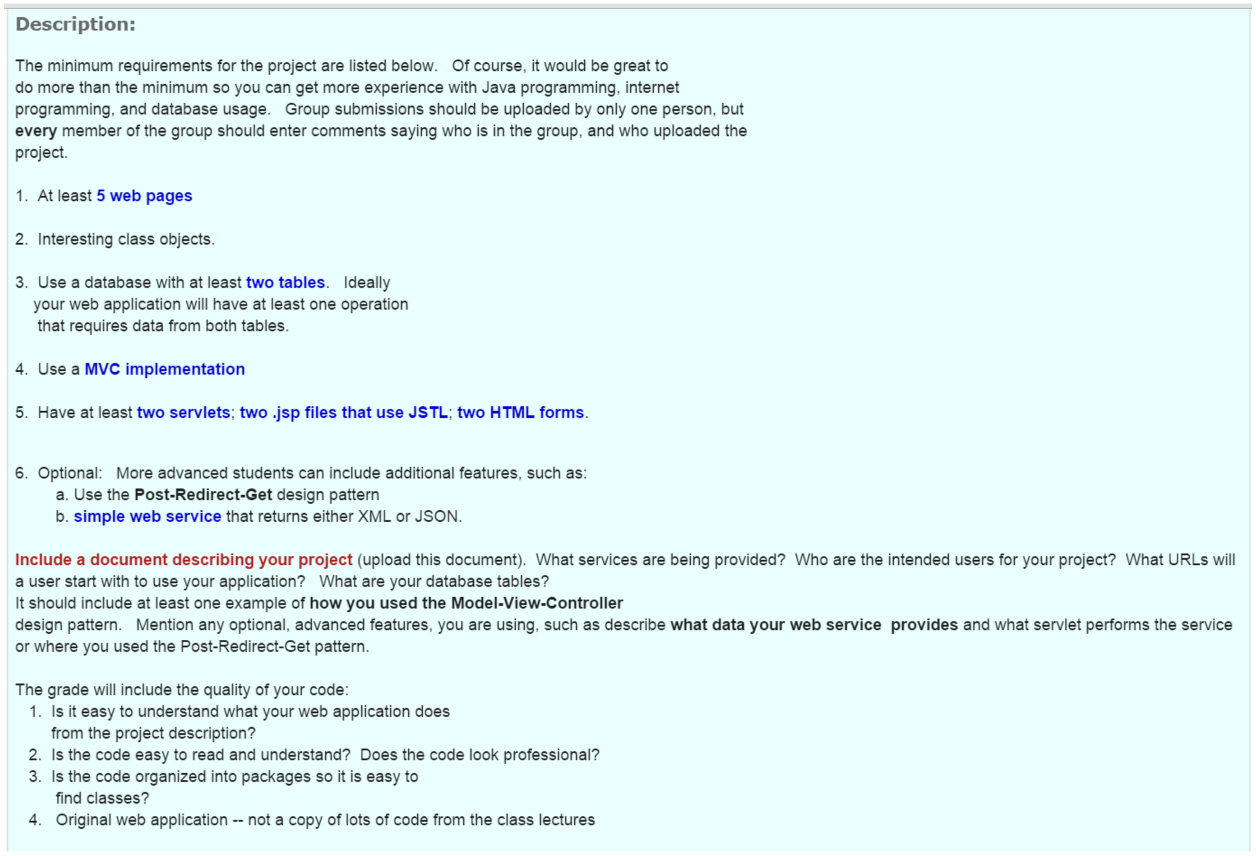
OnlineBookRentalSystem



Description:

The minimum requirements for the project are listed below. Of course, it would be great to do more than the minimum so you can get more experience with Java programming, internet programming, and database usage. Group submissions should be uploaded by only one person, but **every** member of the group should enter comments saying who is in the group, and who uploaded the project.

1. At least **5 web pages**

2. Interesting class objects.

3. Use a database with at least **two tables**. Ideally your web application will have at least one operation that requires data from both tables.

4. Use a **MVC implementation**

5. Have at least **two servlets**; **two .jsp files that use JSTL**; **two HTML forms**.

6. Optional: More advanced students can include additional features, such as:
   a. Use the **Post-Redirect-Get** design pattern
   b. **simple web service** that returns either XML or JSON.

Include a document describing your project (upload this document). What services are being provided? Who are the intended users for your project? What URLs will a user start with to use your application? What are your database tables?
It should include at least one example of **how you used the Model-View-Controller** design pattern. Mention any optional, advanced features, you are using, such as describe **what data your web service provides** and what servlet performs the service or where you used the Post-Redirect-Get pattern.

The grade will include the quality of your code:
1. Is it easy to understand what your web application does from the project description?
2. Is the code easy to read and understand? Does the code look professional?
3. Is the code organized into packages so it is easy to find classes?
4. Original web application -- not a copy of lots of code from the class lectures

Abstract:

I have tried to simulate a part of library management system. This project deals with the online book renting maximum for a semester (i.e. 3 months). I haven’t included the login and logout part. I have designed only the part from welcome page after login to the book checkout phase.

Brief Description of Project:

- There are five servlets to handle five .jsp pages.
- From Welcome/ home page we can view the list of books
- The available books can be added to cart
- The unavailable books are marked as ‘unavailable’ on red color
- We can go back to add book or we can proceed to checkout after adding one book to cart
- We can select multiple books but cannot add the same book twice

- We need to select the duration for renting book (1, 2, or 3 months only)
- Then after clicking continues we will move to next page which displays the books we have rented along with the duration and other messages.
- Once book is added to cart, it cannot be undone. I haven't handled that event in this project.

Answers to the given questions.

1. **What services are being provided? Who are the intended users for your project?**

   Renting book for specific period is the service that has been provided.

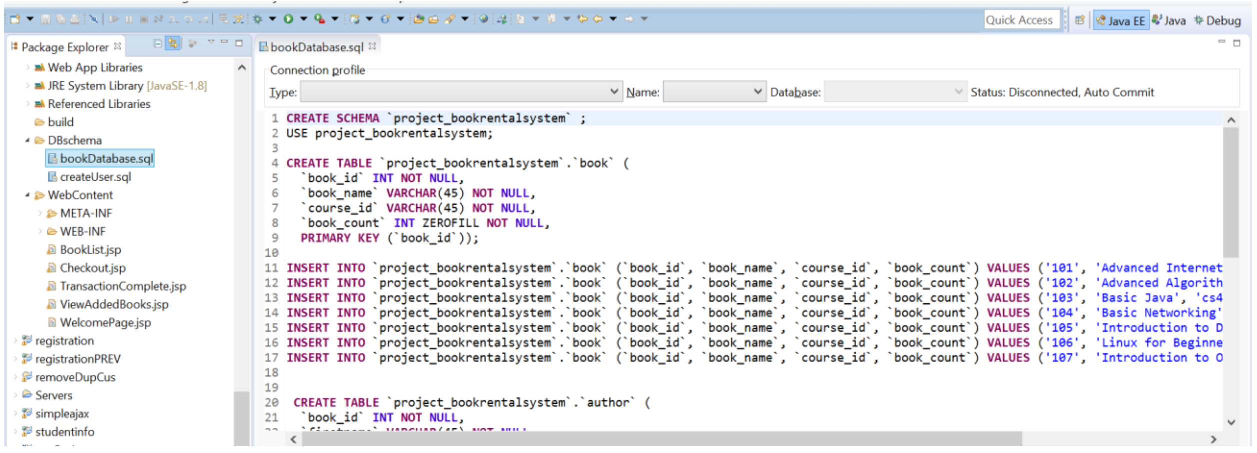
   University Library Management (online part only) is the intended users of my project.

2. **What URLs will a user start with to use your application**?

   http://localhost:8080/OnlineBookRentalSystem

3. **What are your database tables?**

   book and **author** are my two database tables**.** The **.sql file** is provided inside **DBschema** folder.



Connection profile
Type: Name: Database: Status: Disconnected, Auto Commit

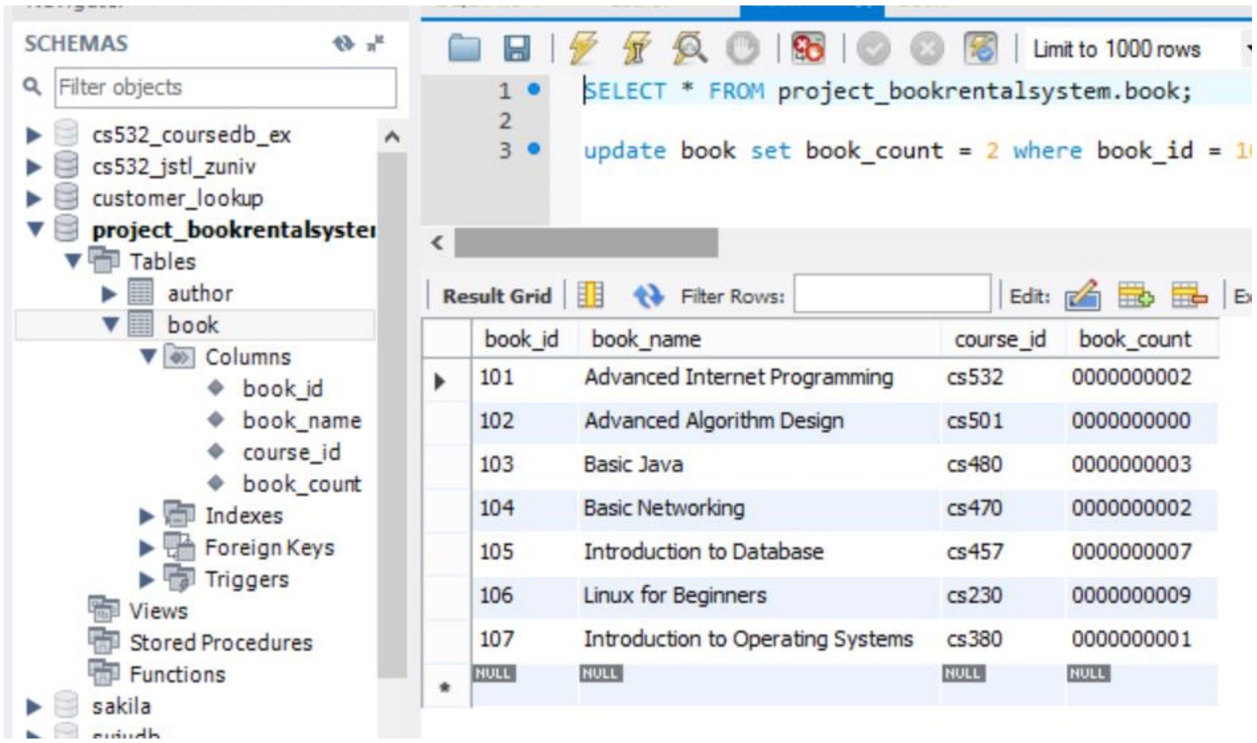
```
CREATE SCHEMA `project_bookrentalsystem` ;
USE project_bookrentalsystem;

CREATE TABLE `project_bookrentalsystem`.`book` (
  `book_id` INT NOT NULL,
  `book_name` VARCHAR(45) NOT NULL,
  `course_id` VARCHAR(45) NOT NULL,
  `book_count` INT ZEROFILL NOT NULL,
  PRIMARY KEY (`book_id`));

INSERT INTO `project_bookrentalsystem`.`book` (`book_id`, `book_name`, `course_id`, `book_count`) VALUES ('101', 'Advanced Internet
INSERT INTO `project_bookrentalsystem`.`book` (`book_id`, `book_name`, `course_id`, `book_count`) VALUES ('102', 'Advanced Algorith
INSERT INTO `project_bookrentalsystem`.`book` (`book_id`, `book_name`, `course_id`, `book_count`) VALUES ('103', 'Basic Java', 'cs4
INSERT INTO `project_bookrentalsystem`.`book` (`book_id`, `book_name`, `course_id`, `book_count`) VALUES ('104', 'Basic Networking'
INSERT INTO `project_bookrentalsystem`.`book` (`book_id`, `book_name`, `course_id`, `book_count`) VALUES ('105', 'Introduction to D
INSERT INTO `project_bookrentalsystem`.`book` (`book_id`, `book_name`, `course_id`, `book_count`) VALUES ('106', 'Linux for Beginne
INSERT INTO `project_bookrentalsystem`.`book` (`book_id`, `book_name`, `course_id`, `book_count`) VALUES ('107', 'Introduction to O


 CREATE TABLE `project_bookrentalsystem`.`author` (
  `book_id` INT NOT NULL,
```

book table

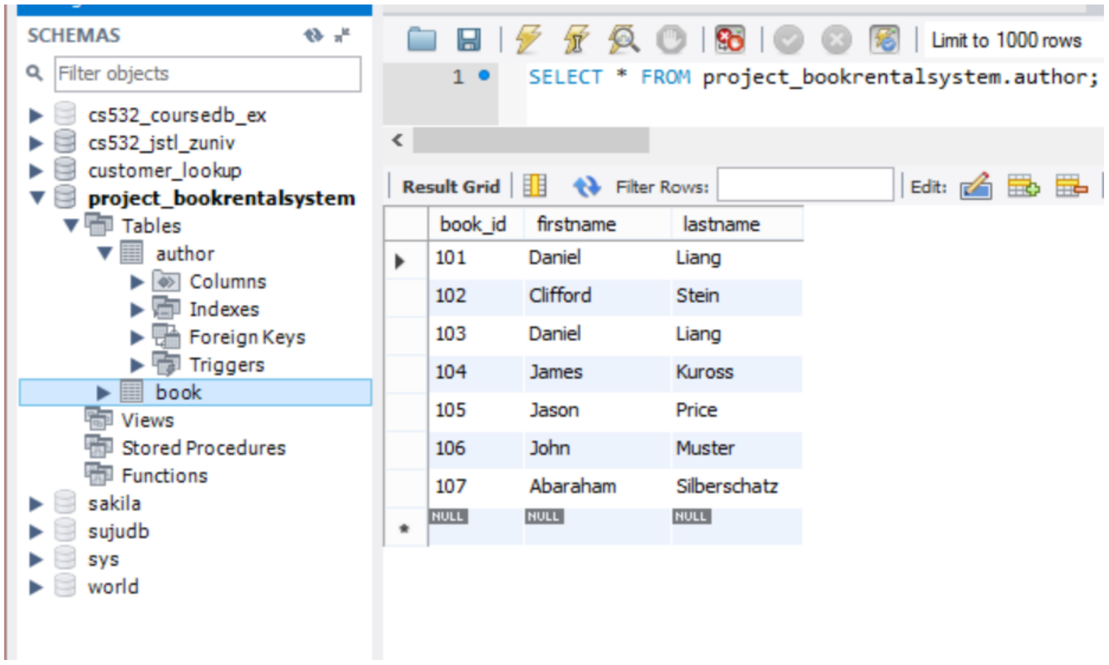


```
SELECT * FROM project_bookrentalsystem.book;

update book set book_count = 2 where book_id = 1
```

book_id	book_name	course_id	book_count
101	Advanced Internet Programming	cs532	0000000002
102	Advanced Algorithm Design	cs501	0000000000
103	Basic Java	cs480	0000000003
104	Basic Networking	cs470	0000000002
105	Introduction to Database	cs457	0000000007
106	Linux for Beginners	cs230	0000000009
107	Introduction to Operating Systems	cs380	0000000001
NULL	NULL	NULL	NULL

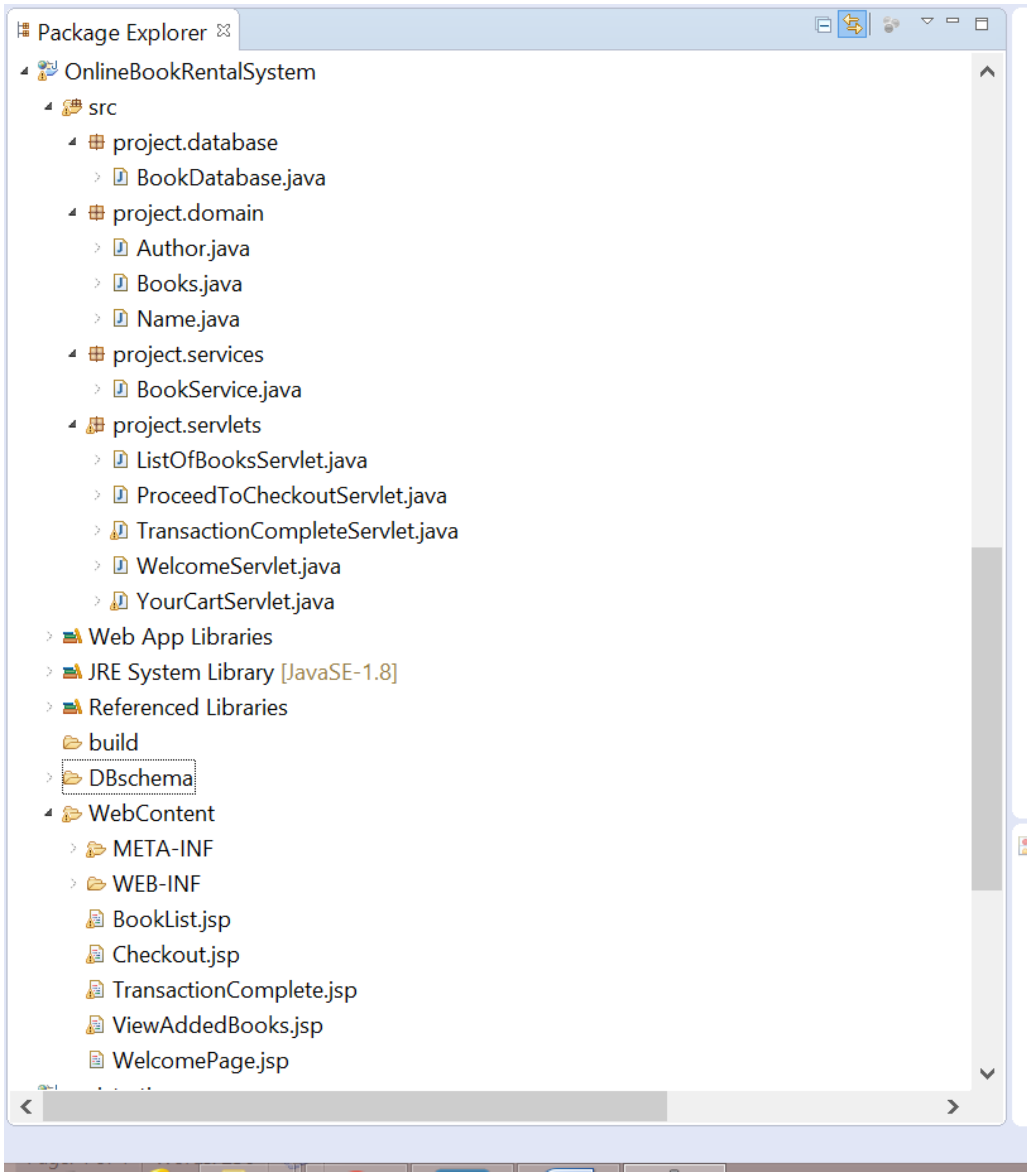
author table



```
SELECT * FROM project_bookrentalsystem.author;
```

book_id	firstname	lastname
101	Daniel	Liang
102	Clifford	Stein
103	Daniel	Liang
104	James	Kuross
105	Jason	Price
106	John	Muster
107	Abaraham	Silberschatz
NULL	NULL	NULL

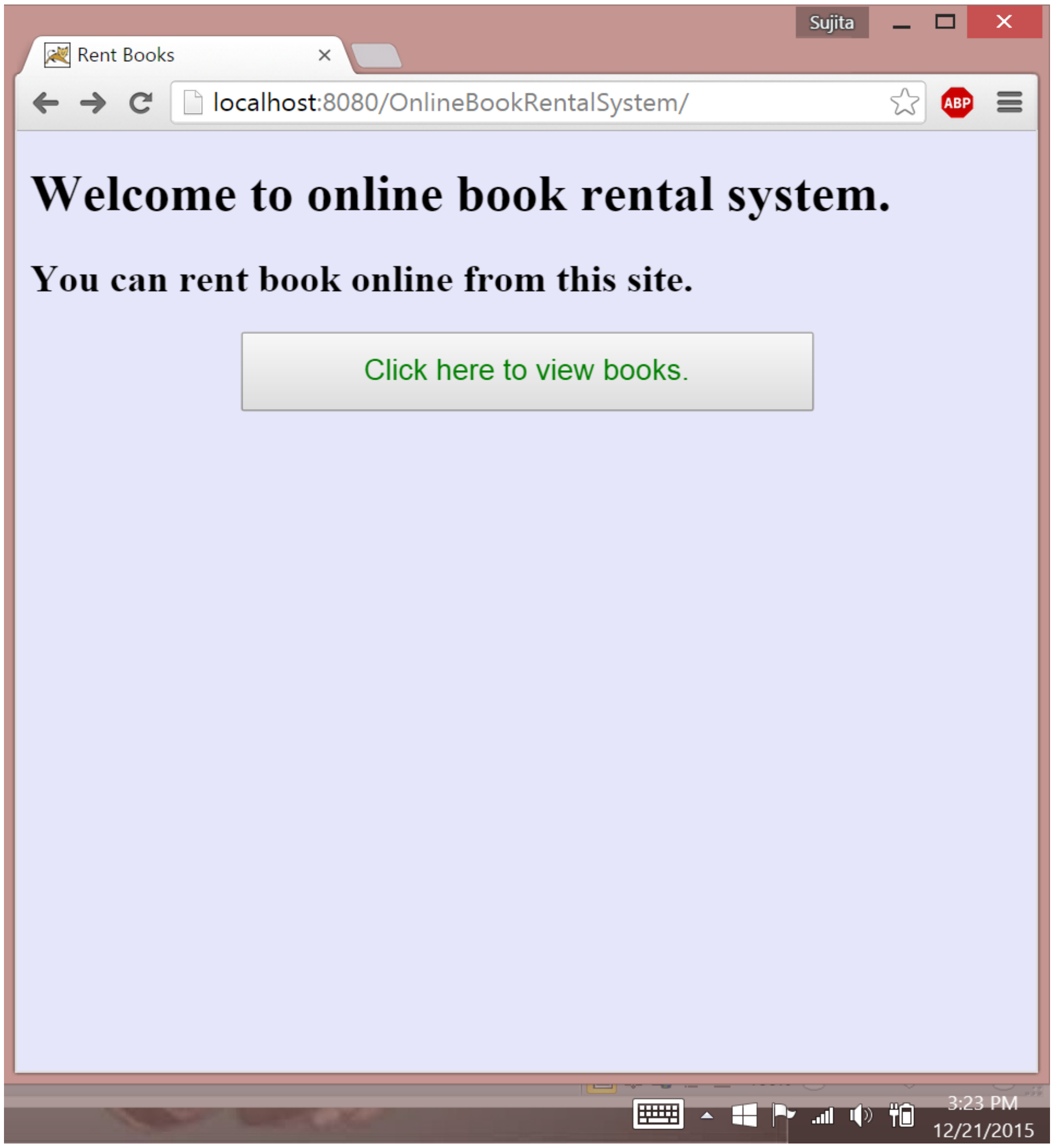
4. **It should include at least one example of** how you used the Model-View-Controller **design pattern.**



```
Package Explorer
OnlineBookRentalSystem
  src
    project.database
      BookDatabase.java
    project.domain
      Author.java
      Books.java
      Name.java
    project.services
      BookService.java
    project.servlets
      ListOfBooksServlet.java
      ProceedToCheckoutServlet.java
      TransactionCompleteServlet.java
      WelcomeServlet.java
      YourCartServlet.java
  Web App Libraries
  JRE System Library [JavaSE-1.8]
  Referenced Libraries
  build
  DBschema
  WebContent
    META-INF
    WEB-INF
    BookList.jsp
    Checkout.jsp
    TransactionComplete.jsp
    ViewAddedBooks.jsp
    WelcomePage.jsp
```

As seen above all the servlets **(<u>Controller</u>)** are in ***project.servlets*** package , all the **<u>Views</u>** are in ***WebContent*** folder listed as ***.jsp*** and the **<u>Model</u>** in ***project.domain, project.services, project.database*** *packages*.

For instance, when my web page starts the **WelcomeServlet (cotroller)** contacts **WelcomePage.jsp (view only)** since there is no content change.

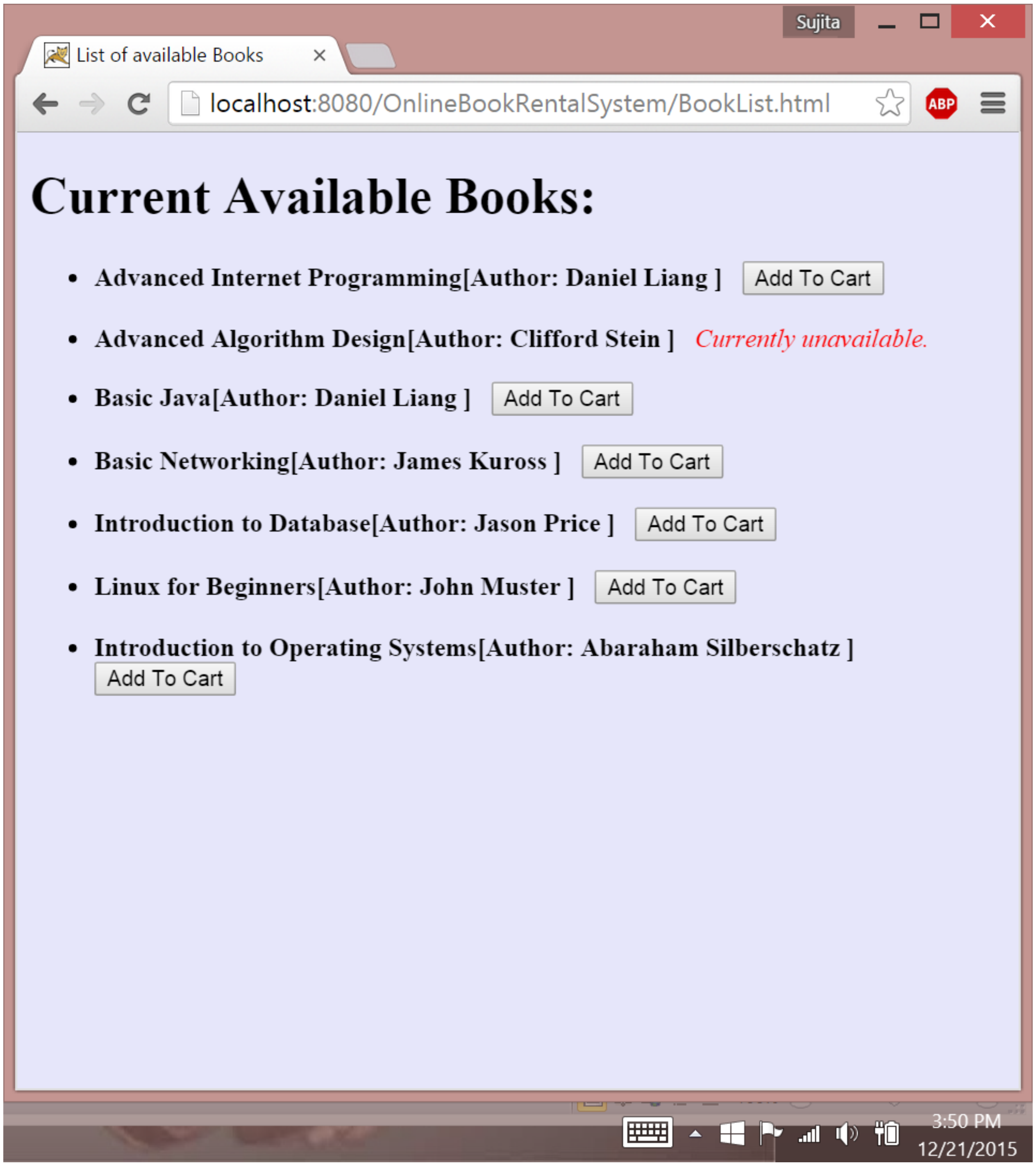

Sujita
Rent Books
localhost:8080/OnlineBookRentalSystem/
3:23 PM
12/21/2015

Welcome to online book rental system.

You can rent book online from this site.

Click here to view books.

When we click button **'Click here to view books'** to view books **ListOfBooksServlet (controller)** contacts **BookList.jsp (view)** which is already registered with the **Books and BookService class (Model)**, and also contacts those classes since the content is changed. It needs to display books from the database.

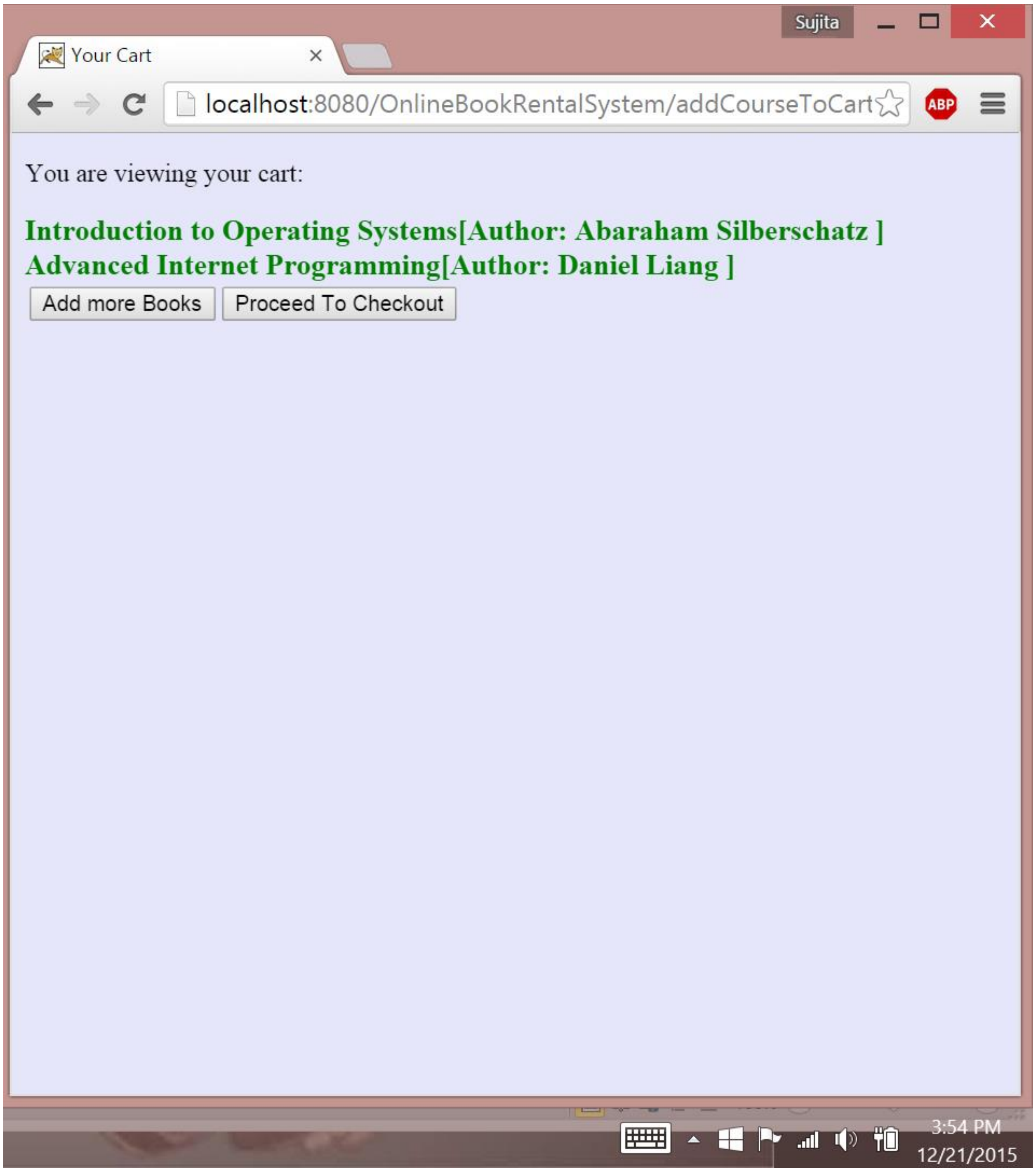


Current Available Books:

- **Advanced Internet Programming[Author: Daniel Liang]** Add To Cart
- **Advanced Algorithm Design[Author: Clifford Stein]** *Currently unavailable.*
- **Basic Java[Author: Daniel Liang]** Add To Cart
- **Basic Networking[Author: James Kuross]** Add To Cart
- **Introduction to Database[Author: Jason Price]** Add To Cart
- **Linux for Beginners[Author: John Muster]** Add To Cart
- **Introduction to Operating Systems[Author: Abaraham Silberschatz]** Add To Cart

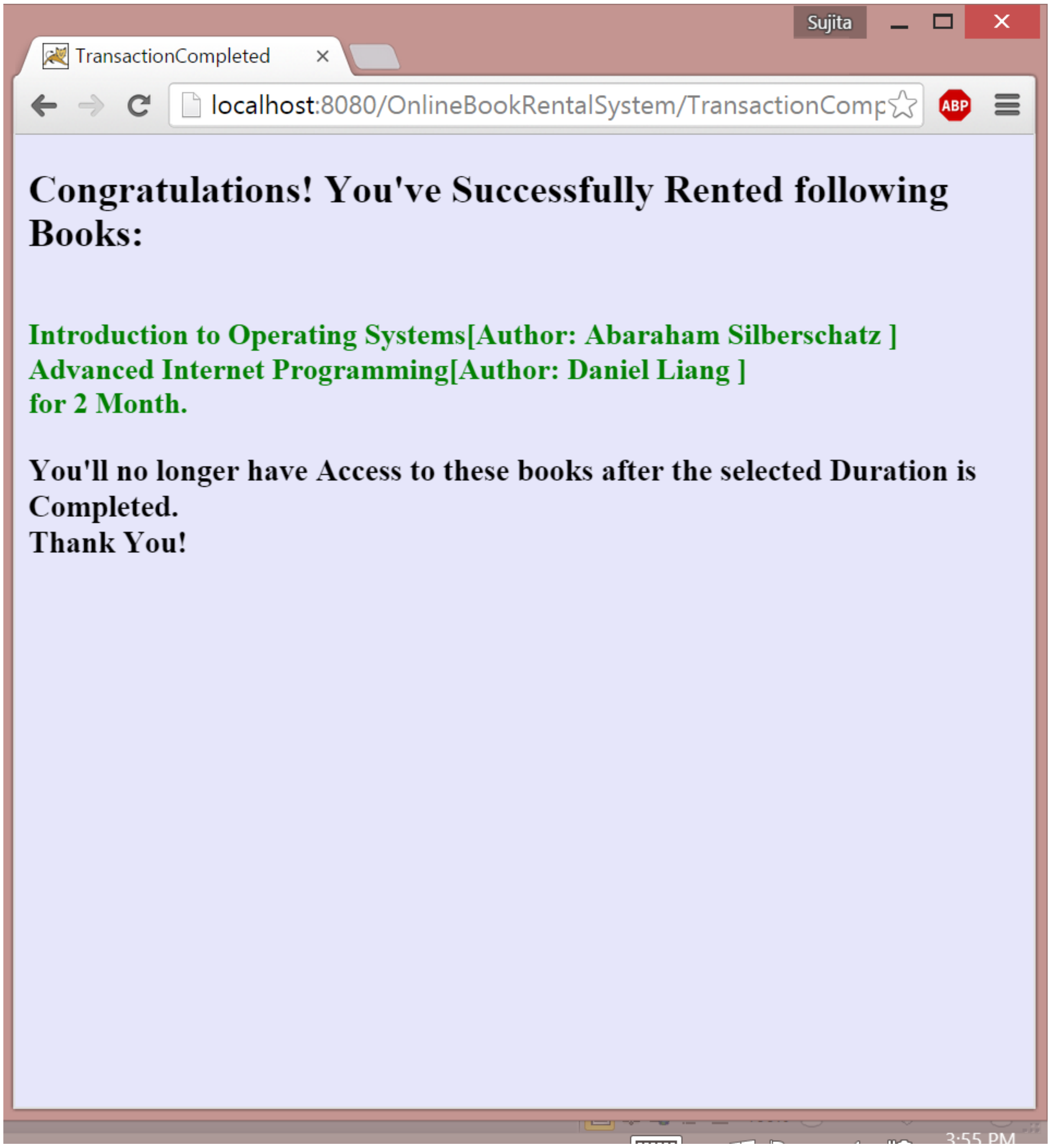
Likewise, when one user adds the book which is **available for now (i.e. having count 1),** and when other user tries to add the same book the **BookList.jsp (view)** is updated and shown 'not available'. In this case Books(model) notifies **BookList.jsp (view)** about the bookCount change and view gets updated.

First user added "**Introduction to Operating Systems**" book which was only one in the database:



You are viewing your cart:

Introduction to Operating Systems[Author: Abaraham Silberschatz]
Advanced Internet Programming[Author: Daniel Liang]

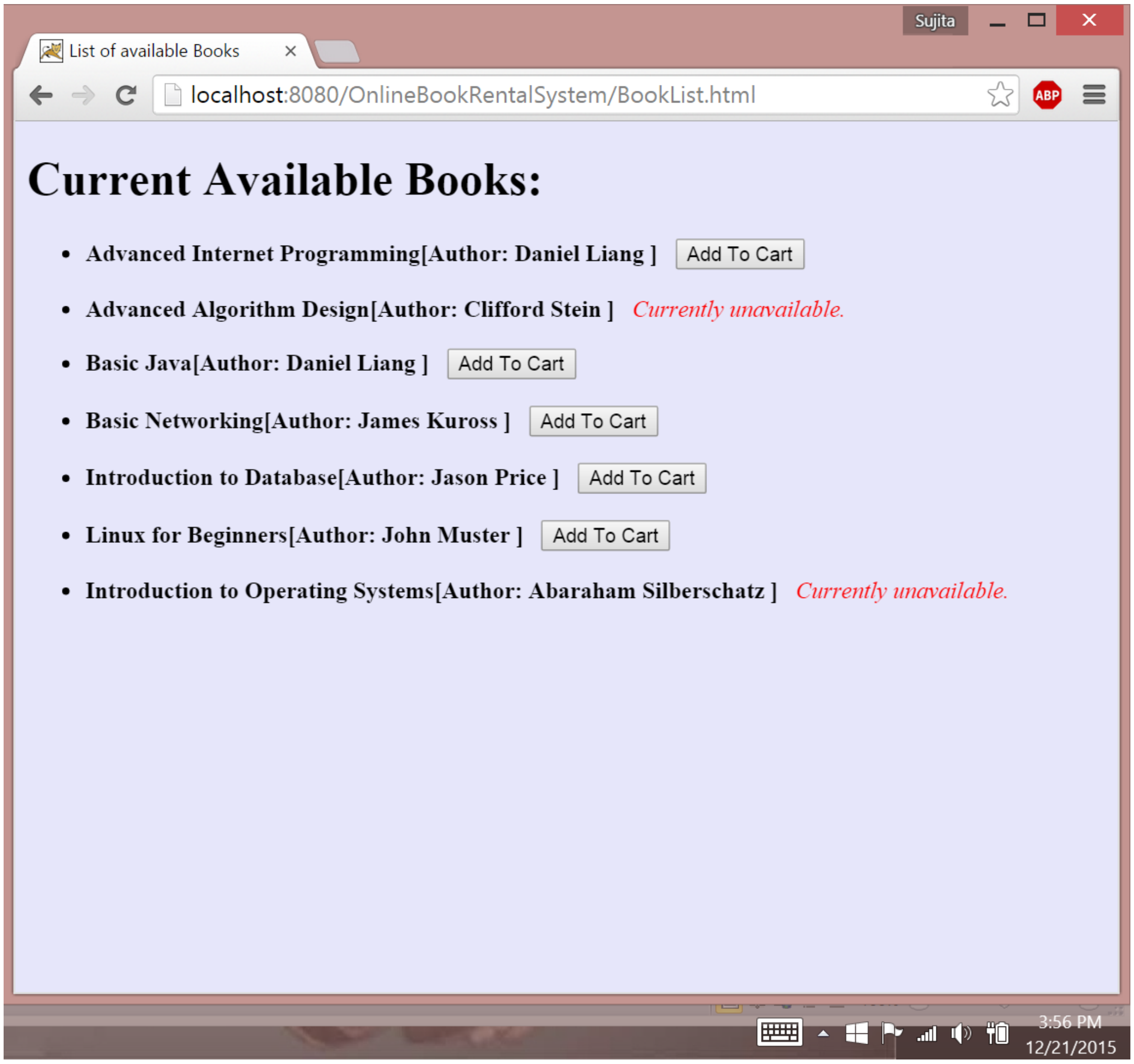


Congratulations! You've Successfully Rented following Books:

Introduction to Operating Systems[Author: Abaraham Silberschatz]
Advanced Internet Programming[Author: Daniel Liang]
for 2 Month.

You'll no longer have Access to these books after the selected Duration is Completed.
Thank You!

Now second user will logins and see available books:



Current Available Books:

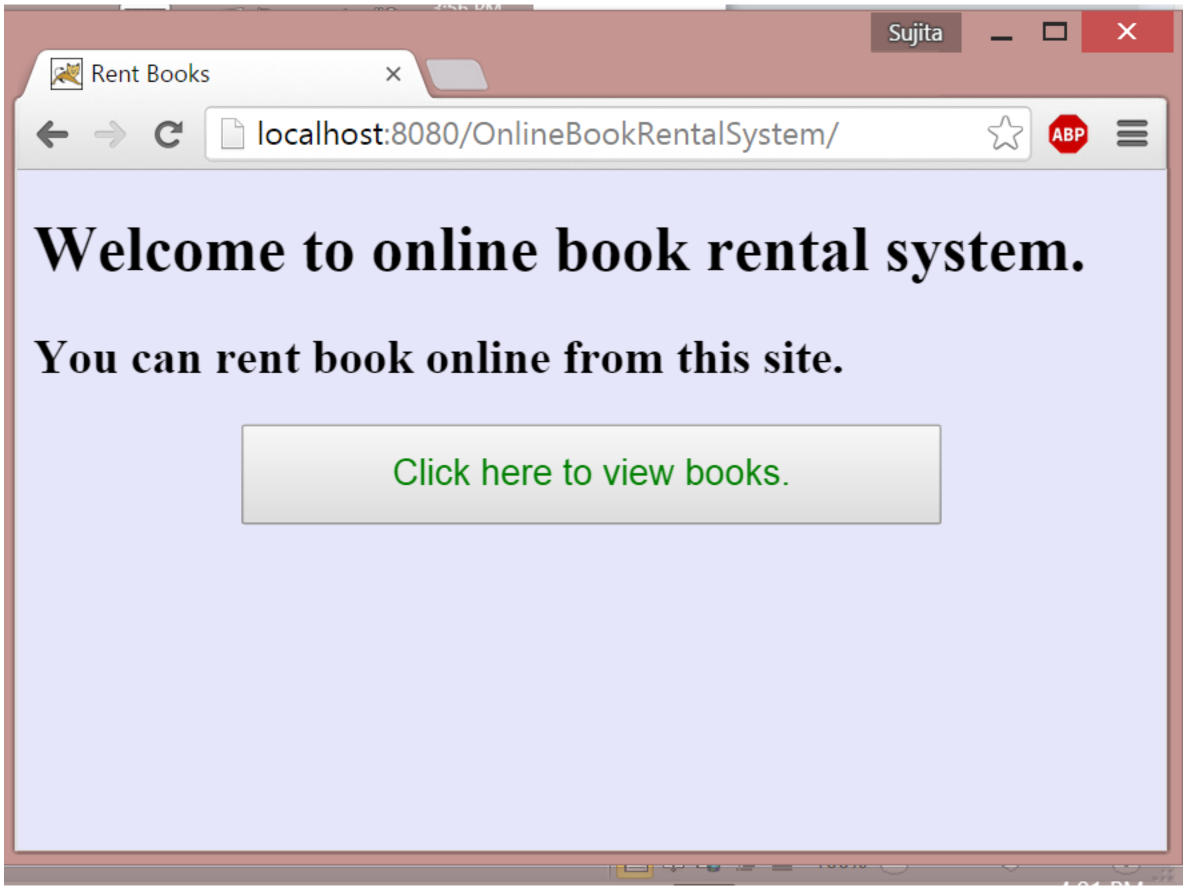
- Advanced Internet Programming[Author: Daniel Liang] Add To Cart
- Advanced Algorithm Design[Author: Clifford Stein] *Currently unavailable.*
- Basic Java[Author: Daniel Liang] Add To Cart
- Basic Networking[Author: James Kuross] Add To Cart
- Introduction to Database[Author: Jason Price] Add To Cart
- Linux for Beginners[Author: John Muster] Add To Cart
- Introduction to Operating Systems[Author: Abaraham Silberschatz] *Currently unavailable.*

As stated the view gets updated and the book is unavailable for the second user.

Hence this web project implements **Model-View-Controller design pattern.**

<u>Screenshots of walking through the project:</u>

Welcome page: (WelcomePage.jsp), (WelcomeServlet)


Sujita
Rent Books
localhost:8080/OnlineBookRentalSystem/
ABP

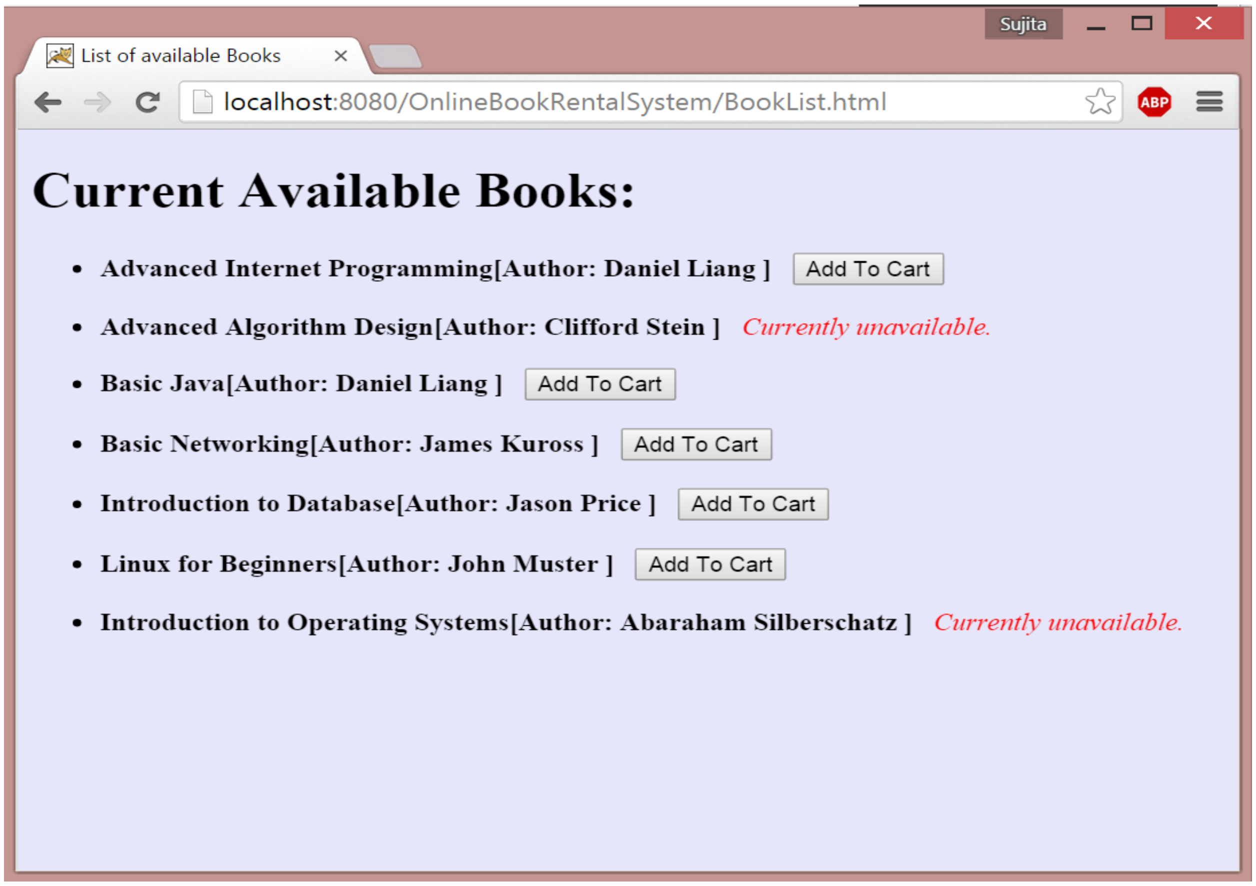
Welcome to online book rental system.

You can rent book online from this site.

Click here to view books.

List of book: (BookList.jsp), (ListOfBooksServlet)

After clicking the ‘Click here to view books’ button



Current Available Books:

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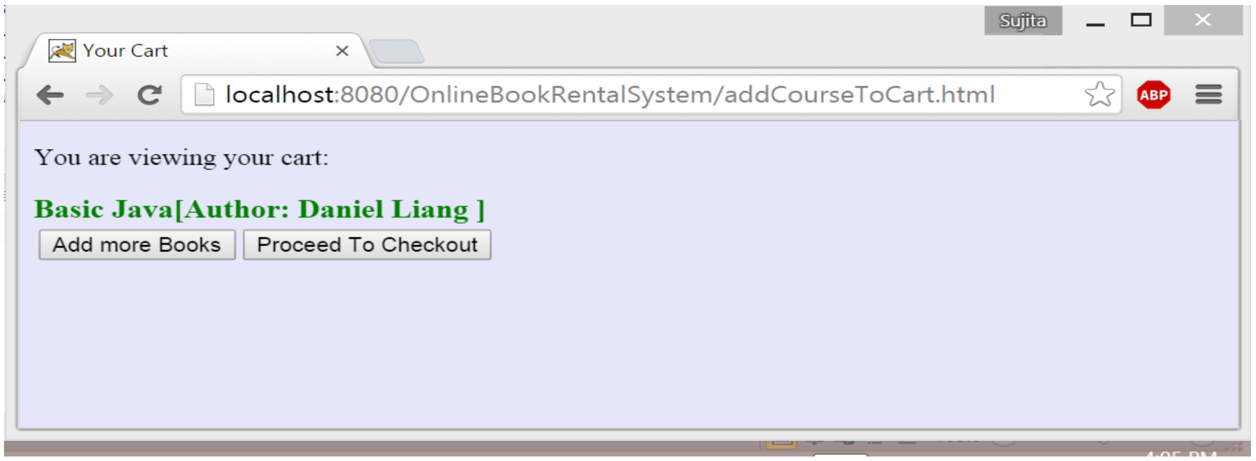
- Basic Networking[Author: James Kuross] Add To Cart
- Introduction to Database[Author: Jason Price] Add To Cart
- Linux for Beginners[Author: John Muster] Add To Cart
- Introduction to Operating Systems[Author: Abaraham Silberschatz] *Currently unavailable.*

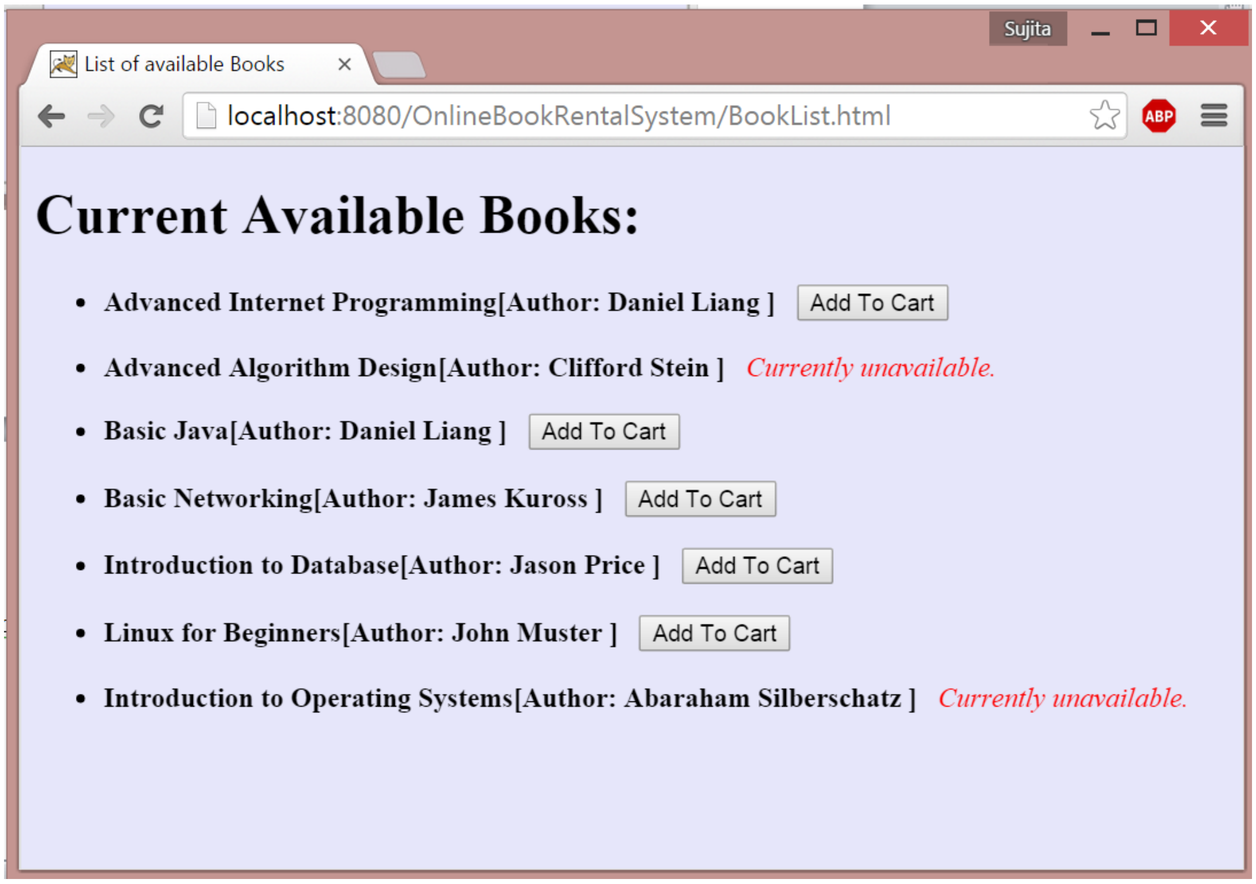
Adding Basic Java Book to cart: (ViewAddedBooks.jsp), (YourCartServlet)



You are viewing your cart:

Basic Java[Author: Daniel Liang]

After clicking 'Add more Books' button : (BookList.jsp), (ListOfBooksServlet)



Current Available Books:

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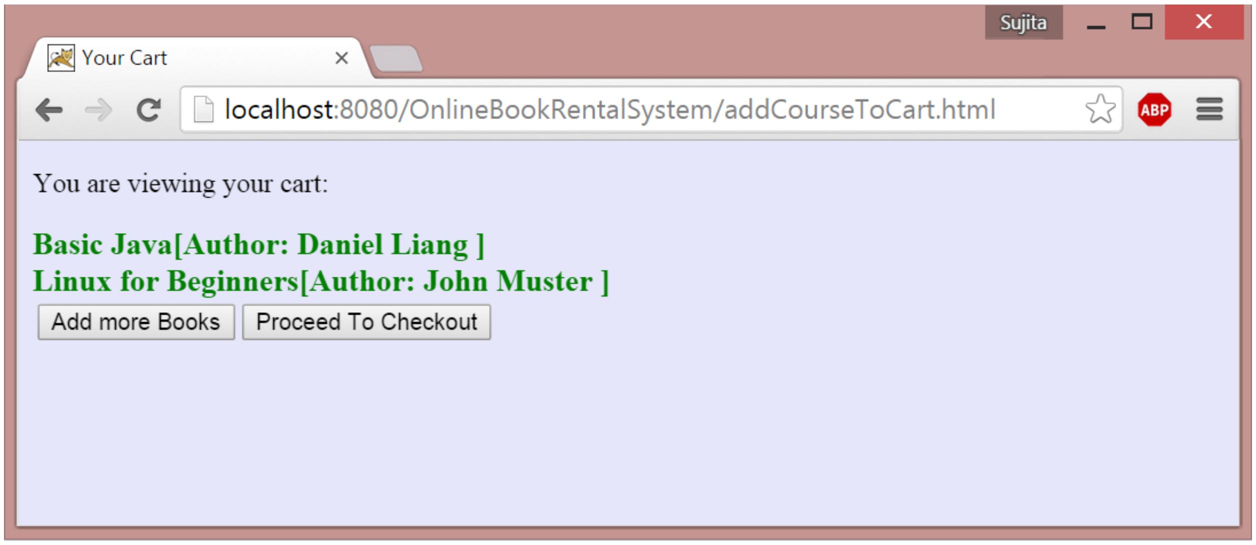
- **Introduction to Database[Author: Jason Price]** Add To Cart
- **Linux for Beginners[Author: John Muster]** Add To Cart
- **Introduction to Operating Systems[Author: Abaraham Silberschatz]** *Currently unavailable.*

After adding 'Linux for Beginners' book to cart: (YourCartServlet)



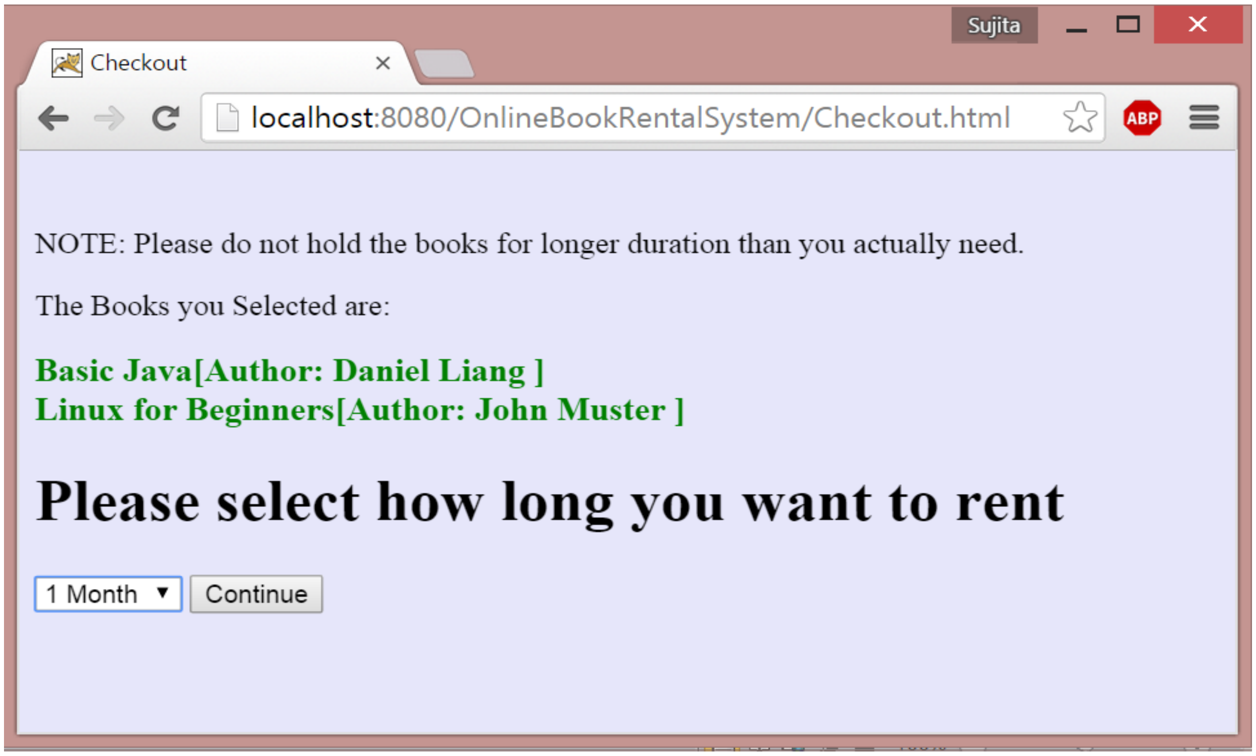
You are viewing your cart:

Basic Java[Author: Daniel Liang]
Linux for Beginners[Author: John Muster]

Add more Books | Proceed To Checkout

Likewise, we can add multiple books but we cannot add the same book twice.

After clicking 'Proceed to Checkout' button : (Checkout.jsp) (ProceedToCheckoutServlet)



NOTE: Please do not hold the books for longer duration than you actually need.

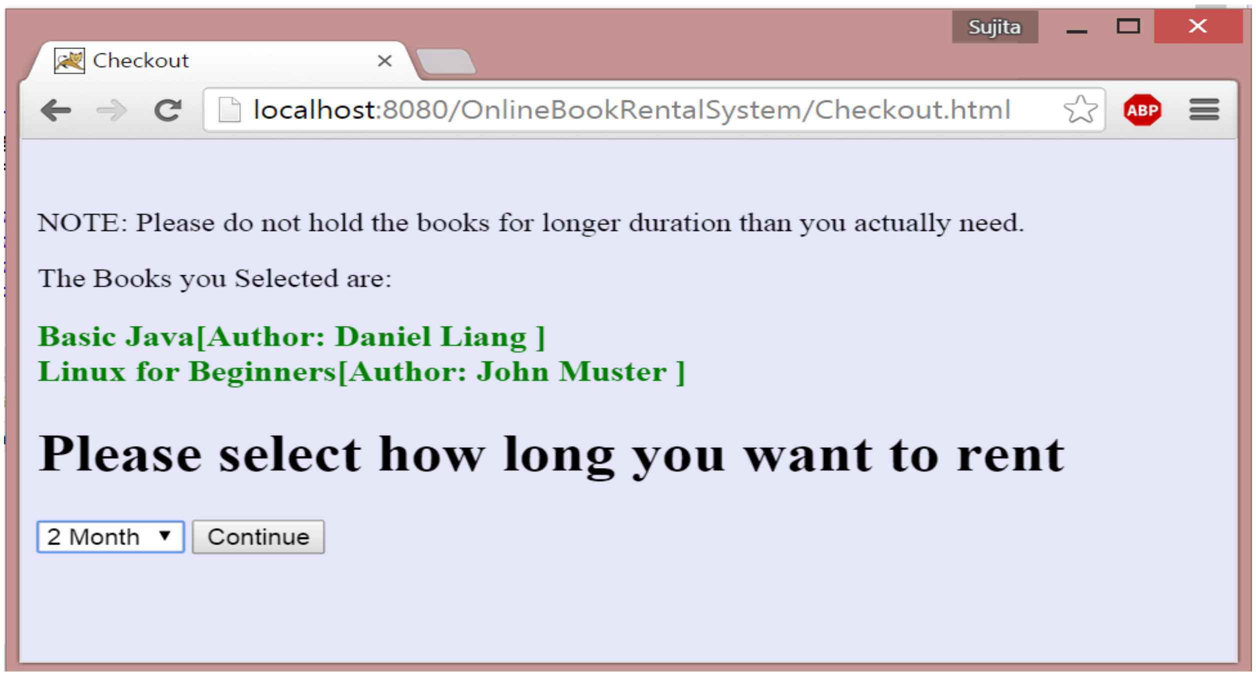
The Books you Selected are:

Basic Java[Author: Daniel Liang]
Linux for Beginners[Author: John Muster]

Please select how long you want to rent

1 Month

And I select 2 month



NOTE: Please do not hold the books for longer duration than you actually need.

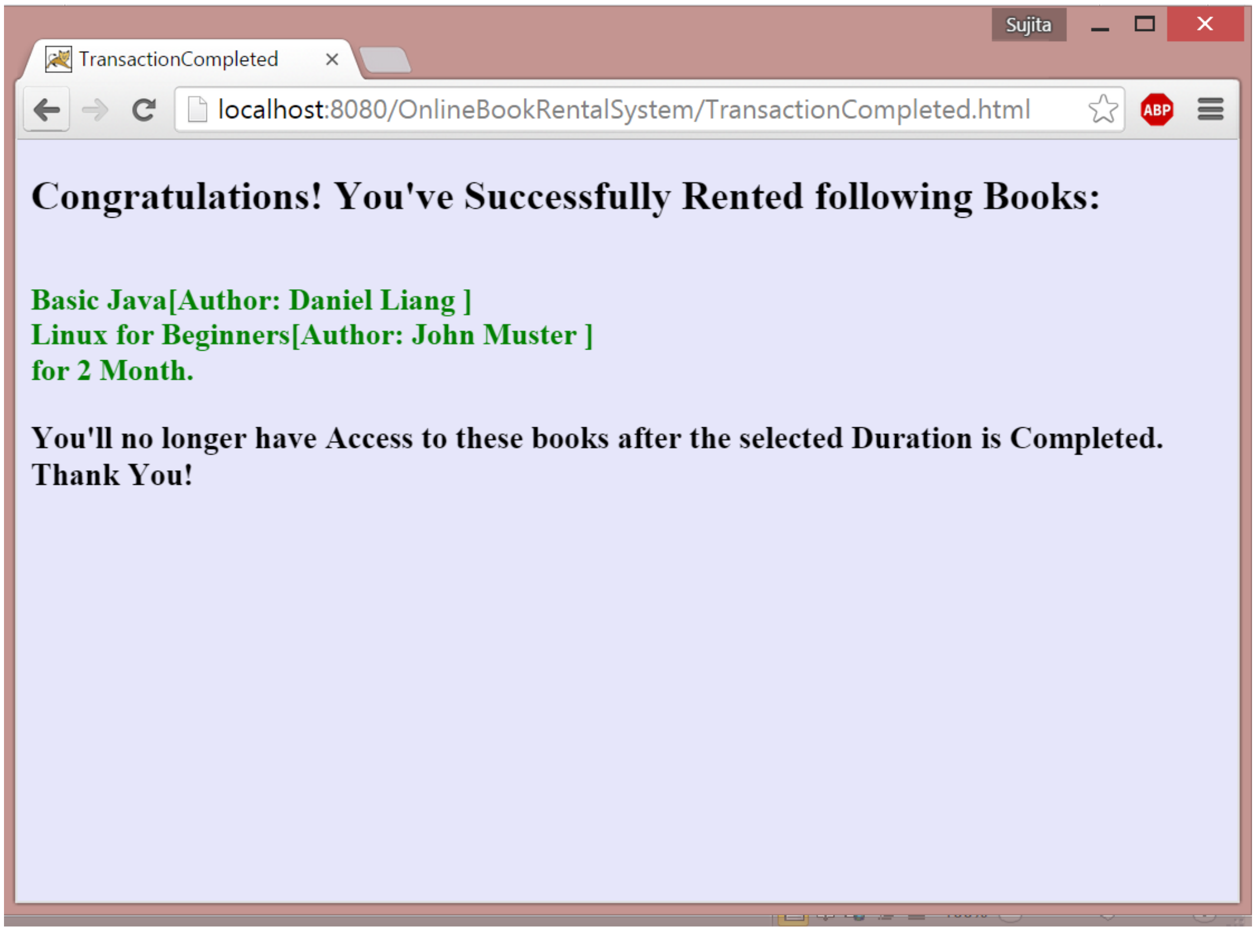
The Books you Selected are:

Basic Java[Author: Daniel Liang]
Linux for Beginners[Author: John Muster]

Please select how long you want to rent

2 Month

After clicking 'Continue' button: (TransactionComplete.jsp), (TransactionCompleteServlet)


Sujita
TransactionCompleted
localhost:8080/OnlineBookRentalSystem/TransactionCompleted.html
ABP

Congratulations! You've Successfully Rented following Books:

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