CS490bk Server-side Web Applications
Spring/Summer, 2019

Assignment 1

Assigned Date: Wednesday, June 5th, 2019
Due Date: Midnight Wednesday, June 19, 2019

Please read the marking scheme and course outline before you do the assignment. For this assignment you must submit the project folders and screen shots output in a zip file. There should be one project folder for each question. It is expected your assignment can run in Netbeans 8.2 and Glassfish 5.

Question 1 (20 Marks)

Create a sample online order form as shown in Figure 1 to let user enter details of order. Write a servlet called ReadParamServlet to read all the form parameters entered by user. After user clicking the Submit Order button, the ReadParamServlet will display the order details in a table as shown in Figure 3 below as response, assuming the details entered are as shown in Figure 2.

If user forgot to enter a value, your ReadParamServlet should print no value in the parameter value column as shown in Figure 4. In this example user forgot to enter the address.

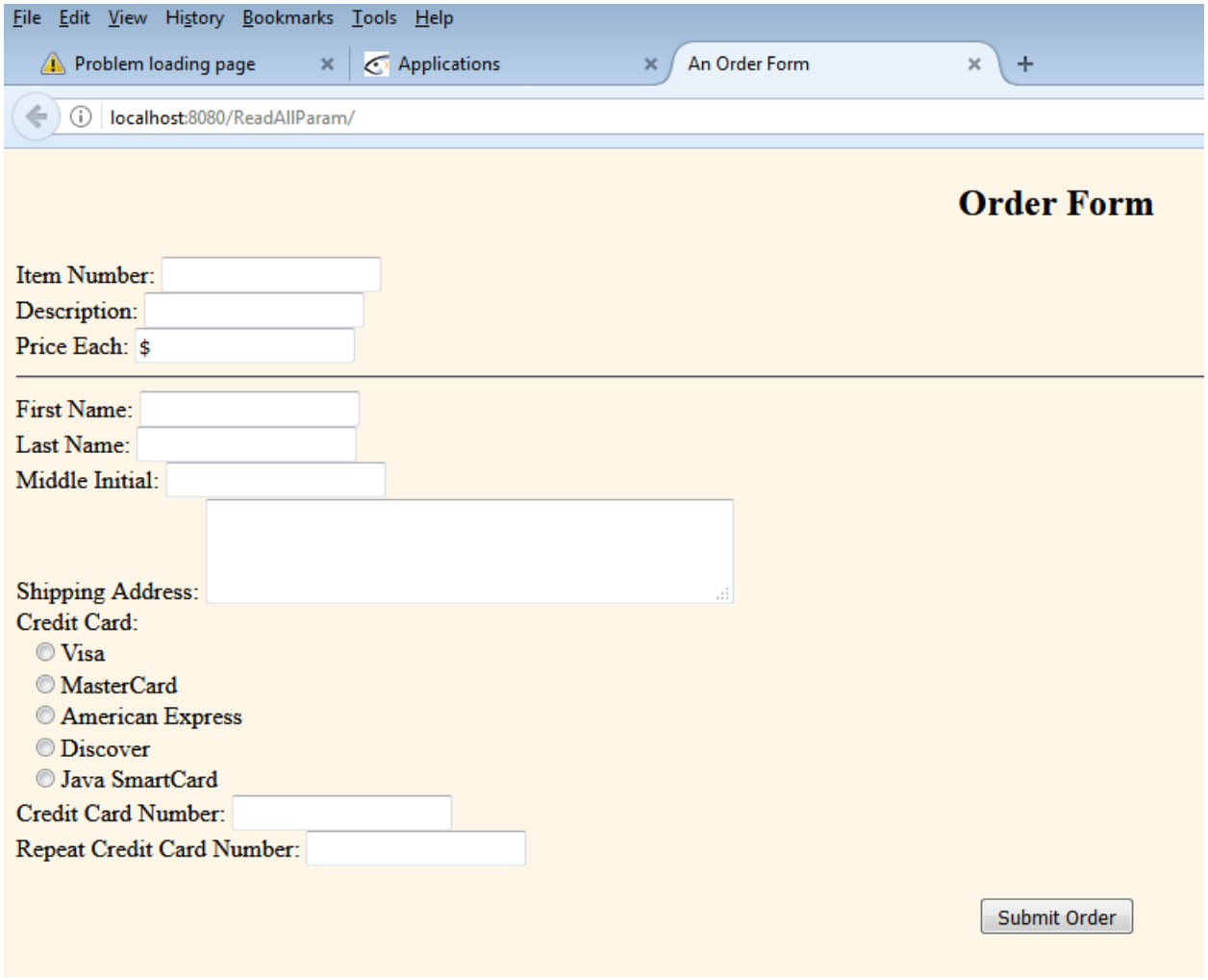
File Edit View History Bookmarks Tools Help
Problem loading page
Applications
An Order Form
localhost:8080/ReadAllParam/
Order Form
Item Number:
Description:
Price Each: $
First Name:
Last Name:
Middle Initial:
Shipping Address:
Credit Card:
Visa
MasterCard
American Express
Discover
Java SmartCard
Credit Card Number:
Repeat Credit Card Number:
Submit Order

Figure 1

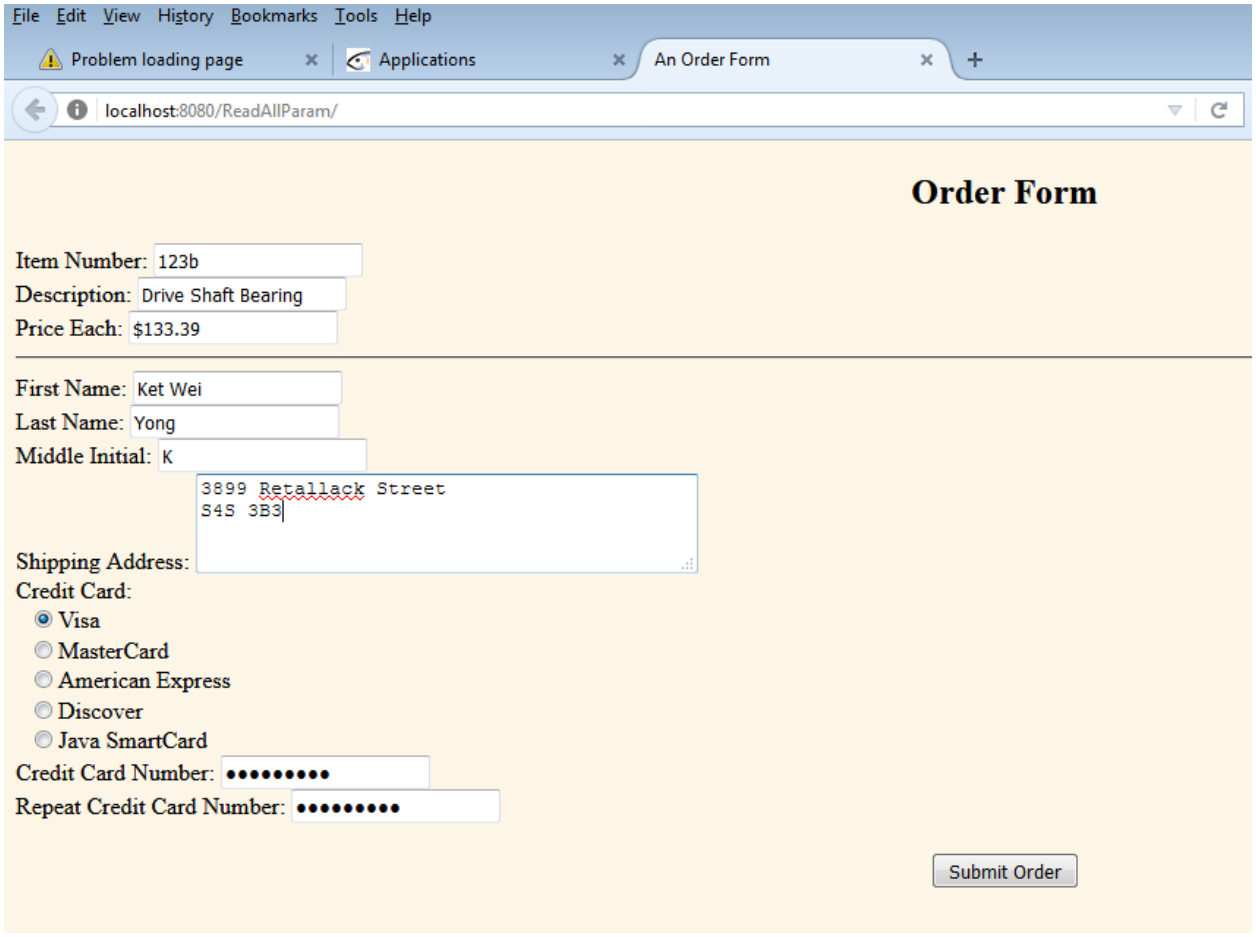
File Edit View History Bookmarks Tools Help
Problem loading page
Applications
An Order Form
localhost:8080/ReadAllParam/
Order Form
Item Number: 123b
Description: Drive Shaft Bearing
Price Each: $133.39
First Name: Ket Wei
Last Name: Yong
Middle Initial: K
3899 Retallack Street
S4S 3B3
Shipping Address:
Credit Card:
Visa
MasterCard
American Express
Discover
Java SmartCard
Credit Card Number:
Repeat Credit Card Number:
Submit Order

Figure 2

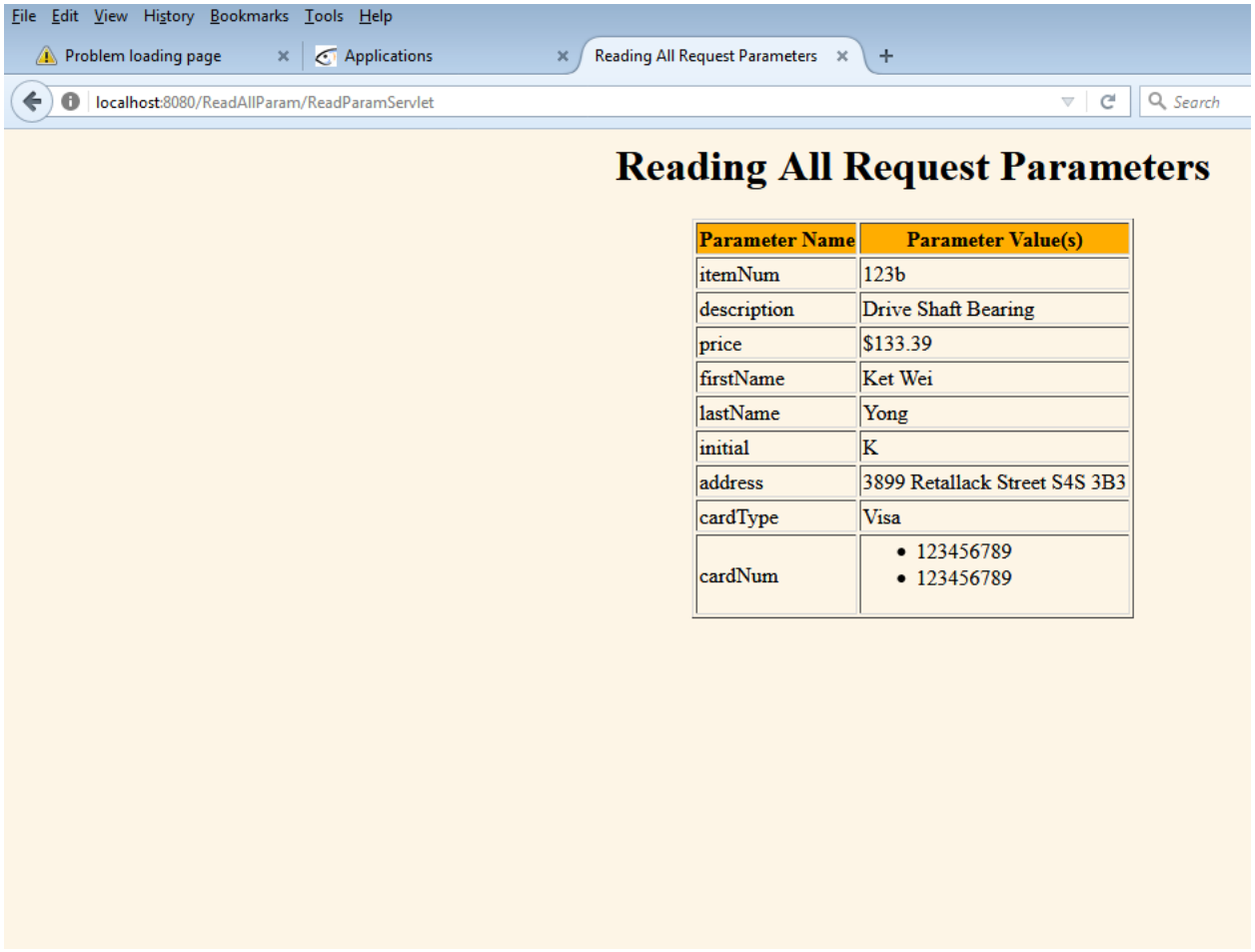
File Edit View History Bookmarks Tools Help
Problem loading page
Applications
Reading All Request Parameters
localhost:8080/ReadAllParam/ReadParamServlet
Search
Reading All Request Parameters
Parameter Name
Parameter Value(s)
itemNum
123b
description
Drive Shaft Bearing
price
$133.39
firstName
Ket Wei
lastName
Yong
initial
K
address
3899 Retallack Street S4S 3B3
cardType
Visa
cardNum
123456789
123456789

Figure 3

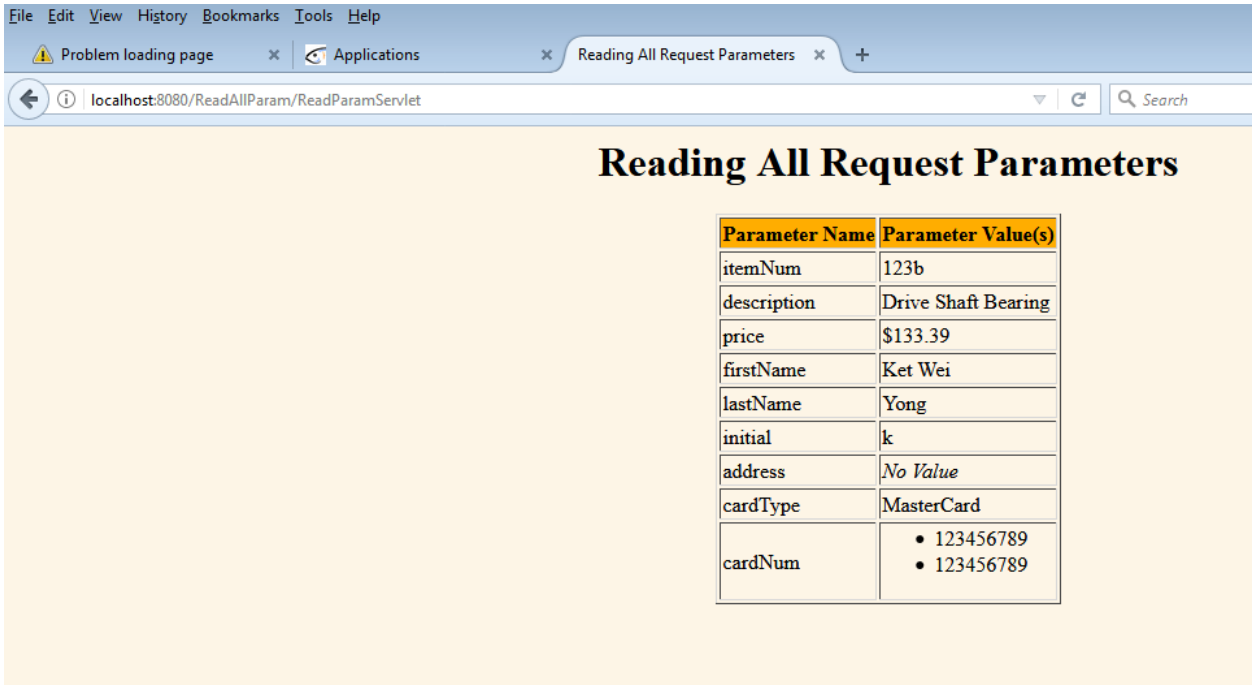

Figure 4

Question 2 (20 marks)

This exercise is to show that each servlet can only access its own initialization parameters set in the deployment descriptor. However, they can both access the same context parameter set in the deployment descriptor. You are to write two servlets, FamousQuoteServlet and GreetingServlet to demonstrate this.

The FamousQuoteServlet should print out a famous quote obtained from a servlet initialization parameter set in the deployment descriptor. The famous quote is "Put your hand on a hot stove for a minute and it seems like an hour. Sit with a pretty girl for an hour, and it seems like a minute". Your FamousQuoteServlet should try to access the initialization parameter of the GreetingServlet and show that it has no access to it by printing "no greeting". Finally, the FamousQuoteServlet should print the message set in the context parameter "I can access the context parameter". Figure 1 shows the output of the FamousQuoteServlet.

Do the same with the GreetingServlet. The output of GreetingServlet should look like Figure 2.

Both FamousQuoteServlet and GreetingServlet are in the same web application. Both servlets should be accessible with the URL as follow:

http://localhost:8080/MsgApp/FamousQuoteServlet
http://localhost:8080/MsgApp/GreetingServlet

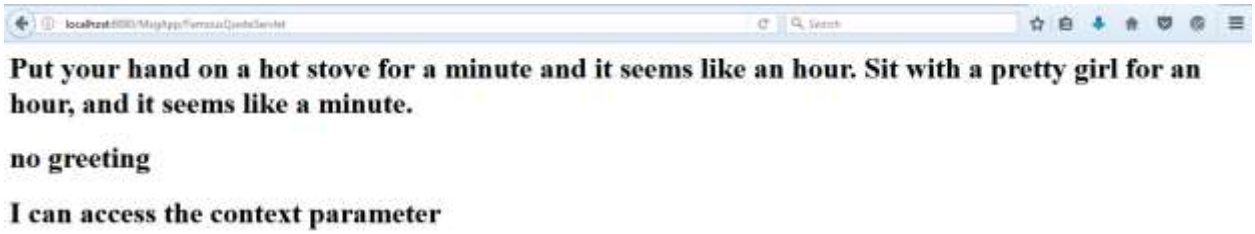

Figure 1

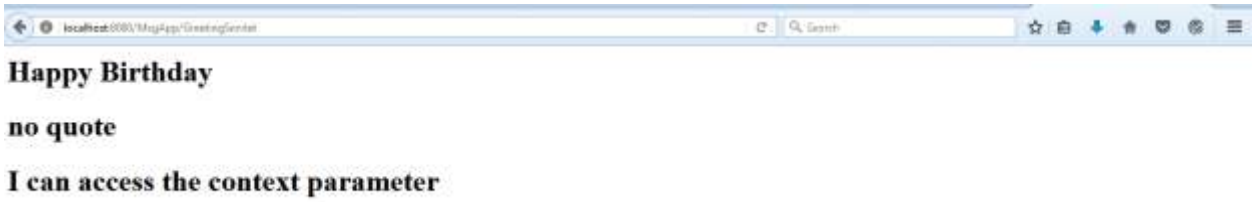

Figure 2

Question 3 (20 marks)

(A) Including static resource

This exercise is to show you that you can include static content from an external file in a servlet each time the servlet handles a request. You are to write a servlet called IncludeServlet to include an html page as shown in Figure 1 below. Your IncludeServlet should print out the message, Welcome To IncludeServlet and Imagine the rest of the page here, before including the CopyRight.html as shown in Figure 2 below.

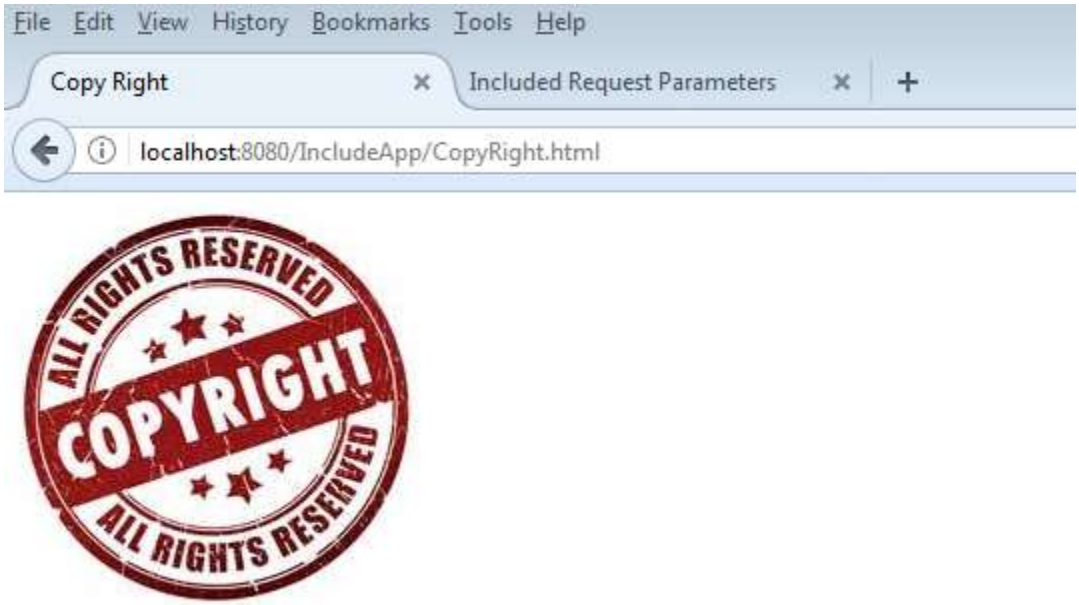
File Edit View History Bookmarks Tools Help
Copy Right
Included Request Parameters
localhost:8080/IncludeApp/CopyRight.html
ALL RIGHTS RESERVED
COPYRIGHT
ALL RIGHTS RESERVED

Figure 1

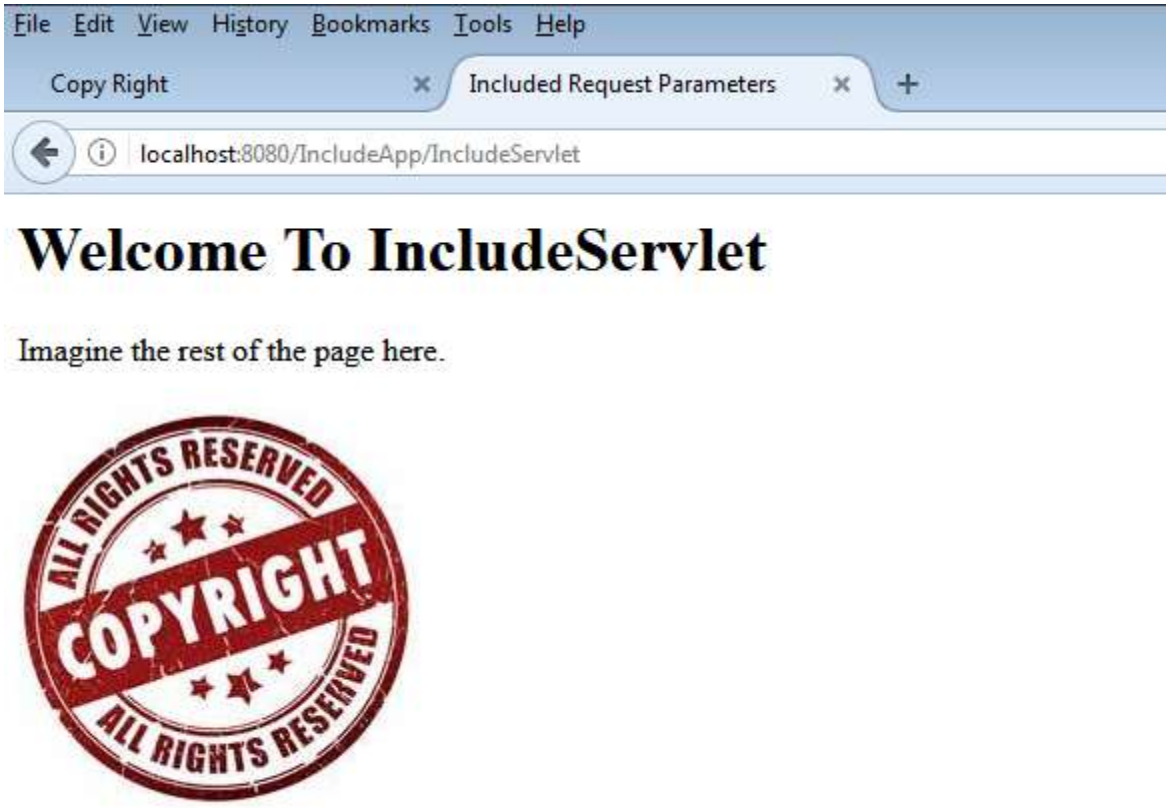

Figure 2

(B) Including dynamic resource

This exercise is to show you that you can include dynamic content generated by another servlet in the application. You are to write a servlet called FirstServlet to include the contents generated by a servlet called SecondServlet. Your FirstServlet should print the message **Included Request Attributes** before including the SecondServlet as shown in Figure 3 below. The SecondServlet should print out all the request attributes using the getAttributeNames() method of the HttpServletRequest. Your FirstServlet should set an attribute named Favorite Singer with value Taylor Swift by using a query string attaching to the SecondServlet's servlet path before dispatching the request to SecondServlet.

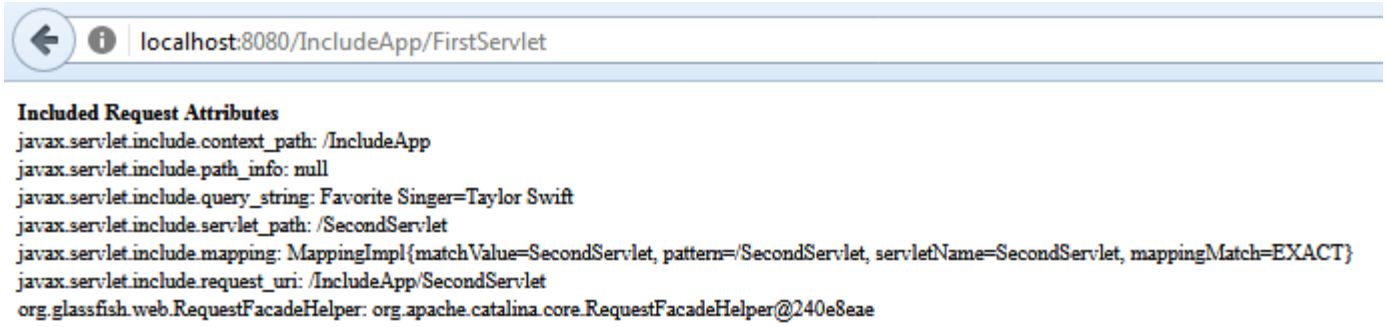

Figure 3

Question 4 (20 Marks)

Write an HTML form to let user enter a PDF file name, as shown in Figure 1 below. Write a servlet called DownloadServlet that can send a PDF file to the browser given a filename with or without the file extension PDF. After user enters the file name, clicking the Download button will invoke the DownloadServlet to send the PDF file to the browser or to download the PDF file.

The DownloadServlet should cater for the following scenario:
(i) If the user clicks the Download button without entering a file name or entering a blank file name, the DownloadServlet should resend the page in Figure 1 with a message "Please enter a valid file name" with the page titled "Blank Filename" as shown in Figure 2 below.
(ii) If the user enters an invalid file name such as: abcde, the DownloadServlet should resend the page in Figure 1 with a message "Filename: abcde.pdf not valid" with the page titled "Invalid Filename" as shown in Figure 3 below.

You should assume there is only one directory where all the PDF files are stored. This directory path should be set in the deployment descriptor (web.xml) file. The DownloadServlet should retrieve this path before being able to access the file.

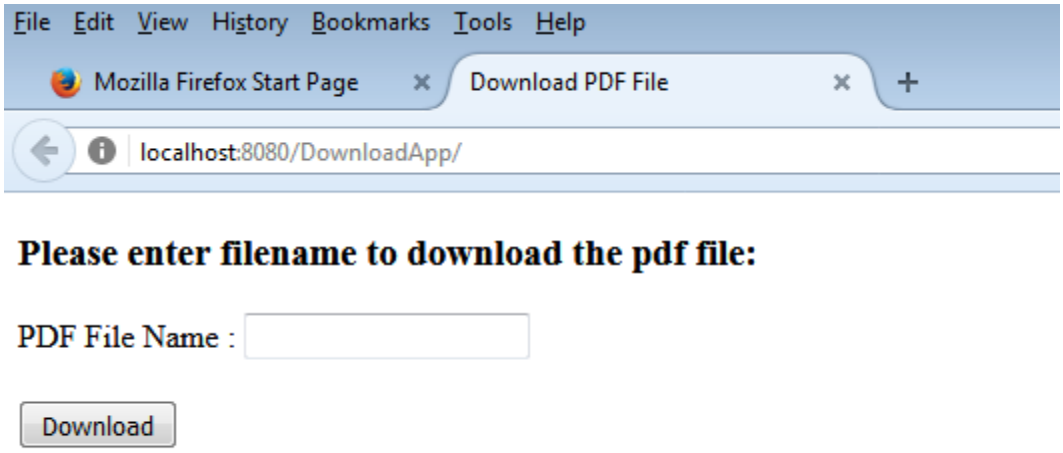

Figure 1

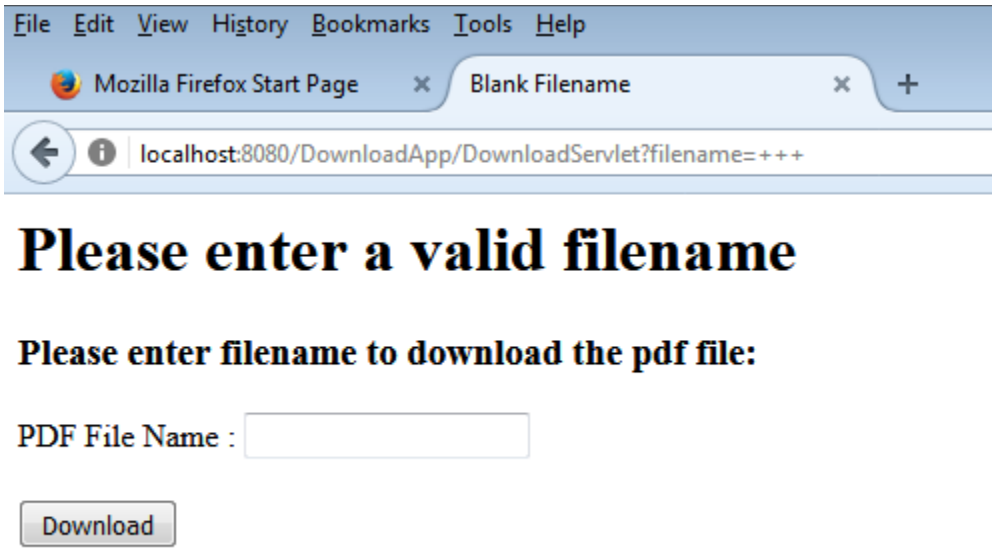

Figure 2

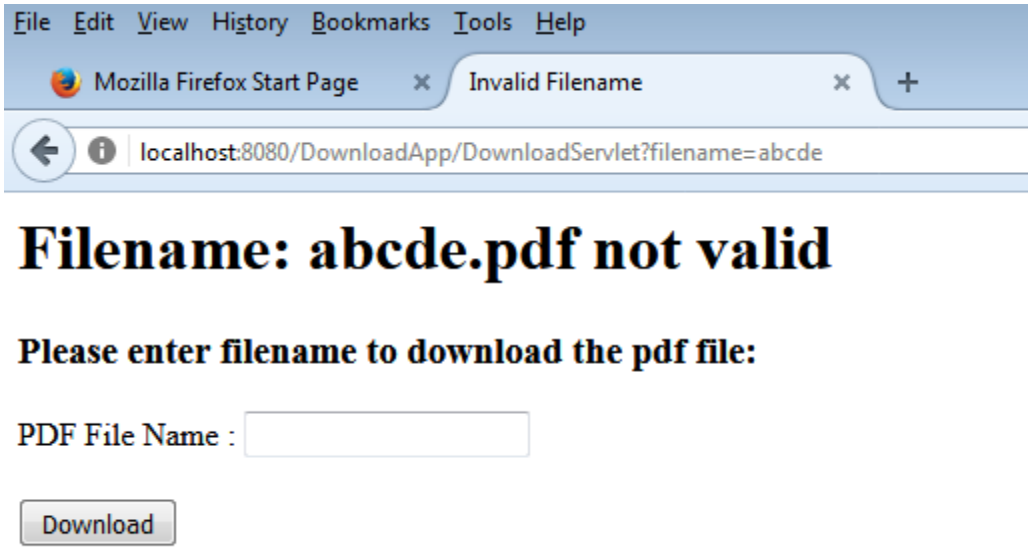

Figure 3

Question 5 (20 marks)

Extend the banking application posted in the UR Courses we discussed in the class to include a change password page to let user to change password. Your banking application should continue to assume that there will always be only three users, ann, john and mark exist in the application. Your application main page when started up should be as shown in Figure 1. Notice that you must add a link to let user change password. When user clicks the change password link, a change password page as shown in Figure 2 should appear. After user clicks submit to change the password, the main page should appear again to let user login. However, the main page should print a message to inform user whether the password change was successful or not, as shown in Figure 3 and 4. Upon successful login, a page displaying account status and a link back to main page should appear as shown in Figure 5. Your new banking application should allow user to change password as many times as he wish. The only dead end for this application is if users forget their password in the login page.

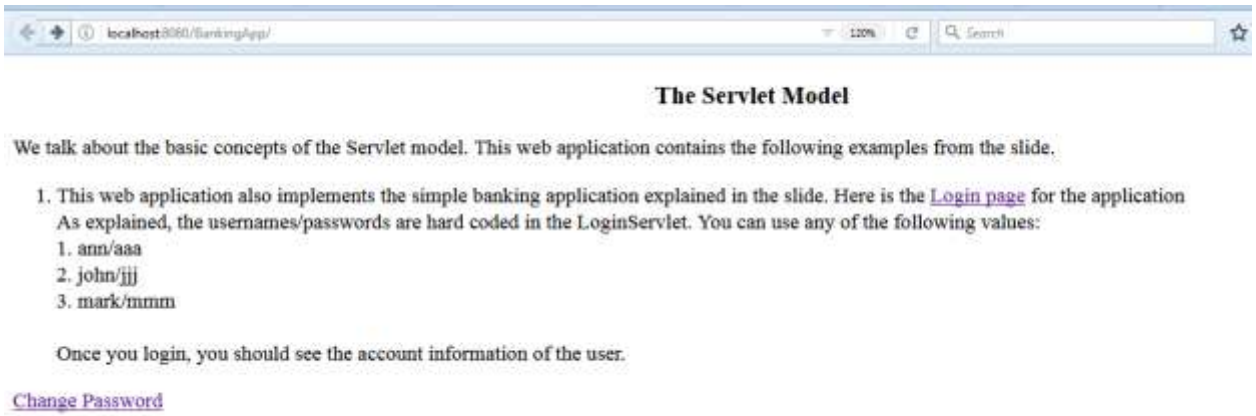

Figure 1

Figure 2

Password Changed Successful

The Servlet Model

We talk about the basic concepts of the Servlet model. This web application contains the following examples from the slide.

1. This web application also implements the simple banking application explained in the slide. Here is the Login page for the application
   As explained, the usernames/passwords are hard coded in the LoginServlet. You can use any of the following values:
   1. ann/aaa
   2. john/jjj
   3. mark/mmm

   Once you login, you should see the account information of the user.

Change Password

Figure 3

Password Changed Unsuccessful

The Servlet Model

We talk about the basic concepts of the Servlet model. This web application contains the following examples from the slide.

1. This web application also implements the simple banking application explained in the slide. Here is the Login page for the application
   As explained, the usernames/passwords are hard coded in the LoginServlet. You can use any of the following values:
   1. ann/aaa
   2. john/jjj
   3. mark/mmm

   Once you login, you should see the account information of the user.

Change Password

Figure 4

Account Status for ann at the start of previous three months...

01/01/2001 : 1000.00
01/02/2001 : 1300.00
01/03/2001 : 900.00

Main Page for the application

Figure 5