

Assignment2

Part 1

Description: A data-driven website is one of the most common (and, demanded) types of application designs. A website with its content stored in HTML files is referred to as a "static" website, whereas a data-driven web application is referred to as a "dynamic" website.

The "dynamic" aspect refers to information being culled from some type of "data store"—for example, a file, database, or even data warehouse— via a web application, and generally, can perform "CRUD" operations: that is, Create, Read, Update, and Delete. Moreover, any data that has been modified, is "dynamically" read in real-time. If the data stored in the data store changes, the web page(s) connected to the data store will also change.

Part 2

IMPORTANT NOTES!

The helper video below is an older video, yet **still** valid.

Use the tutorial link provided BELOW--***NOT*** the link in the video.

NOTE: DO **NOT INSTALL MySQL--install AMPPS instead!**

ONLY USE THE COMMANDS IN THIS DOCUMENT FOR ACCESSING YOUR MySQL DATABASE!

Also, a newer JDK is currently used, rather than the one in the video--as is expected!

Development Environment:

1. **MySQL Workbench** (only if you don't already have it):

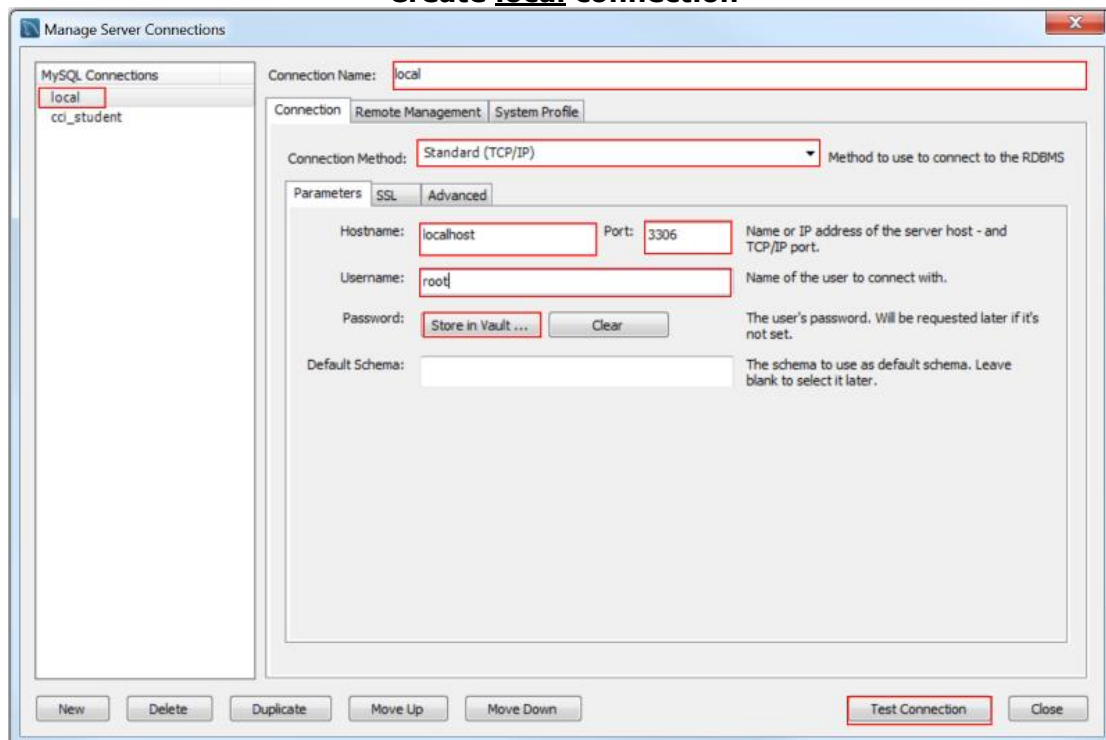
<https://dev.mysql.com/downloads/workbench/>

Note: **Be sure to download MySQL Workbench, **NOT** MySQL (DBMS)!**

AMPPS MySQL (local) login information:

- i. **user:** root
- ii. **password:** mysql

Create local connection



2. (Optional) MySQL (command-line) Client Login Using **AMPPS**:

Note: Both Windows and Mac users: **cd to mysql/bin** directory

a. **Windows:**

```
mysql -u root -p
```

Enter password: (AMPPS MySQL password is **mysql**)

Welcome to the MySQL monitor. Commands end with ; or \g.

b. **Mac:**

```
./mysql -u root -p
```

Enter password: (AMPPS MySQL password is **mysql**)

Welcome to the MySQL monitor. Commands end with ; or \g.

3. Finish the following tutorial: **(DO NOT INSTALL MYSQL! IT IS INCLUDED WITH AMPPS!)**

https://personal.ntu.edu.sg/ehchua/programming/howto/Tomcat_HowTo.html

Begin: 2.7 STEP 6: Write a "Hello-world" Java Servlet

All the way through to...**2.8 STEP 7(f)**

Note: Skip Step 7(a) "Start your MySQL server."

Instead, *be sure* MySQL is running in **AMPPS**—login as per Step 1 above!)

Also, **create the ebookshop database using MySQL Workbench** (see above).

2.8 STEP 7(f): Write a Database Servlet Deploying Servlet using **@WebServlet**, **inclusive**. (Note: we will be using the **@WebServlet** method for the remaining assignments.)

3. **READ "How to Debug?"** (This is an important section of the tutorial—refer back to it!)

HELPER VIDEO: http://qcitr.com/vids/lis4368_A2.mp4

Be sure to confirm environment variable paths using echo statements for your particular OS.

Important Note: Java installations have changed! There is no longer a **"jdk"** directory! **Solution:**

Java_Home: your_path_to/java

Path: your_path_to/java/bin

Compiling servlet files: These are ONLY Examples: (*your* paths most likely will differ):

Windows:

1. cd to C:\tomcat\webapps\hello\WEB-INF\classes

2. **javac -cp .;c:\tomcat\lib\servlet-api.jar HelloServlet.java**

Mac:

1. cd to /Applications/tomcat/webapps/hello/WEB-INF/classes

2. **javac -cp ./Applications/tomcat/lib/servlet-api.jar HelloServlet.java**

3. **Assessment:** the following links should properly display (see screenshots below):

a. <http://localhost:9999/hello> (Displays directory! It should not! Needs **index.html**)

b. <http://localhost:9999/hello/HelloHome.html>

(**Rename** "HelloHome.html" to "index.html" so that users cannot see your files!)

c. <http://localhost:9999/hello/sayhello> (invokes HelloServlet)

Note: /sayhello maps to HelloServlet.class (No longer use web.xml file!)

d. <http://localhost:9999/hello/querybook.html>

4. **README.md** file should include:

a. Assessment links (as above), and

b. Screenshots (3 minimum): 1) [querybook.html](#), 2) the [query results](#), and 3) a screenshot of your [a2/index.jsp](#) file (see screenshots below).

Deliverables:

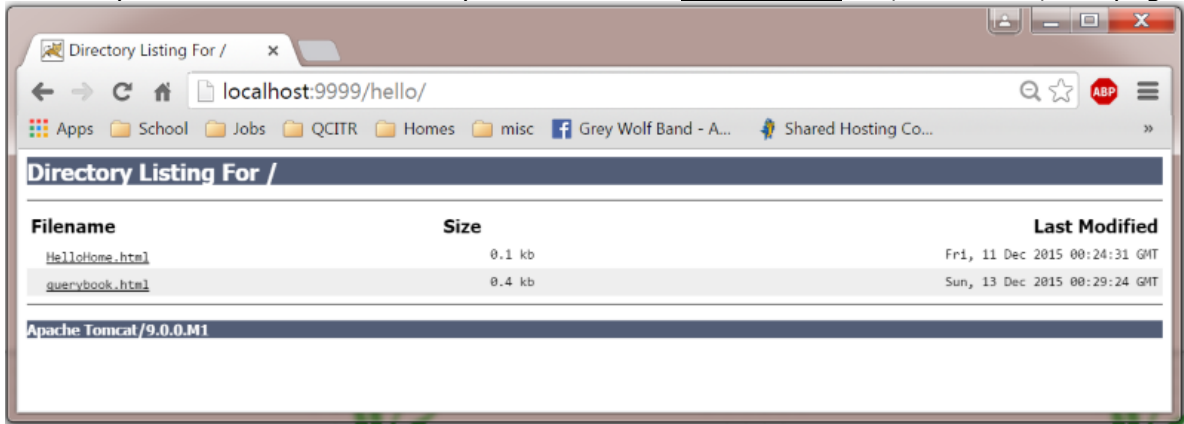
1. Provide **Bitbucket** read-only access to **lis4368** repo, include the **README.md**, using **Markdown** syntax. (**README.md** must also include screenshots as per above and below.)

(**DO NOT create README in Bitbucket—ALWAYS** do it locally, then push it to Bitbucket.)

2. **FSU's Learning Management System:** include lis4368 **Bitbucket** repo link

<http://localhost:9999/hello>

Note: directory below will be listed **only** if there is no **index.html** file, otherwise, see page below.

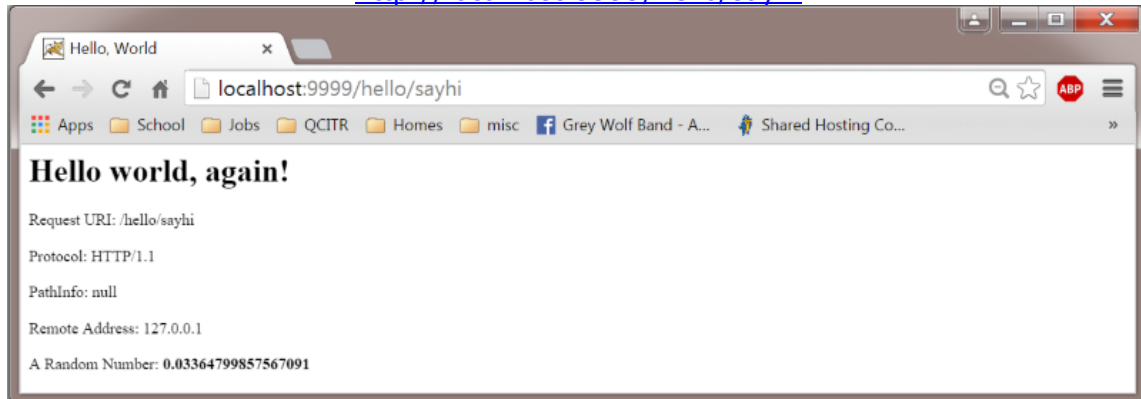


<http://localhost:9999/hello/index.html>

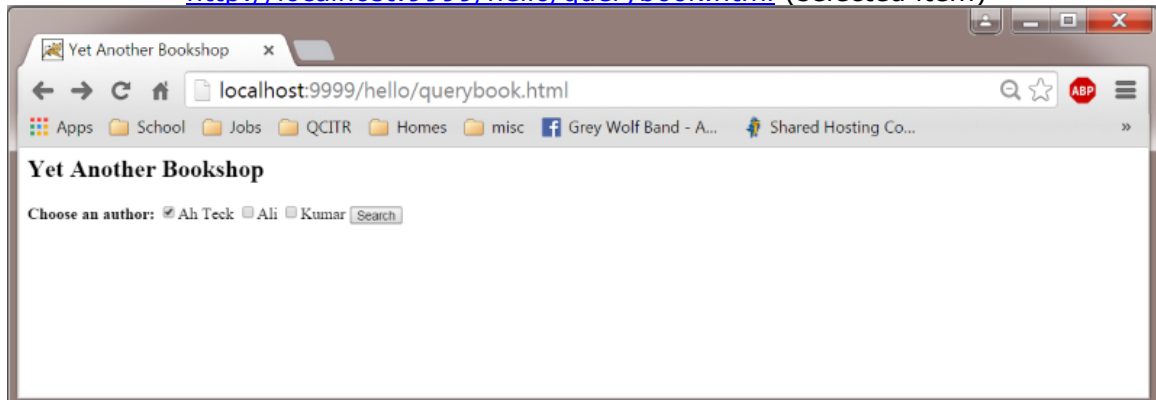
Note: Using **index.html** will correctly hide directory files!



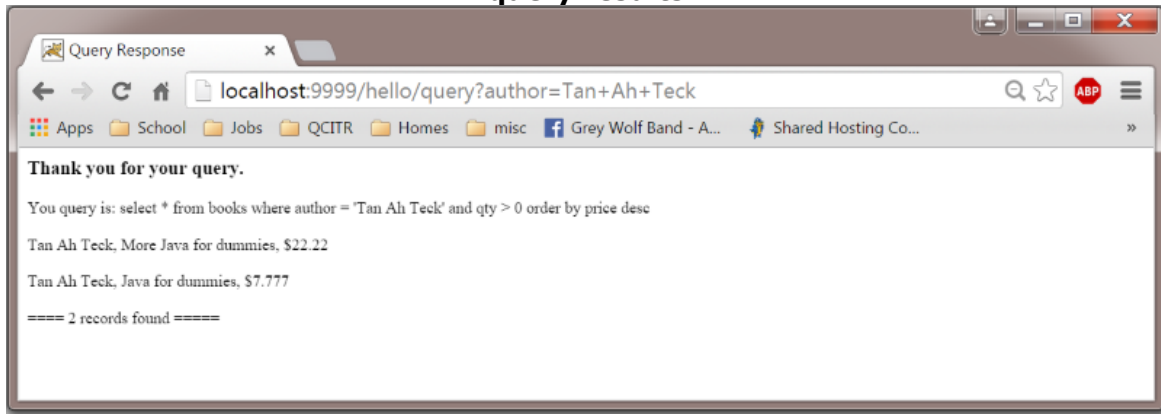
<http://localhost:9999/hello/sayhi>



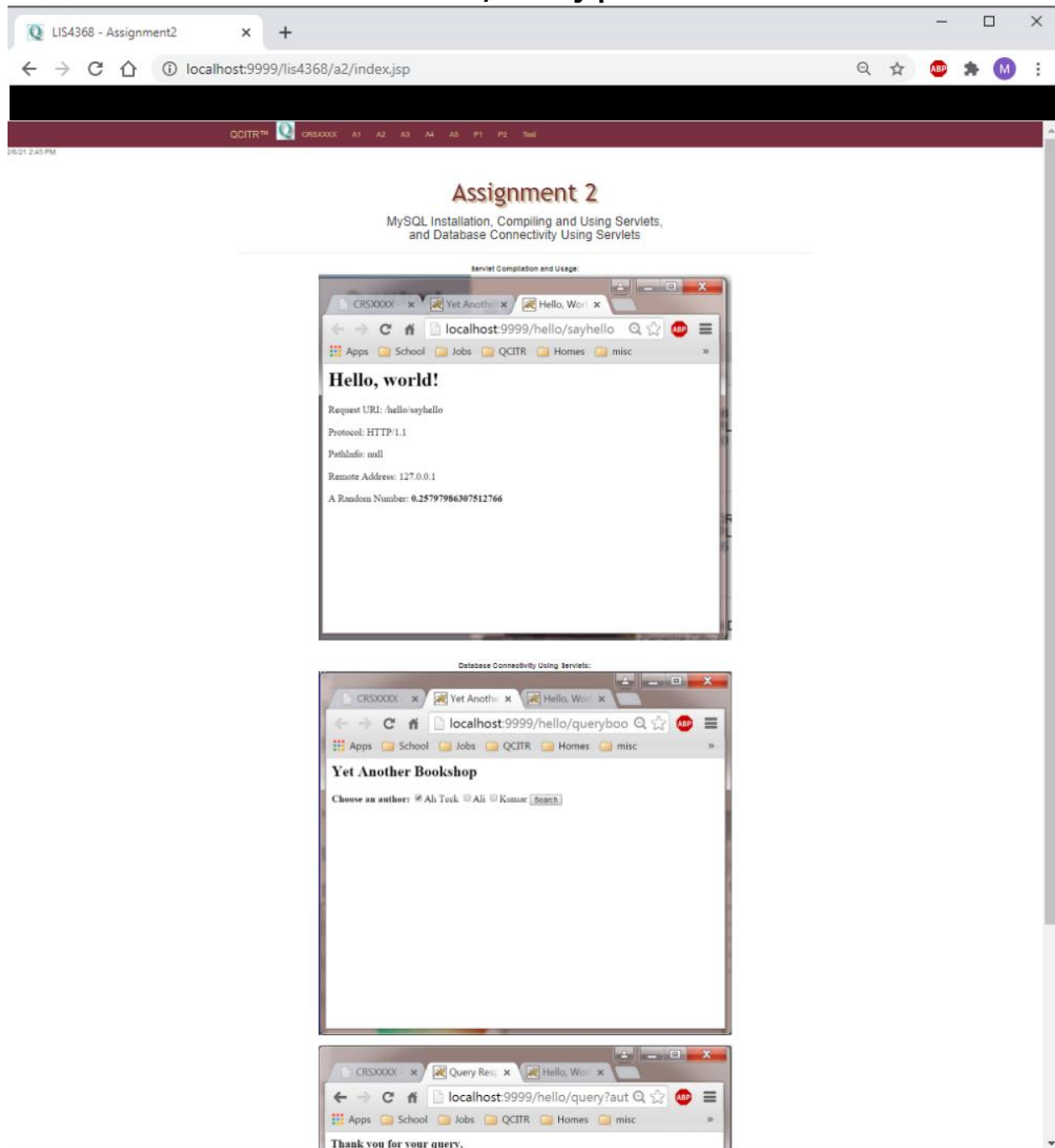
<http://localhost:9999/hello/querybook.html> (selected item)



query results



a2/index.jsp



Part 3

Answer the following questions (Chs. 5, 6):

1. A JavaBean is a Java class that
 - a.provides a zero-argument constructor
 - b.implements the Serializable or Externalizable interface
 - c.provides get and set methods for all of its private instance variables that follow standard Java naming conventions
 - d.all of the above
2. A servlet is a Java class that extends the
 - a.Servlet class
 - b.HttpGenericServlet class
 - c.HttpServlet class
 - d.HttpServletRequest class
3. Before you can use the core JSTL tags in a JSP, you must code a/an _____ for the core JSTL library.
 - a.taglib directive
 - b.page directive
 - c.scriptlet
 - d.request object
4. EL makes it easy to access the _____ of JavaBeans.
 - a.instance variables
 - b.attributes
 - c.methods
 - d.properties

5. If the following JSP tag is coded in a JSP named index.jsp, what happens when the reports.jsp file is updated?

```
<jsp:include page="includes/reports.jsp" />
```

- a. the changes don't appear in the subsequent requests for the index.jsp file
- b. the changes appear for subsequent requests for the index.jsp file
- c. a JSP error is thrown
- d. a servlet error is thrown

6. In the code that follows, DiagnoseTrouble

```
<servlet-mapping>  
  <servlet-name>DiagnoseTrouble</servlet-name>  
  <url-pattern>/diagnostics/diagnoseTrouble</url-pattern>  
</servlet-mapping>
```

- a. is the name of the servlet class
- b. is the internal name for the servlet class that's used in the deployment descriptor
- c. is the name that's used to request the servlet
- d. is the name of the JSP to which it points

7. In the code that follows, the servlet is mapped to

```
<servlet-mapping>  
  <servlet-name>DiagnoseTrouble</servlet-name>  
  <url-pattern>/diagnostics/diagnoseTrouble</url-pattern>  
</servlet-mapping>
```

- a.the /diagnostics/diagnoseTrouble URL of the document root directory
- b.the /diagnostics/diagnoseTrouble URL of the current directory
- c.any URL in the /diagnostics/diagnoseTrouble directory of the document root directory
- d.any URL in the /diagnostics/diagnoseTrouble directory of the current directory

8. The advantages of EL are
a.more elegant and compact syntax
b.allows you to access nested properties
c.does a better job of handling null values
d.more functionality
e.all of the above

9. The following code from a servlet class
`System.out.println("Check with system administrator");`
a.prints text to the standard output stream
b.prints text to an HTML page
c.prints text to a JSP page
d.prints text to a servlet

10. The following code
`String[] mailTypes = request.getParameterValues("mail");`
a.returns the name of all request parameters from the mail.jsp page
b.returns the first value of the mail parameter or null if none exist
c.returns all values of the mail parameter or null if none exist
d.returns the values of all request parameters from the mail.jsp page
e.is invalid

11. The init method of a servlet class is called
a.the first time a servlet is requested but before the service method
b.each time the servlet is requested but before the service method
c.the first time a servlet is requested but after the service method
d.each time the servlet is requested but after the service method

12. To define a/an _____ initialization parameter that's available to all servlets in the web application, you code a/an _____ element.
a.context, init-param
b.servlet, init-param
c.servlet, context-param
d.context, context-param

13. To define a/an _____ initialization parameter that's available to a specific servlet, you can code a/an _____ element within a servlet element.
a.context, init-param
b.servlet, init-param
c.servlet, context-param
d.context, context-param

14. When the doGet method of a servlet is called, it receives
a.the request and ServletContext objects
b.the request and response objects
c.the request, response, and ServletException objects
d.the request, ServletContext, and ServletException objects

15. Whenever you use EL, you begin by coding a
a.semi-colon
b.dollar sign
c.colon
d.none of the above

16. Which of the following is a valid JSP comment?
- a. `// comment`
 - b. `<!--comment -->`
 - c. `<%-- comment --%>`
 - d. `<comment>`
17. Which of the following is a valid Java comment?
- a. `// comment`
 - b. `<!--comment -->`
 - c. `<%-- comment --%>`
 - d. `<comment>`
18. Which of the following statements gets the value of the parameter named occupation?
- a. `String occupation = response.getParameter("occupation");`
 - b. `String occupation = request.getParameter("occupation")`
 - c. `String occupation = response.getValue("occupation");`
 - d. `String occupation = request.getValue("occupation")`
19. You can use _____ to perform data validation on the server.
- a. jQuery
 - b. a servlet
 - c. JavaScript
 - d. HTML5
20. You can use _____, or _____ to perform data validation on the client.
- a. jQuery, a servlet
 - b. JavaScript, a servlet
 - c. JavaScript, jQuery
 - d. a servlet, HTML5
21. _____ provides a compact syntax that lets you get data from a JavaBean that has been stored as an attribute of the request.
- a. The JSP Standard Tag Library (JSTL)
 - b. Expression Language (EL)
 - c. Standard JSP
 - d. A scriptlet
22. _____ provides tags for common tasks that need to be performed in JSPs.
- a. The JSP Standard Tag Library (JSTL)
 - b. Expression Language (EL)
 - c. Standard JSP
 - d. A scriptlet