

Your next assignment focuses on server side processing of the Student Survey Form data via MVC implementation using a RequestDispatcher object. The implementation requires one Servlet that acts as a front controller that receives all client requests, save the form data to a file on a file system, performs business logics via business delegate classes, stores JavaBean objects into a session object, and then forwards the request to appropriate JSP to present the data to the user. The assignment requires all business logic code into separate Java class(es) which could be called from within the servlet to perform specific tasks. All presentation logic is moved to JSP pages. Specifically, this assignment requires you to do the following:

- Keep the features of the Student Survey Form (e.g., data validation, style-sheet, etc.) of Assignments 2 and 3, but make the following modifications on the form:
 - 1.) In this assignment, please add text fields on the Student Survey Form to enter city, and state (in lieu of the placeholders using div/span). Your Ajax call should automatically fill out the city and state fields for a given zipcode.
 - 2.) You do not need to compute average and maximum of the 10 numbers entered in the Data field in JavaScript, thus do not need to keep Average and Maximum fields on the page. You will still keep the Data field on the form.
- Add an additional field on Student Survey form to enter StudentID. The StudentID uniquely identifies the user.
- Create a **StudentDAO** class that encapsulates code to store and read the Survey data to/from a file. It provides two methods: one to save the Student Survey Form data to the database and another to retrieve the survey information from the database. (*StudentDAO will eventually store and retrieve data to/from a database, but that will be in future assignments in this semester!*)
- Develop another Java class called **DataProcessor** that provides a method to compute the Mean and Standard Deviation using the ten numbers entered in the Data field on the Student Survey Form.
- Develop two acknowledgement JSPs: one to simply thank the user for filling out the form (we call this **SimpleAcknowledgement JSP**) and the other to announce that the user was a winner of two movie tickets if the mean of numbers was greater than 90 (we call this a **WinnerAcknowledgement JSP**). Both JSPs will also display the Mean and Standard Deviation computed by the DataProcessor. They also acknowledge that the information entered on the form was successfully saved to a file (hoping it was really saved!).
- Develop two JavaBeans: **DataBean** and **StudentBean**. The DataBean has two attributes to hold the mean and standard deviation. The StudentBean has attributes that matches most of the Student Survey Form fields, except the Data field.

- This homework involves only one servlet. The servlet acts as a front controller in the MVC implementation and receives and handles all requests from the client, performs business logic via business delegate classes (which may return JavaBean objects), stores the beans into a **session** object, and then forwards the request to appropriate JSP to present the data to the user using a RequestDispatcher object as described below:
 - When a user submits the completed Student Survey Form, the servlet performs two actions: 1) it uses StudentDAO object to store the Student form data to a file. Save the data entered on the Student Survey Form to a file on the server. The directory to save your file is /data/tomcat/swe642fall2012/ on the server. Make your own choice about the data format (e.g., tabular) in the file, but make sure the data is easily readable. The name of the output file is SurveyData_YourName.txt, 2) it calls a method on DataProcessor to compute the mean and standard deviation of the entered 10 numbers. The result of the method call on DataProcessor is a DataBean object with mean and standard deviation. The servlet stores the bean into a **session** object.
 - If the mean is greater than or equal to 90, the servlet forwards the request to the WinnerAcknowledgement JSP using RequestDispatcher object. The WinnerAcknowledgement JSP thanks the user for completing the survey, announces that the user is a raffle winner of two movie tickets, and prints mean and standard deviation on the page accessing the data from DataBean.
 - If the mean was less than 90, the servlet forwards request to SimpleAcknowledgement JSP using the RequestDispatcher object. The SimpleAcknowledgementJSP simply thanks the user for filling out the form and prints mean and standard deviation on the page accessing the data from DataBean.
 - Both pages should have unordered list of hyperlinks of all StudentIDs, which when clicked retrieve the saved form data in the previous steps. The request is forwarded to the same servlet as discussed before, but this time the servlet uses StudentDAO to retrieve the student information from the file. The return type of this method call is StudentBean object with student data retrieved from the file. The servlet stores this bean to the session object and forwards request to a **StudentJSP** using RequestDispatcher object to display the student data to the user. The structure of the StudentJSP page for the retrieved data could be similar to the Survey Form in a read only format. If there is no student matching the StudentID, the servlet forwards the request to NoSuchStudentJSP, which informs the user that the entered StudentID is invalid and allow him/her to enter a valid StudentID.

