

***IDS517 fall 2016 project.***

The objective of this project is to develop an online test taking system.

**The development and deployment architectures consist of:**

- Open source tools and libraries.
- Java 1.7 or 1.8 JVM/JRE.
- MySQL 5.1 or higher RDBMS persistent storage.
- Apache Tomcat 7.0 or 8.x container.
- Eclipse IDE.
- MVC with Java Beans and JSP/SERVLET for prototype and JSF implementation.
- Apache Math libraries for data analysis.
- Jfreechart charting library.
- SQL may not be used for data analysis.
- No javascript, including no jQuery.

**The application should have the following general features at a minimum:**

- Home page with user's guide and programmer's documentation links. Where appropriate subsequent pages should have content specific help links.
- Login to database with default credentials except password in a configuration file.
- No orphan pages.
- Ability to generate all needed database tables for the application to function. Ability to logout of session.
- Ability to upload CSV (comma or tab delimited) data into database. The type (comma or tab) to be specified using option and not based on file extension. This process may in addition require deleting or replacing existing data.
- Export (download) selected data in CSV and XML formats.
- Display available data with summary of available data.
- Analyze and display data with range select and sort capability.
- Generate numeric and graphic reports with range select and sort capability.
- Graphic and numeric analysis requirements will be specified at a later date.
- A page of available tests should be displayed with students able to select one and take it.
- Feedback to students other than score only after test not available for taking any more.
- Entry in roster equivalent of the test ID as well as score for each student.
- Analysis of scores.
- Transaction log.

**Data uploads:**

**Course roster (CRN, code, and description) plus student data as follows for each student consisting of (Last Name, First Name, Username, UIN). The associated database table needs to maintain last access information as well.**

**Test (CRN, course code, test ID, availability start and end, as well duration in minutes) plus (Question type, question text, correct answer, and tolerance) for each question:**

NUM	Question 14.79 - intercept b0	62.1411	0.5
NUM	Question 14.79 - slope b1 (diameter)	2.0567	0.1
NUM	Question 14.79 - slope b1 (bark thickness)	15.6418	0.3
NUM	Question 14.79 c	144.84	0.8

**Deliverables and project presentation guidelines:**

- Application deployed to class server with source code 48 hours before presentation.
- Design document and user's guide covering application MVC components as well as database design.
- Preliminary JSP/Servlet presentation that shows the application flow (View) and ability to display selected data from the database.
- Second presentation that shows substantial implementation of the application using JSF.
- Final presentation that has all features implemented and fully tested using JSF.
- Sample data and presentation scripts will be provided the morning of the presentation.

**Scoring scheme:**

- Implementation of requirements consistent with application design criteria.
- Ability to perform all functionality without error.
- Ability to recover gracefully from any errors including data errors without crashing.
- Look and feel of the application including ease of use criteria.
- Quality of the code and conformance to standards.
- Documentation quality.
- Ability to meet required schedule for deliverables as posted.
- Group component as well as individual component of score.