LE/EECS 3421 – Introduction to Database Systems

Summer 2021

Submission Deadline: July 25, 2021 before 23:59

Assignment 3: Frontend and Application Design

Objectives

The purpose of this activity is to practice how to design front and middle tier of a Database Application.

Submission Requirements

- Please submit your results/output in a PDF file. Submit your code in a text (.txt) file.
- The name of the files must be your YorkU student number such as `100131001.pdf` or `100131001.pdf`.
- File must be uploaded to the A03 submission link provided. The name of submission on the link must also be your YorkU student number.
- Your diagrams can be hand drawn or digital. In both cases, the images must be clear.
- If the files do not open properly or the content is not clear, then you will be awarded zero.
- **The deadline is Sunday July 25, 2021, before 11:59 PM.**
- **This is an individual assignment.**
- **Late submission is not permitted under any circumstances.**
- **Your submissions will be verified using Turnitin (or some other suitable tool) for originality. 60% or more similarity will be awarded zero in the assignment and reported to the department. We may report similarity less than 60% if it is of significant nature.**

Note: In database application design, variations are always possible. If the business requirements are taken care of in a proper logical way as per the data modeling guidelines, the answer will be considered correct.

SPECIAL Note:

- **The recommended language/tool to design the frontend and application is Java language. If you want to use some other language/tool, then first consult the instructor and get permission for that.**
- **Your solution to this assignment will be based on your solution to Assignment2 and you can re-use your code from Assignment2.**
- **All implementation details that are not mentioned are left to your imagination and you are free to opt an approach as per your understanding.**
- **Your solution to this assignment will have two components:**
    - **Java code in separate Java files for each frontend screen.**
    - **Java code for middle tier that will process the data, collected from frontends or prepared to render to frontends.**

Question 1: Front end to Insert Data [5 Marks]

Design a Java class that displays a suitable screen/frontend to user using which user can insert data for a new CFP; the class must be named **yourID_Q1**. This class will work as a frontend for your solution to Qeustion2 in Assignment2; **therefore, in the design take care of all necessary issues**.

- Your frontend must support all three types of events.
- Your frontend class must not process and insert the data to the database, rather only collect the data and pass it to the middle tier class, which you will design in Qeustion3.

You are required to:

- Submit the code for this class in a java file. Name this file as yourID_Q1.java.

Question 2: Front end for Queries [5 Marks]

Design a Java class that displays a suitable screen/frontend to user using which user can see the results of the two queries that we have designed in Question4 of Assignment2; the class must be named **yourID_Q2**. This class will work as a frontend for your solution to Qeustion4 in Assignment2; **therefore, in the design take care of all necessary issues**.

- Your frontend must support both queries and provide a way of selection.
- Your frontend class must not process and retrieve the data to the database, rather invoke the suitable methods in the middle tier class, which you will design in Qeustion3.

You are required to:

- Submit the code for this class in a java file. Name this file as yourID_Q2.java.

Question 3: Middle Tier [10 Marks]

Design a Java class **yourID_Q3**. In this class, provide suitable methods that will support the frontends designed in Question1 and Question2 so that the data can be properly inserted to the database or can be retrieved from the database as desired. This class will support both the classes in Question1 and Question2; **therefore, in the design take care of all necessary issues**.

- The method(s) supporting Question1 and Question2 must be separate.
- The CFPCount table that we have created in Question1 of Assignment2 is also part of schema and it must be updated appropriately.

You are required to:

- Submit the code for this class in a java file. Name this file as yourID_Q3.java.

Question 4: Testing and Reporting [5+4 Marks]

In your PDF document, test all the frontends and screenshots of your tests. In order to indicate the success of insert frontend, you need to empty the database and then insert the new data there. Your report must be properly designed indicating the purpose of each step and screenshot. Add necessary explanation wherever you feel the reader could be lost.

For frontend in Question1, you are required to:

- Add a Workbench screenshot indicating that there is no prior data in the database.
- Add screenshots of inserting data through the frontend, one for each event type. You can use any dummy data. There will be three screenshots here.
- Through Workbench screenshot, show that data is inserted successfully for the above three events. One screenshot showing all three events would be sufficient.

For frontend in Question2, you are required to:

- Add screenshots of retrieving data for both queries, one for each query. For each query there will be two screenshots; one will show the blank frontend and the other will show the query result.

schema name = 3421a03