Lab Eight

JDBC Application I

CS1103, 2021F

Learning Outcomes

At the conclusion of the lab, students should be able to

- Write stored procedures with inputs
- Access stored procedures from Java, using the JDBC

Background

You won't be surprised to discover that most applications access databases through programming languages and not via the database console. To do this, programming languages have libraries that provide the ability to facilitate database actions. Sometimes a library's capabilities are restricted to a specific database manufacturer (e.g. Oracle, MySQL, DB2). In the case of java, the designers developed the Java DataBase Connector (https://en.wikipedia.org/wiki/Java_Database_Connectivity). It allows for connections to a database, submission of SQL statements and management of results.

Exercise

You will build two java applications that access your existing database of Students/Enrolments/Courses.

1. The first application will collect information from standard in and call the stored procedure you wrote for Lab 7 to accept a student. The application should either report the exception generated by the stored procedure, or report that the student was successfully added.
2. The second application will report the courses a specified student has enrolled in. This will require you to build a new stored procedure called "studentTranscript" that takes a studentID and returns a list of courses and grades for the student. You can then write a Java application by the same name that takes the ID as a commandline argument, i.e.

   ```
   $ java StudentTranscript 3125766
   ```

   that calls the stored procedure and prints out the records returned from the stored procedure to standard out. The stored procedure should throw an exception if the student is not found and the application can report the error, but it should print nothing if the student is not enrolled for any courses.

Submission

Before the due date for this lab, students should submit online to the lms a tar/zip file containing

- The source files for the two applications, as well as the studentTranscript stored procedure
- A word-processor report as a pdf file, containing the terminal script demonstrating the two applications running successfully, and with exceptional behavior.