Introduction to Database Design

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Exercises on SQL in applications

1. Download the JDBC driver for MySQL, `mysql-connector-java-5.1.18-bin.jar` from the course schedule. Place it in Java's classpath (e.g. in OSX you can place it in `/Library/Java/Extensions/`).

2. Make sure you have a database called `imdb` on the MySQL DBMS you are using, with a copy of the `person` table used in the project. Compile and run `jdbcTest.java`, found on the course schedule. (If you are running on ITU's MySQL server rather than your own machine, change "`localhost`" to "`mysql.itu.dk`".)

3. Write a Java program that lets the user specify a table and a condition, and displays the number of tuples in the table satisfying the condition. (**Advanced:** Try to make the program resistent against SQL injection. **Fun:** Try to inject SQL into your classmate's implementation.)

4. Write a Java program that creates a table `torture(id int)` and fills it with integers $1, 2, \ldots, n$ for some user-specified n. Then, for increasing values of n execute this query (which should output the number n):

   ```
   SELECT count(*) FROM torture t1, torture t2, torture t3
   WHERE t1.id<=t2.id AND t2.id<=t3.id AND t3.id<=t1.id
   ```

   Try to explain why the query gets so slow when n grows, even if there is a primary index on `id`. This query will make any DBMS I know of look stupid.