

This lab asks you to write simple JDBC programs, and execute an XPath query.

What you will need:

- A MySQL server installation
- A MySQL JDBC driver
- Create a database instance named “jdbclab” in MySQL
- Load the JDBCLabInit.sql into the jdbclab space in MySQL

**Activity 1:** Construct a JDBC program according to the following specifications:

1. Write a method named query1 that uses JDBC to execute a SELECT query to List all Emp IDs, Names, together with their Dept names
  - a. Use a regular JDBC Statement object for this.
  - b. Pretty-print the results to the console (One line per row in readable aligned columns)
  - c. This would be invoked on the command line as
 

```
java ser322.JdbcLab <url> <user> <pwd> <driver> query1
```
  
2. Write a method named query2 that uses JDBC to execute a SELECT query to List a Dept Name together with the Names of Customers who have purchased a Product made by that Department and the amount the Customer spent on the purchase.
  - a. Use a PreparedStatement with a parameter for the DeptNo and filter the query results to only return rows tied to that Dept.
  - b. Pretty-print the results to the console (One line per row in readable aligned columns)
  - c. This would be invoked on the command line as
 

```
java ser322.JdbcLab <url> <user> <pwd> <driver> query2 <DeptNo>
```
  
3. Write a method named dml1 that uses JDBC to add a new Customer to the database
  - a. Use a PreparedStatement with parameters for the 4 values to INSERT
  - b. Be sure to commit your results appropriately!
  - c. If successful, indicate by printing out SUCCESS
  - d. This would be invoked on the command line as
 

```
java ser322.JdbcLab <url> <user> <pwd> <driver> dml1
            <customer id> <product id> <name> <quantity>
```

**Note:** you can run query2 to check on dml1, as the results should change!

**Activity 2:** XML-ize the database and execute XPath queries

Using the same database instance, do the following:

1. Modify your JDBC program from Activity 1 to export the entire database to an XML file
  - a. This would be invoked on the command line as
 

```
java ser322.JdbcLab <url> <user> <pwd> <driver> export <filename>
```
  
2. Construct a separate Java program to display the results of an XPath expression on an exported XML file that returns all Product descriptions of Products from a given Dept
  - a. This would be invoked on the command line as
 

```
java ser322.JdbcLab2 <DeptNo>
```

**Extra Credit:**

For extra credit,

1. Create an XML schema for your database export, name it JdbcLab2.xsd
2. Write a standalone program to import an XML file that conforms to the schema to the database.
  - a. This would be invoked on the command line as
 

```
java ser322.JdbcLabEC <url> <user> <pwd> <driver> <filename>
```

Make sure of the following for this lab:

1. You never leak database resources!
2. Fully handle all error situations. By “fully” we mean give directed feedback as to what is incorrect about the user’s query, or what the error executing the query is.
3. Your programs should use the package ser322. Note Activity 2, #2 changes the program name slightly.
4. Your code should be readable and documented, and exhibit coding practices appropriate for an upper-division programming course in Software Engineering.
5. The command-line examples above do not show the use of the -classpath (-cp) option to java. We will add this as per our grading environment.

Submission Instructions:

You should submit a zipfile with the following contents:

- A readme.txt that explains how to build the source code. Given these are small standalone programs, a simple javac command is fine.
- All source code in a subdirectory src followed by package (e.g. src/ser322).
- You do not have to include the JDBC driver or your SQL database dump.
- Do not include hardcoded paths in any scripts or code.