Database Connection in Java

Objective:

- Connect to a MySQL Server from a Java application using JDBC
  - Load the JDBC driver
  - Establish a connection to the database
  - Send SQL queries for inserting and retrieving data

Exercise

1. Create a database named MyDB. In this database create a table named USERS. Use the following script

```
create database MyDB;
use MyDB;
create table Users (UID int AUTO_INCREMENT PRIMARY KEY, Name nvarchar(50),
Username nvarchar(50), Password nvarchar(50));
```

2. Create a new Java Application project and type the code below to perform basic operations on the MyDB database:

```
package mydbtest;
import java.sql.*;

public class MyDBExample {
public static void main(String[] args) {
    try {
      Class.forName("com.mysql.jdbc.Driver").newInstance();
    }
    catch (Exception ex) {
      System.err.println("An Exception occured during JDBC Driver loading." +
        " Details are provided below:");
      ex.printStackTrace(System.err);
    }
    Connection connection = null;
    Statement selectStatement = null, insertStatement = null;
    ResultSet rs = null;
    ResultSetMetaData rsmd = null;
    try {
       connection = DriverManager.
         getConnection("jdbc:mysql://localhost:3305/MyDB?user=root&password=root");
       insertStatement = connection.createStatement();
       insertStatement.execute("INSERT INTO Users (Name, Username, Password) " +
         "VALUES ('John', 'admin', 'adminpassword')");
       insertStatement.execute("INSERT INTO users (Name, Username, Password) " +
         "VALUES ('Mary', 'user', 'userpassword')");
       selectStatement = connection.createStatement();
       selectStatement.execute("SELECT * FROM Users");
       rs = selectStatement.getResultSet();
       rsmd = rs.getMetaData();
       System.out.println("There are " + rsmd.getColumnCount() + " columns in the result set:");
       for (int i = 1; i <= rsmd.getColumnCount(); i++)
         System.out.println("\t Column " + (i) + " is " + rsmd.getColumnName(i));
       int rowCount = 0;
       while(rs.next()){
         System.out.println("Displaying information on row: " + (++rowCount));
         System.out.println("\tUser Identifier: " + rs.getString("UID"));
         System.out.println("\tName " + rs.getString("Name"));
         System.out.println("\tUsername: " + rs.getString("Username"));
         System.out.println("\tPassword: " + rs.getString("Password"));
       }
    }
    catch(SQLException sqlex) {
       System.err.println("An SQL Exception occured. Details are provided below:");
       sqlex.printStackTrace(System.err);
    }
    finally {
      if (rs != null) {
        try {
           rs.close();
        }
        catch(SQLException e) {
        }
        rs = null;
      }
      if (selectStatement != null) {
        try {
           selectStatement.close();
        }
        catch(SQLException e) {}
        selectStatement = null;
      }
      if (insertStatement != null) {
        try {
           insertStatement.close();
        }
        catch(SQLException e) {}
        insertStatement = null;
      }
      if (connection != null) {
        try {
           connection.close();
        }
        catch(SQLException e) {}
        connection = null;
      }
    }
  }
}
```

3. Download the JDBC driver from http://dev.mysql.com/downloads/connector/j/. Unpack the downloaded archive and place the mysql-connector-java-5.1.12-bin.jar in the project.

Bibliography

http://java.sun.com/docs/books/tutorial/jdbc/basics/index.html

http://www.roseindia.net/jdbc/jdbc.shtml