

Do not copy and paste the code. All the submissions in the lab have to be created manually. The paper version should be returned in class with the name and the student ID. The final result should be uploaded on D2L using lab07.txt.

Name: _____ Student ID: _____ Class: _____

Instructor: Jong-Kyou Kim, PhD _____

1. Write the output of the following Java program. To run this program on Linux or Mac, use the following command.

```
$ java -classpath ".:sqlite-jdbc.jar:slf4j-simple.jar:slf4j-api.jar" lab07a
```

On Windows, use the following command.

```
$ java -classpath ".;sqlite-jdbc.jar;slf4j-simple.jar;slf4j-api.jar" lab07a
```

```
1  import java.sql.Connection;
2  import java.sql.DriverManager;
3  import java.sql.ResultSet;
4  import java.sql.SQLException;
5  import java.sql.Statement;
6
7  public class lab07a {
8      public static void main(String[] args) {
9          Connection conn = null;
10         try {
11             // Load the SQLite JDBC driver
12             Class.forName("org.sqlite.JDBC");
13
14             // Connect to a database
15             conn = DriverManager.getConnection("jdbc:sqlite:lab07.db");
16
17             // Create a statement
18             Statement stmt = conn.createStatement();
19
20             // Execute a SELECT query
21             ResultSet rs = stmt.executeQuery("SELECT * FROM instructor");
22
23             // Loop through the result set and print the results
24             while (rs.next()) {
```



```
26         ", salary: $" + rs.getDouble("salary"));
27     }
28     stmt.executeUpdate
29         ("update instructor set salary = 40000 where salary < 40000");
30     conn.commit(); // This is required because we set auto commit false.
31     rs = stmt.executeQuery
32         ("select * from instructor where salary < 40000");
33     if (!rs.next()) {
34         System.out.println("Everybody gets at least 40,000 dollars");
35     }
36     else {
37         System.out.println("Somebody gets less than 40,000 dollars.");
38     }
39 } catch (SQLException | ClassNotFoundException e) {
40     e.printStackTrace();
41 } finally {
42     try {
43         if (conn != null) {
44             conn.close();
45         }
46     } catch (SQLException e) {
47         e.printStackTrace();
48     }
49 }
50 }
51 }
```

3. Answer the questions regarding the following program.

```
1  import java.sql.Connection;
2  import java.sql.DriverManager;
3  import java.sql.ResultSet;
4  import java.sql.SQLException;
5  import java.sql.Statement;
6
7
8  public class lab07c {
9      public static void main(String[] args) {
10         Connection conn = null;
11         try {
12             // Load the SQLite JDBC driver
13             Class.forName("org.sqlite.JDBC");
14
15             // Connect to a database
16             conn = DriverManager.getConnection("jdbc:sqlite:lab07.db");
17
18             conn.setAutoCommit(false);
```

```
19         conn.commit();
20
21     // Create a statement
22     Statement stmt = conn.createStatement();
23     ResultSet rs = null;
24
25     rs = stmt.executeQuery
26         ("select * from instructor where salary < 41000");
27     if (rs.next()) {
28         System.out.println
29             ("Some instructors are paid less than 41,000 dollars");
30     }
31     else {
32         System.out.println
33             ("No instructors are paid less than 41,000 dollars");
34     }
35     conn.commit();
36     System.out.println
37         ("All instructor's salaries are raised at least 41,000 dollars");
38
39     stmt.executeUpdate
40         ("update instructor set salary = 41000 where salary < 41000");
41     rs = stmt.executeQuery
42         ("select * from instructor where salary < 41000");
43     if (rs.next()) {
44         System.out.println
45             ("Some instructors are paid less than 41,000 dollars");
46     }
47     else {
48         System.out.println
49             ("No instructors are paid less than 41,000 dollars");
50     }
51     conn.rollback(); // Note that this reverts all updates
52     System.out.println("Alas, the raise is cancelled");
53
54     rs = stmt.executeQuery
55         ("select * from instructor where salary < 41000");
56     if (rs.next()) {
57         System.out.println
58             ("Some instructors are paid less than 41,000 dollars");
59     }
60     else {
61         System.out.println
62             ("No instructors are paid less than 41,000 dollars");
63     }
64     conn.commit();
```

```
65         } catch (SQLException | ClassNotFoundException e) {
66             e.printStackTrace();
67         } finally {
68             try {
69                 if (conn != null) {
70                     conn.close();
71                 }
72             } catch (SQLException e) {
73                 e.printStackTrace();
74             }
75         }
76     }
77 }
```

- (a) Write the output of the above program
- (b) Explain the role of the following statement.

```
conn.rollback();
```