

# Assignment-5 CS313

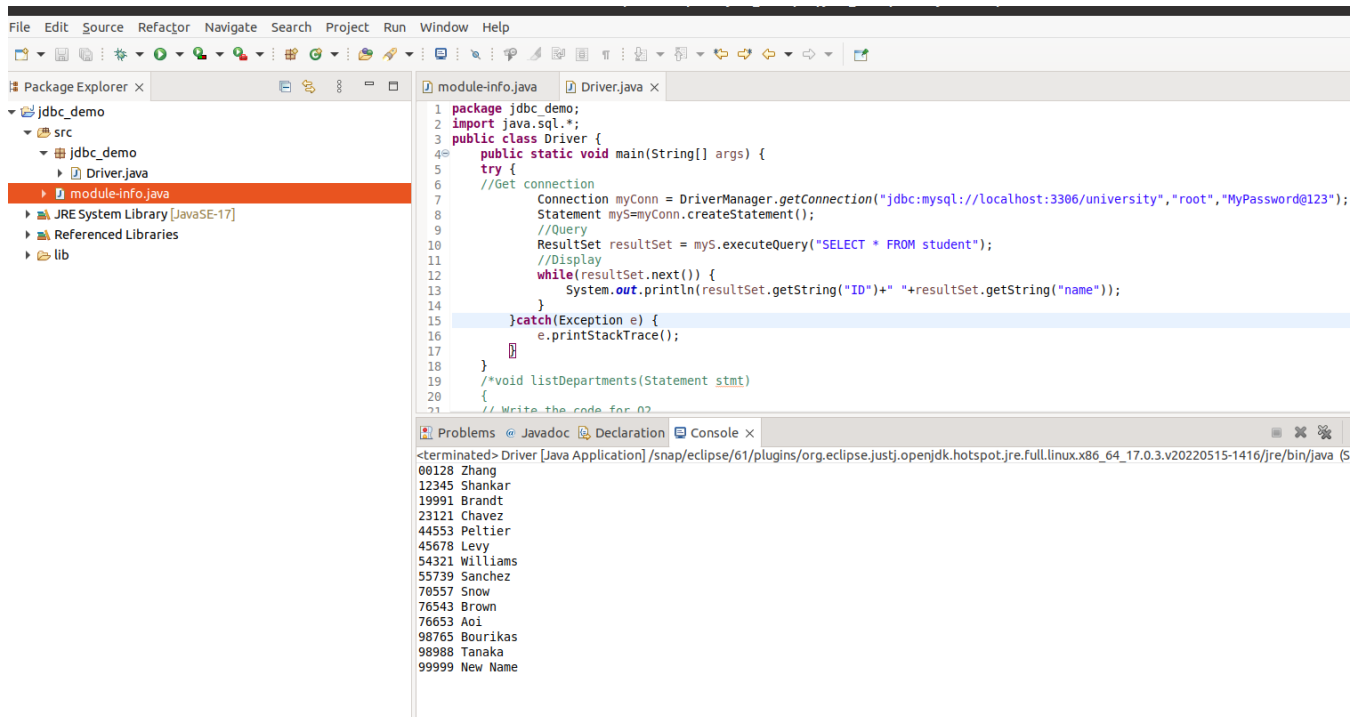
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## 1 Part A

### 1.1 Problem 1

Using the handout (JDBC Handout.pdf) which is uploaded on moodle, try out the java+jdbc code.



The screenshot shows the Eclipse IDE interface. The Package Explorer on the left shows a project named 'jdbc\_demo' with a source folder 'src' containing 'module-info.java' and 'Driver.java'. The main editor displays the code for 'Driver.java', which is a Java class with a static main method. The code connects to a MySQL database using JDBC, executes a query to select all students, and prints the results. The console at the bottom shows the output of the program, which is a list of student names and their IDs.

```
1 package jdbc_demo;
2 import java.sql.*;
3 public class Driver {
4     public static void main(String[] args) {
5         try {
6             //Get connection
7             Connection myConn = DriverManager.getConnection("jdbc:mysql://localhost:3306/university","root","MyPassword@123");
8             Statement myS=myConn.createStatement();
9             //Query
10            ResultSet resultSet = myS.executeQuery("SELECT * FROM student");
11            //Display
12            while(resultSet.next()) {
13                System.out.println(resultSet.getString("ID")+" "+resultSet.getString("name"));
14            }
15        } catch (Exception e) {
16            e.printStackTrace();
17        }
18    }
19    /*void listDepartments(Statement stmt)
20    {
21        // Write the code for 02
22    }
23 }
```

<terminated> Driver [Java Application] /snap/eclipse/61/plugins/org.eclipse.justj.openjdk.hotspot.jre.full.linux.x86\_64\_17.0.3.v20220515-1416/jre/bin/java (5

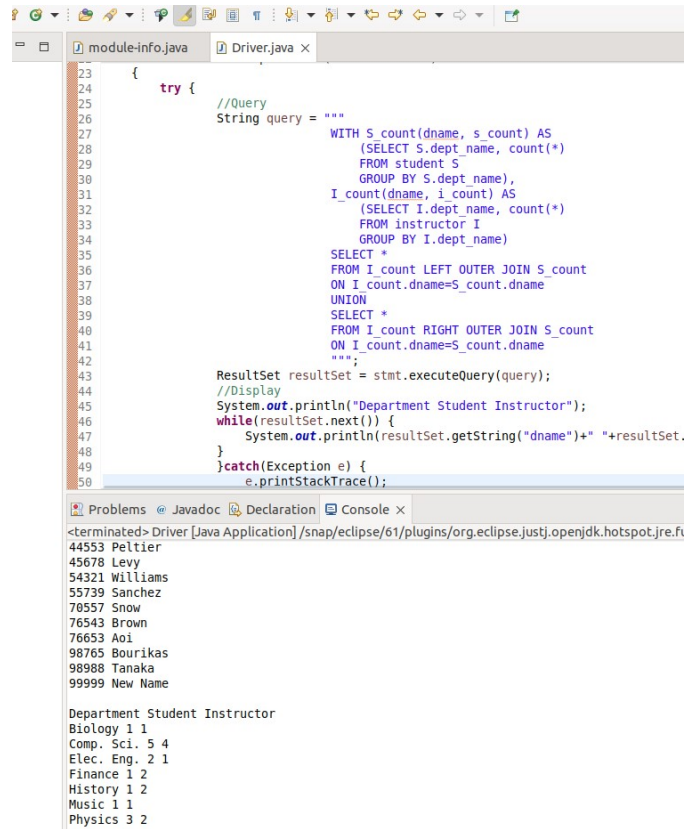
00128 Zhang  
12345 Shankar  
19991 Brandt  
23121 Chavez  
44553 Peltier  
45678 Levy  
54321 Williams  
55739 Sanchez  
78557 Snow  
76543 Brown  
76653 Aoi  
98765 Bourikas  
98988 Tanaka  
99999 New Name

Figure 1: Program Output

## 1.2 Problem 2

Modify the code given to you to list departments (in asc order) and the total number of students and instructors they have. A template has been made in the provided source code(Driver.java), you need to fill up the template.

```
1 WITH S_count(dname, s_count) AS
2   (SELECT S.dept_name, count(*)
3    FROM student S
4    GROUP BY S.dept_name),
5 I_count(dname, i_count) AS
6   (SELECT I.dept_name, count(*)
7    FROM instructor I
8    GROUP BY I.dept_name)
9 SELECT *
10 FROM I_count LEFT OUTER JOIN S_count
11 ON I_count.dname=S_count.dname
12 UNION
13 SELECT *
14 FROM I_count RIGHT OUTER JOIN S_count
15 ON I_count.dname=S_count.dname
```



The screenshot shows the Eclipse IDE with two tabs: 'module-info.java' and 'Driver.java'. The 'Driver.java' tab is active, displaying a Java program that executes a SQL query. The query is the same one shown in the previous code block. The program uses a try-catch block to execute the query and print the results. The output is displayed in the 'Console' tab at the bottom of the IDE.

```
23 {
24     try {
25         //Query
26         String query = ""
27             WITH S_count(dname, s_count) AS
28               (SELECT S.dept_name, count(*)
29                FROM student S
30                GROUP BY S.dept_name),
31             I_count(dname, i_count) AS
32               (SELECT I.dept_name, count(*)
33                FROM instructor I
34                GROUP BY I.dept_name)
35             SELECT *
36             FROM I_count LEFT OUTER JOIN S_count
37             ON I_count.dname=S_count.dname
38             UNION
39             SELECT *
40             FROM I_count RIGHT OUTER JOIN S_count
41             ON I_count.dname=S_count.dname
42             "";
43         ResultSet resultSet = stmt.executeQuery(query);
44         //Display
45         System.out.println("Department Student Instructor");
46         while(resultSet.next()) {
47             System.out.println(resultSet.getString("dname")+" "+resultSet.
48         }
49     } catch (Exception e) {
50         e.printStackTrace();
51     }
```

Problems @ Javadoc Declaration Console X

```
<terminated> Driver [Java Application] /snap/eclipse/61/plugins/org.eclipse.justj.openjdk.hotspot.jre.fi
44553 Peltier
45678 Levy
54321 Williams
55739 Sanchez
70557 Snow
76543 Brown
76653 Aoi
98765 Bourikas
98988 Tanaka
99999 New Name

Department Student Instructor
Biology 1 1
Comp. Sci. 5 4
Elec. Eng. 2 1
Finance 1 2
History 1 2
Music 1 1
Physics 3 2
```

Figure 2: Program Output

### 1.3 Problem 3

Do the following preparedStatement : For a given building, find classrooms (room\_no) with capacity more than 30 and in which no courses are scheduled this year and semester. A template has been made in the provided source code(Driver.java), you need to fill up the template.

```
1 select distinct class.room_number
2 from classroom class natural join section sec
3 where capacity>30 and class.room_number NOT IN
4 (select room.room_number from classroom room
5  natural join section sec
6  where capacity>30 and sect.semester='Fall' and sect.year=2009);
```

```
module-info.java Driver.java ×
58 while(resultSet.next()) {
59     System.out.println(resultSet.getString("dname")+" "+resultSet.getInt("s_coun
60 }
61 }catch(Exception e) {
62     e.printStackTrace();
63 }
64 return;
65 }
66 static void listDepartments(PreparedStatement stmt)
67 {
68     // Write the code for Q3
69     try {
70         stmt.setString(1, "Fall");
71         stmt.setInt(2, 2009);
72         ResultSet resultSet = stmt.executeQuery();
73         //Display
74         System.out.println("Room Number");
75         while(resultSet.next()) {
76             System.out.println(resultSet.getString("room_number"));
77         }
78     }catch(Exception e) {
79         e.printStackTrace();
80     }
81 }
82 }
83 }

Problems Javadoc Declaration Console ×
<terminated> Driver [Java Application] /snap/eclipse/61/plugins/org.eclipse.justj.openjdk.hotspot.jre.full.linux.x86_64.1
45678 Levy
54321 Williams
55739 Sanchez
78557 Snow
76543 Brown
76653 Aol
98765 Bourikas
98988 Tanaka
99999 New Name

Department Student Instructor
Biology 1 1
Comp. Sci. 5 4
Elec. Eng. 2 1
Finance 1 2
History 1 2
Music 1 1
Physics 3 2

Room Number
128
```

Figure 3: Program Output

## 2 Part 2

Design a new html page to take advisor id as input. Write a servlet to display the department to which the advisor belongs using the Java and J2EE program. Output should contain advisor id and department name.



Figure 4: Servlet Output