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Roll Number: 31118 (K-1 Batch)

Subject: DBS Lab

```java
import java.sql.*;

public class Main {

    static final String url = "jdbc:mysql://localhost:3306/a08_database";
    static final String user = "root";
    static final String pass = "root123";

    public static void readDB(String query) throws Exception {
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection con = DriverManager.getConnection(url, user, pass);
        Statement st = con.createStatement();

        ResultSet rs = st.executeQuery(query);
        System.out.println("Successfully Executed(Read)\n");

        System.out.println("ResultSet: ");
        while (rs.next()) {
            String retrivedData = rs.getInt(1)+" "+rs.getString(2)+" "+rs.getString(3);
            System.out.println(retrivedData);
        }

        st.close();
        con.close();
    }

    public static void modifyDB(String query) throws Exception {
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection con = DriverManager.getConnection(url, user, pass);
        Statement st = con.createStatement();

        st.executeUpdate(query);

        System.out.println("Successfully Executed(Modify)");

        st.close();
        con.close();
    }

    public static void UpdateGrade(int roll_no, String newGrade) throws Exception {
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection con = DriverManager.getConnection(url, user, pass);

        String query = "update student set grade=? where roll_no=?";
        PreparedStatement st = con.prepareStatement(query);
```

```java
            st.setString(1, newGrade);
            st.setInt(2, roll_no);
            st.executeUpdate();

            System.out.println("Successfully Executed(Modify)");

            st.close();
            con.close();
    }

    public static void main(String[] args) throws Exception {

            String query1 = "create table student (" +
                            "    roll_no int not null primary key auto_increment,"
+
                            "    name varchar(100)," +
                            "    grade varchar(10)" +
                            ")";
            String query2 = "insert into student (name, grade)" +
                            "values ('Tony', 'A+')," +
                            "('Natasha', 'B')," +
                            "('Steve', 'A+')," +
                            "('Peter', 'B')," +
                            "('Stephen Strange', 'A')";
            String query3 = "select * from student";
            String query4 = "update student set grade='A+' where roll_no=5";
            String query5 = "delete from student where roll_no=2";

//          modifyDB(query5);
//          readDB(query3);

//          prepared statement on update query
            int roll_no = 5;
            String grade = "A";
            UpdateGrade(roll_no, grade);
    }

}
```
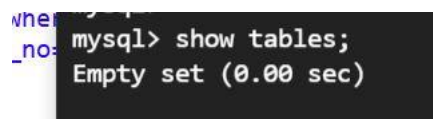
Table Creation:

Before:

```
wher
_no:   mysql> show tables;
       Empty set (0.00 sec)
```

After:

```
mysql> show tables;
+----------------------+
| Tables_in_a08_database |
+----------------------+
| student              |
+----------------------+
1 row in set (0.00 sec)

mysql> desc student;
+---------+--------------+------+-----+---------+----------------+
| Field   | Type         | Null | Key | Default | Extra          |
+---------+--------------+------+-----+---------+----------------+
| roll_no | int          | NO   | PRI | NULL    | auto_increment |
| name    | varchar(100) | YES  |     | NULL    |                |
| grade   | varchar(10)  | YES  |     | NULL    |                |
+---------+--------------+------+-----+---------+----------------+
3 rows in set (0.01 sec)
```

Version 3.1.4 is here (more)

Inserting Values:

Before:

```
mysql> select * from student;
Empty set (0.00 sec)
```

After:

```
mysql> select * from student;
+---------+-----------------+-------+
| roll_no | name            | grade |
+---------+-----------------+-------+
|       1 | Tony            | A+    |
|       2 | Natasha         | B     |
|       3 | Steve           | A+    |
|       4 | Peter           | B     |
|       5 | Stephen Strange | A     |
+---------+-----------------+-------+
5 rows in set (0.00 sec)
```

Reading Data:

Task List · Console ⋈

<terminated> Main [Java Application] C:\Program
Successfully Executed(Read)

ResultSet:
1 Tony A+
2 Natasha B
3 Steve A+
4 Peter B
5 Stephen Strange A
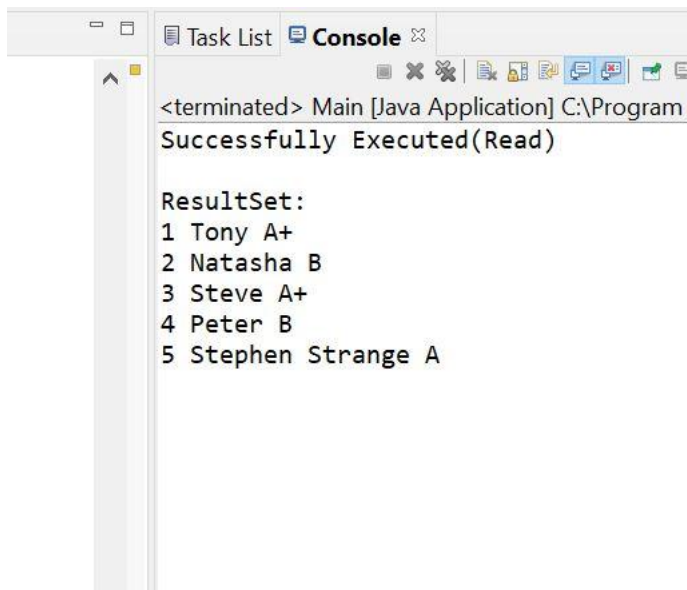
Updating Record (roll number - 5):

Before:

```
mysql> select * from student;
+---------+-----------------+-------+
| roll_no | name            | grade |
+---------+-----------------+-------+
|       1 | Tony            | A+    |
|       2 | Natasha         | B     |
|       3 | Steve           | A+    |
|       4 | Peter           | B     |
|       5 | Stephen Strange | A     |
+---------+-----------------+-------+
5 rows in set (0.00 sec)
```

After:

```
mysql> select * from student;
+---------+-----------------+-------+
| roll_no | name            | grade |
+---------+-----------------+-------+
|       1 | Tony            | A+    |
|       2 | Natasha         | B     |
|       3 | Steve           | A+    |
|       4 | Peter           | B     |
|       5 | Stephen Strange | A+    |
+---------+-----------------+-------+
5 rows in set (0.00 sec)
```

Deleting Record (roll number - 2):

Before:

```
mysql> select * from student;
+---------+-----------------+-------+
| roll_no | name            | grade |
+---------+-----------------+-------+
|       1 | Tony            | A+    |
|       2 | Natasha         | B     |
|       3 | Steve           | A+    |
|       4 | Peter           | B     |
|       5 | Stephen Strange | A+    |
+---------+-----------------+-------+
5 rows in set (0.00 sec)
```

After:

```
mysql> select * from student;
+---------+-----------------+-------+
| roll_no | name            | grade |
+---------+-----------------+-------+
|       1 | Tony            | A+    |
|       3 | Steve           | A+    |
|       4 | Peter           | B     |
|       5 | Stephen Strange | A+    |
+---------+-----------------+-------+
4 rows in set (0.00 sec)
```

Prepared Statement:

Code:

```java
String query = "update student set grade=? where roll_no=?";
PreparedStatement st = con.prepareStatement(query);

st.setString(1, newGrade);
st.setInt(2, roll_no);
st.executeUpdate();
```

Output (updating grade of roll number -5 using prepared statement):

Before:

```
mysql> select * from student;
+---------+----------------+-------+
| roll_no | name           | grade |
+---------+----------------+-------+
|       1 | Tony           | A+    |
|       3 | Steve          | A+    |
|       4 | Peter          | B     |
|       5 | Stephen Strange| A+    |
+---------+----------------+-------+
4 rows in set (0.00 sec)
```

After:

```
mysql> select * from student;
+---------+----------------+-------+
| roll_no | name           | grade |
+---------+----------------+-------+
|       1 | Tony           | A+    |
|       3 | Steve          | A+    |
|       4 | Peter          | B     |
|       5 | Stephen Strange| A     |
+---------+----------------+-------+
4 rows in set (0.00 sec)
```

Thank You!