Лаборатори №8

Embedded sql
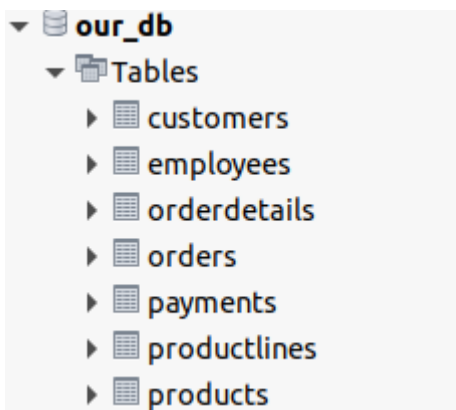
Г.Мөнх-Оргил 18b1num2048

1. Зорилго

Insert, Delete, Update, Select query өөрсдийн багаар сонгон авсан өгөгдлийн сангууд дээр ашиглана.
Жич: Select query нь заавал гурав болон түүнээс дээш хүснэгтийг ашигласан бодит жишээ байх ёстойг анхаарна уу
Select query нь дангаараа 5 оноо болно. Багаараа гүйцэтгэж болно.

Сонгон авсан өгөгдлийн сан

Өөрийн үүсгэсэн our_db гэх өгөгдлийн санг сонгон авсан.

2. Хэрэгжүүлэлт

Insert query

```java
import java.sql.*;
public class DataBase {

    Run | Debug
    public static void main(String[] args) throws SQLException {
//      static final String jdbc_driver = "" ;
        String DB_URL = "jdbc:mysql://localhost:3306/our_db" ;
        String USER = "root" ;
        String PASS = "" ;

        int productLine = 20222 ;
        String textDescription = "Desc" ;
        String htmlDescription = "" ;
        String image = "" ;

        try {
            Connection connection = DriverManager.getConnection(DB_URL, USER, PASS) ;
            String sql = "INSERT INTO productlines (productLine, textDescription, htmlDescription, image)"
                    + " VALUES (?, ?, ?, ?)" ;

            PreparedStatement statement = connection.prepareStatement(sql) ;
            statement.setInt(1,  productLine);
            statement.setString(2, textDescription);
            statement.setString(3,  htmlDescription);
            statement.setString(4, image);

            int rows = statement.executeUpdate() ;

            if (rows > 0){
                System.out.println("Amjilttai insert hiigdlee.");
            }
        }
        catch (SQLException ex){
            ex.printStackTrace();
        }

    }
}
```

Ажиллахын өмнө

#	productLine ▲	textDescription	htmlDescriptio	image
1	Vintage Cars	Our Vintage Car models realistically…	NULL	NULL
2	Trucks and Buses	The Truck and Bus models are reali…	NULL	NULL
3	Trains	Model trains are a rewarding hobby…	NULL	NULL
4	Ships	The perfect holiday or anniversary …	NULL	NULL
5	Planes	Unique, diecast airplane and helico…	NULL	NULL
6	Motorcycles	Our motorcycles are state of the art…	NULL	NULL
7	Classic Cars	Attention car enthusiasts: Make you…	NULL	NULL
*	NULL	NULL	NULL	NULL

Ажилласны дараа

#	productLine	textDescription	htmlDescriptio	image
1	20222	Desc		BLOB
2	Classic Cars	Attention car enthusiasts: Make you...	NULL	NULL
3	Motorcycles	Our motorcycles are state of the art...	NULL	NULL
4	Planes	Unique, diecast airplane and helico...	NULL	NULL
5	Ships	The perfect holiday or anniversary ...	NULL	NULL
6	Trains	Model trains are a rewarding hobby...	NULL	NULL
7	Trucks and Buses	The Truck and Bus models are reali...	NULL	NULL
8	Vintage Cars	Our Vintage Car models realistically...	NULL	NULL
*	NULL	NULL	NULL	NULL

Update query:

```java
import java.sql.*;

public class DataBase {

    Run | Debug
    public static void main(String[] args) throws SQLException {
//      static final String jdbc_driver = "" ;
        String DB_URL = "jdbc:mysql://localhost:3306/our_db" ;
        String USER = "root" ;
        String PASS = "" ;

        int employeeNumber = 1002;
        String lastName = "Dorj" ;
        String firstName = "Bat" ;
        String email = "test@gmail.com";

        try {
            Connection connection = DriverManager.getConnection(DB_URL, USER, PASS) ;
            String sql = "UPDATE employees SET lastName=?, firstName=?, email=? WHERE employeeNumber = ?" ;
            PreparedStatement statement = connection.prepareStatement(sql) ;
            System.out.println(sql);

            statement.setString(1,  lastName);
            statement.setString(2,  firstName);
            statement.setString(3,  email);
            statement.setInt(4,  employeeNumber);

            int rows = statement.executeUpdate() ;
            if (rows > 0){
                System.out.println("Amjilttai update hiigdlee");
            }
        }
        catch (SQLException ex){
            ex.printStackTrace();
        }
    }
}
```

Update query ажиллахын өмнө

#	employeeNumbe	lastName	firstName	extension	email	officeCode	reportsTo	jobTitle
1	1002	Murphy	Diane	x5800	dmurphy@classicmodelcars.com	1	NULL	President
2	1056	Patterson	Mary	x4611	mpatterso@classicmodelcars.com	1	1002	VP Sales
3	1076	Firrelli	Jeff	x9273	jfirrelli@classicmodelcars.com	1	1002	VP Marketing
4	1088	Patterson	William	x4871	wpatterson@classicmodelcars.com	6	1056	Sales Manager (APAC)
5	1102	Bondur	Gerard	x5408	gbondur@classicmodelcars.com	4	1056	Sale Manager (EMEA)
6	1143	Bow	Anthony	x5428	abow@classicmodelcars.com	1	1056	Sales Manager (NA)
7	1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep
8	1166	Thompson	Leslie	x4065	lthompson@classicmodelcars.com	1	1143	Sales Rep
9	1188	Firrelli	Julie	x2173	jfirrelli@classicmodelcars.com	2	1143	Sales Rep
10	1216	Patterson	Steve	x4334	spatterson@classicmodelcars.com	2	1143	Sales Rep

Update query ажилласны дараа

1002 гэсэн дугаартай ажилтаны овог, нэр, цахим шууданг амжилттай update хийлээ.

#	employeeNumber	lastName	firstName	extension	email	officeCode	reportsTo	jobTitle
1	1002	Dorj	Bat	x5800	test@gmail.com	1	NULL	President
2	1056	test	Mary	x4611	mpatterso@classicmodelcars.com	1	1002	VP Sales
3	1076	Firrelli	Jeff	x9273	jfirrelli@classicmodelcars.com	1	1002	VP Marketing
4	1088	Patterson	William	x4871	wpatterson@classicmodelcars.com	6	1056	Sales Manager (APAC)
5	1102	Bondur	Gerard	x5408	gbondur@classicmodelcars.com	4	1056	Sale Manager (EMEA)

Delete Query:

test@gmail.com гэсэн цахим шуудантай ажилчны мэдээллийг устгана.

#	employeeNumber	lastName	firstName	extension	email	officeCode	reportsTo	jobTitle
1	1002	Dorj	Bat	x5800	test@gmail.com	1	NULL	President
2	1056	test	Mary	x4611	mpatterso@classicmodelcars.com	1	1002	VP Sales
3	1076	Firrelli	Jeff	x9273	jfirrelli@classicmodelcars.com	1	1002	VP Marketing
4	1088	Patterson	William	x4871	wpatterson@classicmodelcars.com	6	1056	Sales Manager (APAC)

Query

```java
String email = "test@gmail.com" ;

try {
    Connection connection = DriverManager.getConnection(DB_URL, USER, PASS);

    String sql = "DELETE FROM employees WHERE email = ?" ;

    PreparedStatement statement = connection.prepareStatement(sql) ;

    statement.setString(1, email);

    int rows = statement.executeUpdate() ;
    if (rows > 0){
        System.out.println("Amjilttai delete hiigdlee");
    }
}
```

Query ажилласны дараа

#	employeeNumber	lastName	firstName	extension	email	officeCode	reportsTo	jobTitle
1	1056	test	Mary	x4611	mpatterso@classicmodelcars.com	1	1002	VP Sales
2	1076	Firrelli	Jeff	x9273	jfirrelli@classicmodelcars.com	1	1002	VP Marketing
3	1088	Patterson	William	x4871	wpatterson@classicmodelcars.com	6	1056	Sales Manager (APAC)
4	1102	Bondur	Gerard	x5408	gbondur@classicmodelcars.com	4	1056	Sale Manager (EMEA)
5	1143	Bow	Anthony	x5428	abow@classicmodelcars.com	1	1056	Sales Manager (NA)
6	1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep
7	1166	Thompson	Leslie	x4065	lthompson@classicmodelcars.com	1	1143	Sales Rep
8	1188	Firrelli	Julie	x2173	jfirrelli@classicmodelcars.com	2	1143	Sales Rep
9	1216	Patterson	Steve	x4334	spatterson@classicmodelcars.com	2	1143	Sales Rep
10	1286	Tseng	Foon Yue	x2248	ftseng@classicmodelcars.com	3	1143	Sales Rep
11	1323	Vanauf	George	x4102	gvanauf@classicmodelcars.com	3	1143	Sales Rep
12	1337	Bondur	Loui	x6493	lbondur@classicmodelcars.com	4	1102	Sales Rep
13	1370	Hernan...	Gerard	x2028	ghernande@classicmodelcars.com	4	1102	Sales Rep
14	1401	Castillo	Pamela	x2759	pcastillo@classicmodelcars.com	4	1102	Sales Rep
15	1501	Bott	Larry	x2311	lbott@classicmodelcars.com	7	1102	Sales Rep
16	1504	Jones	Barry	x102	bjones@classicmodelcars.com	7	1102	Sales Rep
17	1611	Fixter	Andy	x101	afixter@classicmodelcars.com	6	1088	Sales Rep
18	1612	Marsh	Peter	x102	pmarsh@classicmodelcars.com	6	1088	Sales Rep
19	1619	King	Tom	x103	tking@classicmodelcars.com	6	1088	Sales Rep
20	1621	Nishi	Mami	x101	mnishi@classicmodelcars.com	5	1056	Sales Rep
21	1625	Kato	Yoshimi	x102	ykato@classicmodelcars.com	5	1621	Sales Rep
22	1702	Gerard	Martin	x2312	mgerard@classicmodelcars.com	4	1102	Sales Rep
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Select Query

```sql
select c.*, p.*, o.*
from customers AS c, payments AS p, orders AS o
where p.customerNumber = c.customerNumber AND c.customerNumber = 112 AND o.customerNumber = c.customerNumber;
```

112 гэсэн дугаартай хэрэглэгчийн захиалгын мэдээлэл, төлбөрийн мэдээлэл, мөн хэрэглэгчийн ерөнхий мэдээллийг харуулсан

```java
try {
    Connection connection = DriverManager.getConnection(DB_URL, USER, PASS) ;

    Statement statement = connection.createStatement() ;

    String sql = "select c.*, p.*, o.* from customers AS c, payments AS p, orders AS o
                where p.customerNumber = c.customerNumber AND c.customerNumber = 112 AND o.customerNumber = c.customerNumber";

    ResultSet result = statement.executeQuery(sql) ;

    while (result.next()) {
        String ResultData = "";
        for (int i = 1; i <= numColumn; i++) {
            if (i != numColumn)
                ResultData += result.getString(i) + ", ";
            else
                ResultData += result.getString(i);
        }

        System.out.println(ResultData);
    }
}
catch (SQLException ex){
    ex.printStackTrace();
}
```

Query үр дүн:

#	customerNumber	customerName	contactLastName	contactFirstName	phone	addressLine1	addressLine2	city	state	postalCode	country	salesRepEmployeeNumber	creditLimit	customerNumber
1	112	Signal Gift Stores	King	Jean	7025551838	8489 Strong St.	NULL	Las Vegas	NV	83030	USA	1166	71800.00	112
2	112	Signal Gift Stores	King	Jean	7025551838	8489 Strong St.	NULL	Las Vegas	NV	83030	USA	1166	71800.00	112
3	112	Signal Gift Stores	King	Jean	7025551838	8489 Strong St.	NULL	Las Vegas	NV	83030	USA	1166	71800.00	112
4	112	Signal Gift Stores	King	Jean	7025551838	8489 Strong St.	NULL	Las Vegas	NV	83030	USA	1166	71800.00	112
5	112	Signal Gift Stores	King	Jean	7025551838	8489 Strong St.	NULL	Las Vegas	NV	83030	USA	1166	71800.00	112
6	112	Signal Gift Stores	King	Jean	7025551838	8489 Strong St.	NULL	Las Vegas	NV	83030	USA	1166	71800.00	112
7	112	Signal Gift Stores	King	Jean	7025551838	8489 Strong St.	NULL	Las Vegas	NV	83030	USA	1166	71800.00	112
8	112	Signal Gift Stores	King	Jean	7025551838	8489 Strong St.	NULL	Las Vegas	NV	83030	USA	1166	71800.00	112
9	112	Signal Gift Stores	King	Jean	7025551838	8489 Strong St.	NULL	Las Vegas	NV	83030	USA	1166	71800.00	112

checkNumber	paymentDate	amount	orderNumber	orderDate	requiredDate	shippedDate	status	comments	customerNumber
BO864823	2004-12-17	14191.12	10124	2003-05-21	2003-05-29	2003-05-25	Shipped	Customer very concerned about th…	112
BO864823	2004-12-17	14191.12	10278	2004-08-06	2004-08-16	2004-08-09	Shipped	NULL	112
BO864823	2004-12-17	14191.12	10346	2004-11-29	2004-12-05	2004-11-30	Shipped	NULL	112
HQ55022	2003-06-06	32641.98	10124	2003-05-21	2003-05-29	2003-05-25	Shipped	Customer very concerned about th…	112
HQ55022	2003-06-06	32641.98	10278	2004-08-06	2004-08-16	2004-08-09	Shipped	NULL	112
HQ55022	2003-06-06	32641.98	10346	2004-11-29	2004-12-05	2004-11-30	Shipped	NULL	112
ND748579	2004-08-20	33347.88	10124	2003-05-21	2003-05-29	2003-05-25	Shipped	Customer very concerned about th…	112
ND748579	2004-08-20	33347.88	10278	2004-08-06	2004-08-16	2004-08-09	Shipped	NULL	112
ND748579	2004-08-20	33347.88	10346	2004-11-29	2004-12-05	2004-11-30	Shipped	NULL	112

Кодын үр дүн

```
→ database-system git:(main) ✗ javac Select.java
→ database-system git:(main) ✗ java Select
112, Signal Gift Stores, King, Jean, 7025551838, 8489 Strong St., null, Las Vegas, NV, 83030, USA, 1166, 71800.00, 112, BO864823, 2004-12-17, 14191.12, 10124, 2003-05-21, 2003-05-29, 2003-05-25, Shipped, Custome
r very concerned about the exact color of the models. There is high risk that he may dispute the order because there is a slight color mismatch
112, Signal Gift Stores, King, Jean, 7025551838, 8489 Strong St., null, Las Vegas, NV, 83030, USA, 1166, 71800.00, 112, BO864823, 2004-12-17, 14191.12, 10278, 2004-08-06, 2004-08-16, 2004-08-09, Shipped, null
112, Signal Gift Stores, King, Jean, 7025551838, 8489 Strong St., null, Las Vegas, NV, 83030, USA, 1166, 71800.00, 112, BO864823, 2004-12-17, 14191.12, 10346, 2004-11-29, 2004-12-05, 2004-11-30, Shipped, null
112, Signal Gift Stores, King, Jean, 7025551838, 8489 Strong St., null, Las Vegas, NV, 83030, USA, 1166, 71800.00, 112, HQ55022, 2003-06-06, 32641.98, 10124, 2003-05-21, 2003-05-29, 2003-05-25, Shipped, Customer
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112, Signal Gift Stores, King, Jean, 7025551838, 8489 Strong St., null, Las Vegas, NV, 83030, USA, 1166, 71800.00, 112, HQ55022, 2003-06-06, 32641.98, 10278, 2004-08-06, 2004-08-16, 2004-08-09, Shipped, null
112, Signal Gift Stores, King, Jean, 7025551838, 8489 Strong St., null, Las Vegas, NV, 83030, USA, 1166, 71800.00, 112, HQ55022, 2003-06-06, 32641.98, 10346, 2004-11-29, 2004-12-05, 2004-11-30, Shipped, null
112, Signal Gift Stores, King, Jean, 7025551838, 8489 Strong St., null, Las Vegas, NV, 83030, USA, 1166, 71800.00, 112, ND748579, 2004-08-20, 33347.88, 10124, 2003-05-21, 2003-05-29, 2003-05-25, Shipped, Custome
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112, Signal Gift Stores, King, Jean, 7025551838, 8489 Strong St., null, Las Vegas, NV, 83030, USA, 1166, 71800.00, 112, ND748579, 2004-08-20, 33347.88, 10278, 2004-08-06, 2004-08-16, 2004-08-09, Shipped, null
112, Signal Gift Stores, King, Jean, 7025551838, 8489 Strong St., null, Las Vegas, NV, 83030, USA, 1166, 71800.00, 112, ND748579, 2004-08-20, 33347.88, 10346, 2004-11-29, 2004-12-05, 2004-11-30, Shipped, null
```