المملكة العربية السعودية

وزارة التعليم

جامعة ام القرى

كلية الحاسب الآلي ونظم المعلومات

ADVANCED PROGRAMMING REPORT

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Group 1

Setting up environment

To begin with, this is a program that take a products and store it in database, then offer to retrieve it or delete it. So we need to connect our Netbeans IDE 8.2 with MySQL 8.0 database using JDBC Driver Manager.

First we will create the database, and table to store data in it.
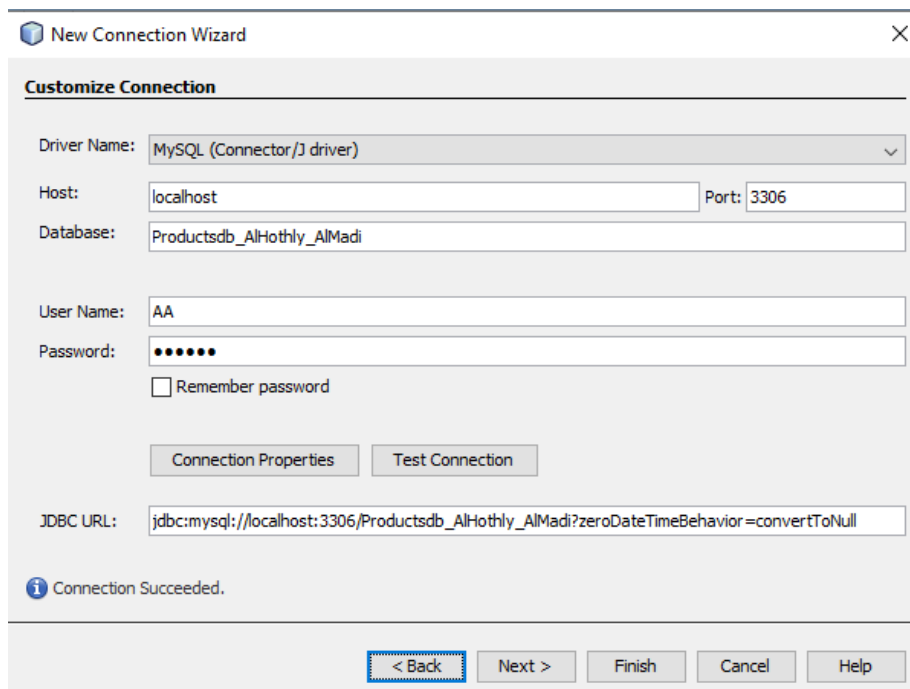
```
CREATE USER 'AA'@'localhost' IDENTIFIED BY '123456';

GRANT INSERT,SELECT,DELETE ON ProductsDB_AlHothly_AlMadi.ProductsTBL_Azzam_Abdulmalik TO 'AA'@'localhost';

FLUSH PRIVILEGES;

CREATE TABLE `productstbl_azzam_abdulmalik` (
  `ID` int(11) NOT NULL,
  `Type` varchar(20) NOT NULL,
  `Model` varchar(40) NOT NULL,
  `Price` float(8,2) NOT NULL,
  `Count` int(11) NOT NULL,
  `DeliveryDate` date NOT NULL
  PRIMARY KEY (`ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
```
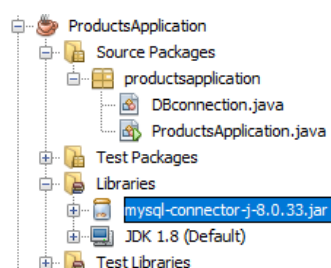
Then, we will test our connectivity using the created user.

After we set out connection, we need to install the driver in our project inside "Libraries".

Setting up environment

After the setup has been completed, we created **"DBconnection"** class that concerned with dealing with database queries.

```java
DBconnection() throws FileNotFoundException {
    try {
        Class.forName("com.mysql.cj.jdbc.Driver");
        Properties config = new Properties(); //taking the properties from config file
        FileInputStream ip = new FileInputStream("config.txt"); //to read config file
        config.load(ip); //load it, to put inside con
        con = DriverManager.getConnection(config.getProperty("DBUrl"), config.getProperty("user"), config.getProperty("password"));
        //con = DriverManager.getConnection("jdbc:mysql://localhost/productsdb_alhothly_almadi", "root", "AboOody32147896");
        System.out.println("Connection Established!!");
        constatue = true;//if the connection established start the program normally
    } catch (FileNotFoundException e) {// if the file not found
        System.out.println("Error: " + e.getMessage());//inform the user
        constatue = false;// don't let the program start

    } catch (Exception e) {// if there any problem with connection
        System.out.println("Error in connection");//inform the user
        constatue = false;// don't let the program start
    }
}
```

To establish the connection, we need to get the **"IP"**, **"Username"** and **"password"**.

We will grab these information from **"config.txt"**.

	مجلد ملفات	٤٤/١٠/٢٥ م ٤:٣٧	build
	مجلد ملفات	٤٤/١٠/٢٥ م ٤:٣٠	nbproject
	مجلد ملفات	٤٤/١٠/٢٥ م ٤:٣٠	src
	مجلد ملفات	٤٤/١٠/٢٥ م ٤:٤٠	test
٤ كيلوبايت	XML Source File	٤٤/١٠/٢٥ م ٤:٣٠	build.xml
١ كيلوبايت	مستند نص	٤٤/١٠/٢٩ م ٧:٣٩	config.txt
١ كيلوبايت	ملف MF	٤٤/١٠/٢٥ م ٤:٣٠	manifest.mf
	مجلد ملفات	٤٤/١٠/٢٩ م ٧:٥٠	mysql-connector-j-8.0.33

Inside **"config.txt"** file the information we need to connect to database.

```
DBUrl = jdbc:mysql://localhost/ProductsDB_AlHothly_AlMadi
user = AA
password = 123456
```

Here's some common error that will occur

1- **Faild to read config file, due to changing its name.**

```
run:
Error: config1.txt (The system cannot find the file specified)
BUILD SUCCESSFUL (total time: 0 seconds)
```

2- **Faild in reading user or password**

```
run:
Error in connection: Access denied for user 'AA'@'localhost' (using password: NO)
BUILD SUCCESSFUL (total time: 0 seconds)


run:
Error in connection: Access denied for user 'KSA'@'localhost' (using password: YES)
BUILD SUCCESSFUL (total time: 0 seconds)
```

Running & Inserting

First of all, when you running the program it will show you the menu, from that menu you can choose one of four options, and we will explain it one by one.

```
Connection Established!!
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
```

Let's start with first option which is "Inserting", you need to enter some data, and it will check for that data, if it's valid the record will added to database, and print you a message that inform you that it was successfully added.

```
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
1
Enter The Type: (such as: TV, Refrigerator, or PC)
PC
Enter The Model: (such as: Samsung QN90B QLED)
Dell OptiPlex 7000 SFF
Enter The Price:
2099.99
Enter The Count:
1
Enter The DeliveryDate (YYYY-MM-DD)
2023-06-23
 The data added successfully!!
```

Here we added some products to the database.

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
1
Enter The Type: (such as: TV, Refrigerator, or PC)
PC
Enter The Model: (such as: Samsung QN90B QLED)
Lenovo IdeaCentre
Enter The Price:
4699
Enter The Count:
2
Enter The DeliveryDate (YYYY-MM-DD)
2023-08-25
 The data added successfully!!
```

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
1
Enter The Type: (such as: TV, Refrigerator, or PC)
TV
Enter The Model: (such as: Samsung QN90B QLED)
Samsung QN90B QLED
Enter The Price:
1500.95
Enter The Count:
2
Enter The DeliveryDate (YYYY-MM-DD)
2023-06-29
 The data added successfully!!
```

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
1
Enter The Type: (such as: TV, Refrigerator, or PC)
TV
Enter The Model: (such as: Samsung QN90B QLED)
BENQ VZ2350
Enter The Price:
700
Enter The Count:
3
Enter The DeliveryDate (YYYY-MM-DD)
2023-09-23
 The data added successfully!!
```

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
1
Enter The Type: (such as: TV, Refrigerator, or PC)
Monitor
Enter The Model: (such as: Samsung QN90B QLED)
Dell 24 Monitor - P2422H - Full HD 1080p
Enter The Price:
750
Enter The Count:
2
Enter The DeliveryDate (YYYY-MM-DD)
2023-10-05
 The data added successfully!!
```

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
1
Enter The Type: (such as: TV, Refrigerator, or PC)
Mobile
Enter The Model: (such as: Samsung QN90B QLED)
Samsung S23
Enter The Price:
2499.99
Enter The Count:
1
Enter The DeliveryDate (YYYY-MM-DD)
2023-07-01
 The data added successfully!!
```

Searching

After inserting the products, it will show you the menu, so you can choose other options from it. Now we will choose option number two to search for products.

You have three options to search:

1. Searching for all products, which can be done by pressing only enter.

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
2
Enter The Model or Type to search in table: (Press enter to display all data)

--------------------------------------------------------------------------------------------
                                    PRODUCTS TABLE
--------------------------------------------------------------------------------------------
| ID | TYPE          | MODEL                                  | PRICE    | COUNT | DATE       |
--------------------------------------------------------------------------------------------
| 1  | PC            | Dell OptiPlex 7000 SFF                 | 2099.99  | 1     | 2023-06-23 |
| 2  | PC            | Lenovo IdeaCentre                      | 4699.00  | 2     | 2023-08-25 |
| 3  | TV            | Samsung QN90B QLED                     | 1500.95  | 2     | 2023-06-29 |
| 4  | TV            | BENQ V2350                             | 700.00   | 3     | 2023-09-23 |
| 5  | Monitor       | Dell 24 Monitor - P2422H - Full HD 1080p | 750.00 | 2     | 2023-10-05 |
| 6  | Mobile        | Samsung S23                            | 2499.99  | 1     | 2023-07-01 |
--------------------------------------------------------------------------------------------
```

2. Or searching via products model.

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
2
Enter The Model or Type to search in table: (Press enter to display all data)
Dell
--------------------------------------------------------------------------------------------
                                    PRODUCTS TABLE
--------------------------------------------------------------------------------------------
| ID | TYPE          | MODEL                                  | PRICE    | COUNT | DATE       |
--------------------------------------------------------------------------------------------
| 1  | PC            | Dell OptiPlex 7000 SFF                 | 2099.99  | 1     | 2023-06-23 |
| 5  | Monitor       | Dell 24 Monitor - P2422H - Full HD 1080p | 750.00 | 2     | 2023-10-05 |
--------------------------------------------------------------------------------------------
```

3. Or searching via products type.

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
2
Enter The Model or Type to search in table: (Press enter to display all data)
PC
--------------------------------------------------------------------------------------------
                                    PRODUCTS TABLE
--------------------------------------------------------------------------------------------
| ID | TYPE          | MODEL                                  | PRICE    | COUNT | DATE       |
--------------------------------------------------------------------------------------------
| 1  | PC            | Dell OptiPlex 7000 SFF                 | 2099.99  | 1     | 2023-06-23 |
| 2  | PC            | Lenovo IdeaCentre                      | 4699.00  | 2     | 2023-08-25 |
--------------------------------------------------------------------------------------------
```

Deleting

For the third option which is deleting a products from the table, deleting a products will be via products id. When you want to delete a products it will show you confirmation message.

Note: Writing "No" or "N" it will do same thing, same with "Yes" or "Y".

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
3
Enter The ID That You Want To Delete It:
6
Are you sure you want to delete this record? (Y/N)
N
Delete operation cancelld
```

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
3
Enter The ID That You Want To Delete It:
6
Are you sure you want to delete this record? (Y/N)
No
Delete operation cancelld
```

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
3
Enter The ID That You Want To Delete It:
6
Are you sure you want to delete this record? (Y/N)
Y
```

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
3
Enter The ID That You Want To Delete It:
7
Are you sure you want to delete this record? (Y/N)
Yes
Successfully deleted
```

Here the table after deleting the products.

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
2
Enter The Model or Type to search in table: (Press enter to display all data)


---------------------------------------------------------------------------------------------
                                    PRODUCTS TABLE
---------------------------------------------------------------------------------------------
| ID | TYPE        | MODEL                                   | PRICE    | COUNT | DATE       |
---------------------------------------------------------------------------------------------
| 1  | PC          | Dell OptiPlex 7000 SFF                  | 2099.99  | 1     | 2023-06-23 |
| 2  | PC          | Lenovo IdeaCentre                       | 4699.00  | 2     | 2023-08-25 |
| 3  | TV          | Samsung QN90B QLED                      | 1500.95  | 2     | 2023-06-29 |
| 4  | TV          | BENQ VZ2350                             | 700.00   | 3     | 2023-09-23 |
| 5  | Monitor     | Dell 24 Monitor - P2422H - Full HD 1080p| 750.00   | 2     | 2023-10-05 |
---------------------------------------------------------------------------------------------
```

Error & Error handling

After we seeing the correctness in the three options, now we will see some of errors, and how the program will handle it.

1. **Inserting "Type" name, that is more than 20 characters.**

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
1
Enter The Type: (such as: TV, Refrigerator, or PC)
Samsung 65 Inch TV Neo
Enter The Model: (such as: Samsung QN90B QLED)
QLED 8K Stainless Steel Quantum
Enter The Price:
1500
Enter The Count:
1
Enter The DeliveryDate (YYYY-MM-DD)
2023-08-23
Error: Data truncation: Data too long for column 'Type' at row 1
```

2. **Inserting "Model" name, that is more than 40 characters.**

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
1
Enter The Type: (such as: TV, Refrigerator, or PC)
TV
Enter The Model: (such as: Samsung QN90B QLED)
Samsung 65 Inch Neo QLED 8K Stainless Steel Quantum HDR 32x
Enter The Price:
1500
Enter The Count:
1
Enter The DeliveryDate (YYYY-MM-DD)
2023-08-23
Error: Data truncation: Data too long for column 'Model' at row 1
```

3. Inserting invalid "Date"

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
1
Enter The Type: (such as: TV, Refrigerator, or PC)
TV
Enter The Model: (such as: Samsung QN90B QLED)
Samsung QN90B QLED
Enter The Price:
1500
Enter The Count:
2
Enter The DeliveryDate (YYYY-MM-DD)
2023-80-09
Invalid date
2023-08-90
Invalid date
2023-08-09
 The data added successfully!!
```

4. Searching for unavailable products

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
2
Enter The Model or Type to search in table: (Press enter to display all data)
1
-------------------------------------------------------------------------------------------------
                                     PRODUCTS TABLE
-------------------------------------------------------------------------------------------------
| ID | TYPE           | MODEL                              | PRICE   | COUNT | DATE        |
-------------------------------------------------------------------------------------------------
No data match
-------------------------------------------------------------------------------------------------
```

5. Deleting unavailable products

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
3
Enter The ID That You Want To Delete It:
PC
Please write the id in integer form:
8
Sorry record not found.
```

And much more, but we choose the most common error that will show.

Lastly after finishing everything and you want to exit from the program you choose last option, to close the program and end the connection.

```
Azzam(442003546)_Abdulmalik(442005927) (G1)
------Menu------
1 INSERT
2 SEARCH
3 DELETE
4 EXIT
Enter Your Choice:
4
Connection Closed!!
finishing...
```

Here the source in window.

	مجلد ملفات	٤٤/١٠/٢٥ م ٤:٣٧	build
	مجلد ملفات	٤٤/١٠/٢٩ م ٧:٥٠	mysql-connector-j-8.0.33
	مجلد ملفات	٤٤/١٠/٢٥ م ٤:٣٠	nbproject
	مجلد ملفات	٤٤/١٠/٢٥ م ٤:٣٠	src
	مجلد ملفات	٤٤/١٠/٢٥ م ٤:٤٠	test
٤ كيلوبايت	XML Source File	٤٤/١٠/٢٥ م ٤:٣٠	build.xml
١ كيلوبايت	مستند نص	٤٤/١٠/٢٩ م ٧:٣٩	config.txt
١ كيلوبايت	ملف MF	٤٤/١٠/٢٥ م ٤:٣٠	manifest.mf

After entering source file.

	مجلد ملفات	٤٤/١٠/٢٥ م ٤:٣٢	productsapplication
٦ كيلوبايت	Java Source File	٤٤/١٠/٢٧ م ١٢:٣٦	DBconnection.java
٦ كيلوبايت	Java Source File	٤٤/١٠/٢٧ م ١٢:٤١	ProductsApplication.java