Instructions

Using ***JDBC***, write a *Java* program (**no GUI will be used**) which will allow the interaction with *MariaDB*. First, create the following table in MariaDB:

PRODUCTS

ProductID	Name	Price	Sales

1) Your program must provide the following options as the first screen, The user can choose any of the options by entering the corresponding number:

```
Choose on option:
1) Insert a new product
2) Display all the products
3) change prices
4) Exit

Choose an operation:
```

2) For each INSERT operation, your program must prompt for the value of each attribute, one by one:

```
Inserting a new product:
ProductID:111
product name: Bread
Price: 10
sales: 1000
Insert another record (Y/N)?:
```

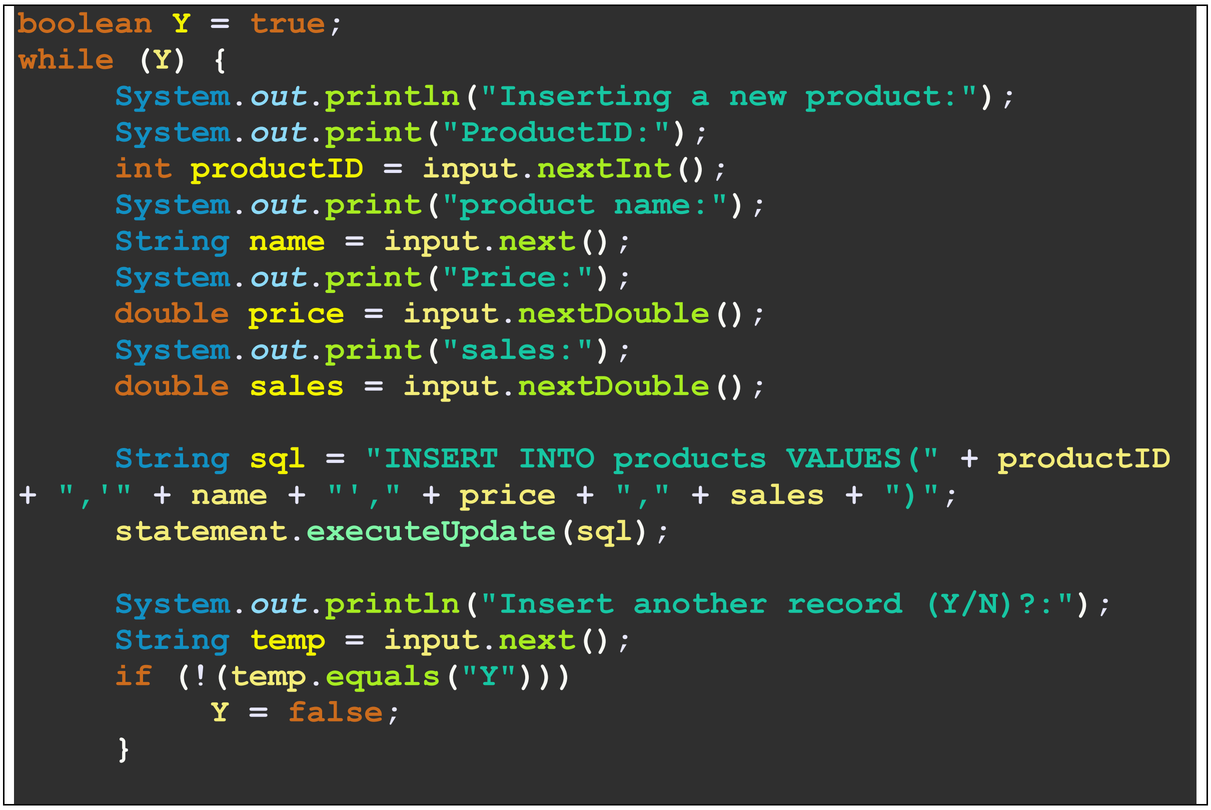
3) For the DISPLAY operation, your program must display all the records inserted so far.

4) For the `"change prices″` operation, the user is asked a sales goal for the products, any products whose sales numbers are equal to or above that value will have their price raised by 5%, any products whose sales numbers are below the entered sales goal should get a 10% price decrease. Display the values before and after they are altered. *[do this efficiently, you shouldn't need to access the database more than two or three times for this operation]*

5) Once an operation has completed, (i.e. after displaying records or choosing "N" after being asked to insert another record) your program has to return back to the first screen.

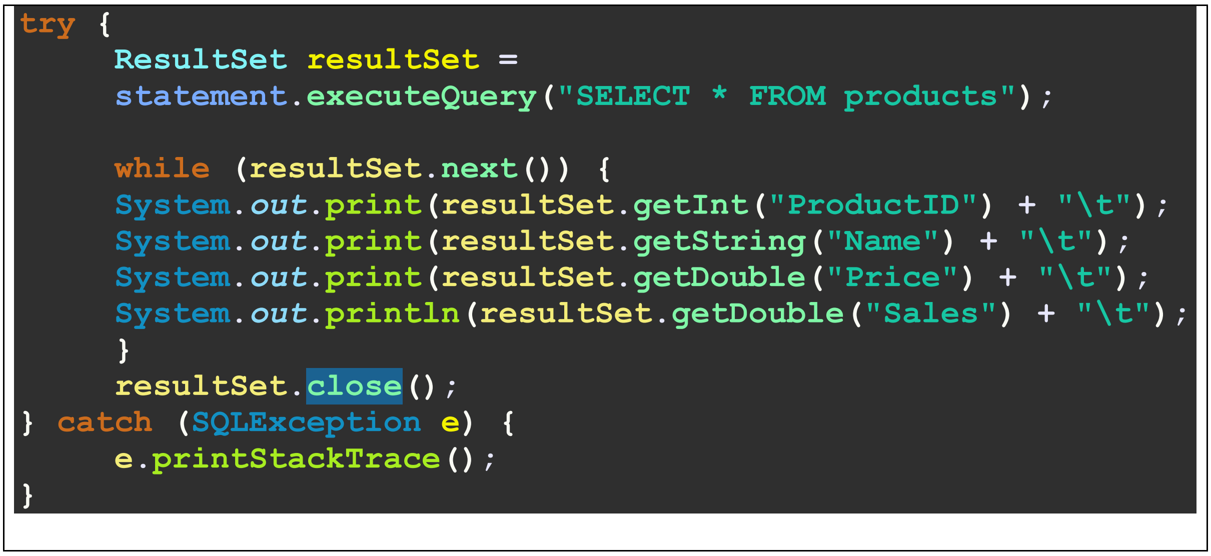
6) Highlight all lines of code that interact directly with the database.

1): Code for record **INSERTION**



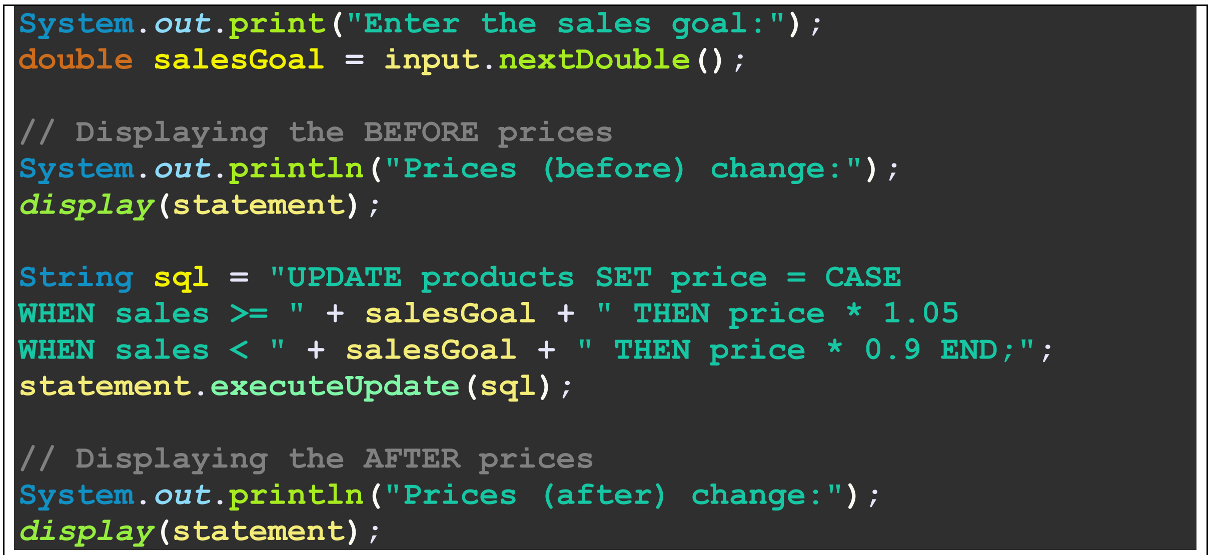
```
boolean Y = true;
while (Y) {
     System.out.println("Inserting a new product:");
     System.out.print("ProductID:");
     int productID = input.nextInt();
     System.out.print("product name:");
     String name = input.next();
     System.out.print("Price:");
     double price = input.nextDouble();
     System.out.print("sales:");
     double sales = input.nextDouble();

     String sql = "INSERT INTO products VALUES(" + productID
+ ",'" + name + "'," + price + "," + sales + ")";
     statement.executeUpdate(sql);

     System.out.println("Insert another record (Y/N)?:");
     String temp = input.next();
     if (!(temp.equals("Y")))
          Y = false;
     }
```

2): Code for **DISPLAYING** records



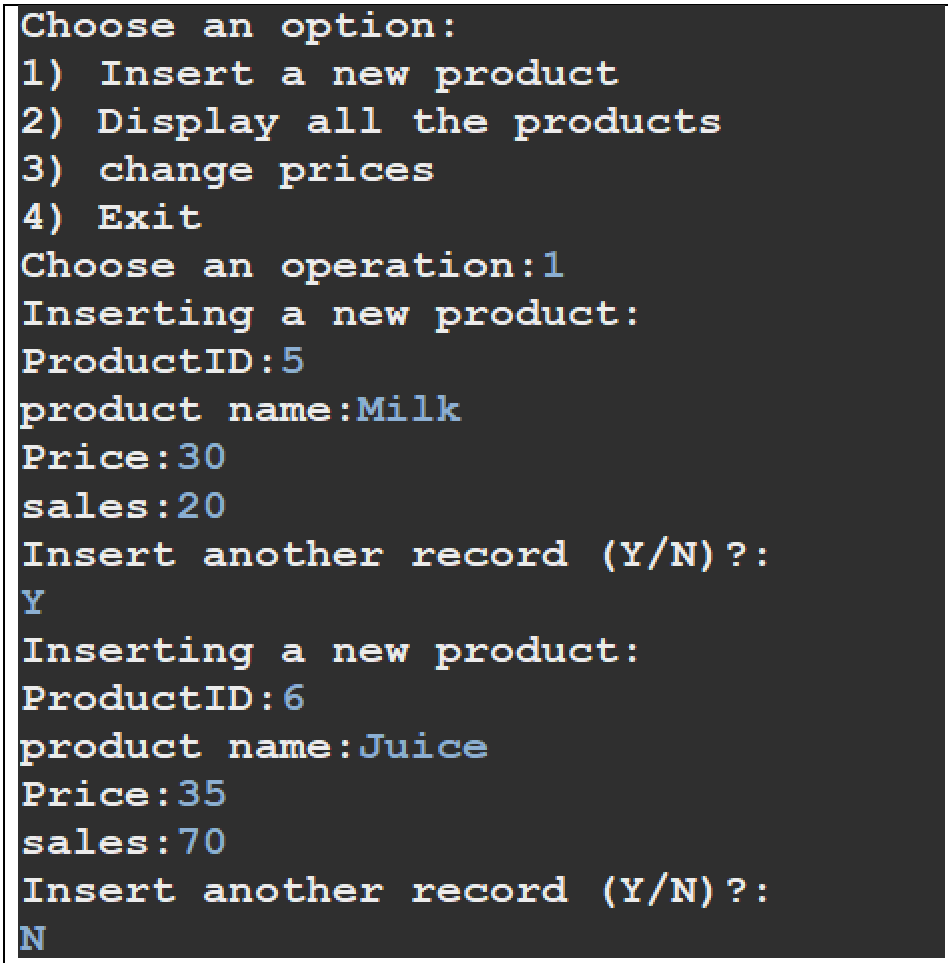
```
try {
     ResultSet resultSet =
     statement.executeQuery("SELECT * FROM products");

     while (resultSet.next()) {
     System.out.print(resultSet.getInt("ProductID") + "\t");
     System.out.print(resultSet.getString("Name") + "\t");
     System.out.print(resultSet.getDouble("Price") + "\t");
     System.out.println(resultSet.getDouble("Sales") + "\t");
     }
     resultSet.close();
} catch (SQLException e) {
     e.printStackTrace();
}
```

3): Code for **CHANGING** the prices

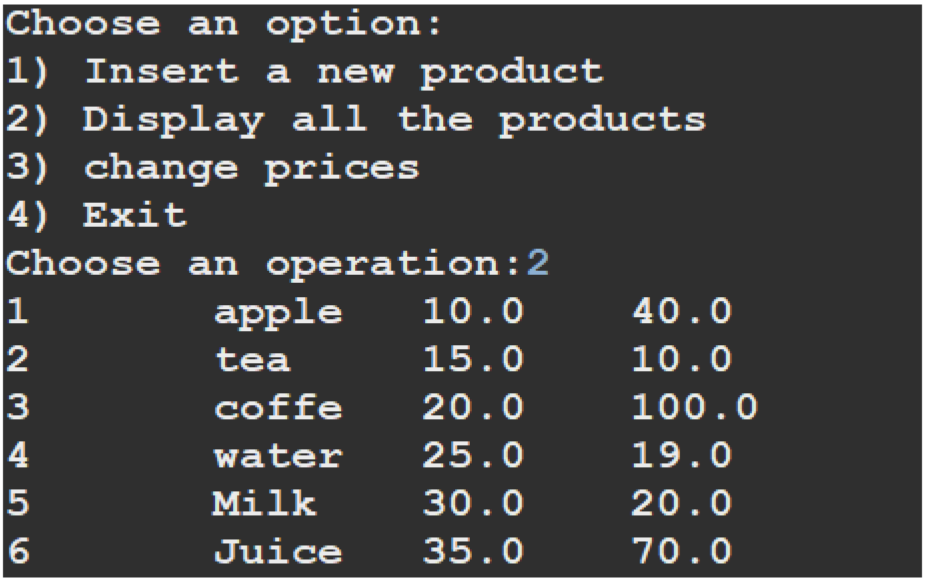


```
System.out.print("Enter the sales goal:");
double salesGoal = input.nextDouble();

// Displaying the BEFORE prices
System.out.println("Prices (before) change:");
display(statement);

String sql = "UPDATE products SET price = CASE
WHEN sales >= " + salesGoal + " THEN price * 1.05
WHEN sales < " + salesGoal + " THEN price * 0.9 END;";
statement.executeUpdate(sql);

// Displaying the AFTER prices
System.out.println("Prices (after) change:");
display(statement);
```

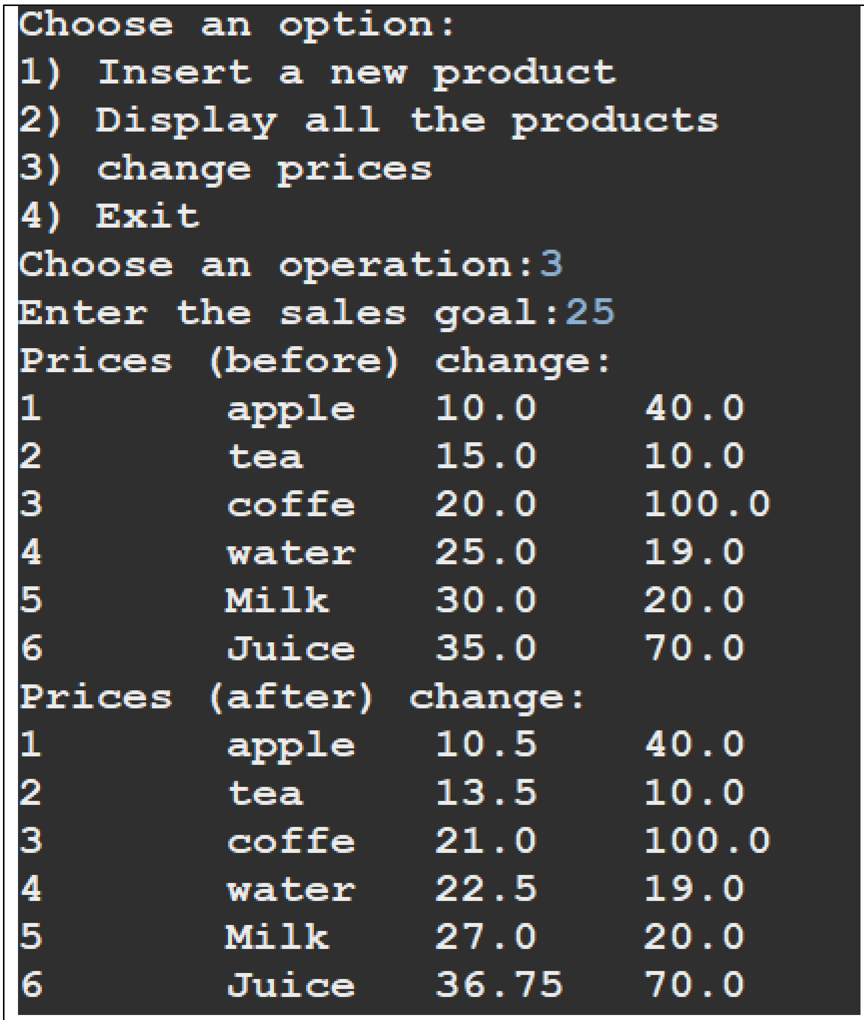
4): Screenshots of the **EXECUTION**. Show the menu and examples for the 3 functions.



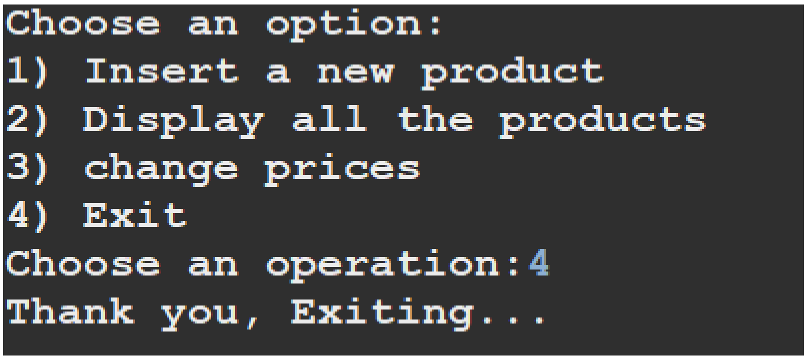
```
Choose an option:
1) Insert a new product
2) Display all the products
3) change prices
4) Exit
Choose an operation:1
Inserting a new product:
ProductID:5
product name:Milk
Price:30
sales:20
Insert another record (Y/N)?:
Y
Inserting a new product:
ProductID:6
product name:Juice
Price:35
sales:70
Insert another record (Y/N)?:
N
```



```
Choose an option:
1) Insert a new product
2) Display all the products
3) change prices
4) Exit
Choose an operation:2
1       apple   10.0    40.0
2       tea     15.0    10.0
3       coffe   20.0    100.0
4       water   25.0    19.0
5       Milk    30.0    20.0
6       Juice   35.0    70.0
```

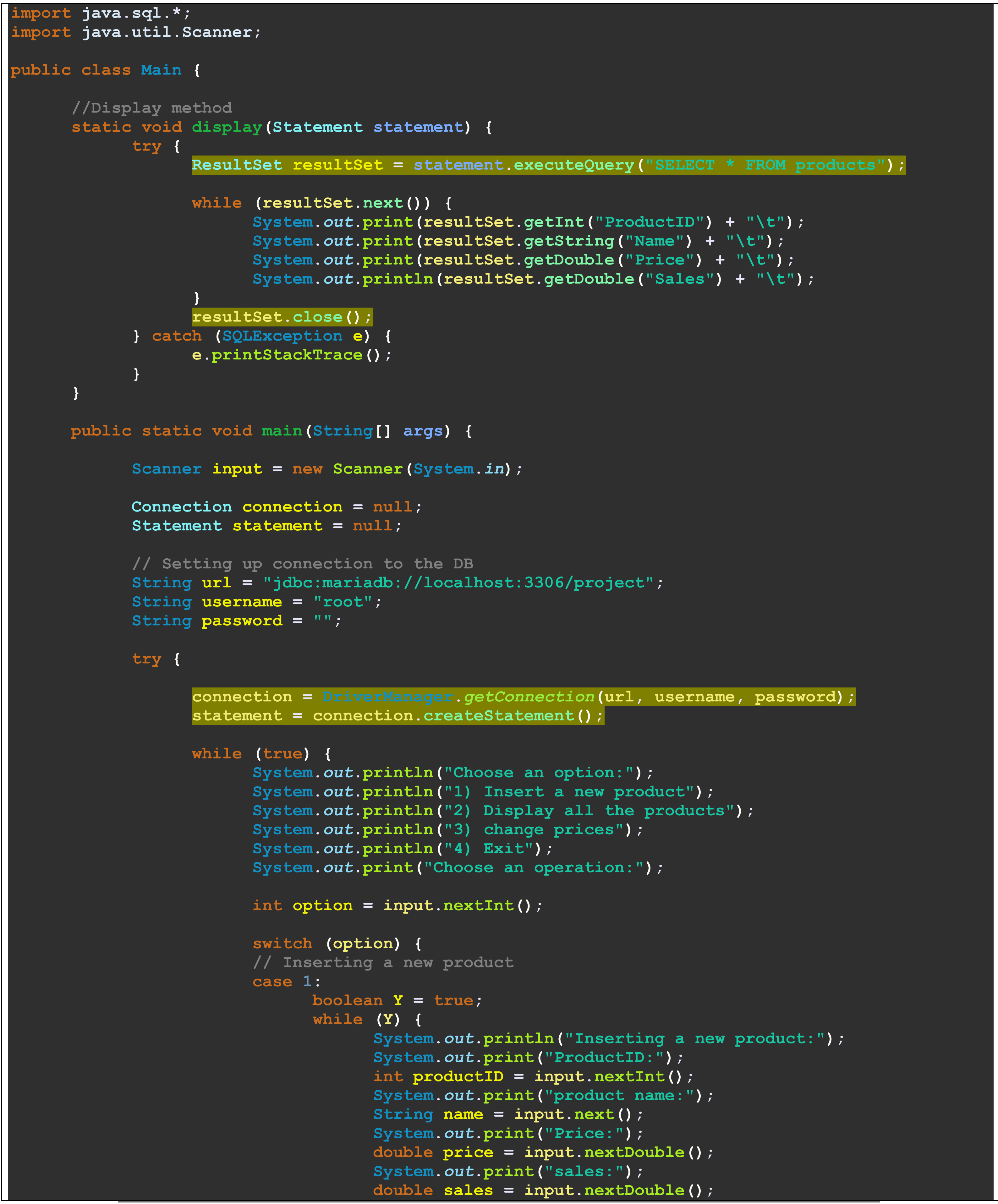


```
Choose an option:
1) Insert a new product
2) Display all the products
3) change prices
4) Exit
Choose an operation:3
Enter the sales goal:25
Prices (before) change:
1       apple   10.0    40.0
2       tea     15.0    10.0
3       coffe   20.0    100.0
4       water   25.0    19.0
5       Milk    30.0    20.0
6       Juice   35.0    70.0
Prices (after) change:
1       apple   10.5    40.0
2       tea     13.5    10.0
3       coffe   21.0    100.0
4       water   22.5    19.0
5       Milk    27.0    20.0
6       Juice   36.75   70.0
```

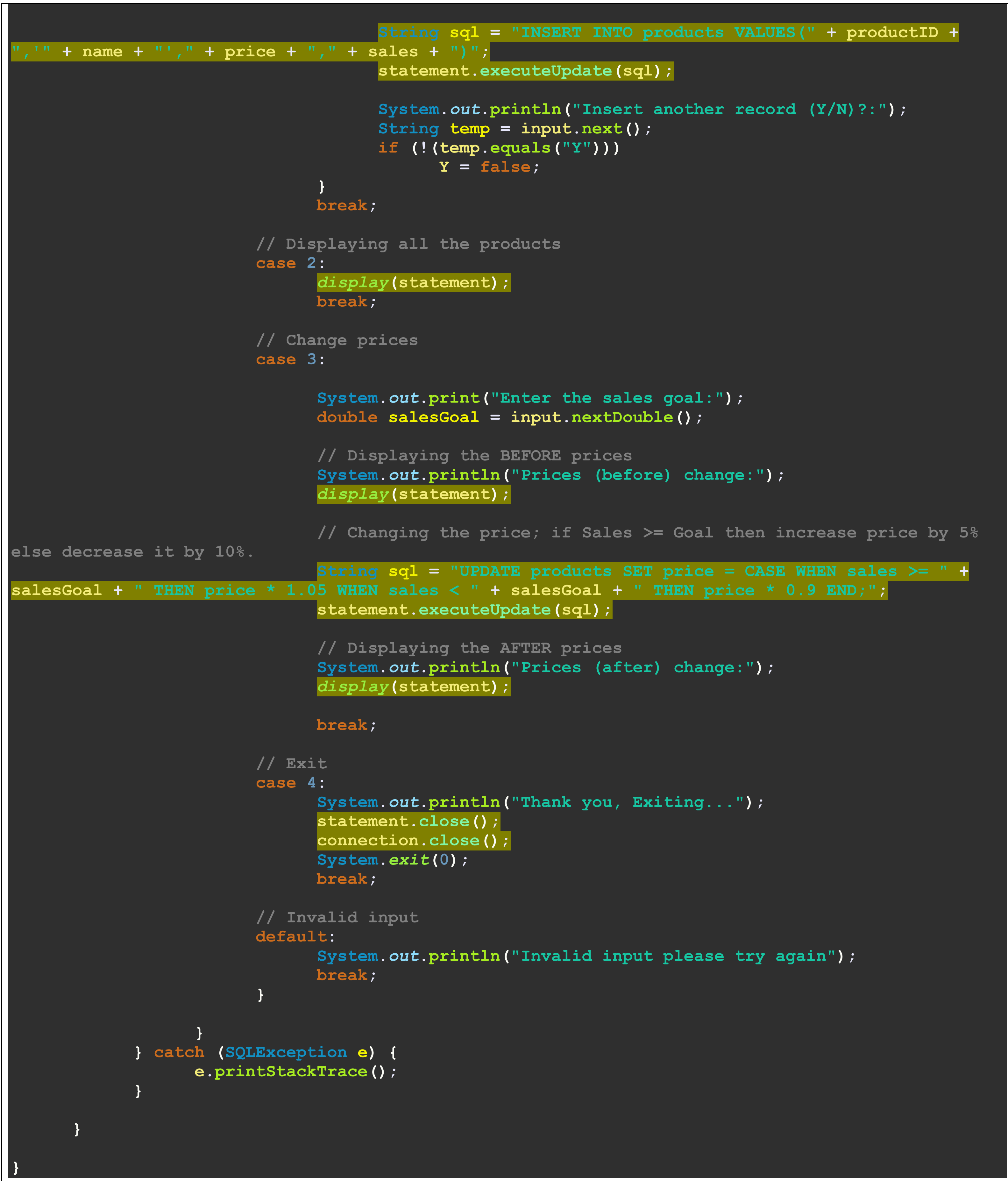


```
Choose an option:
1) Insert a new product
2) Display all the products
3) change prices
4) Exit
Choose an operation:4
Thank you, Exiting...
```

5): All the code.



```java
import java.sql.*;
import java.util.Scanner;

public class Main {

    //Display method
    static void display(Statement statement) {
        try {
            ResultSet resultSet = statement.executeQuery("SELECT * FROM products");

            while (resultSet.next()) {
                System.out.print(resultSet.getInt("ProductID") + "\t");
                System.out.print(resultSet.getString("Name") + "\t");
                System.out.print(resultSet.getDouble("Price") + "\t");
                System.out.println(resultSet.getDouble("Sales") + "\t");
            }
            resultSet.close();
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);

        Connection connection = null;
        Statement statement = null;

        // Setting up connection to the DB
        String url = "jdbc:mariadb://localhost:3306/project";
        String username = "root";
        String password = "";

        try {

            connection = DriverManager.getConnection(url, username, password);
            statement = connection.createStatement();

            while (true) {
                System.out.println("Choose an option:");
                System.out.println("1) Insert a new product");
                System.out.println("2) Display all the products");
                System.out.println("3) change prices");
                System.out.println("4) Exit");
                System.out.print("Choose an operation:");

                int option = input.nextInt();

                switch (option) {
                // Inserting a new product
                case 1:
                    boolean Y = true;
                    while (Y) {
                        System.out.println("Inserting a new product:");
                        System.out.print("ProductID:");
                        int productID = input.nextInt();
                        System.out.print("product name:");
                        String name = input.next();
                        System.out.print("Price:");
                        double price = input.nextDouble();
                        System.out.print("sales:");
                        double sales = input.nextDouble();
```



```
                        String sql = "INSERT INTO products VALUES(" + productID + ",'" + name + "'," + price + "," + sales + ")";
                        statement.executeUpdate(sql);

                        System.out.println("Insert another record (Y/N)?:");
                        String temp = input.next();
                        if (!(temp.equals("Y")))
                            Y = false;
                    }
                    break;

                // Displaying all the products
                case 2:
                    display(statement);
                    break;

                // Change prices
                case 3:

                    System.out.print("Enter the sales goal:");
                    double salesGoal = input.nextDouble();

                    // Displaying the BEFORE prices
                    System.out.println("Prices (before) change:");
                    display(statement);

                    // Changing the price; if Sales >= Goal then increase price by 5% else decrease it by 10%.
                    String sql = "UPDATE products SET price = CASE WHEN sales >= " + salesGoal + " THEN price * 1.05 WHEN sales < " + salesGoal + " THEN price * 0.9 END;";
                    statement.executeUpdate(sql);

                    // Displaying the AFTER prices
                    System.out.println("Prices (after) change:");
                    display(statement);

                    break;

                // Exit
                case 4:
                    System.out.println("Thank you, Exiting...");
                    statement.close();
                    connection.close();
                    System.exit(0);
                    break;

                // Invalid input
                default:
                    System.out.println("Invalid input please try again");
                    break;
                }

            }
        } catch (SQLException e) {
            e.printStackTrace();
        }

    }

}
```