**ДОМАШНА РАБОТА №7**

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Направих избор да ползвам за връзката Java, като използвам JavaFX за създаване на графичен UI, който да е по-лесно използваем от потребителя. Използвам модули за свързването на отделните елементи между основния клас и графичната част. Можете да видите следните фрагменти код и снимки от изпълнението:

**DB2Test(от Мудъл, но модифициран с цел поправяне на грешки и по-добър error handling)**

**package** DB2;  
**import** java.sql.Connection;  
**import** java.sql.DriverManager;  
**import** java.sql.ResultSet;  
**import** java.sql.SQLException;  
**import** java.sql.Statement;  
  
  
**public class** DB2Test {  
  
 **private** Connection **connection**;  
 **private** Statement **statement**;  
 **private** ResultSet **resultSet**;  
  
  
 **public void** openConnection(){  
  
*// Step 1: Load IBM DB2 JDBC driver* **try** {  
  
 DriverManager.*registerDriver*(**new** com.ibm.db2.jcc.DB2Driver());  
  
 }  
  
 **catch**(Exception cnfex) {  
  
 System.***out***.println(**"Problem in loading or registering IBM DB2 JDBC driver"**);  
  
 cnfex.printStackTrace();  
 }  
  
*// Step 2: Opening database connection* **try** {  
  
 **connection** = DriverManager.*getConnection*(**"jdbc:db2://62.44.108.24:50000/SAMPLE"**, **"db2admin"**, **"db2admin"**);  
  
 **statement** = **connection**.createStatement();  
  
 }  
  
 **catch**(SQLException s){  
  
 s.printStackTrace();  
  
 }  
  
 }  
  
 **public void** closeConnection(){  
  
 **try** {  
  
 **if**(**null** != **connection**) {  
  
 *// cleanup resources, once after processing* **resultSet**.close();  
  
 **statement**.close();  
  
  
 *// and then finally close connection* **connection**.close();  
  
 }  
  
 }  
  
 **catch** (SQLException s) {  
  
 s.printStackTrace();  
  
 }  
  
 }  
  
 **public** String select(String stmnt, **int** column) {  
  
 **try**{  
  
 **resultSet** = **statement**.executeQuery(stmnt);  
  
 StringBuilder result = **new** StringBuilder();  
  
 **while**(**resultSet**.next()) {  
  
 **for** (**int** i = 1; i <= column; i++) {  
  
 result.append(**resultSet**.getString(i));  
  
 **if** (i == column)  
 {  
 result.append(**" \n"**);  
 }  
  
 **else** {  
 result.append( **", "**);  
 }  
 }  
 }  
 **return** result.toString();  
 }  
 **catch** (SQLException s)  
 {  
 s.printStackTrace();  
 **return "Error occurred"**;  
 }  
 }  
  
 **public boolean** insert(String stmnt) {  
  
 **try**{  
 stmnt = stmnt.toUpperCase();  
 **if**(checkWord(stmnt, **"INSERT"**))  
 {  
 **statement**.executeUpdate(stmnt);  
 **return true**;  
 }  
 **else** {  
 **return false**;  
 }  
  
 }  
  
 **catch** (SQLException s)  
 {  
  
 s.printStackTrace();  
 **return false**;  
  
 }  
  
 }  
  
  
 **public boolean** delete(String stmnt) {  
  
 **try**{  
 stmnt = stmnt.toUpperCase();  
  
 **if**(checkWord(stmnt, **"DELETE"**))  
 {  
 **statement**.executeUpdate(stmnt);  
 **return true**;  
 }  
 **else** {  
 **return false**;  
 }  
  
 }  
  
 **catch** (SQLException s){  
  
 s.printStackTrace();  
 **return false**;  
  
 }  
 }  
 **private boolean** checkWord(String stringToSearch, String wordToMatch)  
 {  
 **int** intIndex = stringToSearch.indexOf(wordToMatch);  
 **if** (intIndex == -1)  
 {  
 **return false**;  
 } **else** {  
 **return true**;  
 }  
 }

**DB2.fxml**

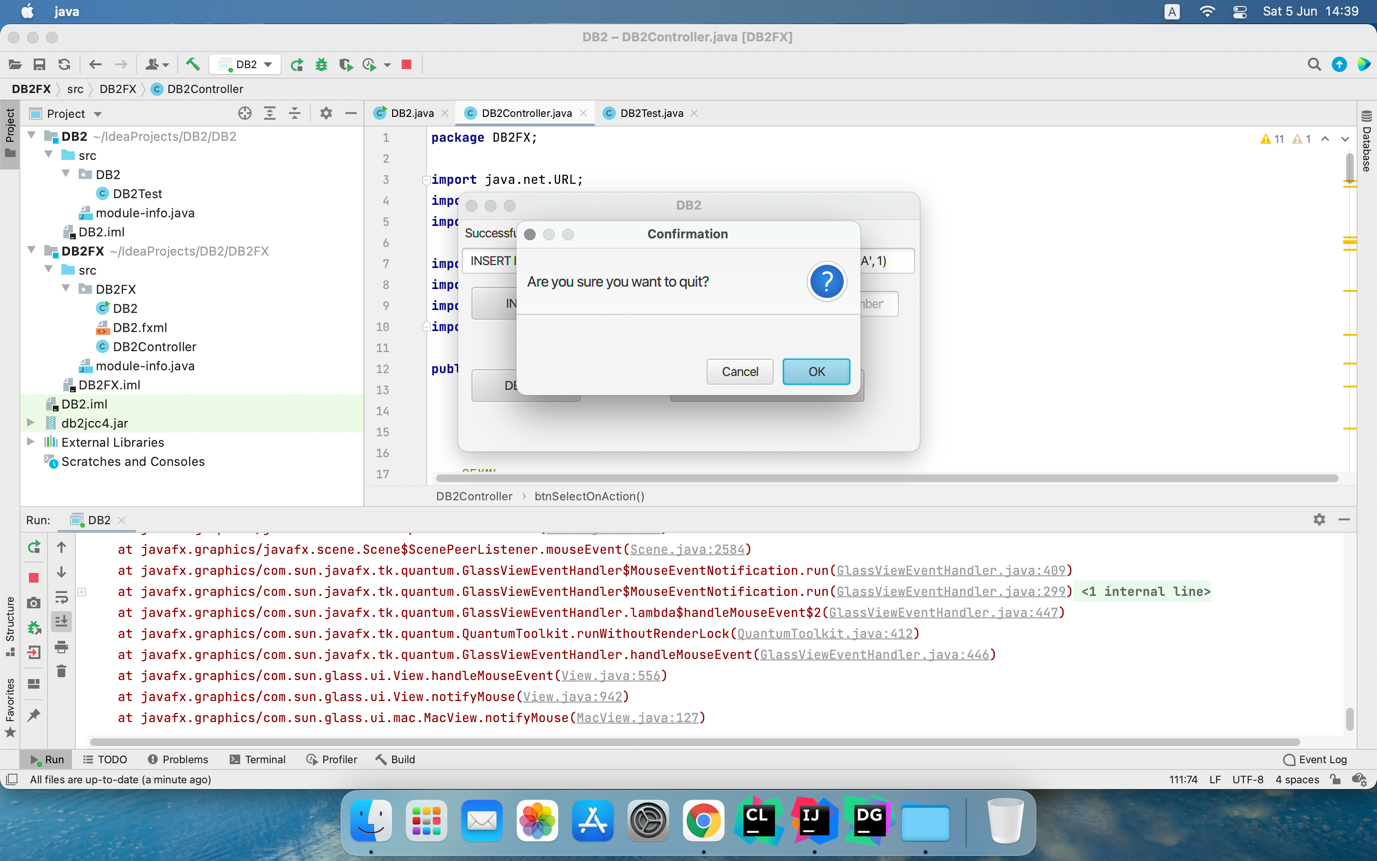
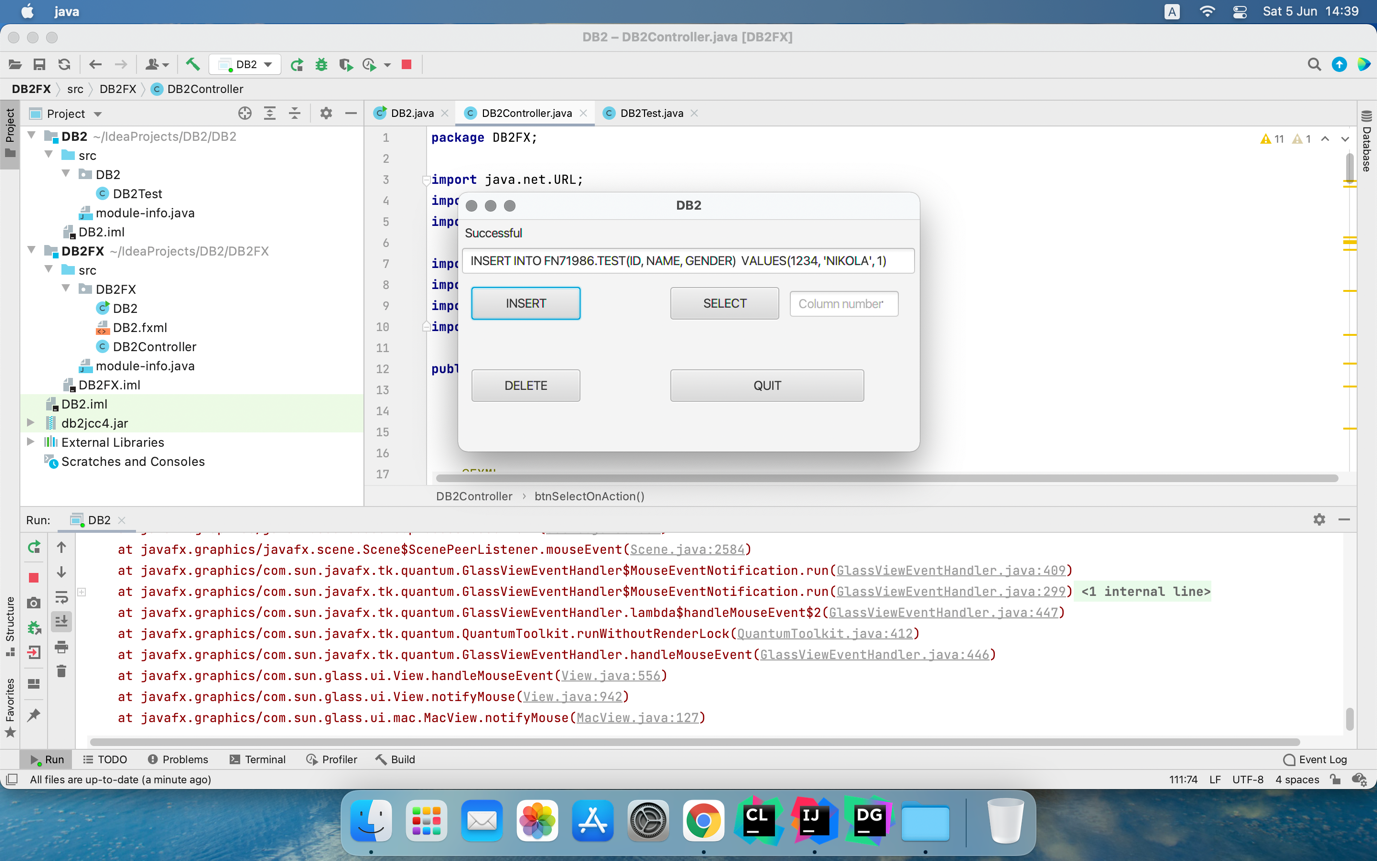
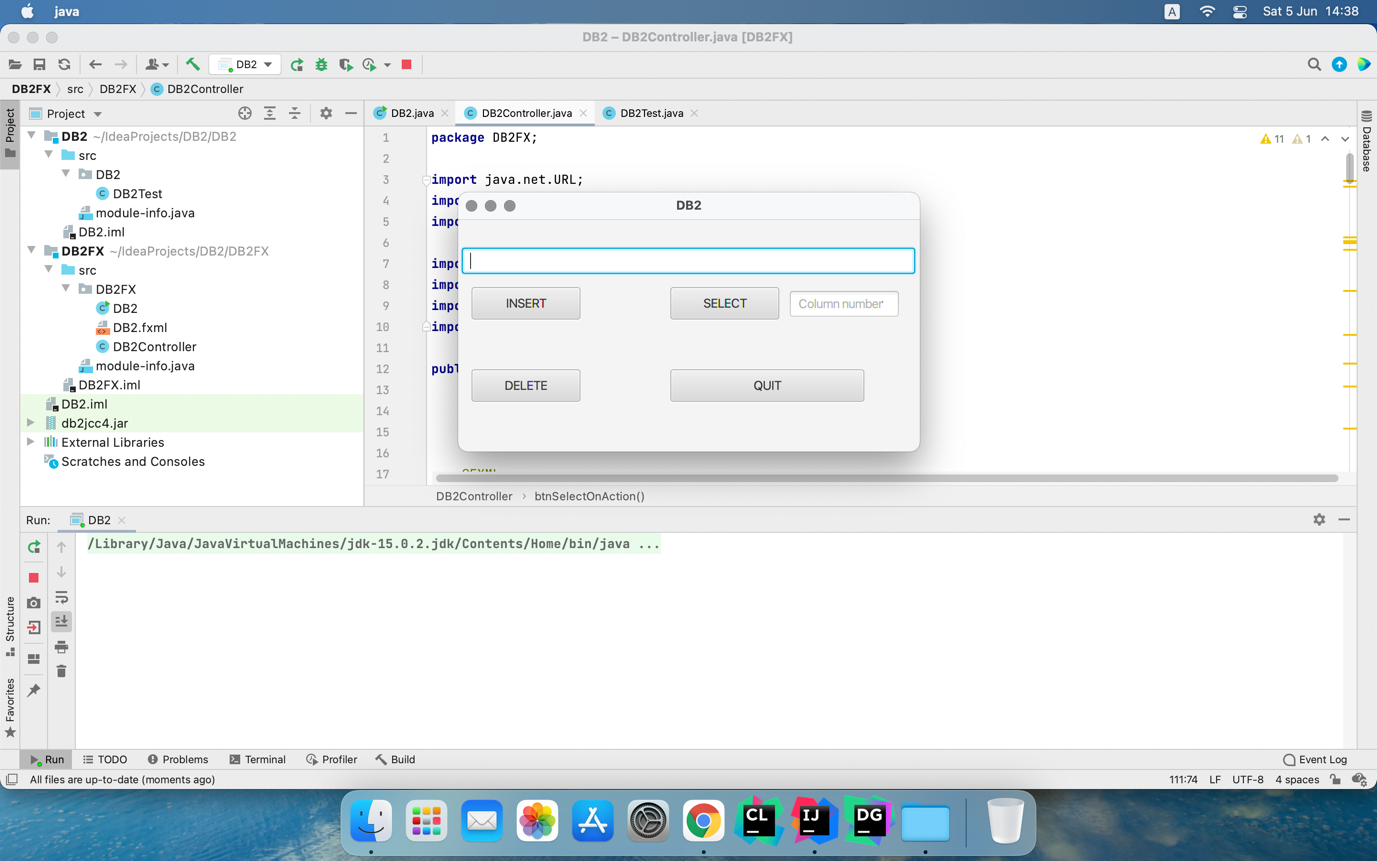
*<?***xml version="1.0" encoding="UTF-8"***?>  
  
<?***import javafx.scene.control.Button***?>  
<?***import javafx.scene.control.Label***?>  
<?***import javafx.scene.control.TextField***?>  
<?***import javafx.scene.layout.AnchorPane***?>*<**AnchorPane prefHeight="243.0" prefWidth="483.0" xmlns="http://javafx.com/javafx/15.0.1" xmlns:fx="http://javafx.com/fxml/1" fx:controller="DB2FX.DB2Controller"**>  
 <**children**>  
 <**TextField fx:id="txtStatement" layoutX="4.0" layoutY="30.0" onAction="#txtStatementOnAction" prefHeight="27.0" prefWidth="474.0" promptText="Please intert the statement for DB2"** />  
 <**Button fx:id="btnInsert" layoutX="14.0" layoutY="71.0" mnemonicParsing="false" onAction="#btnInsertOnAction" prefHeight="34.0" prefWidth="114.0" text="INSERT"** />  
 <**Button fx:id="btnSelect" layoutX="222.0" layoutY="71.0" mnemonicParsing="false" onAction="#btnSelectOnAction" prefHeight="34.0" prefWidth="114.0" text="SELECT"** />  
 <**TextField fx:id="txtColumnNumber" layoutX="347.0" layoutY="75.0" prefHeight="27.0" prefWidth="114.0" promptText="Column number"** />  
 <**Button fx:id="btnDelete" layoutX="14.0" layoutY="157.0" mnemonicParsing="false" onAction="#btnDeleteOnAction" prefHeight="34.0" prefWidth="114.0" text="DELETE"** />  
 <**Button fx:id="btnQuit" layoutX="222.0" layoutY="157.0" mnemonicParsing="false" onAction="#btnQuitOnAction" prefHeight="34.0" prefWidth="203.0" text="QUIT"** />  
 <**Label fx:id="lblError" layoutX="7.0" layoutY="6.0" prefHeight="17.0" prefWidth="203.0"** />  
 </**children**>  
</**AnchorPane**>

**DB2Controller**

**package** DB2FX;  
  
**import** java.net.URL;  
**import** java.util.Optional;  
**import** java.util.ResourceBundle;  
  
**import** javafx.event.ActionEvent;  
**import** javafx.fxml.FXML;  
**import** javafx.scene.control.\*;  
**import** DB2.\*;  
  
**public class** DB2Controller {  
  
 @FXML  
 **private** ResourceBundle **resources**;  
  
 @FXML  
 **private** URL **location**;  
  
 @FXML  
 **private** TextField **txtStatement**;  
  
 @FXML  
 **private** Button **btnInsert**;  
  
 @FXML  
 **private** Button **btnSelect**;  
  
 @FXML  
 **private** TextField **txtColumnNumber**;  
  
 @FXML  
 **private** Button **btnDelete**;  
  
 @FXML  
 **private** Button **btnQuit**;  
  
 @FXML  
 **private** Label **lblError**;  
  
  
 **private** DB2Test **db2Object** = **new** DB2Test();  
  
 **private** String **statement** = **new** String();  
 **private int column**;  
  
 @FXML  
 **void** btnDeleteOnAction(ActionEvent event)  
 {  
 **statement** = **""**;  
 **lblError**.setText(**""**);  
 **if**(**txtStatement**.getText() != **null**)  
 {  
 **statement** = **txtStatement**.getText();  
 **if**(**db2Object**.delete(**statement**))  
 {  
 **lblError**.setText(**"Successful"**);  
 }  
 **else** {  
 **lblError**.setText(**"Error occurred"**);  
 }  
 }  
  
 }  
  
 @FXML  
 **void** btnInsertOnAction(ActionEvent event)  
 {  
 **statement** = **""**;  
 **lblError**.setText(**""**);  
 **if**(**txtStatement**.getText()!=**null**)  
 {  
 **statement** = **txtStatement**.getText();  
 **if**(**db2Object**.insert(**statement**))  
 {  
 **lblError**.setText(**"Successful"**);  
 }  
 **else** {  
 **lblError**.setText(**"Error occurred"**);  
 }  
 }  
  
  
 }  
  
 @FXML  
 **void** btnQuitOnAction(ActionEvent event)  
 {  
 Alert alert = **new** Alert(Alert.AlertType.***CONFIRMATION***);  
 alert.setHeaderText(**"Are you sure you want to quit?"**);  
  
 Optional<ButtonType> result = alert.showAndWait();  
 **if** (result.isPresent() && result.get() == ButtonType.***OK***)  
 {  
 System.*exit*(0);  
 **db2Object**.closeConnection();  
 }  
 }  
  
 @FXML  
 **void** btnSelectOnAction(ActionEvent event)  
 {  
 **lblError**.setText(**""**);  
 **statement** = **""**;  
 **if**(**txtStatement**.getText() != **null**)  
 {  
 **if**(**txtColumnNumber**.getText() != **null**)  
 {  
 Alert alertDialog = **new** Alert(Alert.AlertType.***INFORMATION***);  
 **statement** = **txtStatement**.getText();  
 **column** = Integer.*parseInt*(**txtColumnNumber**.getText());  
 **if**(**db2Object**.select(**statement**, **column**) != **"Error occurred"**)  
 {  
 **lblError**.setText(**"Successful"**);  
 String resultSelect = **db2Object**.select(**statement**, **column**);  
 alertDialog.setHeaderText(resultSelect);  
 alertDialog.showAndWait();  
 }  
 **else** {  
 **lblError**.setText(**"Error occurred"**);  
 alertDialog.setHeaderText(**"Error occurred"**);  
 alertDialog.showAndWait();  
 }  
 }  
 }  
   
 **column** = 0;  
 }  
  
 @FXML  
 **void** txtStatementOnAction(ActionEvent event)  
 {  
 }  
  
 @FXML  
 **void** initialize() {  
 **assert txtStatement** != **null** : **"fx:id=\"txtStatement\" was not injected: check your FXML file 'DB2.fxml'."**;  
 **assert btnInsert** != **null** : **"fx:id=\"btnInsert\" was not injected: check your FXML file 'DB2.fxml'."**;  
 **assert btnSelect** != **null** : **"fx:id=\"btnSelect\" was not injected: check your FXML file 'DB2.fxml'."**;  
 **assert txtColumnNumber** != **null** : **"fx:id=\"txtColumnNumber\" was not injected: check your FXML file 'DB2.fxml'."**;  
 **assert btnDelete** != **null** : **"fx:id=\"btnDelete\" was not injected: check your FXML file 'DB2.fxml'."**;  
 **assert btnQuit** != **null** : **"fx:id=\"btnQuit\" was not injected: check your FXML file 'DB2.fxml'."**;  
 **db2Object**.openConnection();  
 }  
}

**DB2(main class to start fxml)**

**package** DB2FX;  
  
**import** javafx.application.Application;  
**import** javafx.fxml.FXMLLoader;  
**import** javafx.scene.Parent;  
**import** javafx.scene.Scene;  
**import** javafx.stage.Stage;  
  
**public class** DB2 **extends** Application {  
  
 @Override  
 **public void** start(Stage primaryStage) **throws** Exception{  
 Parent root = FXMLLoader.*load*(getClass().getResource(**"DB2.fxml"**));  
 primaryStage.setTitle(**"DB2"**);  
 primaryStage.setScene(**new** Scene(root));  
 primaryStage.show();  
 }  
  
  
 **public static void** main(String[] args) {  
 *launch*(args);  
 }  
}

****