**COMSATS UNIVERSITY ISLAMABAD**

**LAHORE CAMPUS**

****

**(Assignment no 2)**

**Subject:** Object Oriented Programming

**Submitted to:** Sir Shahid

**Submitted by:** Jannat-ul-Mava

**Registration no:** SP24-BSE-049

**Major:** BSE

**Section:** A

**Date of submission:** 29 November 2024

**Code file : **

**Code :**

*package* com.example.mind\_marathon;  
  
*import* javafx.application.Application;  
*import* javafx.geometry.Insets;  
*import* javafx.geometry.Pos;  
*import* javafx.scene.Scene;  
*import* javafx.scene.control.\*;  
*import* javafx.scene.layout.\*;  
*import* javafx.stage.Stage;  
  
*public class* DataEntryForm *extends* Application {  
 *private* FormHandler formHandler;  
 @Override  
 *public void* start(Stage primaryStage) {  
 formHandler = *new* FormHandler("DataFile.txt");  
 GridPane formGrid = *new* GridPane();  
 formGrid.setPadding(*new* Insets(10));  
 formGrid.setStyle("-fx-background-color: #c9c9c9; " +  
 "-fx-padding: 10; " +  
 "-fx-border-color: #606060; " +  
 "-fx-border-width: 1;");  
  
 formGrid.setHgap(10);  
 formGrid.setVgap(10);  
  
  
 Label fullNameLabel = *new* Label("Full Name:");  
 TextField fullNameField = *new* TextField();  
 formGrid.add(fullNameLabel, 0, 0);  
 formGrid.add(fullNameField, 1, 0);  
  
 Label idLabel = *new* Label("ID:");  
 TextField idField = *new* TextField();  
 formGrid.add(idLabel, 0, 1);  
 formGrid.add(idField, 1, 1);  
  
 Label genderLabel = *new* Label("Gender:");  
 RadioButton maleRadio = *new* RadioButton("Male");  
 RadioButton femaleRadio = *new* RadioButton("Female");  
 ToggleGroup genderGroup = *new* ToggleGroup();  
 maleRadio.setToggleGroup(genderGroup);  
 femaleRadio.setToggleGroup(genderGroup);  
 HBox genderBox = *new* HBox(10, maleRadio, femaleRadio);  
 formGrid.add(genderLabel, 0, 2);  
 formGrid.add(genderBox, 1, 2);  
  
 Label provinceLabel = *new* Label("Home Province:");  
 ComboBox<String> provinceCombo = *new* ComboBox<>();  
 provinceCombo.getItems().addAll("Lahore", "Islamabad", "Gujranwala", "Multan");  
 formGrid.add(provinceLabel, 0, 3);  
 formGrid.add(provinceCombo, 1, 3);  
  
 Label dobLabel = *new* Label("DOB:");  
 DatePicker dobPicker = *new* DatePicker();  
 formGrid.add(dobLabel, 0, 4);  
 formGrid.add(dobPicker, 1, 4);  
  
 Label searchLabel = *new* Label("ID to search:");  
 TextField searchField = *new* TextField();  
 searchField.setPromptText("Enter ID to search");  
 formGrid.add(searchLabel, 0, 5);  
 formGrid.add(searchField, 1, 5);  
  
 *// adding section* VBox buttonBox = *new* VBox(10);  
 buttonBox.setPadding(*new* Insets(10));  
 buttonBox.setAlignment(Pos.*TOP\_CENTER*);  
 buttonBox.setStyle("-fx-background-color: #c9c9c9; " +  
 "-fx-padding: 50; " +  
 "-fx-border-color: #606060; " +  
 "-fx-border-width: 1;");  
  
 Button newButton = *new* Button("New");  
 Button deleteButton = *new* Button("Delete");  
 Button restoreButton = *new* Button("Restore");  
 Button findPrevButton = *new* Button("Find Prev");  
 Button findNextButton = *new* Button("Find Next");  
 Button criteriaButton = *new* Button("Criteria");  
 Button closeButton = *new* Button("Close");  
 newButton.setOnAction(e -> formHandler.handleNewButton(fullNameField, idField, provinceCombo, dobPicker, genderGroup));  
 findNextButton.setOnAction(e -> formHandler.handleFindNextButton(searchField, fullNameField, idField, provinceCombo, dobPicker, maleRadio, femaleRadio));  
  
 *// Buttons* buttonBox.getChildren().addAll(newButton, deleteButton, restoreButton, findPrevButton, findNextButton, criteriaButton, closeButton);  
 HBox mainLayout = *new* HBox(10);  
 mainLayout.setPadding(*new* Insets(10));  
 mainLayout.getChildren().addAll(formGrid, buttonBox);  
  
 *// Scene* Scene scene = *new* Scene(mainLayout, 500, 300);  
 primaryStage.setScene(scene);  
 primaryStage.setTitle("Custom Form Layout");  
 primaryStage.show();  
 }  
  
 *public static void* main(String[] args) {  
 *launch*(args);  
 }  
}

File class:

*package* com.example.mind\_marathon;  
  
*import* java.io.\*;  
*import* java.util.ArrayList;  
  
*public class* FileHandler {  
 *private* String filePath = "DataFile.txt";  
  
 *public* FileHandler(String filePath) {  
 *this*.filePath = filePath;  
 }  
  
 *public void* saveRecord(String record) {  
 *try* (BufferedWriter writer = *new* BufferedWriter(*new* FileWriter("DataFile.txt", *true*))) {  
 writer.write(record);  
 writer.newLine();  
 } *catch* (IOException e) {  
 System.***out***.println("\nError saving record: " + e.getMessage());  
 }  
 }  
  
 *public* ArrayList<String> loadRecords() {  
 ArrayList<String> records = *new* ArrayList<>();  
 File file = *new* File(filePath);  
 *if* (file.exists()) {  
 *try* (BufferedReader reader = *new* BufferedReader(*new* FileReader(file))) {  
 String line;  
 *while* ((line = reader.readLine()) != *null*) {  
 records.add(line);  
 }  
 } *catch* (IOException e) {  
 System.***out***.println("\nError loading records: " + e.getMessage());  
 }  
 }  
 *return* records;  
 }  
}

Folder class:

*package* com.example.mind\_marathon;  
  
*import* javafx.scene.control.\*;  
  
*import* java.time.LocalDate;  
*import* java.util.ArrayList;  
  
*public class* FormHandler {  
  
 *private* FileHandler fileHandler;  
 *private* ArrayList<String> dataRecords;  
 *private int* searchIndex = -1;  
  
 *public* FormHandler(String filePath) {  
 fileHandler = *new* FileHandler(filePath);  
 dataRecords = fileHandler.loadRecords();  
 }  
  
  
 *public void* handleNewButton(TextField fullNameField, TextField idField, ComboBox<String> homeProvinceCombo,  
 DatePicker dobPicker, ToggleGroup genderGroup) {  
  
 String fullName = fullNameField.getText();  
 String id = idField.getText();  
 String homeProvince = homeProvinceCombo.getValue();  
 String dob = (dobPicker.getValue() != *null*) ? dobPicker.getValue().toString() : "";  
 String gender = (genderGroup.getSelectedToggle() != *null*)  
 ? ((RadioButton) genderGroup.getSelectedToggle()).getText()  
 : "";  
  
 *if* (fullName.isEmpty() || id.isEmpty() || homeProvince == *null* || dob.isEmpty() || gender.isEmpty()) {  
 System.***out***.println("\nFill all the entries!");  
 *return*;  
 }  
  
 String record = String.*join*(" ~ ", fullName, id, gender, homeProvince, dob);  
 fileHandler.saveRecord(record);  
 dataRecords.add(record);  
 System.***out***.println("Record saved!");  
 System.***out***.println(record + "\n");  
  
 fullNameField.clear();  
 idField.clear();  
 homeProvinceCombo.getSelectionModel().clearSelection();  
 dobPicker.setValue(*null*);  
 genderGroup.getSelectedToggle().setSelected(*false*);  
 }  
  
  
 *public void* handleFindNextButton(TextField searchIdField, TextField fullNameField, TextField idField,  
 ComboBox<String> homeProvinceCombo, DatePicker dobPicker, RadioButton maleRadio,  
 RadioButton femaleRadio) {  
  
 String searchId = searchIdField.getText();  
 *if* (searchId.isEmpty()) {  
 System.***out***.println("\nEnter an ID to search!");  
 *return*;  
 }  
  
 *for* (*int* i = searchIndex + 1; i < dataRecords.size(); i++) {  
 String[] fields = dataRecords.get(i).split("~");  
 *if* (fields[1].equals(searchId)) {  
 fullNameField.setText(fields[0]);  
 idField.setText(fields[1]);  
 *if* (fields[2].equals("Male")) {  
 maleRadio.setSelected(*true*);  
 } *else* {  
 femaleRadio.setSelected(*true*);  
 }  
 homeProvinceCombo.setValue(fields[3]);  
 dobPicker.setValue(LocalDate.*parse*(fields[4]));  
 searchIndex = i;  
 *return*;  
 }  
 }  
 System.***out***.println("\nNo more records found for ID: " + searchId);  
 }  
}