**COMSATS University Islamabad, Lahore Campus**

**Subject :** Object Oriented Programming

**Assignment :** 4 (LAB)

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***BooksManagement.java***

**package com.example.demo;  
  
import javafx.geometry.Insets;  
import javafx.geometry.Pos;  
import javafx.scene.Scene;  
import javafx.scene.control.Alert;  
import javafx.scene.control.Button;  
import javafx.scene.control.Label;  
import javafx.scene.control.TextField;  
import javafx.scene.image.Image;  
import javafx.scene.layout.\*;  
import javafx.stage.Stage;  
  
import java.io.\*;  
import java.util.Scanner;  
  
  
  
public class BooksManagement {  
  
  
  
  
  
  
 public static void addBook() {  
 Stage addBookStage = new Stage();  
 VBox layout = new VBox(20);  
 layout.setPadding(new Insets(20));  
 layout.setAlignment(Pos.*CENTER*);  
  
 File file2 = new File("Book.txt");  
 Alert alert = new Alert(Alert.AlertType.*WARNING*);  
  
 Label bookLabel = new Label("Enter Book Title:");  
 TextField bookField = new TextField();  
 Label bookId = new Label("Enter Book ID:");  
 TextField bookIdField = new TextField();  
 Button addButton = new Button("Add Book");  
  
  
  
  
  
  
 addButton.setOnAction(e -> {  
 String bookTitle = bookField.getText().trim();  
 String bookID = bookIdField.getText().trim();  
  
  
 if (!bookTitle.isEmpty() && !bookID.isEmpty()) {  
 try (BufferedWriter writer = new BufferedWriter(new FileWriter( file2, true))) {  
  
 writer.write(bookID + "," + bookTitle);  
 writer.newLine();  
  
 alert.setHeaderText("Book Added");  
 alert.show();  
 addBookStage.close();  
 } catch (IOException ex) {  
  
 }  
 } else {  
 alert.setHeaderText("Book Title and Book ID cannot be empty");  
 alert.show();  
 }  
 });  
 BackgroundImage backgroundImage1 = new BackgroundImage(  
 new Image("Icon 1/123456.png"),  
 BackgroundRepeat.*NO\_REPEAT*,  
 BackgroundRepeat.*NO\_REPEAT*,  
 BackgroundPosition.*CENTER*,  
 new BackgroundSize(BackgroundSize.*AUTO*, BackgroundSize.*AUTO*, false, false, true, true)  
 );  
 layout.setBackground(new Background(backgroundImage1));  
 layout.getChildren().addAll(bookLabel, bookField,bookId,bookIdField, addButton);  
  
 Scene scene = new Scene(layout, 500, 300);  
 addBookStage.setTitle("Add Book");  
 addBookStage.setScene(scene);  
 addBookStage.show();  
 }  
  
  
 public static void showBooks() {  
  
 }  
  
  
 public static void borrowBook(String username) {  
 Alert alert = new Alert(Alert.AlertType.*INFORMATION*);  
  
 alert.setHeaderText("Borrow Book");  
  
 alert.show();  
 }  
  
 public static void returnBook(String username) {  
  
 }  
}**

***HelloController.java***

**package com.example.demo;  
  
import javafx.fxml.FXML;  
import javafx.scene.control.Label;  
  
public class HelloController {  
 @FXML  
 private Label welcomeText;  
  
 @FXML  
 protected void onHelloButtonClick() {  
 welcomeText.setText("Welcome to JavaFX Application!");  
 }  
}**

***HelloApplication.java***

**package com.example.demo;  
  
import javafx.application.Application;  
import javafx.geometry.Insets;  
import javafx.geometry.Pos;  
import javafx.scene.Scene;  
import javafx.scene.control.\*;  
import javafx.scene.image.Image;  
import javafx.scene.image.ImageView;  
import javafx.scene.layout.\*;  
import javafx.stage.Stage;  
import javafx.scene.control.Alert;  
  
  
import java.io.\*;  
  
  
import static com.example.demo.BooksManagement.\*;  
  
public class HelloApplication extends Application {  
  
 @Override  
 public void start(Stage stage) {  
  
 File file = new File("user1.ser");  
 // file.mkdir();  
  
 Alert alert = new Alert(Alert.AlertType.*INFORMATION*);  
 alert.setTitle("Information Dialog");  
 // alert.setHeaderText("This is a header text");  
 // alert.setContentText("This is the content of the alert!");  
  
  
  
  
  
  
  
  
 Label emaillabel = new Label("Username: ");  
 emaillabel.setStyle("-fx-font-size: 16px; -fx-font-weight: bold; -fx-text-fill: #ffffff;");  
  
 TextField emailfield = new TextField();  
 emailfield.setPromptText("Enter your username");  
 emailfield.setStyle("-fx-padding: 10px; -fx-background-radius: 5px; -fx-border-color: #0073e6; -fx-border-width: 2px; -fx-font-size: 14px;");  
  
 Label passwordlabel = new Label("Password: ");  
 passwordlabel.setStyle("-fx-font-size: 16px; -fx-font-weight: bold; -fx-text-fill: #ffffff;");  
  
 PasswordField passwordfield = new PasswordField();  
 passwordfield.setPromptText("Enter your password");  
 passwordfield.setStyle("-fx-padding: 10px; -fx-background-radius: 5px; -fx-border-color: #0073e6; -fx-border-width: 2px; -fx-font-size: 14px;");  
  
  
  
  
  
  
  
  
  
  
 Button loginbutton = new Button("Login", new ImageView(new Image("file:Icon 1/login.png"))); // Add correct path  
 loginbutton.setStyle("-fx-font-weight: bold; -fx-font-size: 16px; -fx-text-fill: white; -fx-background-color: linear-gradient(#0073e6, #005bb5); -fx-background-radius: 30px; -fx-padding: 10px 20px; -fx-border-radius: 30px;");  
 loginbutton.setOnMouseEntered(e -> loginbutton.setStyle("-fx-font-weight: bold; -fx-font-size: 16px; -fx-text-fill: white; -fx-background-color: linear-gradient(#005bb5, #0073e6); -fx-background-radius: 30px; -fx-padding: 10px 20px; -fx-border-radius: 30px;"));  
 loginbutton.setOnMouseExited(e -> loginbutton.setStyle("-fx-font-weight: bold; -fx-font-size: 16px; -fx-text-fill: white; -fx-background-color: linear-gradient(#0073e6, #005bb5); -fx-background-radius: 30px; -fx-padding: 10px 20px; -fx-border-radius: 30px;"));  
 //login button function  
 //----------------------------------------------------------  
  
 loginbutton.setOnAction(e->{  
 String text1 = emailfield.getText();  
 String text2 = passwordfield.getText();  
 text1.trim();  
 text2.trim();  
  
 try {  
 if(validity(file,text1,text2)){  
  
// alert.setHeaderText("Login Successfull!");  
// alert.setContentText("");  
// alert.show();  
  
 emailfield.clear();  
 passwordfield.clear();  
  
 Stage stage3 = new Stage();  
 GridPane pane = new GridPane();  
 VBox vbox = new VBox(20);  
 vbox.setPadding(new Insets(20));  
 vbox.setAlignment(Pos.*CENTER*);  
  
 Label welcomeLabel = new Label("Welcome to Library Management, " + text1 + "!");  
 welcomeLabel.setStyle("-fx-font-size: 26px; -fx-font-weight: bold; -fx-text-fill: #82da27; -fx-background-color: #000000; -fx-background-radius: 10px;");  
  
  
 Button viewBooksButton = createStyledButton("View Books", "#4CAF50", "#357A38"); // Green  
 Button borrowBookButton = createStyledButton("Borrow Book", "#2196F3", "#1769AA"); // Blue  
 Button returnBookButton = createStyledButton("Return Book", "#FFC107", "#C79100"); // Yellow  
 Button addBookButton = createStyledButton("Add Book", "#9C27B0", "#6A0080"); // Purple  
 Button logoutButton = createStyledButton("Logout", "#F44336", "#AA2E25"); // Red  
  
  
 viewBooksButton.setOnAction(t -> *showBooks*());  
 borrowBookButton.setOnAction(t -> *borrowBook*(text1));  
 returnBookButton.setOnAction(t -> *returnBook*(text1));  
 addBookButton.setOnAction(t-> *addBook*());  
 logoutButton.setOnAction(t -> {  
 stage3.close();  
 stage.show();  
 });  
  
  
 vbox.getChildren().addAll(welcomeLabel, viewBooksButton, borrowBookButton, returnBookButton, addBookButton, logoutButton);  
  
  
 BackgroundImage backgroundImage = new BackgroundImage(  
 new Image("Icon 1/Library\_Book\_532388\_1366x768.jpg"),  
 BackgroundRepeat.*NO\_REPEAT*,  
 BackgroundRepeat.*NO\_REPEAT*,  
 BackgroundPosition.*CENTER*,  
 new BackgroundSize(BackgroundSize.*AUTO*, BackgroundSize.*AUTO*, false, false, true, true)  
 );  
 vbox.setBackground(new Background(backgroundImage));  
  
 Scene scene1 = new Scene(vbox, 1200, 620);  
 stage3.setTitle("Library Dashboard");  
 stage3.setScene(scene1);  
 stage.close();  
 stage3.show();  
  
 }  
 else{  
 alert.setHeaderText("Login Failed!");  
 alert.setContentText("Wrong Username or Password!");  
 alert.show();  
 emailfield.clear();  
 passwordfield.clear();  
 System.*out*.println("Wrong username or password");  
 }  
 } catch (IOException ex) {  
 throw new RuntimeException(ex);  
 }  
  
  
  
  
 });  
  
  
  
  
  
  
  
  
  
  
 Button signupbutton = new Button("Signup"); // Add correct path  
 signupbutton.setStyle("-fx-font-weight: bold; -fx-font-size: 16px; -fx-text-fill: white; -fx-background-color: linear-gradient(#e60050, #b3003a); -fx-background-radius: 30px; -fx-padding: 10px 20px; -fx-border-radius: 30px;");  
 signupbutton.setOnMouseEntered(e -> signupbutton.setStyle("-fx-font-weight: bold; -fx-font-size: 16px; -fx-text-fill: white; -fx-background-color: linear-gradient(#b3003a, #e60050); -fx-background-radius: 30px; -fx-padding: 10px 20px; -fx-border-radius: 30px;"));  
 signupbutton.setOnMouseExited(e -> signupbutton.setStyle("-fx-font-weight: bold; -fx-font-size: 16px; -fx-text-fill: white; -fx-background-color: linear-gradient(#e60050, #b3003a); -fx-background-radius: 30px; -fx-padding: 10px 20px; -fx-border-radius: 30px;"));  
 //signup button function  
  
  
 // ------------------------------------------------------------------  
 signupbutton.setOnAction(e->{  
  
 Stage stage2 = new Stage();  
  
 // Labels and TextFields  
 Label emaillabel1 = new Label("Username: ");  
 emaillabel1.setStyle("-fx-font-size: 16px; -fx-font-weight: bold; -fx-text-fill: #ffffff;");  
  
 TextField emailfield1 = new TextField();  
 emailfield1.setPromptText("Enter new username");  
 emailfield1.setStyle("-fx-padding: 10px; -fx-background-radius: 5px; -fx-border-color: #0073e6; -fx-border-width: 2px; -fx-font-size: 14px;");  
  
 Label passwordlabel1 = new Label("Password: ");  
 passwordlabel1.setStyle("-fx-font-size: 16px; -fx-font-weight: bold; -fx-text-fill: #ffffff;");  
  
 PasswordField passwordfield1 = new PasswordField();  
 passwordfield1.setPromptText("Enter new password");  
 passwordfield1.setStyle("-fx-padding: 10px; -fx-background-radius: 5px; -fx-border-color: #0073e6; -fx-border-width: 2px; -fx-font-size: 14px;");  
  
  
 Button createaccount = new Button("Create Account");  
 createaccount.setStyle("-fx-font-weight: bold; -fx-font-size: 16px; -fx-text-fill: white; -fx-background-color: linear-gradient(#e60050, #b3003a); -fx-background-radius: 30px; -fx-padding: 10px 20px; -fx-border-radius: 30px;");  
 createaccount.setOnMouseEntered(t -> createaccount.setStyle("-fx-font-weight: bold; -fx-font-size: 16px; -fx-text-fill: white; -fx-background-color: linear-gradient(#b3003a, #e60050); -fx-background-radius: 30px; -fx-padding: 10px 20px; -fx-border-radius: 30px;"));  
 createaccount.setOnMouseExited(t -> createaccount.setStyle("-fx-font-weight: bold; -fx-font-size: 16px; -fx-text-fill: white; -fx-background-color: linear-gradient(#e60050, #b3003a); -fx-background-radius: 30px; -fx-padding: 10px 20px; -fx-border-radius: 30px;"));  
  
 // createaccount  
 createaccount.setOnAction(t->{  
 String username = emailfield1.getText();  
 String password = passwordfield1.getText();  
 username.trim();  
 password.trim();  
 if(!(username.isEmpty()||password.isEmpty())) {  
 emailfield1.clear();  
 passwordfield1.clear();  
  
 try {  
 *write*(file, username, password);  
 } catch (IOException ex) {  
 throw new RuntimeException(ex);  
 }  
 // alert.setContentText("You have successfully sign up!");  
 alert.setHeaderText("You have successfully sign up!");  
 alert.setContentText("");  
 alert.show();  
 stage2.close();  
 }  
 else{  
 alert.setHeaderText("Fill both");  
 alert.setContentText("");  
 alert.show();  
 }  
  
  
 });  
  
  
  
  
 GridPane gridpane = new GridPane();  
 gridpane.setPadding(new Insets(20));  
 gridpane.setHgap(20);  
 gridpane.setVgap(20);  
 gridpane.setAlignment(Pos.*CENTER*);  
  
  
 gridpane.add(emaillabel1, 0, 0);  
 gridpane.add(emailfield1, 1, 0);  
 gridpane.add(passwordlabel1, 0, 1);  
 gridpane.add(passwordfield1, 1, 1);  
 // gridpane.add(loginbutton, 0, 2);  
 gridpane.add(createaccount, 1, 2);  
  
  
  
 StackPane stackPane1 = new StackPane();  
 stackPane1.getChildren().add(gridpane);  
 StackPane.*setMargin*(gridpane, new Insets(0,200,0,200));  
  
 BackgroundImage backgroundImage1 = new BackgroundImage(  
 new Image("Icon 1/123456.png"),  
 BackgroundRepeat.*NO\_REPEAT*,  
 BackgroundRepeat.*NO\_REPEAT*,  
 BackgroundPosition.*CENTER*,  
 new BackgroundSize(BackgroundSize.*AUTO*, BackgroundSize.*AUTO*, false, false, true, true)  
 );  
 stackPane1.setBackground(new Background(backgroundImage1));  
  
  
 Scene scene = new Scene(stackPane1, 800, 620);  
 stage2.setTitle("Library Management System");  
 stage2.setScene(scene);  
 stage2.show();  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
 });  
  
 // GridPane layout  
 GridPane grid = new GridPane();  
 grid.setPadding(new Insets(20));  
 grid.setHgap(20);  
 grid.setVgap(20);  
 grid.setAlignment(Pos.*CENTER*);  
  
  
 grid.add(emaillabel, 0, 0);  
 grid.add(emailfield, 1, 0);  
 grid.add(passwordlabel, 0, 1);  
 grid.add(passwordfield, 1, 1);  
 grid.add(loginbutton, 0, 2);  
 grid.add(signupbutton, 1, 2);  
  
  
 StackPane stackPane = new StackPane();  
 stackPane.getChildren().add(grid);  
 StackPane.*setMargin*(grid, new Insets(0,0,0,290));  
  
  
 BackgroundImage backgroundImage = new BackgroundImage(  
 new Image("Icon 1/Login background.png"),  
 BackgroundRepeat.*NO\_REPEAT*,  
 BackgroundRepeat.*NO\_REPEAT*,  
 BackgroundPosition.*CENTER*,  
 new BackgroundSize(BackgroundSize.*AUTO*, BackgroundSize.*AUTO*, false, false, true, true)  
 );  
 stackPane.setBackground(new Background(backgroundImage));  
  
 // Scene setup  
 Scene scene = new Scene(stackPane, 1200, 620);  
 stage.setTitle("Library Management System");  
 stage.setScene(scene);  
 stage.show();  
 }  
  
 public static void main(String[] args) {  
 *launch*();  
 }  
  
 public static void write(File file , String text1,String text2) throws IOException {  
 if(!file.exists()){  
 file.createNewFile();  
 }  
 else {  
  
 try (BufferedWriter writer = new BufferedWriter(new FileWriter(file,true))) {  
 writer.write(text1 + " " + text2);  
 //writer.write("");  
 // writer.write(text2);  
 writer.newLine();  
 } catch (FileNotFoundException e) {  
 throw new RuntimeException(e);  
 }  
 }  
 }  
  
 public boolean validity(File file ,String username, String password) throws FileNotFoundException {  
 try(BufferedReader reader = new BufferedReader(new FileReader(file))){  
 String line;  
 while ((line = reader.readLine()) != null) {  
 String[] space = line.split(" ");  
 if (space[0].equals(username) && space[1].equals(password)) {  
 return true;  
 }  
 }  
 } catch (FileNotFoundException e) {  
 throw new RuntimeException();  
 } catch (IOException e) {  
 throw new RuntimeException(e);  
 }  
 return false;  
 }  
  
 public void openDashboard(Stage stage3, String username) {  
  
 }  
 private Button createStyledButton(String text, String bgColor, String hoverColor) {  
 Button button = new Button(text);  
 button.setStyle(  
 "-fx-background-color: " + bgColor + ";" +  
 "-fx-text-fill: white;" +  
 "-fx-font-weight: bold;" +  
 "-fx-font-size: 14px;" +  
 "-fx-background-radius: 20px;" +  
 "-fx-padding: 10 20;"  
 );  
  
 // Adding hover effect  
 button.setOnMouseEntered(e -> button.setStyle(  
 "-fx-background-color: " + hoverColor + ";" +  
 "-fx-text-fill: white;" +  
 "-fx-font-weight: bold;" +  
 "-fx-font-size: 14px;" +  
 "-fx-background-radius: 20px;" +  
 "-fx-padding: 10 20;"  
 ));  
 button.setOnMouseExited(e -> button.setStyle(  
 "-fx-background-color: " + bgColor + ";" +  
 "-fx-text-fill: white;" +  
 "-fx-font-weight: bold;" +  
 "-fx-font-size: 14px;" +  
 "-fx-background-radius: 20px;" +  
 "-fx-padding: 10 20;"  
 ));  
  
 return button;  
 }  
  
  
  
}**