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OOP Lab 11&12 (Session 4, Part 2) : JavaFX and Event Handling

Q1) Write a JavaFX application program to do the following:

a. **Display the message "Welcome to JavaFX programming" using Label in the Scene.**
b. **Set the text color of the Label to Magenta.**
c. **Set the title of the Stage to "This is the first JavaFX Application".**
d. **Set the width and height of the Scene to 500 and 200 respectively.**
e. **Use FlowPane layout and set the hgap and vgap of the FlowPane to desired values.**

The program will accept an integer from the user in a text field and display the multiplication table (up to number *10) for that number.

Code:

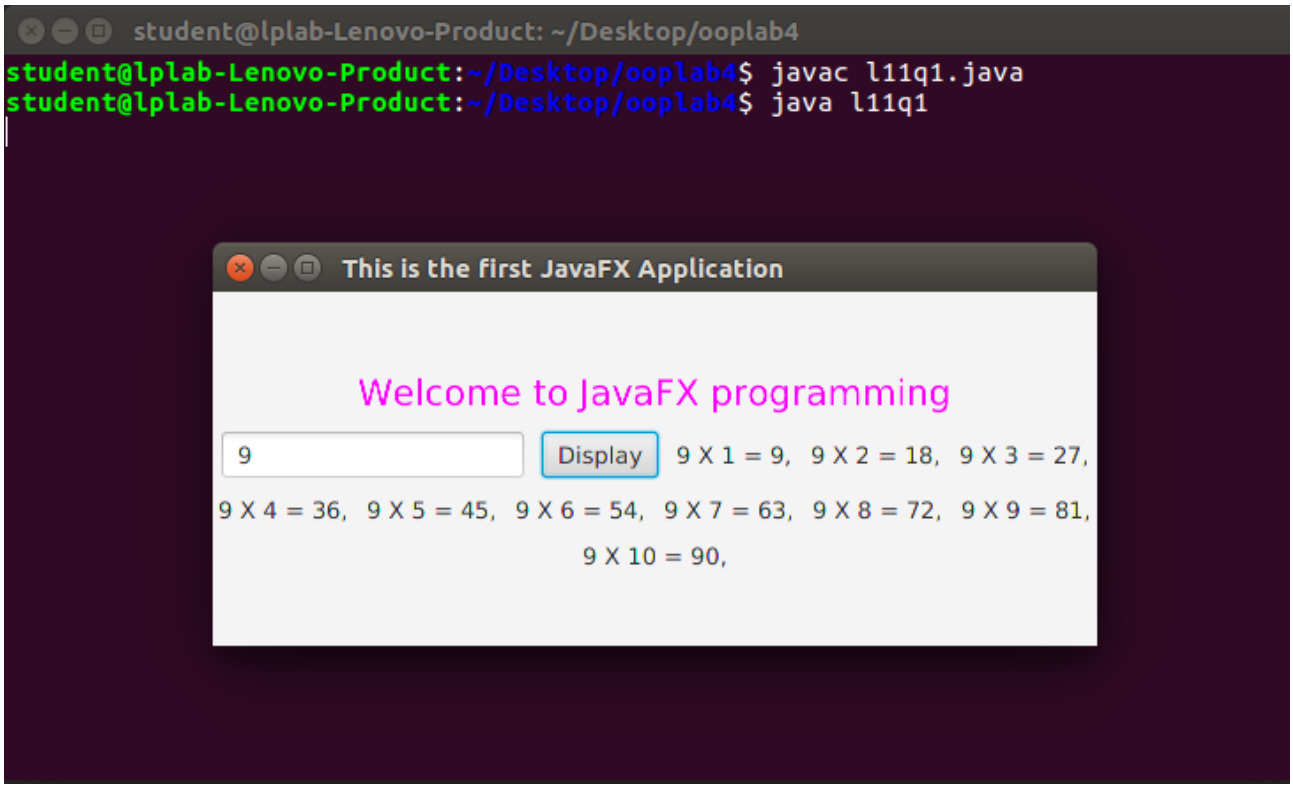
```
import javafx.application.Application;
import javafx.stage.Stage;
import javafx.scene.layout.*;
import javafx.scene.*;
import javafx.scene.text.*;
import javafx.scene.paint.*;
import javafx.scene.control.*;
import javafx.geometry.*;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;


public class l11q1 extends Application{
	@Override
	public void start(Stage mainStage){
		mainStage.setTitle("This is the first JavaFX Application");
		Label l1 = new Label("Welcome to JavaFX programming");
		l1.setFont(new Font(20));
		TextField tf = new TextField();
		tf.setText("");
		Button b1 = new Button("Display");
		FlowPane root = new FlowPane();
		root.setHgap(10);
		root.setVgap(10);
		l1.setTextFill(Color.MAGENTA);
		Scene s1 = new Scene(root,500,200);
		root.getChildren().addAll(l1);
		root.getChildren().addAll(tf);
		root.getChildren().addAll(b1);
		root.setAlignment(Pos.CENTER);
```

```
                b1.setOnAction(new EventHandler <ActionEvent>(){
                        @Override
                        public void handle(ActionEvent arg0){
                                String s = tf.getText();
                                for(int i=1;i<=10;i++){
                                        Label l = new Label(s + " X " + String.valueOf(i) + " = " +
String.valueOf(Integer.parseInt(s)*i) + "," + "\n");
                                        root.getChildren().addAll(l);
                                }
                        }
                });
        mainStage.setScene(s1);
        mainStage.show();
    }


    public static void main(String[] args) {
          launch();
    }
}
```

Output Screen :



Q2) Write a JavaFX program to display a window as shown below. Use TextField for UserName and PasswordField for Password input. On click of “Sign in” Button the message “Welcome UserName” should be displayed in a Text Control. Use GridPane layout for the application.

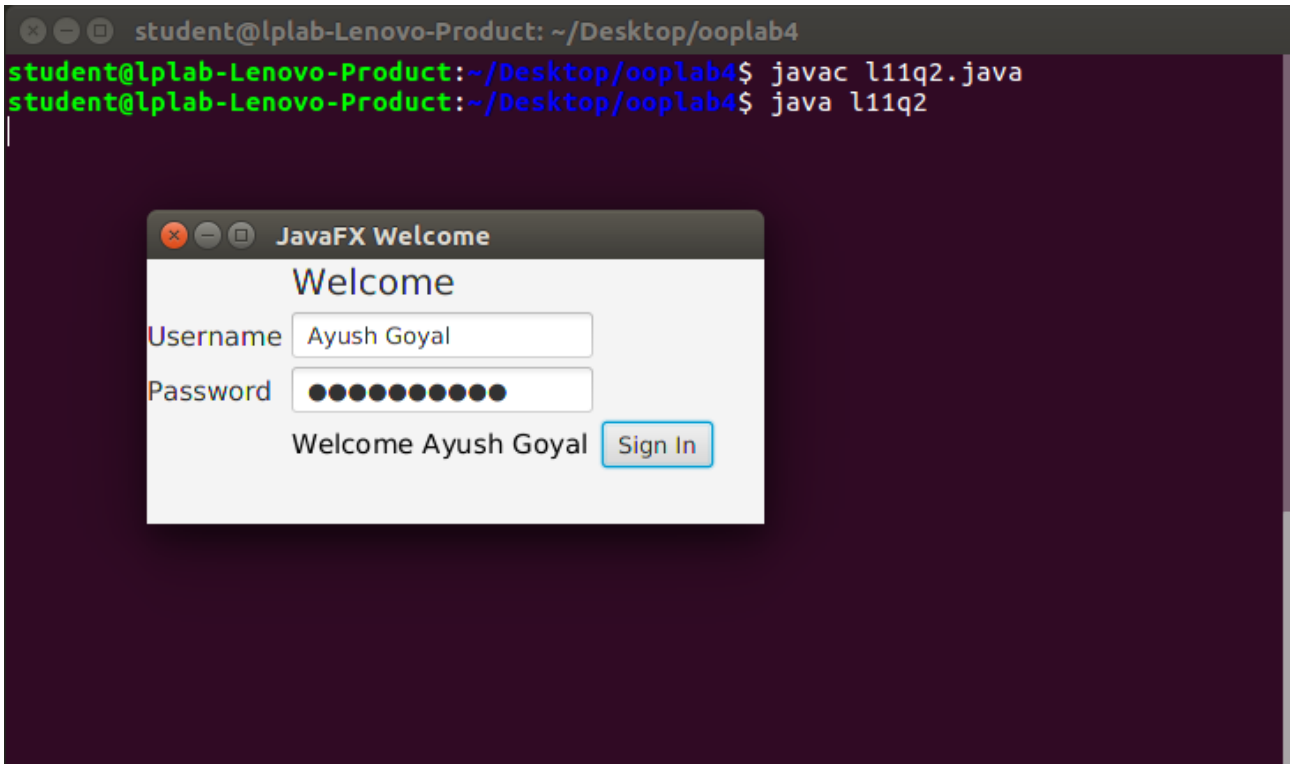
Code:

```
import javafx.application.Application;
import javafx.stage.Stage;
import javafx.scene.*;
import javafx.scene.layout.*;
import javafx.scene.control.*;
import javafx.scene.text.*;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;

public class l11q2 extends Application{
	@Override
	public void start(Stage mainStage){
		mainStage.setTitle("JavaFX Welcome");
		GridPane grid = new GridPane();
		Label l1 = new Label("Welcome");
		Label l2 = new Label("Username");
		Label l3 = new Label("Password");
		Text t1 = new Text();
		l1.setFont(new Font(20));
		l2.setFont(new Font(15));
		l3.setFont(new Font(15));
		t1.setFont(new Font(15));
		TextField tf = new TextField();
		tf.setText("");
	PasswordField pf = new PasswordField();
	Button b1 = new Button("Sign In");
	grid.add(l1,1,0);
	//grid.addRow(0,l1);
	grid.addRow(1,l2,tf);
	grid.addRow(2,l3,pf);
	grid.add(b1,2,3);
	grid.add(t1,1,3);
	grid.setVgap(5);
	grid.setHgap(5);
	b1.setOnAction(new EventHandler <ActionEvent>(){
	   @Override
	   public void handle(ActionEvent arg0){
		String s = tf.getText();
		if(s.length()!=0)
			t1.setText("Welcome "+s);
	   }
	});
	Scene s1 = new Scene(grid, 350, 150);
	mainStage.setScene(s1);
	mainStage.show();
```

```
    }
    public static void main(String[] args){
        launch(args);
    }
}
```

Output Screen :



Q3) Write a JavaFX application program that obtains two floating point numbers in two text fields from the user and displays the sum, product, difference and quotient of these numbers using Canvas on clicking compute button with a calculator image placed on it

Code:

```
import javafx.application.Application;
import javafx.stage.Stage;
import javafx.scene.Scene;
import javafx.scene.*;
import javafx.scene.layout.*;
import javafx.scene.control.*;
import javafx.scene.canvas.*;
import javafx.scene.paint.*;
import javafx.scene.image.*;
import javafx.scene.text.*;
```

```
import javafx.geometry.*;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;

public class l11q3 extends Application{
	@Override
	public void start(Stage mainStage){
		mainStage.setTitle("JavFX Calculator");
		GridPane gridRoot = new GridPane();
		Label l1 = new Label("Number 1 : ");
		Label l2 = new Label("Number 2 : ");
		TextField tf1 = new TextField();
		TextField tf2 = new TextField();
		Text t = new Text();
		ImageView img = new ImageView("calculator.png");
		img.setFitHeight(50);
		img.setFitWidth(50);
		Button cmp = new Button("Compute", img);
		Scene s = new Scene(gridRoot, 300, 150);
		gridRoot.addRow(0,l1,tf1);
		gridRoot.addRow(1,l2,tf2);
		gridRoot.add(cmp,1,2);
		gridRoot.add(t,1,4);
		gridRoot.setHgap(5);
		gridRoot.setVgap(5);
		cmp.setOnAction(new EventHandler <ActionEvent>(){
			@Override
			public void handle(ActionEvent arg0){
				gridRoot.getChildren().clear();
				String s1 = tf1.getText();
				String s2 = tf2.getText();
				GraphicsContext gc;
				Canvas myCanvas = new Canvas(300, 150);
				gc = myCanvas.getGraphicsContext2D();
				gc.fillText("Sum: " +
String.valueOf(Float.parseFloat(s1)+Float.parseFloat(s2)), 0, 10);
				gc.fillText("Difference: " + String.valueOf(Float.parseFloat(s1)-
Float.parseFloat(s2)), 0, 30);
				gc.fillText("Product: " +
String.valueOf(Float.parseFloat(s1)*Float.parseFloat(s2)), 0, 50);
				gc.fillText("Quotient: " +
String.valueOf(Float.parseFloat(s1)/Float.parseFloat(s2)), 0, 70);
				gridRoot.add(myCanvas,0,6);
			}
		});
		mainStage.setScene(s);
		mainStage.show();
	}
	public static void main(String[] args){
		launch(args);
	}
}
```

Output Screen :