Java Lab

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Q1)

```
/*
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 */
package question1;

import java.util.HashSet;
import java.util.Set;
import javafx.application.Application;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;
import javafx.geometry.Insets;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.CheckBox;
import javafx.scene.control.ComboBox;
import javafx.scene.control.Label;
import javafx.scene.control.RadioButton;
import javafx.scene.control.TextField;
import javafx.scene.control.ToggleGroup;
import javafx.scene.layout.GridPane;
import javafx.scene.layout.HBox;
import javafx.stage.Stage;
```

```java
/**
 *
 * @author aadhitya
 */
public class Question1 extends Application {

    @Override
    public void start(Stage primaryStage) {

        TextField nameInp = new TextField();
        TextField emailInp = new TextField();
        TextField phoneInp = new TextField();
        TextField passwordInp = new TextField();
        TextField confirmInp = new TextField();
        TextField aboutInp = new TextField("Your Personal Bio");
        aboutInp.setPrefHeight(70);


        Label name = new Label("Name :");
        Label email = new Label("Email :");
        Label phone = new Label("Phone :");
        Label password = new Label("Password :");
        Label confirm = new Label("Confirm :");
        Label country = new Label("Country :");
        Label gender = new Label("Gender :");
        Label language = new Label("Language :");
        Label about = new Label("About You :");

        ComboBox countryInp = new ComboBox();
        countryInp.getItems().addAll(
                "India", "US", "Africa", "Pakistan"
        );
        countryInp.setValue("Select");
```

```java
ToggleGroup genderGroup = new ToggleGroup();
RadioButton male = new RadioButton("Male");
male.setToggleGroup(genderGroup);
RadioButton female = new RadioButton("Female");
female.setToggleGroup(genderGroup);
HBox genderBox = new HBox(10);
genderBox.getChildren().addAll(male, female);


CheckBox arabic = new CheckBox("Arabic");
CheckBox english = new CheckBox("English");
CheckBox spanish = new CheckBox("Spanish");
HBox langBox = new HBox(10);
langBox.getChildren().addAll(arabic, english, spanish);


Button btn = new Button();
btn.setMinWidth(350);
btn.setText("Submit");
btn.setOnAction(new EventHandler<ActionEvent>() {

    @Override
    public void handle(ActionEvent event) {
        System.out.println("Form Submitted !!");
        // Display successful message.

    }
});

GridPane root = new GridPane();

root.setPadding(new Insets(20, 20, 20, 20));
root.setVgap(10);
root.setHgap(10);
```

```java
        root.add(name, 0, 0);
        root.add(nameInp, 1, 0);
        root.add(email, 0, 1);
        root.add(emailInp, 1, 1);
        root.add(phone, 0, 2);
        root.add(phoneInp, 1, 2);
        root.add(password, 0, 3);
        root.add(passwordInp, 1, 3);
        root.add(confirm, 0, 4);
        root.add(confirmInp, 1, 4);
        root.add(country, 0, 5);
        root.add(countryInp, 1, 5);
        root.add(gender, 0, 6);
        root.add(genderBox, 1, 6);
        root.add(language, 0, 7);
        root.add(langBox, 1, 7);
        root.add(about, 0, 8);
        root.add(aboutInp, 1, 8);
        root.add(btn, 0, 9, 2, 1);

        Scene scene = new Scene(root, 400, 500);

        primaryStage.setTitle("Registration Form");
        primaryStage.setScene(scene);
        primaryStage.show();
    }

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        launch(args);
```

}

}

Registration Form

Name :

Email :

Phone :

Password :

Confirm :

Country :   Select: ▼

Gender :   ◯ Male   ◯ Female

Language :   ☐ Arabic   ☐ English   ☐ Spanish

About You :   Your Personal Bio

Submit

Q2)

```
/*
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 */
package question2;

import javafx.application.Application;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.image.Image;
import javafx.scene.image.ImageView;
import javafx.scene.layout.GridPane;
import javafx.stage.Stage;

/**
 *
 * @author aadhitya
 */
public class Question2 extends Application {

    @Override
    public void start(Stage primaryStage) {

        int i, j;
        int player = 0;
        int BOARD_SIZE = 3;

        final Image x = new Image(Question2.class.getResourceAsStream("x.png"));
```
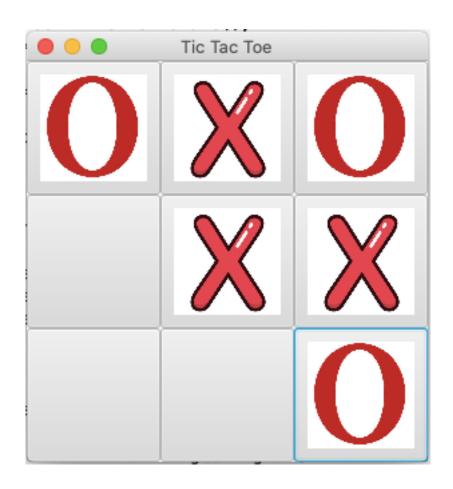
```java
final Image o = new Image(Question2.class.getResourceAsStream("o.png"));

int board_num[][] = new int[BOARD_SIZE][BOARD_SIZE];
for(i=0;i<BOARD_SIZE;i++)
{
    for(j=0;j<BOARD_SIZE;j++)
    {
        board_num[i][j] = -1;
    }
}


Button board[][] = new Button[BOARD_SIZE][BOARD_SIZE];
// Setting the size for the buttons.
for(i=0;i<BOARD_SIZE;i++)
{
    for(j=0;j<BOARD_SIZE;j++)
    {
        board[i][j] = new Button();
        board[i][j].setPrefSize(100, 100);
    }
}


// Adding clicking functions for the buttons.
for(i=0;i<BOARD_SIZE;i++)
{
    for(j=0;j<BOARD_SIZE;j++)
    {
        if(board_num[i][j] == -1)
        {
            final int x_pos = i, y_pos = j;
            final int cur_player = player;
            player = (player + 1) % 2;
            final Button btn = board[i][j];
```

```java
        board[i][j].setOnAction(new EventHandler<ActionEvent>() {
            @Override
            public void handle(ActionEvent event) {
                System.out.println("Clicked board position : " + x_pos + ", " + y_pos);
                if(cur_player == 0)
                {
                    ImageView iv = new ImageView(o);
                    iv.setFitHeight(80);
                    iv.setFitWidth(80);
                    btn.setGraphic(iv);
                }
                else
                {
                    ImageView iv = new ImageView(x);
                    iv.setFitHeight(80);
                    iv.setFitWidth(80);
                    btn.setGraphic(iv);
                }
            }
        });
    }
}

GridPane root = new GridPane();
for(i=0;i<3 ; i++)
{
    for(j=0;j<3;j++)
    {
        root.add(board[i][j], j, i);
    }
}
```

```java
        Scene scene = new Scene(root, 300, 300);


        primaryStage.setTitle("Tic Tac Toe");
        primaryStage.setScene(scene);
        primaryStage.show();
    }


    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        launch(args);
    }


}
```

Q3)

```java
/*
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 */
package question3;

import javafx.application.Application;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.image.Image;
import javafx.scene.image.ImageView;
import javafx.scene.layout.GridPane;
import javafx.stage.Stage;

/**
 *
 * @author aadhitya
 */
public class Question3 extends Application {

    @Override
    public void start(Stage primaryStage) {

        Image img1 = new Image(Question3.class.getResourceAsStream("1.png"));
        Image img2 = new Image(Question3.class.getResourceAsStream("2.png"));
        Image img3 = new Image(Question3.class.getResourceAsStream("3.png"));
        Image img4 = new Image(Question3.class.getResourceAsStream("4.png"));
```

```java
        ImageView iv1 = new ImageView(img1);
        iv1.setFitHeight(200);
        iv1.setFitWidth(200);
        ImageView iv2 = new ImageView(img2);
        iv2.setFitHeight(200);
        iv2.setFitWidth(200);
        ImageView iv3 = new ImageView(img3);
        iv3.setFitHeight(200);
        iv3.setFitWidth(200);
        ImageView iv4 = new ImageView(img4);
        iv4.setFitHeight(200);
        iv4.setFitWidth(200);


        GridPane root = new GridPane();
        root.add(iv1, 0, 0);
        root.add(iv2, 1, 0);
        root.add(iv3, 0, 1);
        root.add(iv4, 1, 1);

        Scene scene = new Scene(root, 400, 400);

        primaryStage.setTitle("Gallery");
        primaryStage.setScene(scene);
        primaryStage.show();
    }

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        launch(args);
    }
```

}