Mobile App Development

Activity 03

Deadline: 27-11-25 11:59 pm

Objective: The purpose of this activity is to enable students to understand and implement **dynamic fragments**, **fragment transactions**, and **interactive UI behavior** in Android applications using Java SDK. Students will apply concepts related to modular UI components, event handling, and random content generation.

Description In this activity, students will develop a simple **Image Puzzle Game** consisting of **four image tiles**, each implemented as a **separate fragment**. The tiles will be placed dynamically inside the main activity at runtime. Each puzzle tile will display a randomly selected image in a fragment. The user must tap on each tile to assemble the complete image. If the user selects the correct sequence of tiles, the puzzle is considered completed. App will immediately display a "**Winner Fragment**". However, if the user taps an incorrect tile or if the tiles are arranged incorrectly, the app will immediately display a **"Loser Fragment"** indicating that the attempt has failed.

Requirements

1. Main Activity

- The main activity must host four **container layouts** (e.g: `frame layout`) that hold four fragment placeholders.
- All four tile fragments must be added **dynamically using Fragment Manager** (no fragments tag in XML).
- The images must be assigned **randomly** to each tile fragment every time the activity starts.

2. Puzzle Tile Fragments

- Each tile fragment will display **one piece** of the full image.
- Randomizes tile's images on every launch.
- When a (frame layout) tile is clicked:
    - The app must verify whether the clicked tile is in the correct order.
    - If correct → move to next tile load the **Winner Fragment**.
    - If incorrect → immediately load the **Loser Fragment**.

3. Loser Fragment

- Displays a message such as "Incorrect Move! You Lost."
- Includes a button: "Retry Game" → Reloads the main activity.

4. Winner Fragment

- Displays a message such as “Correct Move! You win.”
- Includes a button: “Play Again” → Reloads the main activity.

Hint: Students will create an image puzzle game by splitting any picture into four parts using https://splitter.imageonline.co/. These tiles will be used in the app and arranged randomly. Java’s Random class or Collections.shuffle() helps shuffle images order, ensuring each game starts with a new order.

Best of Luck