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D15A-48

Experiment 5: Navigation, Routing, and Gestures in Smart Study App

Objective:

To implement **navigation, routing, and gestures** in the Smart Study App using Flutter.

Theory:

Flutter provides a robust navigation system that allows smooth transitions between different screens using **Navigator** and **Routes**. Gesture detection enhances user interaction by recognizing various touch patterns.

1. Navigation & Routing:

- **Navigator.push()**: Moves to a new screen.
- **Navigator.pop()**: Returns to the previous screen.
- **Named Routes**: Defines structured navigation between multiple screens.
- **onGenerateRoute**: Dynamically generates routes.

2. Gesture Detection:

Flutter supports touch gestures like tapping, swiping, and long pressing using **GestureDetector** and **InkWell**.

Implementation:

1. Navigation in Smart Study App

Step 1: Define Routes in main.dart

```
void main() {   runApp(MaterialApp(
   initialRoute: '/',
routes: {
     '/': (context) => HomeScreen(),
     '/subjects': (context) => SubjectsScreen(),
     '/tasks': (context) => TasksScreen(),
   },
  ));
}
```

Step 2: Navigating to a New Screen

```
ElevatedButton(
onPressed: () {
   Navigator.pushNamed(context, '/subjects');
  },
  child: Text("Go to Subjects"),
);
```

Step 3: Returning to Previous Screen

```
ElevatedButton(
onPressed: () {
   Navigator.pop(context);
  },
  child: Text("Back"),
);
```

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2. Gesture Implementation

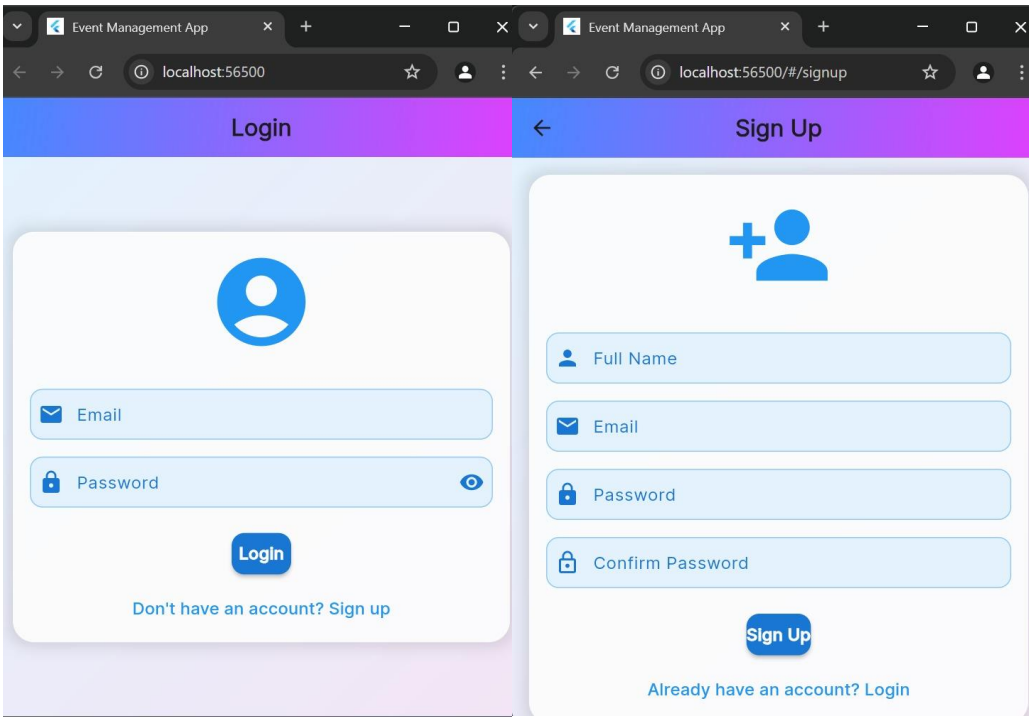
Step 1: Using GestureDetector

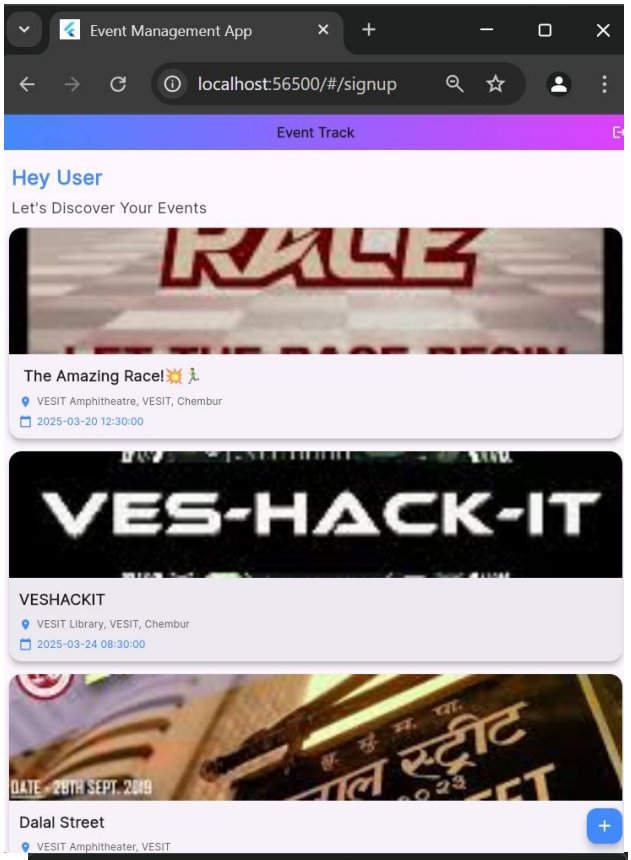
```
GestureDetector(
onTap: () {
   print("Card tapped!");
  },
  child: Card(
child: Padding(
padding:
EdgeInsets.all(16.
```

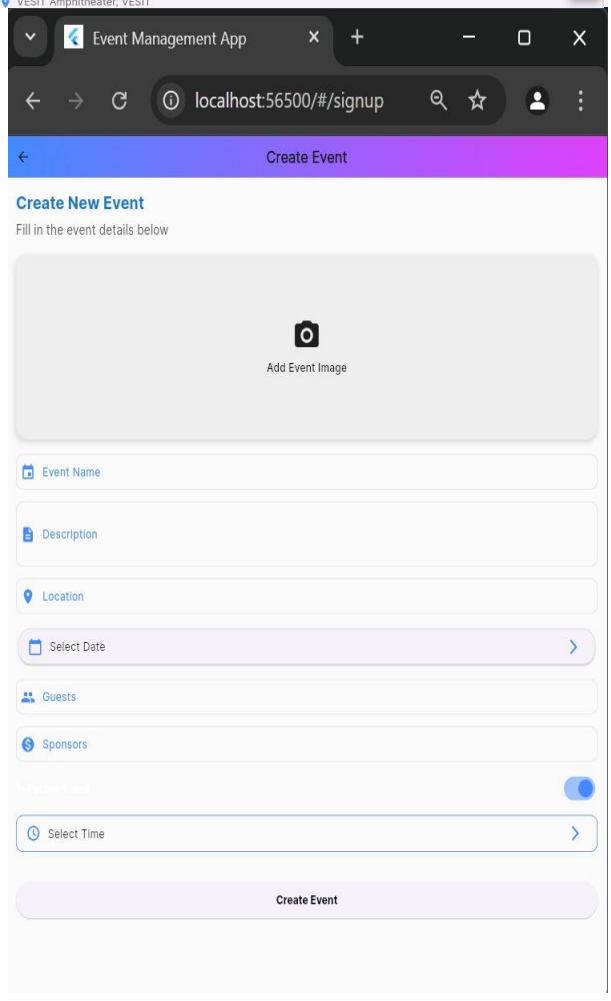
```
0),       child:
Text("Tap Me"),
    ),
  ),
);
```

Step 2: Adding Swipe Gesture

```
GestureDetector(
onHorizontalDragEnd: (details) {
if (details.primaryVelocity! > 0) {
print("Swiped Right");
    } else {
print("Swiped Left");
    }
  },
  child: Container(
color: Colors.blue,
height: 100,     width:
100,
  ),
);
```




Event Management App
localhost:56500/#/signup
Event Track
Hey User
Let's Discover Your Events
The Amazing Race!💥🏃
VESIT Amphitheatre, VESIT, Chembur
2025-03-20 12:30:00
VES-HACK-IT
VESHACKIT
VESIT Library, VESIT, Chembur
2025-03-24 08:30:00
DATE - 28TH SEPT, 2019
Dalal Street
VESIT Amphitheater, VESIT


Event Management App
localhost:56500/#/signup
Create Event
Create New Event
Fill in the event details below
Add Event Image
Event Name
Description
Location
Select Date
Guests
Sponsors
Select Time
Create Event

Conclusion:

In this experiment, we successfully implemented **navigation, routing, and gesture detection** in the **Smart Study App**. Users can navigate between screens and interact with UI elements using tap and swipe gestures.

Key Learnings:

1. Implemented **Navigator** for screen transitions.
2. Used **named routes** for structured navigation.
3. Applied **GestureDetector** for touch-based interactions.

This enhances the **Smart Study App** by improving user experience and accessibility.