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DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING



Subject : Mobile Application Development

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Practical 1

Problem Definition

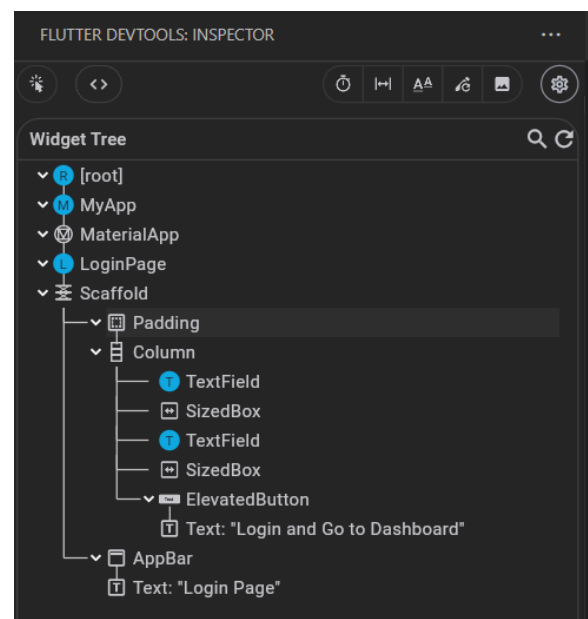
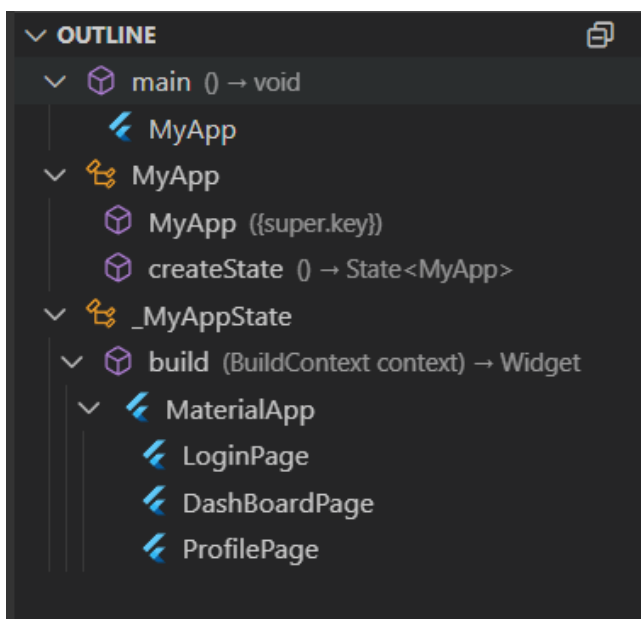
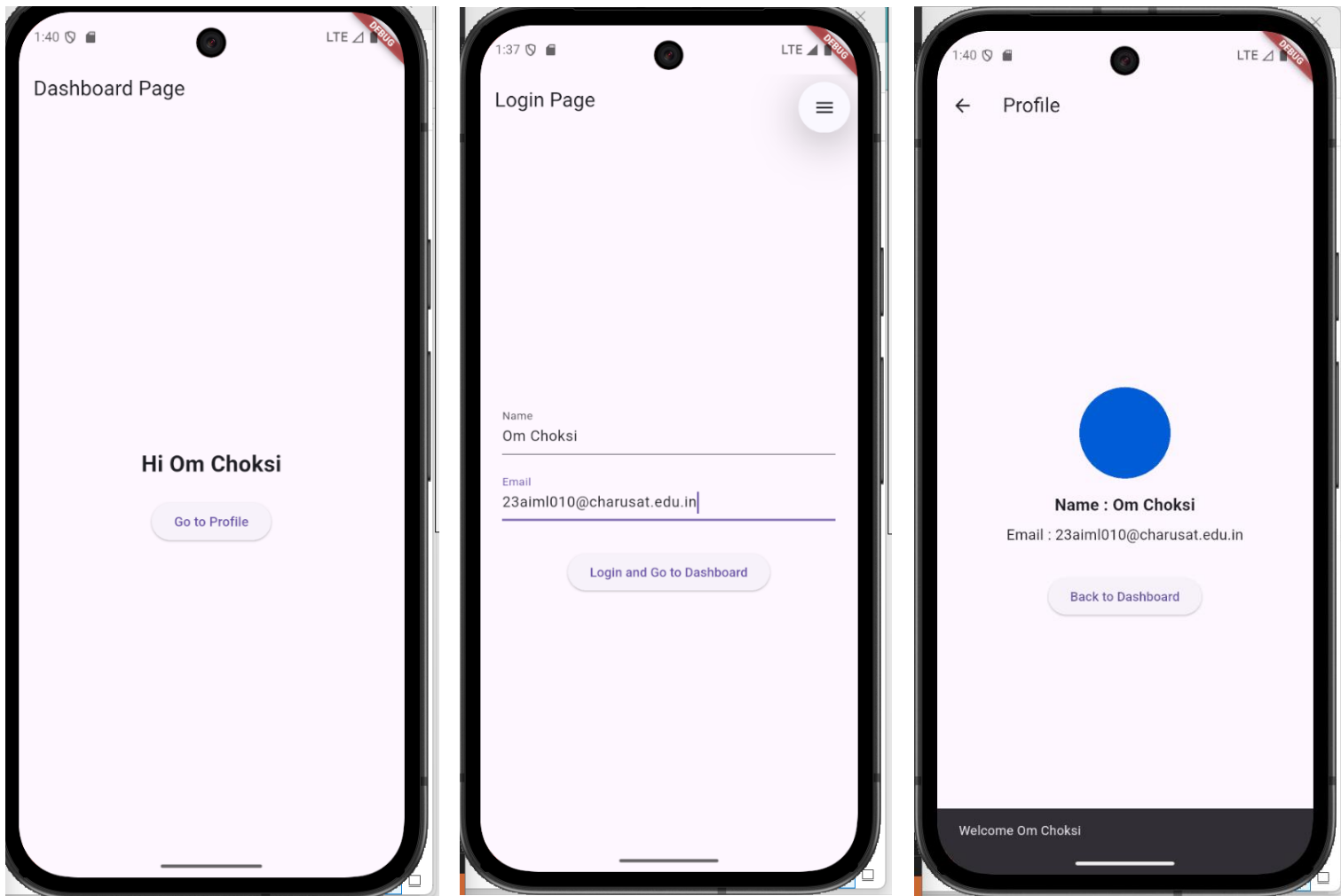
You are building a mobile application where users navigate through multiple screens like login, dashboard, and profile. Create a basic multi-screen Flutter app with navigation, passing data between pages.

Technical Approach:

- State Management: Uses StatefulWidget with setState() for UI updates in login and dashboard screens.
- Navigation: Named routes in MaterialApp for screen transitions (pushReplacementNamed for login→dashboard, pushNamed for dashboard→profile).
- Data Passing: Route arguments via ModalRoute.of(context) for passing user data between screens.
- Core Widgets: Scaffold, TextField, ElevatedButton, Text; no external packages used.

File Structure:

```
lib/  
├── main.dart      # Application entry point with MaterialApp and route configuration  
├── login.dart     # Login screen with form inputs and navigation to dashboard  
├── dashboard.dart # Dashboard screen displaying user data and navigation to profile  
└── profile.dart   # Profile screen showing user details with back navigation
```

Screenshots:

Key Questions:**1. How does navigation work in Flutter?**

Ans: Navigation managed by Navigator widget using a stack of Route objects. In this project: Named routes defined in MaterialApp (main.dart). pushReplacementNamed (login → dashboard): Replaces current screen, passes arguments. pushNamed (dashboard → profile): Adds to stack, allows return via pop().

2. How can data be passed between screens?

Ans: - Data passed via route arguments in RouteSettings.

Sender: Include Map in `arguments` parameter of navigation methods.

Receiver: Access via ModalRoute.of(context).settings.arguments.

Example: Login passes 'name' and 'email' to dashboard and profile.

3. What is the difference between push and pushReplacement?

Ans: push(): Adds new screen to navigation stack; allows back navigation.

pushReplacement(): Replaces current screen; removes from history.

Usage: pushReplacementNamed for login (no return), pushNamed for profile (allow back).

Key Skills to be Understand:

Widget Tree, Navigation routing