

Integration Test App Documentation

Overview

This document outlines the integration testing setup for a Flutter application that includes a login screen, a bottom navigation bar with three screens (Home, Settings, Profile), and the corresponding integration tests to verify the navigation flow.

Necessary Packages

To implement the integration test, ensure you have the following packages in your `pubspec.yaml` file:

```
dev_dependencies:  
  integration_test: ^2.0.0  
  sdk: flutter
```

Application Flow

Login Screen: Users enter their email and password.

Bottom Navigation Bar: After logging in, users can navigate to Home, Settings, and Profile screens using the bottom navigation bar.

Screen Verification: Each screen displays specific content that needs to be verified through tests.

Step-by-Step Implementation

1. Create the Login Screen

Create a file named `integration_login_screen.dart`:

```
dart  
import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'bottom_nav_screen.dart';  
  
class IntegrationLoginScreen extends StatefulWidget {  
  @override  
  _IntegrationLoginScreenState createState() => _IntegrationLoginScreenState();  
}  
  
class _IntegrationLoginScreenState extends State<IntegrationLoginScreen> {  
  final _emailController = TextEditingController();  
  final _passwordController = TextEditingController();  
  
  void _login() {  
    if (_emailController.text.isNotEmpty && _passwordController.text.isNotEmpty) {  
      Navigator.pushReplacement(  
        context,  
        MaterialPageRoute(builder: (context) => BottomNavScreen()),  
      );  
    } else {  
      ScaffoldMessenger.of(context).showSnackBar(  

```

```

        SnackBar(content: Text('Please enter username and password')),
      );
    }
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(),
      body: Padding(
        padding: const EdgeInsets.all(16.0),
        child: Column(
          children: [
            CupertinoTextField(
              key: Key('emailField'),
              controller: _emailController,
              placeholder: 'Email',
              padding: EdgeInsets.symmetric(vertical: 12.0),
            ),
            SizedBox(height: 16),
            CupertinoTextField(
              key: Key('passwordField'),
              controller: _passwordController,
              placeholder: 'Password',
              obscureText: true,
              padding: EdgeInsets.symmetric(vertical: 12.0),
            ),
            SizedBox(height: 32),
            CupertinoButton.filled(
              key: Key('loginButton'),
              onPressed: _login,
              child: Text('Login'),
            ),
          ],
        ),
      ),
    );
  }
}

```

2. Create the Bottom Navigation Screen

Create a file named `bottom_nav_screen.dart`:

```

dart
import 'package:flutter/cupertino.dart';
import 'package:flutter/material.dart';
import 'profile_screen.dart';
import 'setting_screen.dart';
import 'homescreen.dart';

class BottomNavScreen extends StatefulWidget {
  @override
  _BottomNavScreenState createState() => _BottomNavScreenState();
}

```

```

class _BottomNavScreenState extends State<BottomNavScreen> {
  int _selectedIndex = 0;
  final List<Widget> _screens = [
    HomeScreen(),
    SettingsScreen(),
    ProfileScreen(),
  ];

  void _onItemTapped(int index) {
    setState(() {
      _selectedIndex = index;
    });
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('Welcome To Goa Singham'),
        actions: [
          IconButton(
            key: Key('SettingButton'),
            onPressed: () {
              _onItemTapped(1);
            },
            icon: Icon(Icons.settings),
          ),
        ],
      ),
      body: _screens[_selectedIndex],
      bottomNavigationBar: CupertinoTabBar(
        currentIndex: _selectedIndex,
        onTap: _onItemTapped,
        activeColor: Colors.blue,
        items: const [
          BottomNavigationBarItem(
            icon: Icon(CupertinoIcons.home),
            label: 'Home',
          ),
          BottomNavigationBarItem(
            key: Key('settings'),
            icon: Icon(CupertinoIcons.settings),
            label: 'Settings',
          ),
          BottomNavigationBarItem(
            key: Key('profileButton'),
            icon: Icon(CupertinoIcons.profile_circled),
            label: 'Profile',
          ),
        ],
      ),
    );
  }
}

```

3. Create Home, Profile, and Settings Screens

Create files for each screen (homescreen.dart, profile_screen.dart, and setting_screen.dart):

Home Screen (homescreen.dart):

```
dart
import 'package:flutter/cupertino.dart';
import 'package:flutter/material.dart';

class HomeScreen extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Center(
      child: Column(
        mainAxisAlignment: MainAxisAlignment.center,
        children: [
          Icon(CupertinoIcons.home, size: 100, color: Colors.blue),
          SizedBox(height: 16),
          Text(
            'Welcome to Home Screen!',
            style: TextStyle(fontSize: 24, fontWeight: FontWeight.bold),
          ),
        ],
      ),
    );
  }
}
```

Profile Screen (profile_screen.dart):

```
dart
import 'package:flutter/cupertino.dart';
import 'package:flutter/material.dart';

class ProfileScreen extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Center(
      child: Column(
        mainAxisAlignment: MainAxisAlignment.center,
        children: [
          Icon(CupertinoIcons.profile_circled, size: 100, color: Colors.blue),
          SizedBox(height: 16),
          Text(
            'Profile Screen',
            style: TextStyle(fontSize: 24, fontWeight: FontWeight.bold),
          ),
        ],
      ),
    );
  }
}
```

Settings Screen (setting_screen.dart):

```

dart
import 'package:flutter/cupertino.dart';
import 'package:flutter/material.dart';

class SettingsScreen extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Center(
      child: Column(
        mainAxisAlignment: MainAxisAlignment.center,
        children: [
          Icon(CupertinoIcons.settings, size: 100, color: Colors.blue),
          SizedBox(height: 16),
          Text(
            'Settings Screen',
            style: TextStyle(fontSize: 24, fontWeight: FontWeight.bold),
          ),
        ],
      ),
    );
  }
}

```

4. Create Integration Test

Create a file named `integration_test_app_test.dart`:

```

dart
import 'package:flutter/cupertino.dart';
import 'package:flutter_test/flutter_test.dart';
import 'package:integration_test/integration_test.dart';
import 'package:flutter/material.dart';
import 'package:flutter/services.dart';
import 'package:path_provider/path_provider.dart'; // Add this if needed for file access.
import 'package:path/path.dart'; // Add this if needed for path manipulation.
import '../lib/main.dart' as app; // Adjust according to your project structure.

void main() {
  IntegrationTestWidgetsFlutterBinding.ensureInitialized();

  testWidgets('Login and navigate through app', (WidgetTester tester) async {
    // Launch the app
    app.main();
    await tester.pumpAndSettle();

    // Verify the login screen is displayed
    expect(find.text('Login'), findsOneWidget);

    // Enter email and password
    await tester.enterText(find.byKey(Key('emailField')), 'test@example.com');
    await tester.enterText(find.byKey(Key('passwordField')), 'password123');

    // Tap login button
    await tester.tap(find.byKey(Key('loginButton')));
    await tester.pumpAndSettle();
  });
}

```

```
// Verify navigation to HomeScreen after login
expect(find.text('Welcome To Goa Singham'), findsOneWidget);

// Navigate to the "Settings" screen using the bottom navigation bar
await tester.tap(find.byIcon(CupertinoIcons.settings));
await tester.pumpAndSettle();

// Verify the "Settings" screen is displayed
expect(find.text('Settings Screen'), findsOneWidget);

// Navigate to the "Profile" screen using the bottom navigation bar
await tester.tap(find.byIcon(CupertinoIcons.profile_circled));
await tester.pumpAndSettle();

// Verify the "Profile" screen is displayed
expect(find.text('Profile Screen'), findsOneWidget);

// Navigate back to the "Home" screen using the bottom navigation bar
await tester.tap(find.byIcon(CupertinoIcons.home));
await tester.pumpAndSettle();

// Verify the "Home" screen is displayed
expect(find.text('Welcome to Home Screen!'), findsOneWidget);
});
```

Conclusion

This document provides a comprehensive guide for setting up an integration test for a Flutter application with a login flow and bottom navigation. By following these steps and utilizing the provided code snippets, you can effectively test your application's navigation and UI interactions.