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Experiment 5
Aim : To apply navigation, routing and gestures in Flutter App.

Theory : In Flutter, navigation, routing, and gestures play vital roles in creating engaging and intuitive user experiences.

Navigation and Routing: Navigation refers to moving between different screens or pages within an app. Routing is the mechanism that defines the paths and transitions between these screens. In Flutter, navigation and routing are managed using a Navigator widget.

● Navigator Widget: Each Flutter app has a Navigator widget that manages a stack of Route objects. These Route objects represent individual screens or pages in the app.

● Navigation Stack: The Navigator maintains a stack of routes. Pushing a new route onto the stack navigates to a new screen, and popping a route removes the topmost route from the stack, navigating back to the previous screen.

● Routes: Routes are represented by instances of PageRoute or its subclasses like MaterialPageRoute. They define the content and behavior of each screen.

● Routing Methods: Flutter provides methods like Navigator.push, Navigator.pop, Navigator.pushNamed, and Navigator.popUntil to navigate between routes. Gestures: Gestures enable users to interact with the app using touch inputs like tapping, dragging, swiping, etc. Flutter provides a rich set of gesture recognizers that make it easy to handle various touch interactions.

● Gesture Detector: The GestureDetector widget is the primary way to add gesture recognition to widgets in Flutter. It listens for various touch events and provides callbacks for handling those events.

- Handling Gestures: When a gesture is detected, the corresponding callback (e.g., onTap, onLongPress, onPanUpdate, etc.) is invoked, allowing you to respond to user interactions accordingly.

- Gesture Widgets: Some widgets like ListView, GestureDetector, InkWell, Draggable, Dismissible, etc., come with built-in gesture handling capabilities

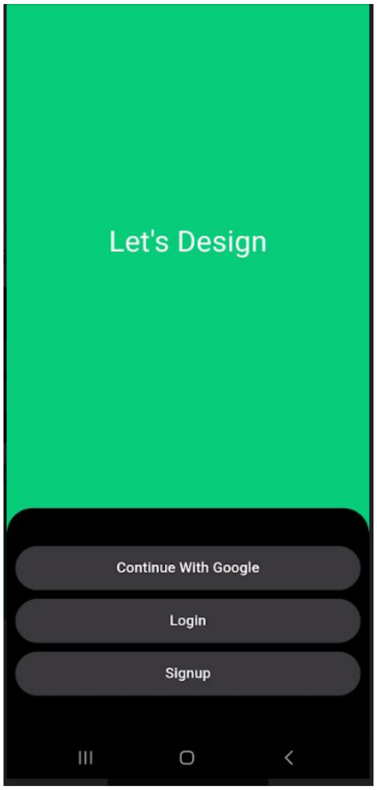
Code -

```
import 'dart:async';
import 'dart:math';

import 'package:ChatGPT/views/Authentication/auth.dart';
import 'package:ChatGPT/views/home.dart';
import 'package:firebase_core/firebase_core.dart';
import 'package:flutter/material.dart';

import 'firebase_options.dart';
import 'models/constants.dart';

void main() async{
  WidgetsFlutterBinding.ensureInitialized();

  await Firebase.initializeApp(
    options: DefaultFirebaseOptions.currentPlatform,
  );
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Chat GPT',
      theme: ThemeData.light(),
      // darkTheme: ThemeData.dark(),
      home: LandingPage(),
    );
  }
}

class LandingPage extends StatefulWidget {
  const LandingPage({super.key});

  @override
  State<LandingPage> createState() => _LandingPageState();
}

class _LandingPageState extends State<LandingPage> {
  List<String> texts = [
    "Chat GPT",
    "Let's Design",
    "Let's Discover",
    "Let's Collaborate",
    "Let's Explore",
    "Let's Chit-Chat"
  ];

  int currentIndex = 0;
  String displayedText = "";
  Color backgroundColor = Colors.blue; // Initial background color

  @override
  void initState() {
    super.initState();
    startTypingLoop();
  }

  void startTypingLoop() {
```

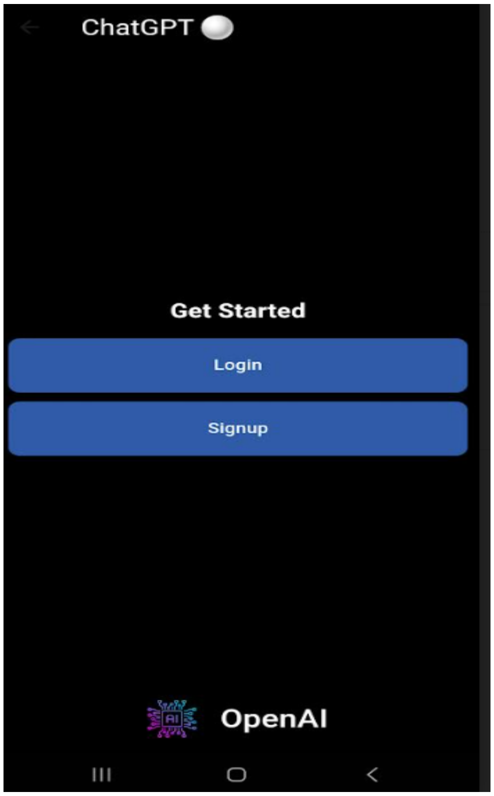
```
  Timer.periodic(Duration(seconds: 3), (timer) {
    startTyping();
  });
}

void startTyping() {
  Timer.periodic(Duration(milliseconds: 100), (timer) {
    if (texts[currentIndex].length > displayedText.length) {
      setState(() {
        displayedText =
            texts[currentIndex].substring(0, displayedText.length + 1);
      });
    } else {
      timer.cancel();
      Timer(Duration(seconds: 1), () {
        eraseText();
      });
    }
  });
}

void eraseText() {
  Timer.periodic(Duration(milliseconds: 100), (timer) {
    if (displayedText.isNotEmpty) {
      setState(() {
        displayedText = displayedText.substring(0, displayedText.length - 1);
      });
    } else {
      timer.cancel();
      setState(() {
        currentIndex = (currentIndex + 1) % texts.length;
        backgroundColor = getRandomColor();
      });
      startTyping();
    }
```

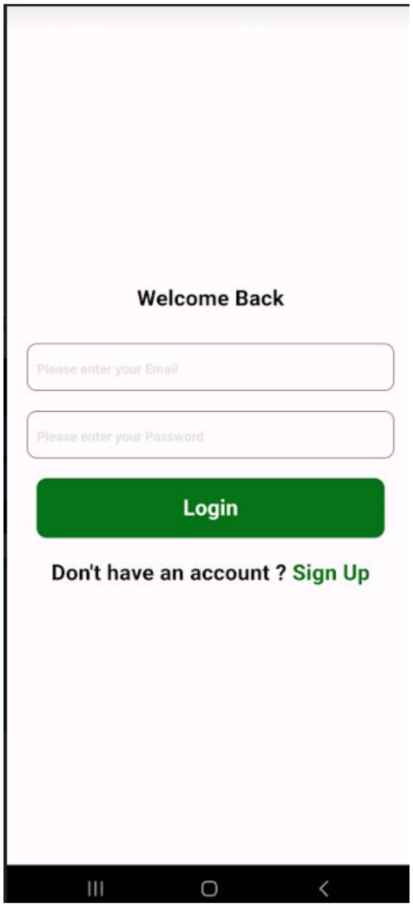
```
 });
}

Color getRandomColor() {
  Random random = Random();
  return Color.fromARGB(
    255,
    random.nextInt(256),
    random.nextInt(256),
    random.nextInt(256),
  );
}

@override
Widget build(BuildContext context) {
  Size size = MediaQuery.of(context).size;
  return Scaffold(
    body: Column(
      mainAxisAlignment: MainAxisAlignment.start,
      children: [
        Container(
          height: size.height * 0.7,
          child: AnimatedContainer(
            duration: Duration(seconds: 1),
            color: backgroundColor,
            child: Center(
              child: Text(
                displayedText,
                style: TextStyle(fontSize: 30, color: Colors.white),
              ),
            ),
          ),
        ),
        Container(
          color: backgroundColor,
          child: Container(
              height: size.height * 0.3,
              decoration: BoxDecoration(
                color: MyColors.black,
                borderRadius: BorderRadius.only(
                  topLeft: Radius.circular(30.0),
                  topRight: Radius.circular(30.0),
                ),
              ),
              child: Column(
                children: [
                  SizedBox(
                    height: size.height*0.05,
                  ),
                  Padding(
                    padding: const EdgeInsets.only(left: 10, right: 10),
                    child: ElevatedButton(
                      style: ElevatedButton.styleFrom(
                        backgroundColor: MyColors.greyShadow,
                        disabledBackgroundColor: MyColors.veryLightBlue,
                        minimumSize: Size(double.infinity, 50),
                        shape: RoundedRectangleBorder(
                          borderRadius: BorderRadius.circular(40),
                        ),
                      ),
                      onPressed: () {
                        Navigator.push(
                          context,
                          MaterialPageRoute(
                            builder: (context) => Home(),
                          ),
                        );
                      },
                      child: Row(
                        mainAxisAlignment: MainAxisAlignment.center,
                  children:[
                    Image.asset(
                      'assets/icons/google.png',
                      width: 50, // Set the desired width
                      height: 50, // Set the desired height
                      fit: BoxFit.cover,
                    ),
                    SizedBox(
                      width: 20
                    ),
                    Text(
                      'Continue with Google',
                      style: TextStyle(
                        color: MyColors.white,
                        fontSize: 15,
                        fontWeight: FontWeight.w500,
                        fontFamily: 'Nunito',
                      ),
                    ),
                  ]
              ),
            ),
          ),
          SizedBox(
            height: 10,
          ),
          Padding(
            padding: const EdgeInsets.only(left: 10, right: 10),
            child: ElevatedButton(
              style: ElevatedButton.styleFrom(
                backgroundColor: MyColors.greyShadow,
                disabledBackgroundColor: MyColors.veryLightBlue,
                minimumSize: Size(double.infinity, 50),
                shape: RoundedRectangleBorder(
                  borderRadius: BorderRadius.circular(40),
                ),
              ),
              onPressed: () {
                Navigator.push(
                  context,
                  MaterialPageRoute(
                    builder: (context) => AuthScreen(),
                  ),
                );
              },
              child: Text(
                'Login',
                style: TextStyle(
                  color: MyColors.white,
                  fontSize: 15,
                  fontWeight: FontWeight.w500,
                  fontFamily: 'Nunito',
                ),
              ),
            ),
          ),
          SizedBox(
            height: 10,
          ),
          Padding(
            padding: const EdgeInsets.only(left: 10, right: 10),
            child: ElevatedButton(
              style: ElevatedButton.styleFrom(
                backgroundColor: MyColors.greyShadow,
                disabledBackgroundColor: MyColors.veryLightBlue,
                minimumSize: Size(double.infinity, 50),
                shape: RoundedRectangleBorder(
                  borderRadius: BorderRadius.circular(40),
                ),
              ),
                        onPressed: () {
                          Navigator.push(
                            context,
                            MaterialPageRoute(
                              builder: (context) => AuthScreen(),
                            ),
                          );
                        },
                        child: Text(
                          'Signup',
                          style: TextStyle(
                            color: MyColors.white,
                            fontSize: 15,
                            fontWeight: FontWeight.w500,
                            fontFamily: 'Nunito',
                          ),
                        ),
                      ),
                    ),
                  ],
                )),
          )
        ],
      ),
    );
  }
}
```

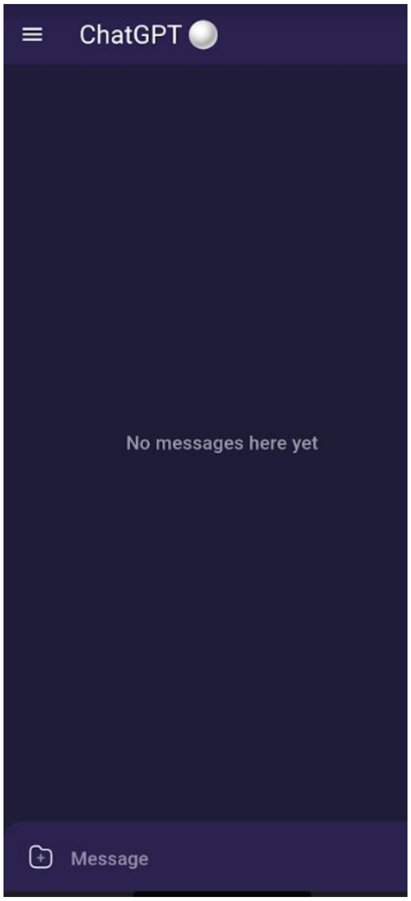
Output -

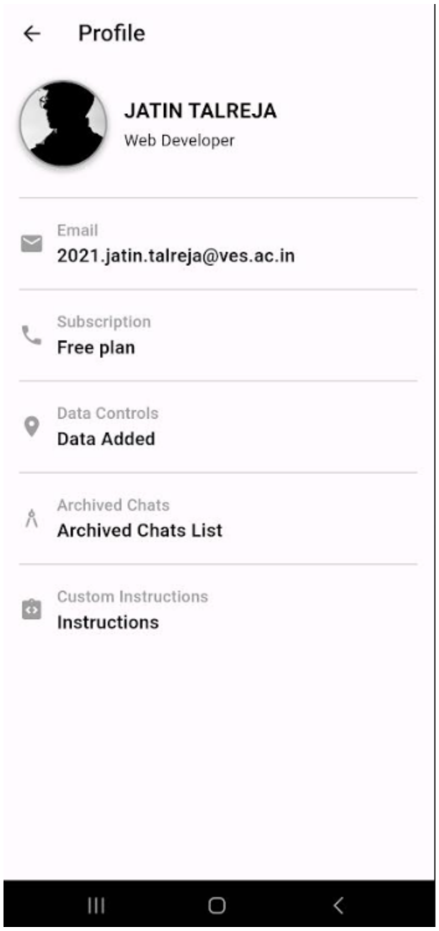

Let's Design
Continue With Google
Login
Signup

->


ChatGPT
Get Started
Login
Signup
OpenAI


Welcome Back
Please enter your Email
Please enter your Password
Login
Don't have an account ? Sign Up


ChatGPT
No messages here yet
Message



Profile

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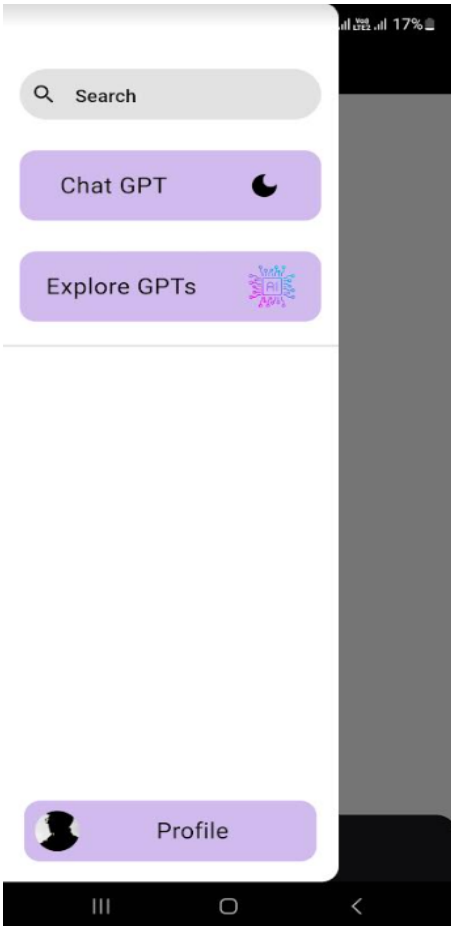
Free plan

Data Controls
Data Added

Archived Chats
Archived Chats List

Custom Instructions
Instructions



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