

MPL EXP 5

NAME: ARYAN ANIL PATANKAR

CLASS: D15A

ROLL NO: 33

AIM: To apply navigation, routing and gestures in Flutter app.

Theory:

In Flutter, the screens and pages are known as routes, and these routes are just a widget.

In Android, a route is similar to an Activity.

In any mobile app, navigating to different pages defines the workflow of the application, and the way to handle the navigation is known as routing. Flutter provides a basic routing class `MaterialPageRoute` and two methods `Navigator.push()` and `Navigator.pop()` that shows how to navigate between two routes. The following steps are required to start navigation in your application.

Gestures enable the app to respond to user interactions, making the application more dynamic and responsive.

➤ Navigation and Routing in Flutter

Navigation is the process of moving between different screens or pages in an app. Flutter provides a simple and effective way to handle this through the use of the `Navigator` widget and routes.

1. Using Navigator Widget

The `Navigator` widget manages a stack of routes, allowing for pushing and popping routes on the stack.

- **Pushing a Route:** To navigate to a new screen, use `Navigator.push()`.
- **Popping a Route:** To go back to the previous screen, use `Navigator.pop()`.

```
ElevatedButton(  
  onPressed: () {
```

```
Navigator.push(
```

Aryan Patankar – D15A / 33

```
  context,  
  MaterialPageRoute(builder: (context) => SecondScreen()),  
);},  
);
```

2. Named Routes

Flutter also allows the use of named routes to navigate, which can make the routing process cleaner, especially in larger applications.

```
MaterialApp(  
  initialRoute: '/',  
  routes: {  
    '/': (context) => HomeScreen(),  
    '/second': (context) => SecondScreen(),  
  },  
);
```

Navigate to the route using `Navigator.pushNamed()`
`Navigator.pushNamed(context, '/second');`

3. Handling Gestures in Flutter

Gestures refer to user interactions with the app, such as taps, swipes, pinches, and drags. Flutter provides several widgets and gesture detectors to handle these interactions.

4. Tap Gestures

The most common gesture is the tap, which can be handled using the `GestureDetector` widget or specific buttons like `InkWell` or `ElevatedButton`.

5. Long Press Gesture

For long press gestures, Flutter provides the `onLongPress` callback in `GestureDetector` or `InkWell`.

6. Swipe and Drag Gestures

Flutter also provides swipe and drag gesture handling. The `onHorizontalDragUpdate` and `onVerticalDragUpdate` callbacks are used for dragging gestures.

Main.dart

```
import 'package:flutter/material.dart';
import
'features/auth/screens/home_screen.dart';
import
'features/auth/screens/search_screen.dart';
import
'features/auth/screens/profile_page.dart';
import
'features/auth/screens/music_screen.dart';
import
'features/auth/screens/sign_in_screen.dart';
import
'features/auth/screens/loading_screen.dart';
import
'features/auth/screens/register_screen.dart';
import
'package:flutter_riverpod/flutter_riverpod.
dart';
import 'config/theme.dart';
```

```
void main() {
  runApp(
    const ProviderScope(
      child: SpotifyClone(),
    ),
  );
}
class SpotifyClone extends
StatelessWidget {
  const SpotifyClone({Key? key}) :
super(key: key);
// Keep instances of screens to maintain
their state
  final List<Widget> _screens = const [
    HomeScreen(),
    SearchScreen(),
    MusicScreen(),
    ProfileScreen(),
  ];
```

```
@override
Widget build(BuildContext context) {
  return MaterialApp(
    debugShowCheckedModeBanner:
false,
    title: 'Spotify Clone',
    theme: AppTheme.lightTheme,
    home: const LoadingScreen(), //
Changed initialRoute to home
    routes: {
      '/signin': (context) => const
SignInScreen(),
      '/main': (context) => const
MainScreen(),
    },
  );
}
```

```
class MainScreen extends StatefulWidget
{
  const MainScreen({Key? key}) :
super(key: key);
```

```
@override
State<MainScreen> createState() =>
_MainScreenState();
}
```

```
class _MainScreenState extends
State<MainScreen> {
  int _selectedIndex = 0;
  type: BottomNavigationBarType.fixed,
  backgroundColor: const
Color(0xFF282828),
  selectedItemColor: Colors.white,
  unselectedItemColor: Colors.grey,
  selectedIconTheme: const
IconThemeData(
    size: 28,
```

```

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

@override
Widget build(BuildContext context) {
  return WillPopScope(
    // Handle back button press
    onWillPop: () async {
      if (_selectedIndex != 0) {
        setState(() {
          _selectedIndex = 0;
        });
        return false;
      }
      return true;
    },
    child: Scaffold(
      // Use IndexedStack to preserve state
      of all screens
      body: IndexedStack(
        index: _selectedIndex,
        children: _screens,
      ),
      bottomNavigationBar: Theme(
        data: Theme.of(context).copyWith(
          canvasColor: Colors.black,
        ),
        child: BottomNavigationBar(
          currentIndex: _selectedIndex,
          onTap: _onItemTapped,

```

```

BottomNavigationBarItem(
  icon: Padding(
    padding:
EdgeInsets.only(bottom: 4),
    child:
Icon(Icons.library_music),
  ),

```

```

    color: Colors.white,
  ),
  unselectedIconTheme: const
IconThemeData(
  size: 24,
  color: Colors.grey,
),
  selectedLabelStyle: const
TextStyle(
  fontSize: 12,
  fontWeight: FontWeight.bold,
),
  unselectedLabelStyle: const
TextStyle(
  fontSize: 12,
),
  items: const [
    BottomNavigationBarItem(
      icon: Padding(
        padding:
EdgeInsets.only(bottom: 4),
        child: Icon(Icons.home_filled),
      ),
      label: 'Home',
    ),
    BottomNavigationBarItem(
      icon: Padding(
        padding:
EdgeInsets.only(bottom: 4),
        child: Icon(Icons.search),
      ),
      label: 'Search',
    ),
  ],

```

Sign_in.dart

```

import 'package:flutter/material.dart';
import 'package:spotify_clone/main.dart';

```

```

import 'register.dart';

```

```

class SignInScreen extends StatefulWidget

```

```

        label: 'Library',
      ),
      BottomNavigationBarItem(
        icon: Padding(
          padding:
            EdgeInsets.only(bottom: 4),
          child: Icon(Icons.person),
        ),
        label: 'Profile',
      ),
    ],
  ),
),
),
);
}
}

Navigator.pop(context),
),
const SizedBox(width: 12),
Image.asset(
  'assets/images/spotify_logo.png',
  height: 150,
),

```

```

{
  const SignInScreen({Key? key}) :
    super(key: key);

  @override
  State<SignInScreen> createState() =>
    _SignInScreenState();
}

class _SignInScreenState extends
  State<SignInScreen> {
  bool _obscurePassword = true;

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: const
        Color(0xFF1C1B1B),
      body: SafeArea(
        child: SingleChildScrollView(
          child: Padding(
            padding: const
              EdgeInsets.all(24.0),
            child: Column(
              crossAxisAlignment:
                CrossAxisAlignment.start,
              children: [
                Row(
                  children: [
                    IconButton(
                      icon: const
                        Icon(Icons.arrow_back, color:
                          Colors.white),
                      onPressed: () =>
                        hintText: 'Enter Username Or
                          Email',
                      hintStyle: const
                        TextStyle(color: Colors.grey),
                      filled: true,
                      fillColor:
                        Colors.grey.withOpacity(0.1),
                      border: OutlineInputBorder(

```



```

const SizedBox(height: 16),
Align(
  alignment:
Alignment.centerRight,
  child: TextButton(
    onPressed: () {},
    child: const Text(
      'Recovery Password',
      style: TextStyle(color:
Colors.grey),
    ),
  ),
),
const SizedBox(height: 32),
SizedBox(
  width: double.infinity,
  height: 56,
  child: ElevatedButton(
    onPressed: () {
      Navigator.push(
        context,
        MaterialPageRoute(
          builder: (context) =>
const MainScreen()),
      );
    },
    style:
ElevatedButton.styleFrom(
  backgroundColor: const
Color(0xFF42C83C),
  shape:
RoundedRectangleBorder(
  borderRadius:
BorderRadius.circular(30),
Colors.grey),
),
    TextButton(
      onPressed: () {
        Navigator.push(
          context,
          MaterialPageRoute(
            builder: (context) =>

```

```

      ),
    ),
  ),
const SizedBox(height: 16),
const Center(
  child: Text(
    'Or',
    style: TextStyle(color:
Colors.grey),
  ),
),
const SizedBox(height: 16),
Row(
  mainAxisAlignment:
MainAxisAlignment.center,
  children: [

Image.asset('assets/images/google_logo.png', height: 40),
const SizedBox(width: 20),

Image.asset('assets/images/apple_logo.png', height: 40),
],
),
const SizedBox(height: 32),
Row(
  mainAxisAlignment:
MainAxisAlignment.center,
  children: [
const Text(
  'Not A Member? ',
  style: TextStyle(color:

Register_screen.dart
import 'package:flutter/material.dart';
import
'package:spotify_clone/features/auth/screens/sign_in_screen.dart';
import
'package:spotify_clone/features/auth/screens/register.dart';

```

```

const Register(),
    );
    },
    child: const Text(
      'Register Now',
      style: TextStyle(color:
Colors.blue),
    ),
  ),
],
),
),
),
),
),
),
);
}
}

```

```

child: Column(
  crossAxisAlignment:
CrossAxisAlignment.center,
  children: [
    Image.asset(
      'assets/images/spotify_logo.png',
      width: //235

```

```

class RegisterScreen extends
StatelessWidget {
  const RegisterScreen({Key? key}) :
super(key: key);

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: const
Color(0xFF1C1B1B),
      body: SafeArea(
        child: Column(
          children: [
            Padding(
              padding: const
EdgeInsets.all(16.0),
              child: Row(
                children: [
                  IconButton(
                    icon: const
Icon(Icons.arrow_back, color:
Colors.white),
                    onPressed: () =>
Navigator.pop(context),
                  ),
                ],
              ),
            ),
            Expanded(
              child: SingleChildScrollView(
                child: Padding(
                  padding: const
EdgeInsets.symmetric(horizontal: 24.0),
                  builder:
(context) =>
Register(), //
Navigate to ThirdScreen
                );
                // Handle register
              },
              style:

```



```

        500,
        height: 150,
      ),
      const SizedBox(height: 32),
      const Text(
        'Enjoy Listening To Music',
        style: TextStyle(
          color: Colors.white,
          fontSize: 24,
          fontWeight:
FontWeight.bold,
        ),
      ),
      const SizedBox(height: 16),
      const Text(
        'Spotify is a proprietary
Swedish audio\streaming and media
services provider',
        textAlign:
TextAlign.center,
        style: TextStyle(
          color: Colors.grey,
          fontSize: 16,
        ),
      ),
      const SizedBox(height: 32),
      const SizedBox(
        width: double.infinity,
        height: 56,
        child: ElevatedButton(
          onPressed: () {
            Navigator.push(
              context,
              MaterialPageRoute(
style: TextStyle(
          color: Colors.white,
          fontSize: 16,
        ),
      ),
    ],
  ),

```

```

ElevatedButton.styleFrom(
          backgroundColor: const
Color(0xFF42C83C),
          shape:
RoundedRectangleBorder(
            borderRadius:
BorderRadius.circular(30),
          ),
        ),
        child: const Text(
          'Register',
          style: TextStyle(
            color: Colors.white,
            fontSize: 16,
            fontWeight:
FontWeight.bold,
          ),
        ),
      ),
    ),
    const SizedBox(height: 16),
    TextButton(
      onPressed: () {
        Navigator.push(
          context,
          MaterialPageRoute(
            builder: (context) =>
              SignInScreen(), //
Navigate to ThirdScreen
          );
          // Handle sign in
        },
        child: const Text(
          'Sign in',

```

Home_screen.dart

```

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

// First, add this typography class at the
top of your file

```

```

    ),
  ),
),
],
),
),
);
}
}

```

```

body: Stack(
  children: [
    Container(
      decoration: BoxDecoration(
        gradient: LinearGradient(
          begin: Alignment.topCenter,
          end: Alignment.bottomCenter,
          colors: [

```

```

class AppTypography {
  static final TextStyle displayLarge =
    GoogleFonts.poppins(
      fontSize: 24,
      fontWeight: FontWeight.bold,
      letterSpacing: -0.3,
      color: Colors.white,
    );

  static final TextStyle titleMedium =
    GoogleFonts.poppins(
      fontSize: 16,
      fontWeight: FontWeight.w600,
      letterSpacing: -0.2,
      color: Colors.white,
    );

  static final TextStyle bodySmall =
    GoogleFonts.poppins(
      fontSize: 12,
      fontWeight: FontWeight.normal,
      letterSpacing: 0.1,
      color: Colors.grey[400],
    );
}

class HomeScreen extends
StatelessWidget {
  const HomeScreen({Key? key}) :
    super(key: key);

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      8),
      decoration:
        BoxDecoration(
          color: const
            Color(0xFF1DB954),
          borderRadius:
            BorderRadius.circular(20),
        ),

```



```

        title: 'On Repeat',
        image:
'assets/images/on_repeat.jpg',
        isLarge: true,
    ),
    const PlaylistSection(
        title: 'Trending Now India',
        image:
'assets/images/trending_india.jpg',
        isLarge: true,
    ),
    const PlaylistSection(
        title: 'Liked Songs',
        image:
'assets/images/liked_songs.jpg',
        isLarge: true,
    ),
    const SectionTitle(title: 'Your
top mixes'),
    SingleChildScrollView(
        scrollDirection:
Axis.horizontal,
        padding: const
EdgeInsets.symmetric(horizontal: 16),
        child: Row(
            children: const [
                MixCard(
                    title: 'Arijit Singh Mix',
                    subtitle: 'Pritam,
Vishal-Shekhar and Atif Aslam',
                    image:
'assets/images/arijit.jpg',
                ),

```

```

const PlaylistSection({
    Key? key,
    required this.title,
    required this.image,
    this.isLarge = false,
}) : super(key: key);

```

```

@override

```

```

    ),
    SizedBox(width: 16),
    MixCard(
        title: 'R&B Mix',
        subtitle: 'Kali Uchis,
SZA',
        image:
'assets/images/rnb.jpg',
    ),
    ],
    ),
    ),
    const SizedBox(height: 100),
    ],
    ),
    ),
    const Positioned(
        left: 0,
        right: 0,
        bottom: 0,
        child: NowPlayingBar(),
    ),
    ],
    ),
    );
}
}

```

```

class PlaylistSection extends
StatelessWidget {
    final String title;
    final String image;
    final bool isLarge;

```

```

        size: 24,
    ),
    onPressed: () {},
    ),
    ),
    ],
    ),

```

```

Widget build(BuildContext context) {
  return Padding(
    padding: const EdgeInsets.all(16.0),
    child: Row(
      children: [
        ClipRRect(
          borderRadius:
BorderRadius.circular(4),
          child: Image.asset(
            image,
            width: isLarge ? 80 : 60,
            height: isLarge ? 80 : 60,
            fit: BoxFit.cover,
          ),
        ),
        const SizedBox(width: 16),
        Expanded(
          child: Text(
            title,
            style:
AppTypography.titleMedium, // Updated
typography
            overflow: TextOverflow.ellipsis,
// Added overflow handling
            maxLines: 2,
          ),
        ),
        Material(
          color: Colors.transparent,
          child: IconButton(
            icon: const Icon(
              Icons.more_vert,
              color: Colors.white,

const SizedBox(height: 8),
          Text(
            title,
            style:
AppTypography.titleMedium, // Updated
typography
            overflow: TextOverflow.ellipsis, //
Added overflow handling

```

```

);
}
}

class MixCard extends StatelessWidget {
  final String title;
  final String subtitle;
  final String image;

  const MixCard({
    Key? key,
    required this.title,
    required this.subtitle,
    required this.image,
  }) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return SizedBox(
      width: 160,
      child: Column(
        crossAxisAlignment:
CrossAxisAlignment.start,
        children: [
          ClipRRect(
            borderRadius:
BorderRadius.circular(4),
            child: Image.asset(
              image,
              width: 160,
              height: 160,
              fit: BoxFit.cover,
            ),
          ),
          width: 40,
          height: 40,
          fit: BoxFit.cover,
        ),
      ),
      const SizedBox(width: 12),
      Expanded(
        child: Column(

```

```

        maxLines: 1,
      ),
      const SizedBox(height: 4),
      Text(
        subtitle,
        style: AppTypography.bodySmall,
// Updated typography
        overflow: TextOverflow.ellipsis, //
Added overflow handling
        maxLines: 2,
      ),
    ],
  ),
);
}
}

```

```

class NowPlayingBar extends
StatelessWidget {
  const NowPlayingBar( {Key? key}) :
super(key: key);

```

```

  @override
  Widget build(BuildContext context) {
    return Container(
      color: const Color(0xFF282828),
      padding: const EdgeInsets.all(8),
      child: Row(
        children: [
          ClipRRect(
            borderRadius:
BorderRadius.circular(4),
            child: Image.asset(
              'assets/images/perfect_1d.jpg',
            ),
          ),
          Material(
            color: Colors.transparent,
            child: IconButton(
              icon: const Icon(
                Icons.favorite_border,
                color: Colors.white,
                size: 24,

```

```

            crossAxisAlignment:
CrossAxisAlignment.start,
            mainAxisAlignment:
MainAxisSize.min,
            children: [
              Text(
                'Perfect',
                style:
AppTypography.titleMedium, // Updated
typography
                overflow:
TextOverflow.ellipsis,
              ),
              Text(
                'One Direction',
                style:
AppTypography.bodySmall, // Updated
typography
                overflow:
TextOverflow.ellipsis,
            ),
          ],
        ),
        Material(
          color: Colors.transparent,
          child: IconButton(
            icon: const Icon(
              Icons.devices_outlined,
              color: Colors.white,
              size: 24,
            ),
            onPressed: () {},
          ),
          style:
AppTypography.displayLarge, // Updated
typography
        ),
      );
    }
  }
}

```

```

    ),
    onPressed: () {},
  ),
),
Material(
  color: Colors.transparent,
  child: IconButton(
    iconSize: 32,
    icon: const Icon(
      Icons.play_circle_filled,
      color: Colors.white,
    ),
    onPressed: () {},
  ),
),
),
],
),
);
}
}

```

```

class SectionTitle extends StatelessWidget
{
  final String title;

```

```

  const SectionTitle({Key? key, required
this.title}) : super(key: key);

```

```

  @override
  Widget build(BuildContext context) {
    return Padding(
      padding: const EdgeInsets.all(16.0),
      child: Text(
        Title,

```

Search_screen.dart

```

import 'package:flutter/material.dart';
import
'package:flutter_riverpod/flutter_riverpod.
dart';
import
'package:spotify_clone/models/search_res
ult.dart';

```

```

Future<void> _performSearch(String
query) async {
  if (query.isEmpty) return;

  setState(() {
    _isLoading = true;
  });

```

```
import
'package:spotify_clone/services/youtube_service.dart';
import
'package:spotify_clone/providers/audio_provider.dart';
import
'package:spotify_clone/services/youtube_explode_service.dart';
```

```
final youtubeServiceProvider =
Provider((ref) => YouTubeService());
final audioPlayerProvider =
StateNotifierProvider<AudioPlayerNotifier, AudioPlayerState>((ref) =>
AudioPlayerNotifier());
```

```
class SearchScreen extends
ConsumerStatefulWidget {
  const SearchScreen({Key? key}) :
super(key: key);
```

```
  @override
  ConsumerState<SearchScreen>
createState() => _SearchScreenState();
}
```

```
class _SearchScreenState extends
ConsumerState<SearchScreen> {
  final TextEditingController
_searchController =
TextEditingController();
  List<SearchResult> _searchResults = [];
  bool _isLoading = false;
```

```
  body: SafeArea(
    child: Column(
      children: [
        Padding(
          padding: const
EdgeInsets.all(16.0),
          child: TextField(
```

```
      final youtubeService =
ref.read(youtubeServiceProvider);
      final results = await
youtubeService.searchSongs(query);
```

```
      setState(() {
        _searchResults = results;
        _isLoading = false;
      });
    }
  }
```

```
  Future<void> _playSong(SearchResult
song) async {
    final youtubeService =
ref.read(youtubeServiceProvider);
    final audioUrl = await
youtubeService.getAudioUrl(song.id);
```

```
    if (audioUrl != null) {
      await
ref.read(audioPlayerProvider.notifier).play
Song(audioUrl, song);
    }
  }
```

```
  @override
  Widget build(BuildContext context) {
    final audioState =
ref.watch(audioPlayerProvider);
```

```
    return Scaffold(
      backgroundColor: const
Color(0xFF1C1B1B),
      _searchResults[index];
      final isPlaying =
audioState.currentSong?.id == song.id;
```

```
    return ListTile(
      leading:
Image.network(song.thumbnail),
      title: Text(
```



```

        controller: _searchController,
        style: const TextStyle(color:
Colors.white),
        decoration: InputDecoration(
          hintText: 'Search for songs...',
          hintStyle: const
TextStyle(color: Colors.grey),
          filled: true,
          fillColor:
Colors.grey.withOpacity(0.1),
          border: OutlineInputBorder(
            borderRadius:
BorderRadius.circular(12),
            borderSide: BorderSide.none,
          ),
          suffixIcon: IconButton(
            icon: const Icon(Icons.search,
color: Colors.grey),
            onPressed: () =>
_performSearch(_searchController.text),
          ),
          onSubmitted: _performSearch,
        ),
      ),
      if (!_isLoading)
        const CircularProgressIndicator()
      else
        Expanded(
          child: ListView.builder(
            itemCount:
_searchResults.length,
            itemBuilder: (context, index) {
              final song =
EdgeInsets.all(16),
              color: Colors.black,
              child: Row(
                children: [
                  Image.network(
audioState.currentSong!.thumbnail,
                    height: 50,

```

```

                    song.title,
                    style: const
TextStyle(color: Colors.white),
                ),
                subtitle: Text(
                  song.channelTitle,
                  style: const
TextStyle(color: Colors.grey),
                ),
                trailing: IconButton(
                  icon: Icon(
                    isPlaying &&
audioState.isPlaying
                      ? Icons.pause
                      : Icons.play_arrow,
                    color: Colors.white,
                  ),
                  onPressed: () {
                    if (isPlaying) {
                      ref.read(audioPlayerProvider.notifier).togglePlay();
                    } else {
                      _playSong(song);
                    }
                  },
                ),
              ),
            ),
          ),
          if (audioState.currentSong != null)
            Container(
              padding: const
lePlay();
            ),
          ],
        ),
      ],
    ),
  ],
),

```

```

    ),
    const SizedBox(width: 16),
    Expanded(
      child: Column(
        crossAxisAlignment:
CrossAxisAlignment.start,
        children: [
          Text(
audioState.currentSong!.title,
            style: const
TextStyle(color: Colors.white),
            maxLines: 1,
            overflow:
TextOverflow.ellipsis,
          ),
          Text(
audioState.currentSong!.channelTitle,
            style: const
TextStyle(color: Colors.grey),
          ),
        ],
      ),
    ),
    IconButton(
      icon: Icon(
        audioState.isPlaying ?
Icons.pause : Icons.play_arrow,
        color: Colors.white,
      ),
      onPressed: () {

```

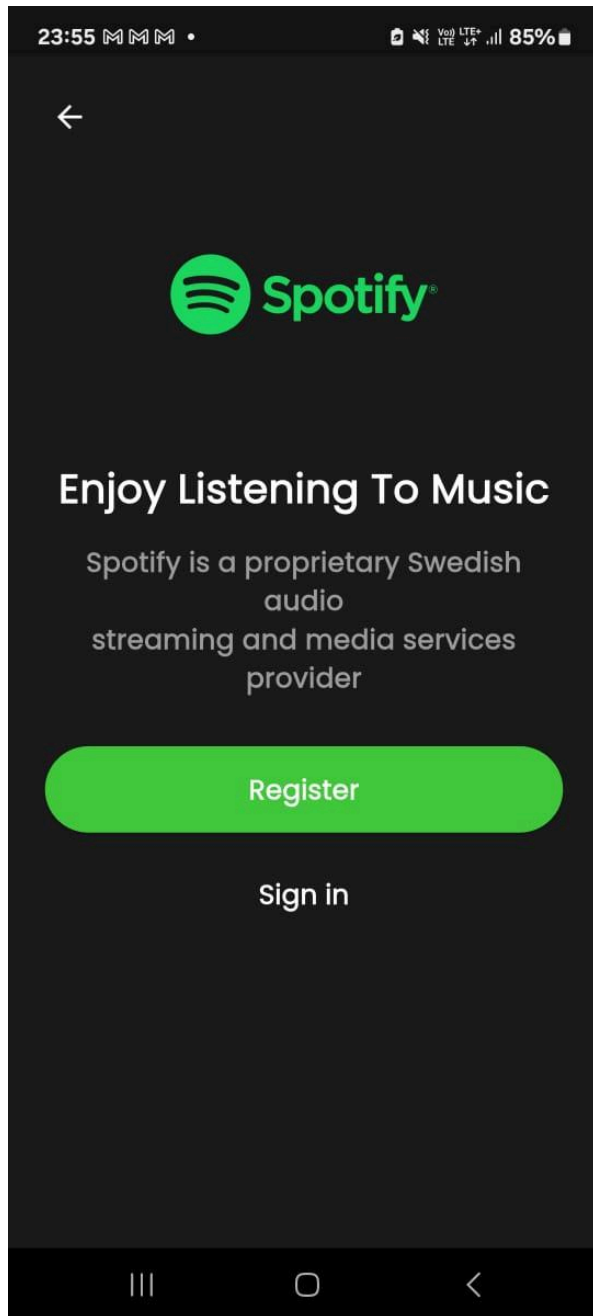
ref.read(audioPlayerProvider.notifier).togg

OUTPUT:

Firstly the user will be met with the splash page

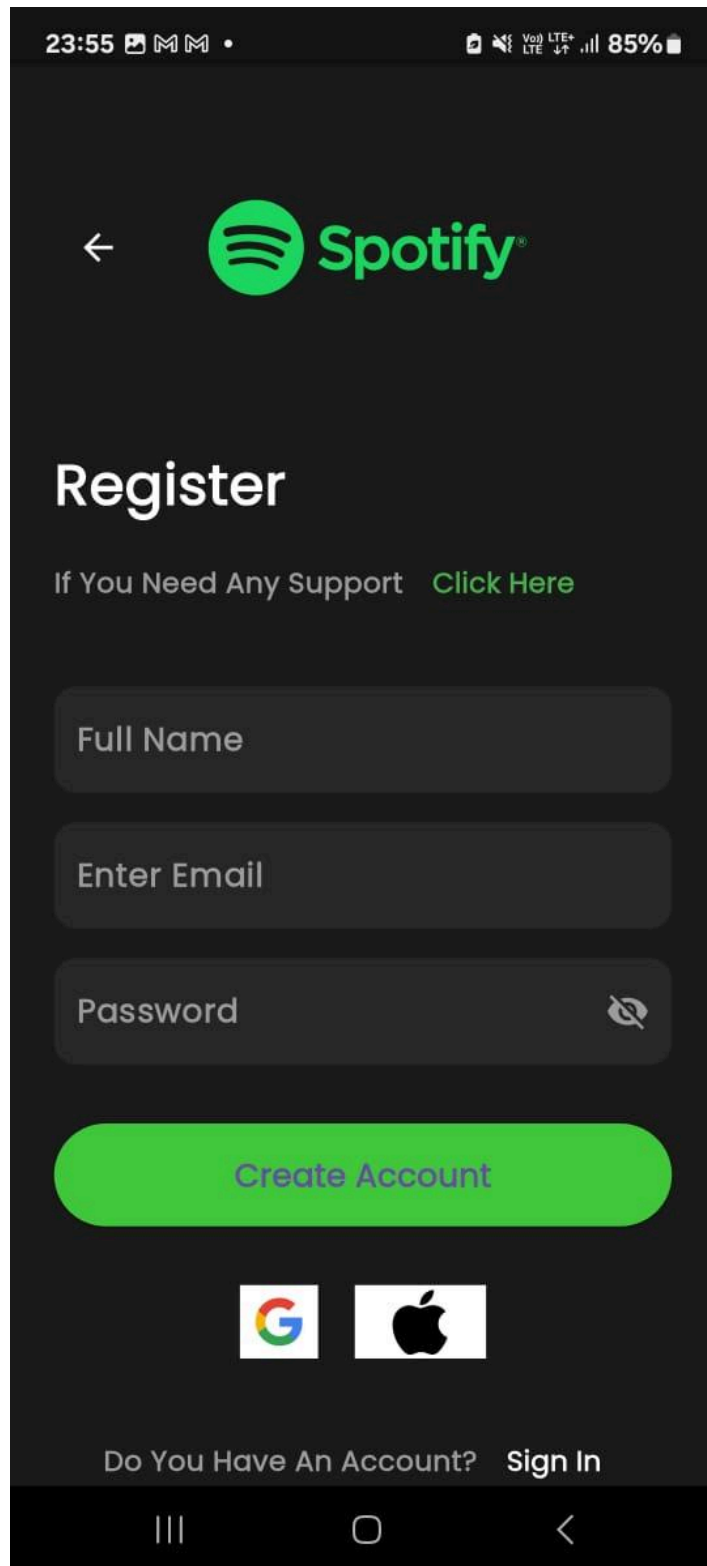


After that, the register or sign in page will appear





From here, the user can further navigate to either the register or sign in page

(Register)




Sign_in page



Sign In



If You Need Any Support [Click Here](#)



[Recovery Password](#)

Sign In

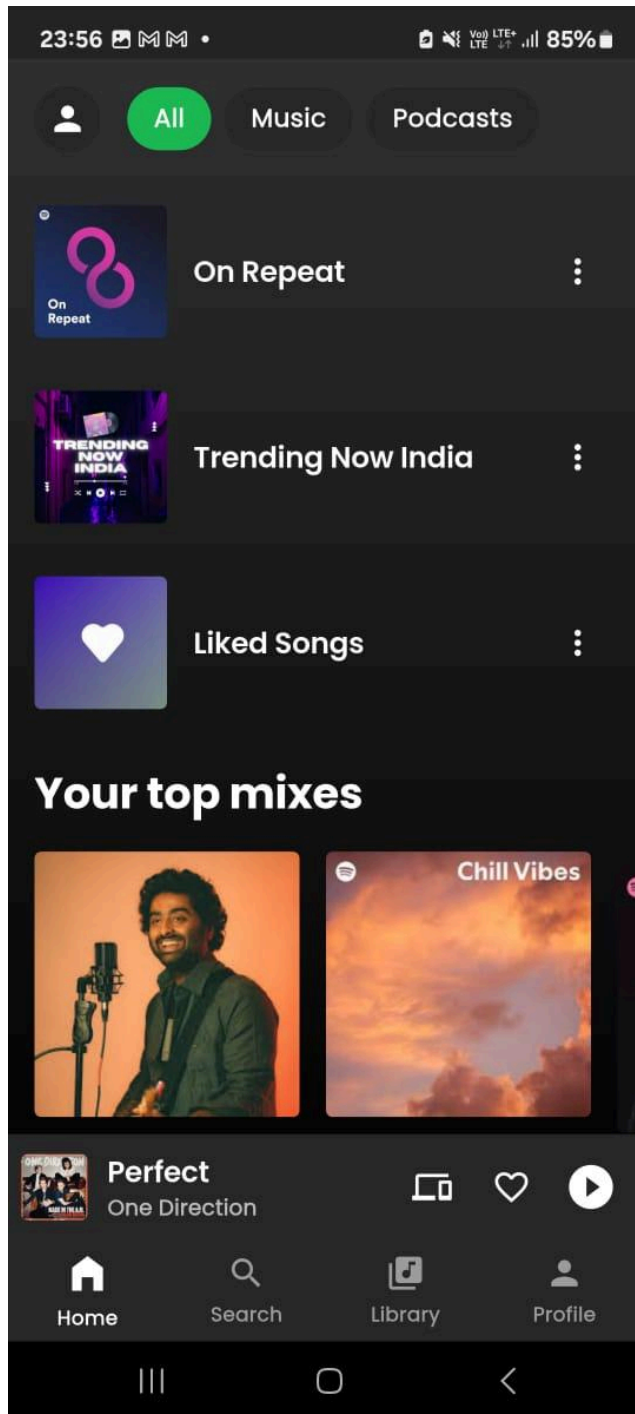
Or



Not A Member? [Register Now](#)

After registering/signup, the user will be navigated to the main home screen of the app

Home_page.dart



Further here we have used bottom navigation to switch between home,search and profile screens

Search_page.dart

