MPL EXPERIMENT 2

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AIM:To design Flutter UI by including common widgets

1,Introduction

Flutter is an open-source UI framework by Google that enables developers to build cross-platform applications with a single codebase. The UI in Flutter is built using **widgets**, which are the fundamental building blocks of the application.

Widgets in Flutter can be classified into various categories, such as structural widgets, layout widgets, interactive widgets, and styling widgets. These widgets help in designing complex UI components efficiently and responsively.

2.Types of widgets

Flutter widgets are classified into the following types based on their functionality:

1. Structural Widgets (Scaffolding Widgets)

These widgets define the basic structure of an application.

- **Scaffold:** Provides a framework with an app bar, body, floating action button, drawer, etc.
- **AppBar:** Displays the top navigation bar with titles, actions, and menus.
- **Drawer:** A side navigation panel for navigating through different screens.

2. Layout Widgets

These widgets help in arranging other widgets on the screen.

- **Container:** A flexible widget for holding and styling child widgets.
- **Column:** Arranges widgets vertically.
- **Row:** Arranges widgets horizontally.
- **Stack:** Allows widgets to be placed on top of each other.

- **Expanded:** Expands widgets to fill available space.
- **SizedBox:** Provides spacing between widgets.

3. Interactive Widgets

These widgets accept user input and interactions.

- **TextField:** Allows users to enter text input.
- **ElevatedButton:** A clickable button with elevation.
- **OutlinedButton:** A button with an outlined border.
- **IconButton:** A clickable icon button.
- **GestureDetector:** Detects gestures like tap, swipe, and drag.
- **Switch:** A toggle button for enabling/disabling options.

4. Styling & Display Widgets

These widgets help in styling and displaying content.

- **Text:** Displays text content.
- **Image:** Displays an image from assets or a URL.
- **Icon:** Displays an icon from Material or custom icons.
- **Card:** A box with elevation and rounded corners for content display.
- **Chip:** A small, compact element that represents information.

5. Scrolling & List Widgets

These widgets handle large lists and scrolling content.

- **ListView:** Displays a scrollable list of items.
- **GridView:** Displays items in a grid format.
- **SingleChildScrollView:** Makes a child widget scrollable.
- **PageView:** Creates swipeable pages.

3.**Commonly used widgets:**

1. Scaffold (Basic Page Structure)

A *Scaffold* provides a basic structure for a screen, including an **AppBar, Floating Action Button, Drawer, and Body**.

2.**Container (A Flexible Box for UI Design)**

A *Container* is used for styling, padding, and positioning elements.

3.**Row and Column (Arranging Widgets)**

A *Row* arranges widgets horizontally, while a `Column` arranges them vertically.

4.**Stack (Overlapping Widgets)**

A Stack places widgets on top of each other.

5.**ListView (Scrollable List)**

A ListView is used for displaying a scrollable list of items.

6.**ElevatedButton (Clickable Button)**

Buttons provide user interactions in Flutter.

7. TextField (User Input Field)

A TextField allows users to enter data.

CODE

Genre_card.dart

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

class GenreCard extends StatelessWidget {
  final String title;
  final Color color;

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

  @override
  Widget build(BuildContext context) {
    return Container(
      decoration: BoxDecoration(
```

```dart
      color: color,

      borderRadius: BorderRadius.circular(4),

    ),

    child: Center(

      child: Text(

        title,

        style: const TextStyle(

          fontSize: 16,

          fontWeight: FontWeight.bold,

        ),

      ),

    ),

  );

 }

}
```

Now_playing_bar.dart

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


class NowPlayingBar extends StatelessWidget {

 const NowPlayingBar({Key? key}) : super(key: key);
```

```dart
@override

Widget build(BuildContext context) {

  return Container(

    color: Colors.grey[900],

    padding: const EdgeInsets.all(8),

    child: SafeArea(

      top: false,

      child: Row(

        children: [

          ClipRRect(

            borderRadius: BorderRadius.circular(4),

            child: Image.asset(

              'assets/album_cover.jpg',

              width: 48,

              height: 48,

              fit: BoxFit.cover,

            ),

          ),

          const SizedBox(width: 12),

          const Expanded(
```

```dart
          child: Column(
            crossAxisAlignment: CrossAxisAlignment.start,
            mainAxisSize: MainAxisSize.min,
            children: [
              Text(
                'Perfect',
                style: TextStyle(fontWeight: FontWeight.bold),
              ),
              Text(
                'One Direction',
                style: TextStyle(color: Colors.grey, fontSize: 12),
              ),
            ],
          ),
        ),
        IconButton(
          icon: const Icon(Icons.play_arrow),
          onPressed: () {},
        ),
      ],
    ),
```

```dart
    ),
  );
 }
}
```

Playlist_card.dart

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


class PlaylistCard extends StatelessWidget {
  final String title;
  final String saves;


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


  @override
  Widget build(BuildContext context) {
```

```dart
return Container(

  padding: const EdgeInsets.all(16),

  decoration: BoxDecoration(

    color: Colors.grey[900],

    borderRadius: BorderRadius.circular(4),

  ),

  child: Row(

    children: [

      Container(

        width: 48,

        height: 48,

        decoration: BoxDecoration(

          color: Colors.grey[800],

          borderRadius: BorderRadius.circular(4),

        ),

        child: const Icon(Icons.music_note),

      ),

      const SizedBox(width: 16),

      Expanded(

        child: Column(

          crossAxisAlignment: CrossAxisAlignment.start,
```

```dart
          children: [
            Text(
              title,
              style: const TextStyle(fontWeight: FontWeight.bold),
            ),
            Text(
              saves,
              style: const TextStyle(color: Colors.grey),
            ),
          ],
        ),
      ),
    ],
  ),
);
}
}
```

Social_login.dart

```dart
// lib/features/auth/widgets/social_login_button.dart
import 'package:flutter/material.dart';
```

```dart
class SocialLoginButton extends StatelessWidget {
  final String assetPath;

  final VoidCallback onTap;

  const SocialLoginButton({
    super.key,
    required this.assetPath,
    required this.onTap,
  });

  @override
  Widget build(BuildContext context) {
    return InkWell(
      onTap: onTap,
      child: Container(
        padding: const EdgeInsets.all(12),
        decoration: BoxDecoration(
          border: Border.all(color: Colors.grey[300]!),
          borderRadius: BorderRadius.circular(8),
        ),
```

```
      child: Image.asset(

        assetPath,

        height: 24,

        width: 24,

      ),

    ),

  );

 }

}
```

Home_screen.dart

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


void main() {

  runApp(const MyApp());

}


class MyApp extends StatelessWidget {

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


  @override
```

```dart
  Widget build(BuildContext context) {

    return MaterialApp(

      title: 'Spotify Clone',

      theme: ThemeData(

        scaffoldBackgroundColor: Colors.black,

        brightness: Brightness.dark,

        textTheme: const TextTheme(

          bodyLarge: TextStyle(color: Colors.white),

          bodyMedium: TextStyle(color: Colors.white),

          titleLarge: TextStyle(color: Colors.white),

          titleMedium: TextStyle(color: Colors.white),

        ),

      ),

      home: const HomeScreen(),

    );

  }

}


class HomeScreen extends StatelessWidget {

  const HomeScreen({Key? key}) : super(key: key);
```

```dart
@override

Widget build(BuildContext context) {

  return Scaffold(

    body: Stack(

      children: [

        Container(

          decoration: BoxDecoration(

            gradient: LinearGradient(

              begin: Alignment.topCenter,

              end: Alignment.bottomCenter,

              colors: [

                Colors.black.withOpacity(0.8),

                Colors.black,

              ],

            ),

          ),

        ),

        SingleChildScrollView(

          child: SafeArea(

            child: Column(

              crossAxisAlignment: CrossAxisAlignment.start,
```

```
children: [

 Padding(

   padding: const EdgeInsets.all(16.0),

   child: Row(

    children: [

     const CircleAvatar(

       backgroundColor: Color(0xFF282828),

       child: Text('A', style: TextStyle(color: Colors.white)),

     ),

     const SizedBox(width: 16),

     Container(

       padding: const EdgeInsets.symmetric(horizontal: 16, vertical: 8),

       decoration: BoxDecoration(

        color: const Color(0xFF1DB954),

        borderRadius: BorderRadius.circular(20),

       ),

       child: const Text('All', style: TextStyle(color: Colors.white)),

     ),

     const SizedBox(width: 8),

     Container(

       padding: const EdgeInsets.symmetric(horizontal: 16, vertical: 8),
```

```dart
            decoration: BoxDecoration(

              color: const Color(0xFF282828),

              borderRadius: BorderRadius.circular(20),

            ),

            child: const Text('Music', style: TextStyle(color: Colors.white)),

          ),

          const SizedBox(width: 8),

          Container(

            padding: const EdgeInsets.symmetric(horizontal: 16, vertical: 8),

            decoration: BoxDecoration(

              color: const Color(0xFF282828),

              borderRadius: BorderRadius.circular(20),

            ),

            child: const Text('Podcasts', style: TextStyle(color: Colors.white)),

          ),

        ],

      ),

    ),

    const PlaylistSection(

      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',
```

```dart
        image: 'assets/images/arijit.jpg',
      ),
      SizedBox(width: 16),
      MixCard(
        title: 'Chill Mix',
        subtitle: 'Kendrick Lamar, The Weeknd, Future',
        image: 'assets/images/chill.jpg',
      ),
      SizedBox(width: 16),
      MixCard(
        title: 'R&B Mix',
        subtitle: 'Kali Uchis, Lana Del Rey',
        image: 'assets/images/rnb.jpg',
      ),
    ],
  ),
),
const SizedBox(height: 100), // Space for bottom player
      ],
    ),
  ),
),
```

```dart
      ),
      const Positioned(

        left: 0,

        right: 0,

        bottom: 0,

        child: NowPlayingBar(),

      ),

    ],

  ),

  bottomNavigationBar: BottomNavigationBar(

    backgroundColor: Colors.black,

    type: BottomNavigationBarType.fixed,

    selectedItemColor: Colors.white,

    unselectedItemColor: Colors.grey,

    items: const [

      BottomNavigationBarItem(

        icon: Icon(Icons.home_filled),

        label: 'Home',

      ),

      BottomNavigationBarItem(

        icon: Icon(Icons.search),
```

```dart
          label: 'Search',
        ),
        BottomNavigationBarItem(
          icon: Icon(Icons.library_music),
          label: 'Your Library',
        ),
        BottomNavigationBarItem(
          icon: Icon(Icons.person),
          label: 'Profile',
        ),
      ],
    ),
  );
 }
}

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

```dart
const PlaylistSection({

  Key? key,

  required this.title,

  required this.image,

  this.isLarge = false,

}) : super(key: key);


@override

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,

          ),
```

```dart
            ),
            const SizedBox(width: 16),
            Expanded(
              child: Text(
                title,
                style: const TextStyle(
                  fontSize: 16,
                  fontWeight: FontWeight.w600,
                  color: Colors.white,
                ),
              ),
            ),
            const Icon(Icons.more_vert, color: Colors.white),
          ],
        ),
      );
    }
  }

class MixCard extends StatelessWidget {
  final String title;
```

```dart
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,
```

```dart
            width: 160,

            height: 160,

            fit: BoxFit.cover,

          ),

        ),

        const SizedBox(height: 8),

        Text(

          title,

          style: const TextStyle(

            fontWeight: FontWeight.w600,

            color: Colors.white,

          ),

        ),

        const SizedBox(height: 4),

        Text(

          subtitle,

          style: const TextStyle(

            color: Colors.grey,

            fontSize: 12,

          ),

        ),
```

```dart
      ],
    ),
  );
 }
}


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: [
          Image.asset(
            'assets/images/perfect_1d.jpg',
            width: 40,
            height: 40,
          ),
```

```dart
      const SizedBox(width: 12),

      const Expanded(

        child: Column(

          crossAxisAlignment: CrossAxisAlignment.start,

          mainAxisSize: MainAxisSize.min,

          children: [

            Text(

              'Perfect',

              style: TextStyle(

                fontWeight: FontWeight.w600,

                color: Colors.white,

              ),

            ),

            Text(

              'One Direction',

              style: TextStyle(

                color: Colors.grey,

                fontSize: 12,

              ),

            ),

          ],
```

```dart
          ),
        ),
        IconButton(
          icon: const Icon(Icons.devices_outlined, color: Colors.white),
          onPressed: () {},
        ),
        IconButton(
          icon: const Icon(Icons.favorite_border, color: Colors.white),
          onPressed: () {},
        ),
        IconButton(
          icon: const Icon(Icons.play_circle_filled, color: Colors.white),
          onPressed: () {},
        ),
      ],
    ),
  );
}
}

class SectionTitle extends StatelessWidget {
```

```dart
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,
      style: const TextStyle(
        fontSize: 24,
        fontWeight: FontWeight.bold,
        color: Colors.white,
      ),
    ),
  );
}
}
```

Profile_page.dart

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


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


  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.black,
      body: Column(
        children: [
          const Expanded(flex: 2, child: _TopPortion()),
          Expanded(
            flex: 3,
            child: Padding(
              padding: const EdgeInsets.all(16.0),
              child: Column(
                crossAxisAlignment: CrossAxisAlignment.start,
                children: [
                  Text(
```

```dart
      "Aryan",
      style: Theme.of(context).textTheme.headlineSmall?.copyWith(
          color: Colors.white,
          fontWeight: FontWeight.bold,
        ),
    ),
    const SizedBox(height: 8),
    const _ProfileInfoRow(),
    const SizedBox(height: 24),
    Text(
      "Playlists",
      style: Theme.of(context).textTheme.titleLarge?.copyWith(
          color: Colors.white,
          fontWeight: FontWeight.bold,
        ),
    ),
    const SizedBox(height: 16),
    const _PlaylistCard(
      title: "My playlist #3",
      saves: "0 saves",
    ),
```

```dart
            const SizedBox(height: 12),

            const _PlaylistCard(

              title: "CHILL",

              saves: "0 saves",

            ),

          ],

        ),

      ),

    ),

    const _BottomNavBar(),

  ],

 ),

);

}

}


class _ProfileInfoRow extends StatelessWidget {

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


 @override

 Widget build(BuildContext context) {
```

```dart
    return Padding(
      padding: const EdgeInsets.symmetric(vertical: 8.0),
      child: Row(
        children: [
          Text(
            "1 follower",
            style: Theme.of(context).textTheme.bodyMedium?.copyWith(
              color: Colors.grey,
            ),
          ),
          const Text(" • ", style: TextStyle(color: Colors.grey)),
          Text(
            "19 following",
            style: Theme.of(context).textTheme.bodyMedium?.copyWith(
              color: Colors.grey,
            ),
          ),
        ],
      ),
    );
  }
```

```dart
}

class _PlaylistCard extends StatelessWidget {
  final String title;
  final String saves;

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

  @override
  Widget build(BuildContext context) {
    return Container(
      padding: const EdgeInsets.all(12),
      decoration: BoxDecoration(
        color: Colors.grey[900],
        borderRadius: BorderRadius.circular(8),
      ),
      child: Row(
```

```dart
children: [
  Container(
    width: 60,
    height: 60,
    decoration: BoxDecoration(
      color: Colors.grey[800],
      borderRadius: BorderRadius.circular(4),
    ),
    child: const Icon(Icons.music_note, color: Colors.white),
  ),
  const SizedBox(width: 12),
  Column(
    crossAxisAlignment: CrossAxisAlignment.start,
    children: [
      Text(
        title,
        style: const TextStyle(
          color: Colors.white,
          fontWeight: FontWeight.bold,
        ),
      ),
```

```dart
        const SizedBox(height: 4),

        Text(

          saves,

          style: TextStyle(color: Colors.grey[400]),

        ),

      ],

    ),

   ],

  ),

 );

 }

}


class _TopPortion extends StatelessWidget {

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


 @override

 Widget build(BuildContext context) {

  return Stack(

   children: [

    Container(
```

```dart
        decoration: const BoxDecoration(

          gradient: LinearGradient(

            begin: Alignment.topCenter,

            end: Alignment.bottomCenter,

            colors: [Color(0xFF9370DB), Colors.black],

          ),

        ),

      ),

      SafeArea(

        child: Padding(

          padding: const EdgeInsets.all(16.0),

          child: Column(

            children: [

              Row(

                children: [

                  IconButton(

                    icon: const Icon(Icons.arrow_back, color: Colors.white),

                    onPressed: () {

                      Navigator.pop(context);

                    },

                  ),
```
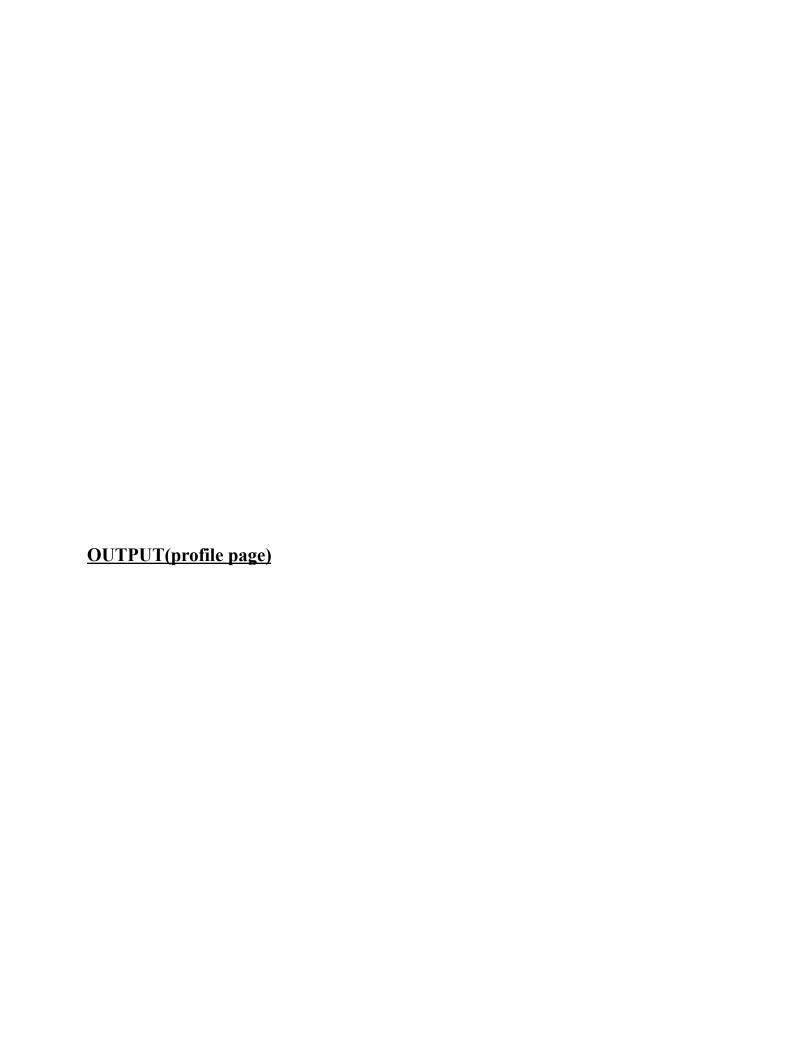
```dart
              const Spacer(),

              IconButton(

                icon: const Icon(Icons.more_vert, color: Colors.white),

                onPressed: () {},

              ),

            ],

          ),

          const SizedBox(height: 20),

          Container(

            width: 100,

            height: 100,

            decoration: BoxDecoration(

              color: Colors.purple[200],

              shape: BoxShape.circle,

            ),

            child: Center(

              child: Text(

                "A",

                style: Theme.of(context).textTheme.displayLarge?.copyWith(

                    color: Colors.black,

                    fontWeight: FontWeight.bold,
```
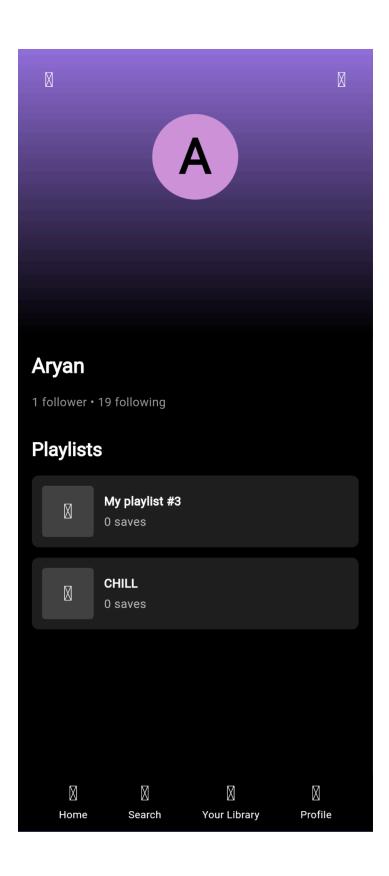
```dart
              ),
            ),
          ),
        ),
      ],
    ),
  ),
),
      ],
    );
  }
}


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

  @override
  Widget build(BuildContext context) {
    return Container(
      padding: const EdgeInsets.symmetric(vertical: 12),
      color: Colors.black,
```

```dart
child: Row(
  mainAxisAlignment: MainAxisAlignment.spaceEvenly,
  children: [
    _NavBarItem(
      icon: Icons.home,
      label: 'Home',
      onTap: () {},
    ),
    _NavBarItem(
      icon: Icons.search,
      label: 'Search',
      onTap: () {},
    ),
    _NavBarItem(
      icon: Icons.library_music,
      label: 'Your Library',
      onTap: () {},
    ),
    _NavBarItem(
      icon: Icons.person,
      label: 'Profile',
```

```dart
        onTap: () {},
      ),
    ],
  ),
 );
 }
}


class _NavBarItem extends StatelessWidget {
  final IconData icon;
  final String label;
  final VoidCallback onTap;

  const _NavBarItem({
    Key? key,
    required this.icon,
    required this.label,
    required this.onTap,
  }) : super(key: key);

  @override
```

```dart
  Widget build(BuildContext context) {
    return InkWell(
      onTap: onTap,
      child: Column(
        mainAxisSize: MainAxisSize.min,
        children: [
          Icon(icon, color: Colors.white),
          const SizedBox(height: 4),
          Text(
            label,
            style: const TextStyle(
              color: Colors.white,
              fontSize: 12,
            ),
          ),
        ],
      ),
    );
  }
}
```

OUTPUT(profile page)

⬚ ⬚

A

Aryan

1 follower • 19 following

Playlists

⬚	**My playlist #3** 0 saves

⬚	**CHILL** 0 saves

Homepage