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Experiment - 2

Aim :- To design Flutter UI by including common widgets.

Theory :-

In Flutter, widgets are the basic building blocks for creating user interfaces. They represent the visual elements in the UI, such as buttons, text fields, and containers. Here's a theoretical overview of some common Flutter widgets that you might encounter in a laboratory (lab) setting:

Container Widget:

- Theory: The Container widget is a versatile and powerful widget that can contain other widgets. It allows customization of dimensions, padding, margin, decoration, and more.
- Lab Use: Use Container to structure and style the layout of your lab interface. Adjust its properties to control spacing and alignment.

Text Widget:

- Theory: The Text widget displays a string of text with various styling options. It is used to present information to the user.
- Lab Use: Utilize Text to display important information, labels, or instructions within your lab app.

Row and Column Widgets:

- Theory: Row and Column are layout widgets that allow you to arrange child widgets in a horizontal (row) or vertical (column) sequence.
- Lab Use: Organize and structure your UI elements in a row or column format for better readability and organization.

ListView Widget:

- Theory: ListView is a scrollable list of widgets. It is used to display a scrolling, linear list of widgets.
- Lab Use: Implement ListView to display a list of items, such as experiment steps, results, or any dynamic data.

AppBar Widget:

- Theory: The AppBar widget provides a top app bar with options for navigation, title, and actions.
- Lab Use: Include an AppBar to give your lab app a consistent and recognizable navigation structure.

Form and TextFormField Widgets:

- Theory: Form and TextFormField are used for creating forms and handling user input.
- Lab Use: Implement a form structure using Form and capture user input with TextFormField for data entry and interaction.

Button Widgets (ElevatedButton, TextButton, and OutlinedButton):

- Theory: Flutter provides various button widgets, each with its visual style and behavior.
- Lab Use: Use buttons like ElevatedButton, TextButton, and OutlinedButton for actions such as submitting data, navigating, or triggering experiments.

Image Widget:

- Theory: The Image widget displays an image from various sources, such as assets or the internet.
- Lab Use: Use the Image widget to show diagrams, graphs, or other visual content in your lab app.

AlertDialog and SnackBar Widgets:

- Theory: AlertDialog and SnackBar are used for displaying pop-up messages to the user.
- Lab Use: Provide important notifications, alerts, or feedback to users through these pop-up widgets.

Scaffold Widget:

- Theory: Scaffold is a basic skeletal structure that contains the visual elements of a material design app.
- Lab Use: Use Scaffold as the overall structure of your lab app, providing a consistent layout with an app bar, body, and other elements.

Input :-

```
import 'package:firebase_core/firebase_core.dart';
import 'package:flutter/material.dart';
import 'package:osiris/Services/auth.dart';
import 'package:osiris/routes.dart';
import 'package:provider/provider.dart';

void main() async {
  WidgetsFlutterBinding.ensureInitialized();
  await Firebase.initializeApp();
  runApp(const App());
}

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

  @override
  State<App> createState() => _AppState();
}
```

```
class _AppState extends State<App> {
  @override
  Widget build(BuildContext context) {
    return ChangeNotifierProvider(
      create: (context) => GoogleSignInProvider(),
      child: MaterialApp.router(
        debugShowCheckedModeBanner: false,
        routerConfig: router,
      ),
    );
  }
}
```

MainScreen.dart

```
import 'package:flutter/material.dart';
import 'package:flutter/rendering.dart';
import 'package:osiris/Models/PopularMovies.dart';
import 'package:osiris/Models/TvShow.dart';
import 'package:osiris/Services/API.dart';
import 'package:osiris/Services/consts.dart';
import 'package:osiris/Widgets/BottomNavBar.dart';
import 'package:osiris/Widgets/CarouselCard.dart';
import 'package:osiris/Widgets/CustomLists.dart';
import 'package:osiris/Widgets/LoadingScreen.dart';
import 'package:osiris/Widgets/SectionText.dart';

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

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

class _MainScreenState extends State<MainScreen> {
  ScrollController _scrollController = ScrollController();
  bool isVisible = true;

  late List<Results> popularMovie;
  late List<Results> topRatedMovie;
  late List<Results> nowPLayingMovie;
  late List<TvShow> popularShows;
  late List<TvShow> topRatedShows;
  bool isLoading = true;
```

```
@override
void initState() {
  super.initState();
  fetchData();
  _scrollController = ScrollController();
  _scrollController.addListener(listen);
}

@override
void dispose() {
  _scrollController.removeListener(listen);
  _scrollController.dispose();
  super.dispose();
}

void listen() {
  final direction = _scrollController.position.userScrollDirection;
  if (direction == ScrollDirection.forward) {
    show();
  } else if (direction == ScrollDirection.reverse) {
    hide();
  }
}

void show() {
  if (!isVisible) {
    (setState(
      () => isVisible = true,
    ));
  }
}

void hide() {
  if (isVisible) {
    (setState(
      () => isVisible = false,
    ));
  }
}

Future<void> fetchData() async {
  topRatedShows = await APIService().getTopRatedShow();
  popularMovie = await APIService().getPopularMovie();
  topRatedMovie = await APIService().getTopRatedMovie();
```

```
    popularShows = await APIService().getRecommendedTvShows("1396");
    nowPLayingMovie = await APIService().getNowPLayingMovie();
    setState(() {
      isLoading = false;
    });
  }

  @override
  Widget build(BuildContext context) {
    var size = MediaQuery.of(context).size;
    return Scaffold(
      bottomNavigationBar: AnimatedBuilder(
          animation: _scrollController,
          builder: ((context, child) {
            return AnimatedContainer(
              duration: const Duration(milliseconds: 800),
              curve: Curves.fastLinearToSlowEaseIn,
              height: isVisible ? 75 : 0,
              child: BottomNavBar(
                currentIndex: 0,
              ),
            );
          })),
      extendBody: true,
      body: isLoading
          ? const LoadingScreen()
          : Container(
              height: size.height,
              width: size.width,
              color: background_primary,
              child: ListView(
                padding: EdgeInsets.zero,
                scrollDirection: Axis.vertical,
                physics: const BouncingScrollPhysics(),
                controller: _scrollController,
                shrinkWrap: true,
                children: [
                  CustomCarouselSlider(topRatedShows),
                  SectionText("Popular", "Movies"),
                  CustomListMovie(popularMovie),
                  SectionText("TOP Rated", "Movies"),
                  CustomListMovie(topRatedMovie),
                  SectionText("Popular", "Shows"),
                  CustomListTV(popularShows),
                  SectionText("NoW PLAying", "Movies"),
                  CustomListMovie(nowPLayingMovie),
                ],
              ),
            ),
    );
  }
}
```

CarouselCard.dart

```
import 'package:cached_network_image/cached_network_image.dart';
import 'package:flutter/material.dart';
import 'package:flutter/services.dart';
import 'package:go_router/go_router.dart';
import 'package:osiris/Models/TvShow.dart';
import 'package:osiris/Widgets/LandingCard.dart';

class CustomCarouselSlider extends StatelessWidget {
  CustomCarouselSlider(this.data, {super.key});
  List<TvShow> data;

  @override
  Widget build(BuildContext context) {
    var size = MediaQuery.of(context).size;
    return SizedBox(
        width: size.width,
        height: (size.height * 0.33 < 300) ? 300 : size.height * 0.33,
        child: PageView.builder(
          scrollDirection: Axis.horizontal,
          physics: const BouncingScrollPhysics(),
          pageSnapping: true,
          itemCount: 20,
          itemBuilder: ((context, index) {
            var url = data[index].backdropPath.toString();
            return GestureDetector(
              onTap: () {
                HapticFeedback.mediumImpact();
                GoRouter.of(context).push('/tv/${data[index].id}');
              },
              child: LandingCard(
                  CachedNetworkImageProvider(
                      "https://image.tmdb.org/t/p/original$url"),
                  data[index].name.toString()),
            );
          }),
        ));
  }
}
```

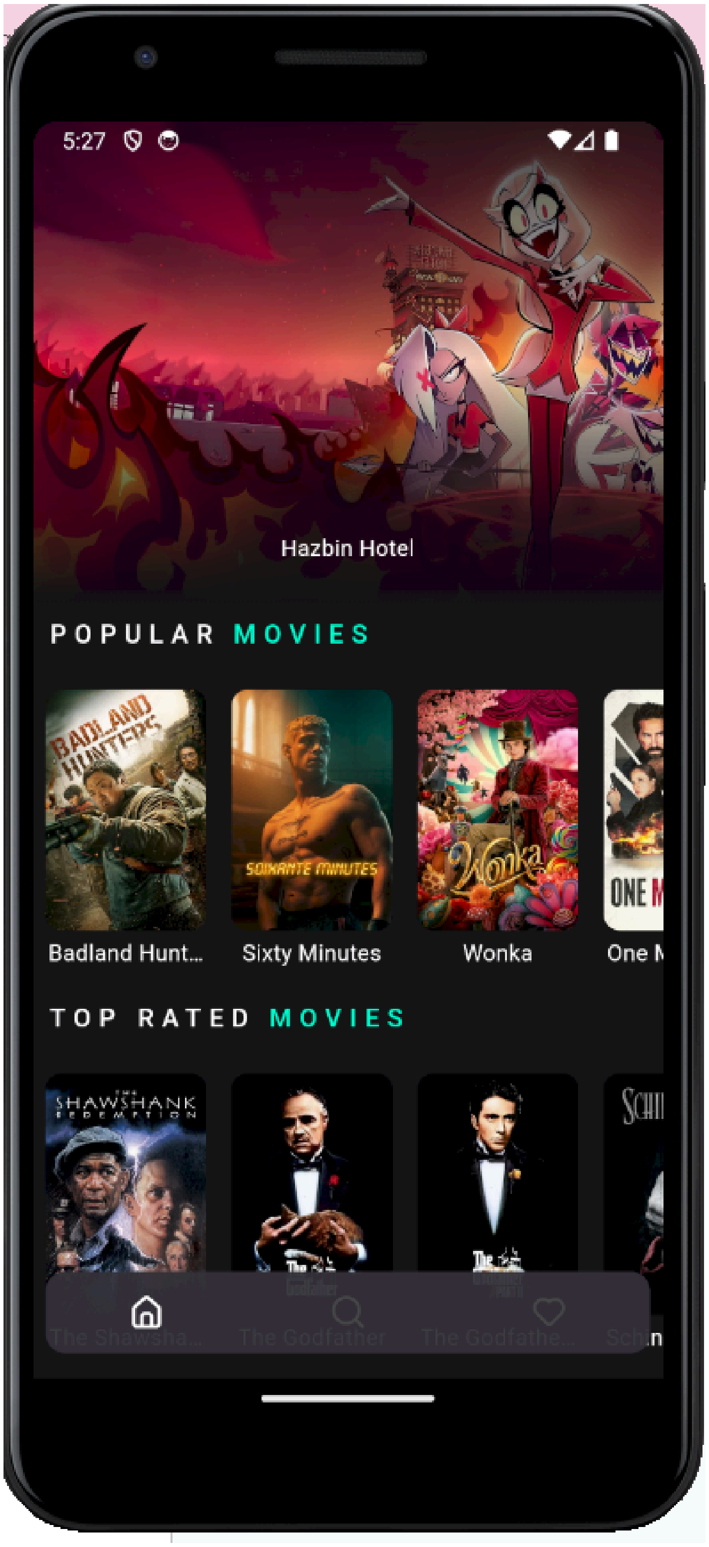
MovieCard.dart

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

class MovieCard extends StatelessWidget {
  MovieCard(this.title, this.image, this.Id, this.mediaType, {super.key});
  String title;
  ImageProvider image;
  String Id;
  String mediaType;

  @override
  Widget build(BuildContext context) {
    return GestureDetector(
      onTap: () {
        HapticFeedback.mediumImpact();
        GoRouter.of(context).push('/$mediaType/$Id');
      },
      child: Column(
        mainAxisAlignment: MainAxisAlignment.center,
        crossAxisAlignment: CrossAxisAlignment.center,
        children: [
          Container(
            height: 150,
            width: 100,
            margin: const EdgeInsets.fromLTRB(8, 4, 8, 4),
            decoration: BoxDecoration(
              image: DecorationImage(fit: BoxFit.cover, image: image),
              borderRadius: BorderRadius.circular(10),
            ),
          ),
          SizedBox(
            width: 100,
            child: Text(
              title,
              style: const TextStyle(color: Colors.white),
              maxLines: 1,
              overflow: TextOverflow.ellipsis,
              textAlign: TextAlign.center,
            ),
          )
        ],
      ),
    );
  }
}
```

Pubspec.yaml

```
flutter:
  uses-material-design: true
  assets:
    - assets/

flutter_icons:
    android: "launcher_icon"
    image_path_android: "assets/icon.png"
    adaptive_icon_background: "assets/launcher_icon/background.png"
    adaptive_icon_foreground: "assets/launcher_icon/foreground.png"
```

Output:-


5:27
Hazbin Hotel
POPULAR MOVIES
Badland Hunt...
Sixty Minutes
Wonka
One M
TOP RATED MOVIES
The Shawsha...
The Godfather
The Godfathe...
Schin