Siddhi Bhogale 06/D15B

Experiment No:05

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

Theory:

Navigation and Routing in Flutter

Navigation and routing are some of the core concepts of all mobile applications, which allows the user to move between different pages. We know that every mobile application contains several screens for displaying different types of information. For example, an app can have a screen that contains various products. When the user taps on that product, immediately it will display detailed information about that product.

Navigation Routing:

1. Using Navigator Widget:
- Flutter provides the Navigator widget for managing routes and navigating between different screens in an app.
- You can push a new route onto the navigator's stack to navigate to a new screen and pop a route from the stack to go back to the previous screen.

2. Named Routes:
- Named routes are routes identified by a unique string identifier.
- Define named routes in the app's main MaterialApp widget.

3. Passing Data:
- You can pass data to a new screen when navigating.

Gesture Handling

Gesture handling refers to the process of detecting and responding to user interactions, or gestures, on a touch-based interface, such as a smartphone or tablet. In the context of software development, especially in mobile app development, gesture handling involves recognizing various touch events, such as taps, swipes, pinches, and rotations, and translating them into meaningful actions within the application.

1. Gesture Detector:

- Use the GestureDetector widget to detect various gestures like tap, double tap, long press, etc.
- Wrap the widget with the GestureDetector and specify the gesture callbacks.

2. Draggable and DragTarget:

- Use Draggable to make a widget draggable and DragTarget to specify a target area for dropping.

Code:

HomeScreen

```
import 'package:flutter/material.dart';
import 'package:get_it/get_it.dart';
import 'package:go_router/go_router.dart';
import 'package:gyawun/api/api.dart';
import 'package:gyawun/api/format.dart';
import 'package:gyawun/api/ytmusic.dart';
import 'package:gyawun/components/home_section.dart';
import 'package:gyawun/components/recently_played.dart';
import 'package:gyawun/ui/colors.dart';
import 'package:gyawun/generated/l10n.dart';
import 'package:hive_flutter/hive_flutter.dart';
import 'package:just_audio/just_audio.dart';

import '../../components/skeletons/home_page.dart';

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

  @override
  State<HomeScreen> createState() => _HomeScreenState();
}

class _HomeScreenState extends State<HomeScreen>
    with AutomaticKeepAliveClientMixin<HomeScreen> {
  List songs = [];
```

```
double tileHeight = 0;
bool loading = false;

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

@override
void dispose() {
  super.dispose();
  GetIt.I<AudioPlayer>().dispose();
}

@override
Widget build(BuildContext context) {
  super.build(context);

  return Scaffold(
    extendBody: true,
    appBar: AppBar(
      title: Hero(
        tag: "SearchField",
        child: TextField(
          onTap: () => context.go('/search'),
          readOnly: true,
          decoration: InputDecoration(
            fillColor: darkGreyColor.withAlpha(50),
            filled: true,
            contentPadding:
                const EdgeInsets.symmetric(vertical: 2, horizontal: 16),
            border: OutlineInputBorder(
              borderRadius: BorderRadius.circular(35),
              borderSide: BorderSide.none,
            ),
            hintText: S.of(context).searchGyawun,
            prefixIcon: const Icon(Icons.search),
          ),
        ),
      ),
      centerTitle: true,
    ),
    body: loading
        ? const HomePageSkeleton()
        : RefreshIndicator(
            onRefresh: () => fetchAllData(),
            child: ListView(
              children: [
                const RecentlyPlayed(),
                ...songs
                    .map((item) => Padding(
                          padding: const EdgeInsets.only(
                              bottom: 10.0), // Add this padding
                          child: HomeSection(sectionIitem: item),
                        ))
                    .toList()
              ],
            ),
          ),
  );
}

fetchAllData() async {
  Box homeCache = Hive.box('HomeCache');
  songs = await homeCache.get('songs', defaultValue: []);
  setState(() {
    if (songs.isEmpty) {
      loading = true;
    }
  });
  songs = await fetchHomeData();

  await Hive.box('HomeCache').put('songs', songs);
  setState(() {
    loading = false;
  });
}
```

```
  @override
  bool get wantKeepAlive => true;
}

Future<List> fetchHomeData() async {
  String provider =
      Hive.box('settings').get('homescreenProvider', defaultValue: 'saavn');

  List tiles = [];
  if (provider == 'youtube') {
    Map<String, dynamic> a = await YtMusicService().getMusicHome();
    tiles = a['body'];
    // pprint(a['body']);
  } else {
    Map<dynamic, dynamic> data = await SaavnAPI().fetchHomePageData();
    Map<dynamic, dynamic> formatedData =
        await FormatResponse.formatPromoLists(data);
    Map modules = formatedData['modules'];
    modules.forEach((key, value) {
      tiles.add({
        'title': value['title'],
        'items': formatedData[key],
      });
    });
  }

  return tiles;
}
```

Use of Api

```
import 'dart:convert';
import 'dart:developer';

import 'package:gyawun/api/format.dart';
import 'package:hive_flutter/hive_flutter.dart';
import 'package:http/http.dart';
import 'package:logging/logging.dart';
```

```
Box box = Hive.box('settings');

class SaavnAPI {
  List<String> preferredLanguages =
      box.get('languages', defaultValue: ["English"]);
  Map<String, String> headers = {};
  String baseUrl = 'www.jiosaavn.com';
  String apiStr = '/api.php?_format=json&_marker=0&api_version=4&ctx=web6dot0';
  Map<String, String> endpoints = {
    'homeData': '__call=webapi.getLaunchData',
    'topSearches': '__call=content.getTopSearches',
    'fromToken': '__call=webapi.get',
    'featuredRadio': '__call=webradio.createFeaturedStation',
    'artistRadio': '__call=webradio.createArtistStation',
    'entityRadio': '__call=webradio.createEntityStation',
    'radioSongs': '__call=webradio.getSong',
    'songDetails': '__call=song.getDetails',
    'playlistDetails': '__call=playlist.getDetails',
    'albumDetails': '__call=content.getAlbumDetails',
    'getResults': '__call=search.getResults',
    'albumResults': '__call=search.getAlbumResults',
    'artistResults': '__call=search.getArtistResults',
    'playlistResults': '__call=search.getPlaylistResults',
    'getReco': '__call=reco.getreco',
    'getAlbumReco': '__call=reco.getAlbumReco', // still not used
    'artistOtherTopSongs':
        '__call=search.artistOtherTopSongs', // still not used
  };

  Future<Response> getResponse(
    String params, {
    bool usev4 = true,
    bool useProxy = false,
  }) async {
    Uri url;
    if (!usev4) {
      url = Uri.https(
        baseUrl,
        '$apiStr&$params'.replaceAll('&api_version=4', ''),
      );
    } else {
      url = Uri.https(baseUrl, '$apiStr&$params');
    }

    if (preferredLanguages.isEmpty) {
      preferredLanguages = ['English'];
    }
    preferredLanguages =
        preferredLanguages.map((lang) => lang.toLowerCase()).toList();
    final String languageHeader = 'L=${preferredLanguages.join('%2C')}';
    headers = {'cookie': languageHeader, 'Accept': '*/*'};
// }
    return get(url, headers: headers).onError((error, stackTrace) {
      return Response(
        {
          'status': 'failure',
          'error': error.toString(),
        }.toString(),
        404,
      );
    });
  }
```

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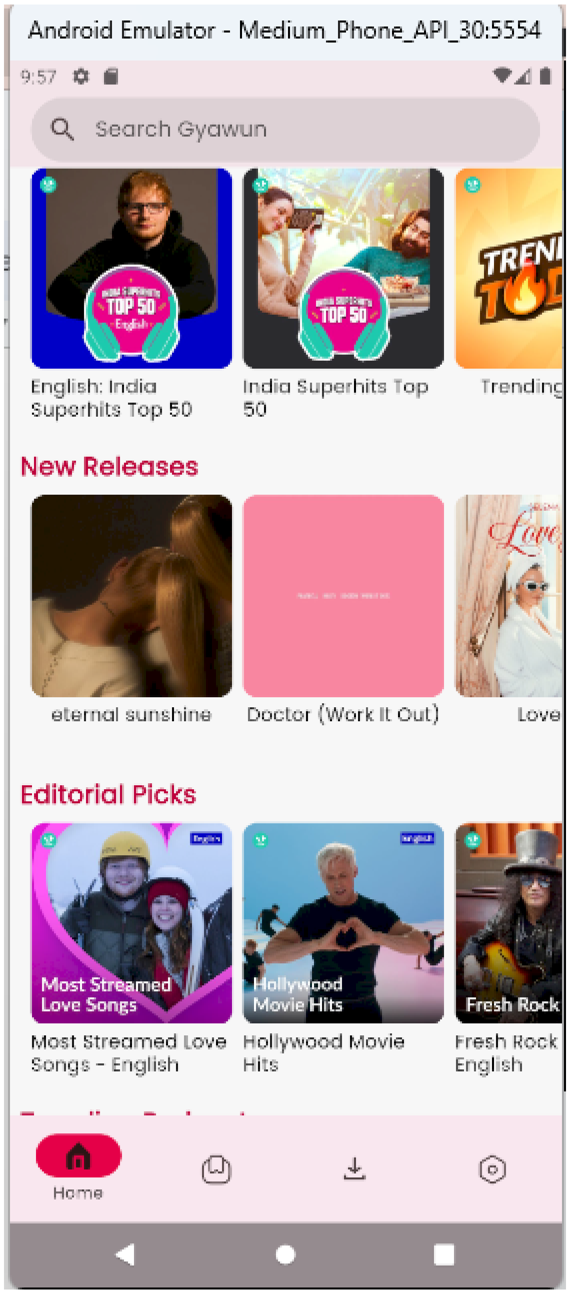
Output


Android Emulator - Medium_Phone_API_30:5554

9:57

Search Gyawun

English: India Superhits Top 50

India Superhits Top 50

Trending

New Releases

eternal sunshine

Doctor (Work It Out)

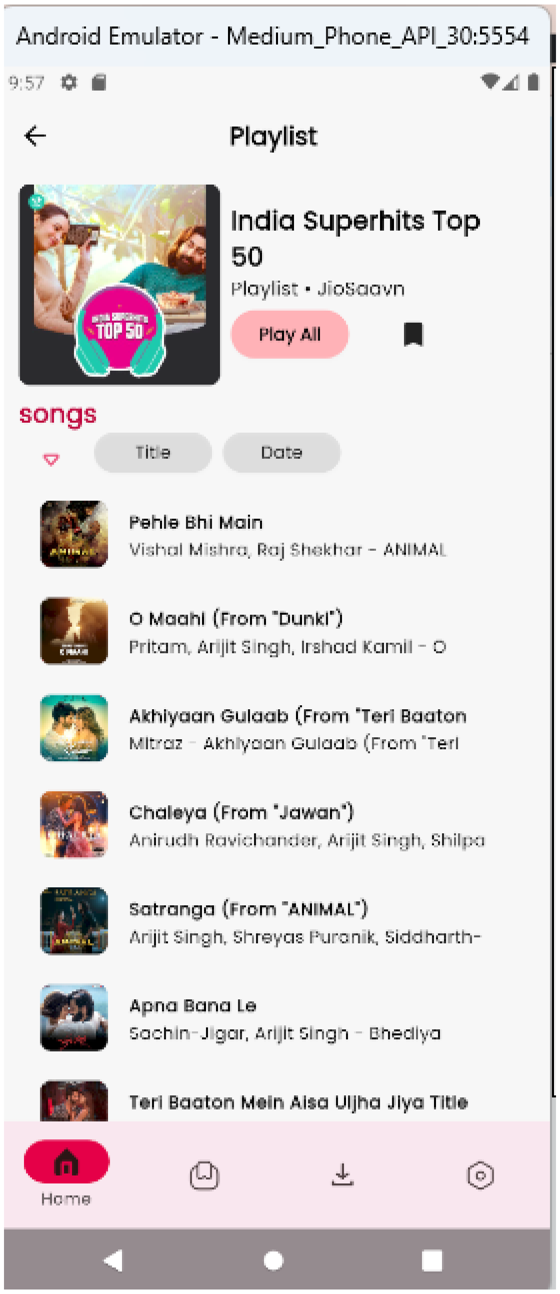
Love

Editorial Picks

Most Streamed Love Songs - English

Hollywood Movie Hits

Fresh Rock English


Android Emulator - Medium_Phone_API_30:5554

9:57

Playlist

India Superhits Top 50

Playlist • JioSaavn

Play All

songs

Title

Date

Pehle Bhi Main
Vishal Mishra, Raj Shekhar - ANIMAL

O Maahi (From "Dunki")
Pritam, Arijit Singh, Irshad Kamil - O

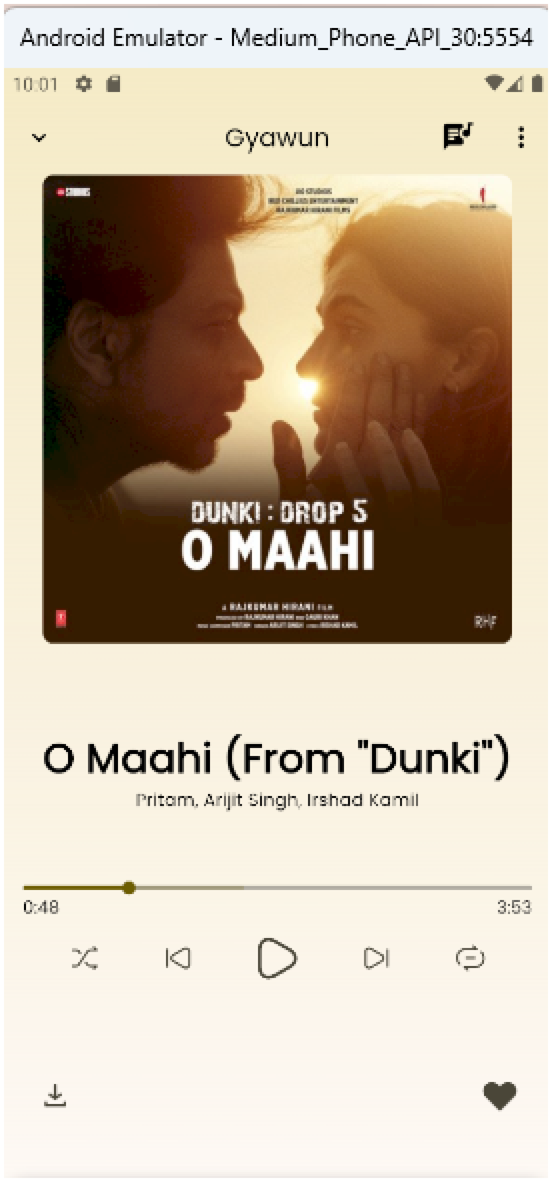
Akhiyaan Gulaab (From "Teri Baaton
Mitraz - Akhiyaan Gulaab (From "Teri

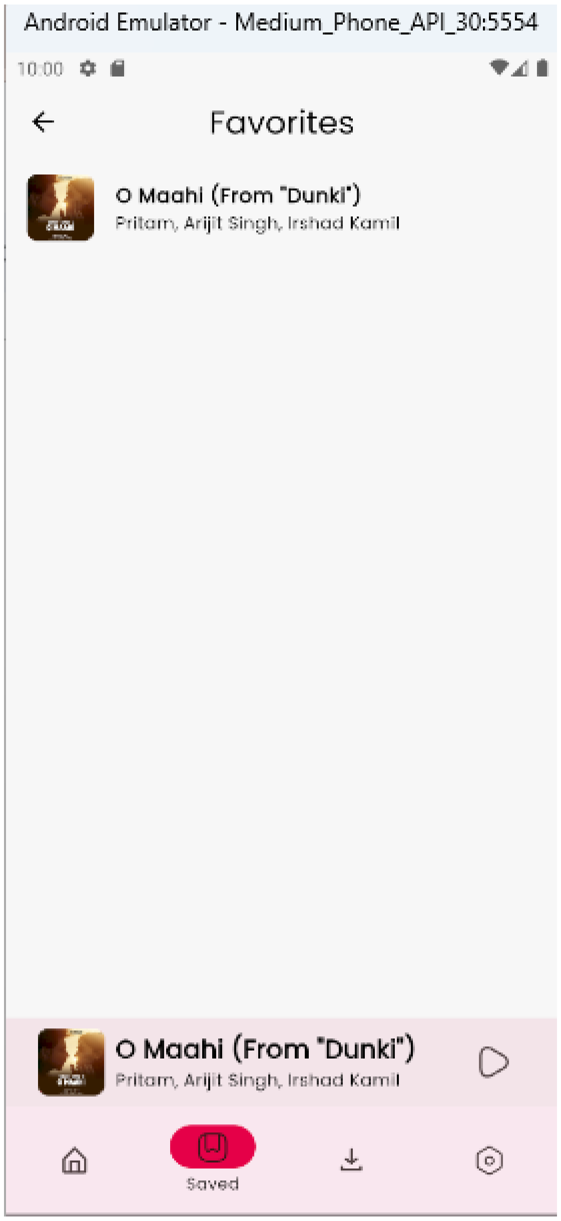
Chaleya (From "Jawan")
Anirudh Ravichander, Arijit Singh, Shilpa

Satranga (From "ANIMAL")
Arijit Singh, Shreyas Puranik, Siddharth-

Apna Bana Le
Sachin-Jigar, Arijit Singh - Bhediya

Teri Baaton Mein Aisa Uljha Jiya Title


Android Emulator - Medium_Phone_API_30:5554
10:01
Gyawun
O Maahi (From "Dunki")
Pritam, Arijit Singh, Irshad Kamil
0:48
3:53


Android Emulator - Medium_Phone_API_30:5554
10:00
Favorites
O Maahi (From "Dunki")
Pritam, Arijit Singh, Irshad Kamil
O Maahi (From "Dunki")
Pritam, Arijit Singh, Irshad Kamil
Saved

Conclusion:
We understood the concepts of navigation , routing and gestures in Flutter. We implemented navigation and routing for the above shown pages. We implemented gestures in a basic Flutter application.