Flutter Development with Dart

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Agenda

- Building Apps Powered by Live Web Data (World Time App)

- Capturing location data across platforms

- Implementing async/await

- Networking in Flutter apps with the HTTP package

- JSON parsing and dynamic types

- Refactoring location methods

Building Apps Powered by Live Web Data (World Time App)

World Time App

- World time app helps us to

- Fetch the time of different locations in our app

- Route between the pages

- Implement a listview for list of cities

- Changing the background image accounting to timeZone

Creating the app

- Create a new project and name it 'World time App'
- Let us understand the hierarchy of the app.
- Lib
  - Services
    - world_time.dart
  - Pages
    - choose_location.dart
    - home.dart
    - Loading.dart
  - Main.dart

- We would first add dependencies in the pubsepc.yaml

  http: ^0.12.2
  intl: ^0.16.1
  flutter_spinkit: ^4.1.2+1

- Make sure you add the latest version of the dependencies

- Let us start by working in world_time.dart

```dart
import 'package:http/http.dart';
import 'dart:convert';
import 'package:intl/intl.dart';

class WorldTime{

  String location; // location name for UI
  String time; //the time in that location
  String flag; //url to asset flag item
  String url; // location url for api endpoints
  bool isDaytime; //true or false if daytime or not

  WorldTime({this.location, this.flag, this.url});

  Future<void> getTime() async{

    try{
      Response response = await get('http://worldtimeapi.org/api/timezone/$url');
      Map data = jsonDecode(response.body);

      String datetime = data['datetime'];
      String hour = data['utc_offset'].substring(0,3);
      String mins = data['utc_offset'].substring(4,6);
      print('Hour = $hour and mins = $mins');
```

```dart
      DateTime now = DateTime.parse(datetime);
      print("Now $now");

      now = now.add(Duration(hours: int.parse(hour)));
      now = now.add(Duration(minutes: int.parse(mins)));

      //set the time property
      isDaytime = now.hour>6 && now.hour<19 ? true : false;
      time = DateFormat.jm().format(now);
      print('Time is $time');
    }
   catch(e){
     print('Error: $e');
     time = 'could not get data';
    }
  }
}
```

- Next we would code in loading.dart

```dart
import 'package:flutter/material.dart';
import 'package:flutter_app/services/world_time.dart';
import 'package:flutter_spinkit/flutter_spinkit.dart';

class Loading extends StatefulWidget {
  @override
  _LoadingState createState() => _LoadingState();
}

class _LoadingState extends State<Loading> {

  void setupWorldTime() async{
    WorldTime instance = WorldTime(location: 'Berlin', flag: 'germany.png', url: 'Europe/Berlin');
    await instance.getTime();

    Navigator.pushReplacementNamed(context, '/home', arguments: {
      'location': instance.location,
      'flag': instance.flag,
      'time': instance.time,
      'isDayTime': instance.isDaytime,
    });

  }
```

```dart
@override
void initState() {
  // TODO: implement initState
  super.initState();
  setupWorldTime();
}

@override
Widget build(BuildContext context) {
  return Container(
    backgroundColor: Colors.blue[800],
    body: Center(
      child: SpinKitChasingDots(
        color: Colors.white,
        size: 50.0,
      ),
    ),
  );
}
}
```

- Next we will move to choose_location.dart

```dart
import 'package:flutter/material.dart';
import 'package:flutter_app/services/world_time.dart';
class ChooseLocation extends StatefulWidget {
  @override
  _ChooseLocationState createState() => _ChooseLocationState();
}
class _ChooseLocationState extends State<ChooseLocation> {

  List<WorldTime> locations = [
    WorldTime(url: 'Europe/London', flag: 'UK.png', location:'London' ),
    WorldTime(url: 'Europe/Berlin', flag: 'Berlin.png', location: 'Berlin'),
    WorldTime(url: 'Asia/Colombo', flag: 'srilanka.png', location: 'Colombo'),
    WorldTime(url: 'Asia/Kolkata', flag: 'India.jpeg', location: 'Delhi'),
    WorldTime(url: 'America/New_York', flag: 'america.png', location: 'New_York'),
    WorldTime(url: 'America/Chicago', flag: 'canada.png', location: 'Chicago'),
    WorldTime(url: 'Africa/Cairo', flag: 'Alexandria.png', location: 'Cairo'),
    WorldTime(url: 'Africa/Nairobi', flag: 'ghana.png', location: 'Nairobi'),
  ];
  void updateTime(index) async{
    WorldTime instance = locations[index];
    await instance.getTime();
    //navigate to home screeni
    Navigator.pop(context, {
      'location': instance.location,
      'flag': instance.flag,
      'time': instance.time,
      'isDayTime': instance.isDaytime,
    });
  }
```

```dart
@override
Widget build(BuildContext context) {
  print('build is called');

  return Scaffold(
    backgroundColor: Colors.lightGreen[200],
    appBar: AppBar(
      backgroundColor: Colors.blueAccent[400],
      title: Text('Choose a Location'),
      centerTitle: true,
      elevation: 0,
    ),
    body: ListView.builder(
      itemCount: locations.length,
      itemBuilder: (context, index){
        return Padding(
          padding: const EdgeInsets.symmetric(vertical:1.0, horizontal: 4.0),
          child: Card(
            child: ListTile(
              onTap: (){
                updateTime(index);
              },
              title: Text(locations[index].location),
              leading: CircleAvatar(
                backgroundImage: AssetImage('assets/${locations[index].flag}'),
              ),
            ),
          ),
        );
      },
    ),
  );
}
```

- We now look forwards to home.dart

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

class Home extends StatefulWidget {
  @override
  _HomeState createState() => _HomeState();
}
class _HomeState extends State<Home> {

  Map data = {};
  @override
  Widget build(BuildContext context) {
    data = data.isNotEmpty ? data: ModalRoute.of(context).settings.arguments;
    print(data );
    //set background
    String bgImage = data['isDayTime'] ? 'day.jpg' : 'night.jpg';
    Color bgColor = data['isDayTime'] ? Colors.cyan[800] : Colors.blueGrey[900];

    return Scaffold();
  }
}
```

```
return Scaffold(
  backgroundColor: bgColor,
  body: SafeArea(
    child: Container(
      decoration: BoxDecoration(
        image: DecorationImage(
          image: AssetImage('assets/$bgImage'),
          fit: BoxFit.cover,
        )
      ),
      child: Padding(
        padding: const EdgeInsets.fromLTRB(0.0, 120.0, 0, 0),
        child: Column(
          children: [
            FlatButton.icon(
              onPressed: () async{
                dynamic result = await Navigator.pushNamed(context, '/location');
                setState(() {
                  data = {
                    'time': result['time'],
                    'location': result['location'],
                    'isDayTime': result['isDayTime'],
                    'flag': result['flag']
                  };
                });
              },
```

```
          icon: Icon(Icons.edit_location),
          label: Text('Edit Location',
            style:(
              color: Colors.white24,
            ),
          )
        ),
      SizedBox(height: 20.0,),
      Row(
        mainAxisAlignment: MainAxisAlignment.center,
        children: [
          Text(
            data['location'],
            style:(
              fontSize: 28.0,
              letterSpacing: 1.5
            ),
          )
        ],
      ),
      SizedBox(height: 20.0,),
```

```
            Text(
              data['time'],
              style:(
                fontSize: 65.0,
              ),
            )
          ],
        ),
      ),
    )),
  );
 }
}
```
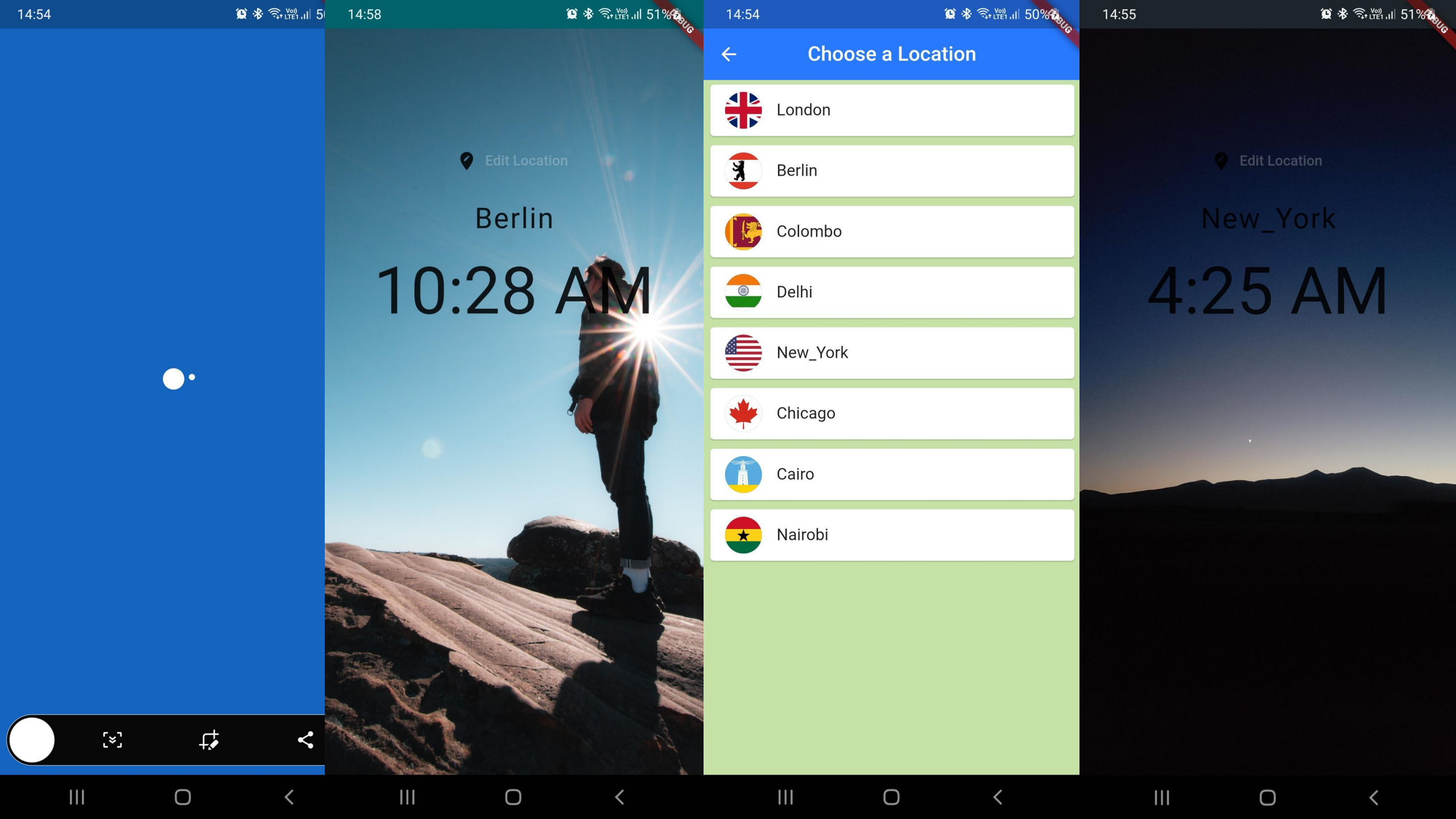
- Finally designing the main.dart

```dart
import 'package:flutter/material.dart';
import 'package:flutter_app/Pages/home.dart';
import 'package:flutter_app/Pages/loading.dart';
import 'package:flutter_app/Pages/choose_location.dart';

void main() {
  runApp(MaterialApp(
    //home: Home(),

    initialRoute: '/',
    routes: {
      '/': (context) => Loading(),
      '/home': (context) => Home(),
      '/location': (context) => ChooseLocation(),

    },
  );
}
```

Choose a Location

🇬🇧	London
	Berlin
🇱🇰	Colombo
🇮🇳	Delhi
🇺🇸	New_York
🇨🇦	Chicago
	Cairo
🇬🇭	Nairobi

Berlin

10:28 AM

Edit Location

New_York

4:25 AM

Edit Location

Work hard in silence, let your success be your noise.

Anonymous