

Section : IT Systems Development (DSI)
Module : Framework cross-platform workshop
Teaching unit : Mobile Developpment and Web
Level : 3rd Year (Applied license: LMD)

Exercise 2: Communicating with the Internet

Objective

Convert Dart models into JSON and Handle JSON schemas that are incompatible models

Technical requirements

In order to start with Flutter, we need a few tools:

- A PC with a recent Windows version, or a Mac with a recent version of the macOS or Linux operating system. we can also use a Chrome OS machine, with a few tweaks.
- An Android/iOS setup.
- The Flutter SDK. It's free, light, and open source.
- Physical device/emulator/simulator
- Android Studio/IntelliJ IDEA or Visual Studio Code

content

Converting Dart models into JSON

Converting and displaying Dart models into JSON

1- Create a new flutter project and add the following code in main.dart

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

void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  // This widget is the root of your application.
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Test json',
      theme: ThemeData(
        primarySwatch: Colors.green,
      ),
      home: Home(),
    );
  }
}
```

2- Create a new folder named model, witch contains the user model:

```
class User {
  int? id;
  String? name;
  String? username;
  String? email;
  String? phone;
  String? website;

  User(
    {this.id,
     this.name,
     this.username,
     this.email,
     this.phone,
     this.website
    });

  factory User.fromJson(Map<String, dynamic> json) {
    return User(
      id: json['id'],
      name: json['name'],
      username: json['username'],
      email: json['email'],
      phone: json['phone'],
      website: json['website']);
  }
}
```

3- Complete the following code of home.dart file to display all the users as a list from :
"https://jsonplaceholder.typicode.com/users"
without addresses and companies

```
import 'dart:async';
import 'dart:convert';

import 'package:flutter/material.dart';
import 'package:flutter_json/Model/User.dart';
import 'package:http/http.dart' as http;

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

class _HomeState extends State<Home> {
  Future<List<User>> getAllUser() async {
    final response =
      await
http.get(Uri.parse("https://jsonplaceholder.typicode.com/users"));
    List users = json.decode(response.body);
    return users.map((user) => new User.fromJson(user)).toList();
  }

  @override
  Widget build(BuildContext context) {
    return new Scaffold(
      appBar: AppBar(
        title: Text("Demo Json"),
        backgroundColor: Colors.green,

```

```

    ),
    body: Center(
      child: FutureBuilder(
        future: getAllUser(),
        builder: (context, AsyncSnapshot<List<User>> snapshot) {
          if (snapshot.hasError || !snapshot.hasData) {
            return Center(
              child: CircularProgressIndicator(),
            );
          } else {
            return ListView.builder(
              itemCount: snapshot.data!.length,
              itemBuilder: (context, index) {
                var user = snapshot.data![index];
                return Card(
                  child: Container(
                    height: 500.0,
                    margin: EdgeInsets.all(10.0),
                    child: Column(
                      crossAxisAlignment:
CrossAxisAlignment.start,
                      children: <Widget>[
                        Container(
                          child: Row(
                            children: <Widget>[
                                CircleAvatar(
...

```

4- Add now information about companies and addresses from the following models

```

import 'package:flutter_json/Model/Geo.dart';

class Address {
  String? street;
  String? suite;
  String? city;
  String? zipcode;
  Geo? geo;

  Address({this.street, this.suite, this.city, this.zipcode, this.geo});

  factory Address.fromJson(Map<String, dynamic> json) {
    return Address(
      street: json['street'],
      suite: json['suite'],
      city: json['city'],
      zipcode: json['zipcode'],
      geo: Geo.fromJson(json['geo']));
  }
}

class Geo {
  String? lat;
  String? lng;

  Geo({this.lat, this.lng});

  factory Geo.fromJson(Map<String, dynamic> json) {
    return Geo(lat: json['lat'], lng: json['lng']);
  }
}

```

```

class Company {
  String? name;
  String? catchPhrase;
  String? bs;

  Company({this.name, this.catchPhrase, this.bs});

  factory Company.fromJson(Map<String, dynamic> json) {
    return Company(
      name: json['name'], catchPhrase: json['catchPhrase'], bs:
json['bs']);
  }
}

```

5- You should display thid screen

