Cross Platform Application Development

Assignment 1 - Flutter App with Back4App Integration

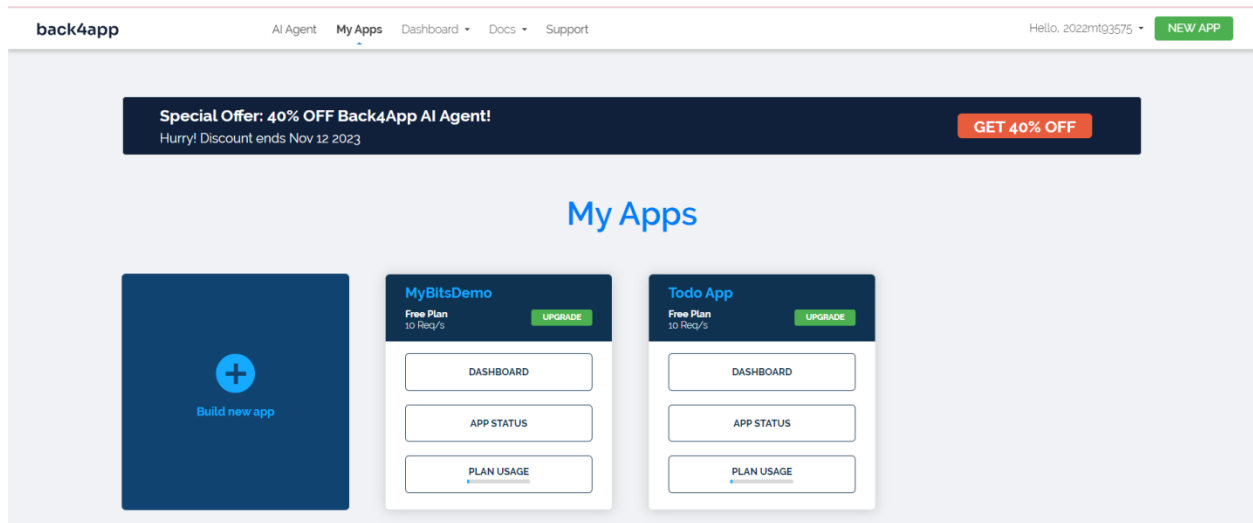**Name : G. Sai Teja**

BITS ID : 2022MT93575

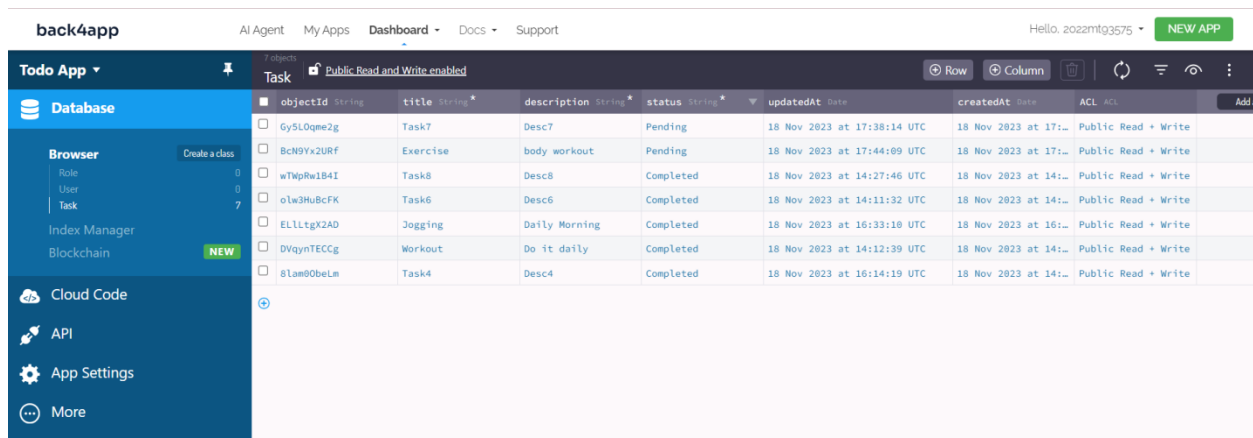## Assignment Steps:

Step 1: Set Up Back4App

New app – 'Todo App'

Created a new class 'Task' with columns title, description, status

App Keys

Step 2: Flutter Setup

Created new flutter project 'todoapp'

```
WINDOWS@DESKTOP-KGKI498 MINGW64 /D/flutter_back4app_assignment/todoapp
$ flutter doctor

 ┌─────────────────────────────────────────────────────────────────┐
 │ A new version of Flutter is available!                          │
 │                                                                 │
 │ To update to the latest version, run "flutter upgrade".         │
 └─────────────────────────────────────────────────────────────────┘

Doctor summary (to see all details, run flutter doctor -v):
[√] Flutter (Channel stable, 3.13.9, on Microsoft Windows [Version 10.0.19045.3570], locale en-IN)
[√] Windows Version (Installed version of Windows is version 10 or higher)
[√] Android toolchain - develop for Android devices (Android SDK version 34.0.0)
[√] Chrome - develop for the web
[√] Visual Studio - develop Windows apps (Visual Studio Build Tools 2022 17.8.0)
[√] Android Studio (version 2022.3)
[√] VS Code (version 1.84.0)
[√] Connected device (3 available)
[√] Network resources

• No issues found!
```

Added dependency 'parse_server_sdk' in pubspec.yaml

```
dependencies:
  flutter:
    sdk: flutter
  parse_server_sdk: ^6.2.0
```

Updated keyApplicationId, keyClientKey, keyParseServerUrl in main.dart file

```dart
main.dart ×        ! pubspec.yaml

todoapp > lib > main.dart
1    import 'dart:async';
2
3    import 'package:flutter/material.dart';
4    import 'package:parse_server_sdk/parse_server_sdk.dart';
5
6    void main() async {
7      WidgetsFlutterBinding.ensureInitialized();
8
9      final keyApplicationId = 'A18AZwjSoNURQ87jeiFi4cqTCGv2ePdS5fszplHR';
10     final keyClientKey = 'fKUikQNisEeqfEkKuD0VlJkAYcgb6AG3UxQnArr7';
11     final keyParseServerUrl = 'https://parseapi.back4app.com';
12
13     await Parse().initialize(keyApplicationId, keyParseServerUrl,
14         clientKey: keyClientKey, debug: true);
15
16     runApp(MaterialApp(
17       home: Home(),
18       routes: {
19         '/taskdetails': (context) => TaskDetailsScreen(),
20       }
21     ));
22   }
23
```
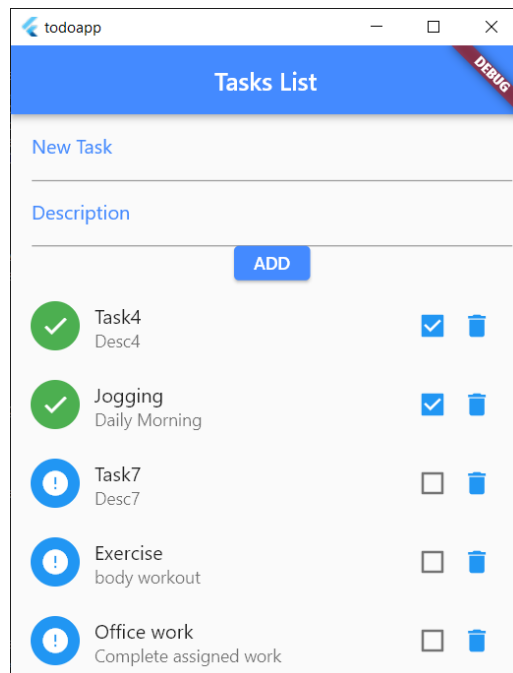
Step 3: Task List

Executing code by running flutter run command

Get query in logs

flutter: ,-- Parse Request
flutter: curl -X GET -H 'user-agent: Flutter Parse SDK 6.3.0' -H 'X-Parse-Application-Id: A18AZwjSoNURQ87jeiFi4cqTCGv2ePdS5fszplHR' -H 'X-Parse-Client-Key: fKUikQNisEeqfEkKuD0VlJkAYcgb6AG3UxQnArr7' https://pars
eapi.back4app.com/classes/Task?where=%7B%7D

https://parseapi.back4app.com/classes/Task?where={}
flutter: '--
flutter: ,-- Parse Response
Class: Task
Function: ParseApiRQ.query
Status Code: 200
Payload: [{"className":"Task","objectId":"olw3HuBcFK","createdAt":"2023-11-18T14:00:59.835Z","updatedAt":"2023-11-18T14:11:32.913Z","title":"Task6","description":"Desc6","status":"Completed"}, {"className":"Tas
k","objectId":"wTwpRw1B4I","createdAt":"2023-11-18T14:05:13.496Z","updatedAt":"2023-11-18T14:27:46.779Z","title":"Task8","description":"Desc8","status":"Completed"}, {"className":"Task","objectId":"DVqynTECCg",
"createdAt":"2023-11-18T14:12:13.709Z","updatedAt":"2023-11-18T14:12:39.726Z","title":"Workout","description":"Do it daily","status":"Completed"}, {"className":"Task","objectId":"8lamOObeLm","createdAt":"2023-1
1-18T14:27:06.002Z","updatedAt":"2023-11-18T16:14:19.906Z","title":"Task4","description":"Desc4","status":"Completed"}, {"className":"Task","objectId":"ELlLtgX2AD","createdAt":"2023-11-18T16:32:13.264Z","update
dAt":"2023-11-18T16:33:10.917Z","title":"Jogging","description":"Daily Morning","status":"Completed"}, {"className":"Task","objectId":"Gy5LOqme2g","createdAt":"2023-11-18T17:38:14.868Z","updatedAt":"2023-11-18T
17:38:14.868Z","title":"Task7","description":"Desc7","status":"Pending"}, {"className":"Task","objectId":"BcN9Yx2URf","createdAt":"2023-11-18T17:44:09.210Z","updatedAt":"2023-11-18T17:44:09.210Z","title":"Exerc
ise","description":"body workout","status":"Pending"}, {"className":"Task","objectId":"etKpxsta7j","createdAt":"2023-11-18T18:16:19.177Z","updatedAt":"2023-11-18T18:16:19.177Z","title":"Office work","descriptio
n":"Complete assigned work","status":"Pending"}]
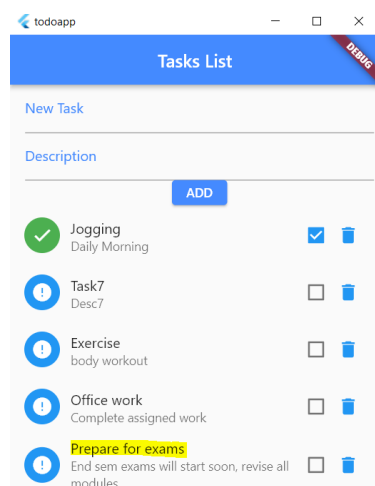'--

Implemented getToDo() function to retrieve tasks list

```
Future<List<ParseObject>> getTodo() async {
  QueryBuilder<ParseObject> queryTodo =
      QueryBuilder<ParseObject>(ParseObject('Task'));
  final ParseResponse apiResponse = await queryTodo.query();

  if (apiResponse.success && apiResponse.results != null) {
    return apiResponse.results as List<ParseObject>;
  } else {
    return [];
  }
}
```

Step 4: Task Creation

Created new task 'Prepare for exams'

Post query in logs

```
flutter: ,-- Parse Request
flutter: curl -X POST -H 'content-type: application/json; charset=utf-8' -H 'user-agent: Flutter Parse SDK 6.3.0' -H 'X-Parse-Application-Id: A18AZwjSoNURQ87jeiFi4cqTCGv2ePdS5fszplHR' -H 'X-Parse-Client-Key: fK
UikQNisEeqfEkKuDOVlJkAYcgb6AG3UxQnArr7' -d '{"title":"Prepare for exams","description":"End sem exams will start soon, revise all modules"}' https://parseapi.back4app.com/classes/Task

https://parseapi.back4app.com/classes/Task
flutter: \--
flutter: ,-- Parse Response
Class: Task
Function: ParseApiRQ.create
Status Code: 201
Payload: {"className":"Task","objectId":"4EJIei741N","createdAt":"2023-11-18T18:23:02.562Z","title":"Prepare for exams","description":"End sem exams will start soon, revise all modules","status":"Pending"}
```

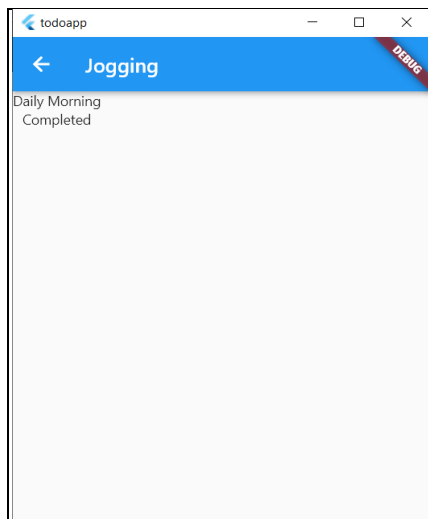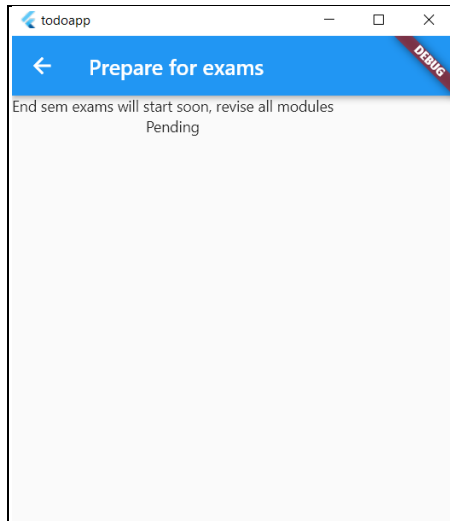Implemented addToDo() function to add new tasks

```dart
void addToDo() async {
  if (titleController.text.trim().isEmpty || descriptionController.text.trim().isEmpty) {
    ScaffoldMessenger.of(context).showSnackBar(SnackBar(
      content: Text("Empty title"),
      duration: Duration(seconds: 2),
    ));
    return;
  }
  await saveTodo(titleController.text, descriptionController.text);
  setState(() {
    titleController.clear();
    descriptionController.clear();
  });
}
```

```dart
Future<void> saveTodo(String title, String description) async {
  final todo = ParseObject('Task')..set('title', title)..set('description',description);
  await todo.save();
}
```

Step 5: Task Details

Task details will be displayed whenever a task is tapped

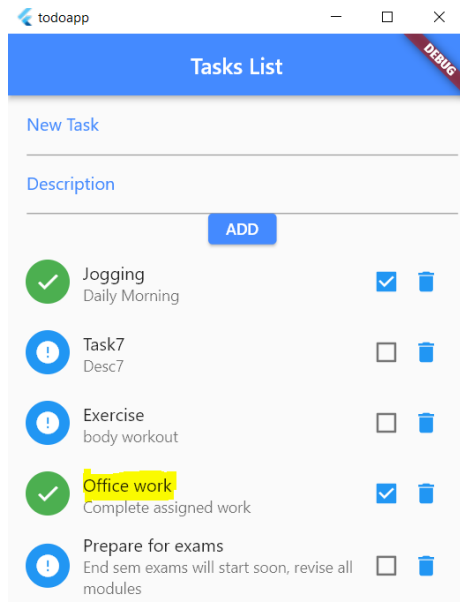Details include title, description and status of that task

Step 6: Bonus Features

Added functionality for updating and deleting existing tasks

Updated task 'Office work' to Completed

Put query in logs

```
flutter: ,-- Parse Request
flutter: curl -X PUT -H 'content-type: application/json; charset=utf-8' -H 'user-agent: Flutter Parse SDK 6.3.0' -H 'X-Parse-Application-Id: A18AZwjSoNURQ87jeiFi4cqTCGv2ePdS5fszplHR' -H 'X-Parse-Client-Key: fKU
ikQNisEeqfEkKuDOVlJkAYcgb6AG3UxQnArr7' -d '{"status":"Completed"}' https://parseapi.back4app.com/classes/Task/etKpxsta7j

https://parseapi.back4app.com/classes/Task/etKpxsta7j
flutter: (--
flutter: ,-- Parse Response
Class: Task
Function: ParseApiRQ.save
Status Code: 200
Payload: {"className":"Task","objectId":"etKpxsta7j","updatedAt":"2023-11-18T19:00:44.647Z","status":"Completed"}
(--
```

```
Future<void> updateTodo(String id, bool done) async {
  var todo = ParseObject('Task')
    ..objectId = id
    ..set('status', 'Completed');
  await todo.save();
}
```

Deleted task 'Jogging'

Delete query in logs

flutter: ,-- Parse Request
flutter: curl -X DELETE -H 'user-agent: Flutter Parse SDK 6.3.0' -H 'X-Parse-Application-Id: A18AZwjSoNURQ87jeiFi4cqTCGv2ePdS5fszplHR' -H 'X-Parse-Client-Key: fKUikQNisEeqfEkKuDOVlJkAYcgb6AG3UxQnArr7' https://p.
arseapi.back4app.com/classes/Task/ELlLtgX2AD

https://parseapi.back4app.com/classes/Task/ELlLtgX2AD
flutter: \--
flutter: ,-- Parse Response
Class: Task
Function: ParseApiRQ.delete
Status Code: 200
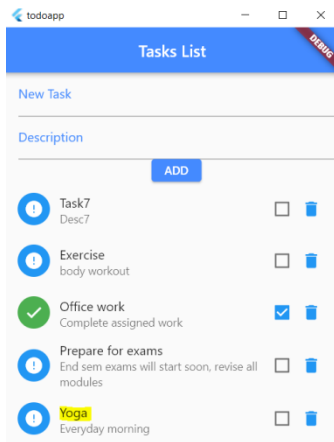Payload: {"className":"Task","objectId":"ELlLtgX2AD"}
\--

```
Future<void> deleteTodo(String id) async {
   var todo = ParseObject('Task')..objectId = id;
   await todo.delete();
}
}
```

Add, Update, Deletion of tasks in Back4App will get reflected in Flutter Todo app

New task 'Yoga'

objectId String	title String*	description String*	status String*	updatedAt Date	createdAt Date	ACL ACL
(auto)	Yoga	Everyday morning	(undefined)	(auto)	(auto)	Public Read + Write

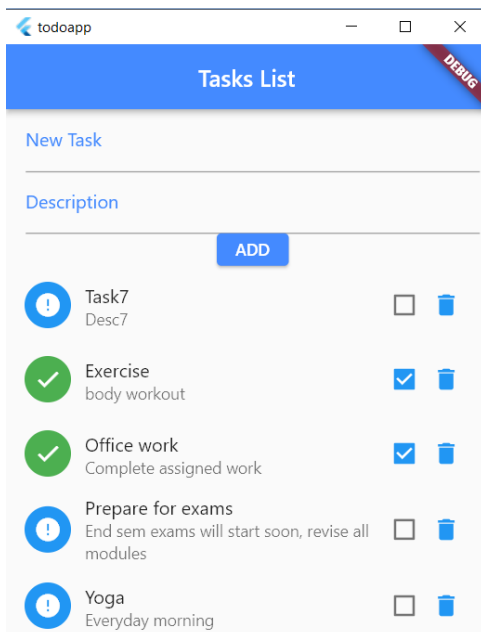Add   Cancel

9 objects
Task 🔓 Public Read and Write enabled   ⊕ Row   ⊕ Column 🗑 ○ ≡ 👁

objectId String	title String*	description String*	status String*	updatedAt Date	createdAt Date	ACL ACL
AxBqCgtHxB	Yoga	Everyday morning	Pending	18 Nov 2023 at 19:16:30 UTC	18 Nov 2023 at 19:…	Public Read + Write
etKpxsta7j	Office work	Complete assigned …	Completed	18 Nov 2023 at 19:00:44 UTC	18 Nov 2023 at 18:…	Public Read + Write
4EJIei741N	Prepare for exams	End sem exams will…	Pending	18 Nov 2023 at 18:23:02 UTC	18 Nov 2023 at 18:…	Public Read + Write
BcN9Yx2URf	Exercise	body workout	Pending	18 Nov 2023 at 17:44:09 UTC	18 Nov 2023 at 17:…	Public Read + Write
Gy5LOqme2g	Task7	Desc7	Pending	18 Nov 2023 at 17:38:14 UTC	18 Nov 2023 at 17:…	Public Read + Write

Update task 'Exercise' to Completed

	objectId	title	description	status	updatedAt	createdAt	ACL
☐	BcN9Yx2URf	Exercise	body workout	Pending	18 Nov 2023 at 17:44:09 UTC	18 Nov 2023 at 17:…	Public Read + Write

9 objects
🔓 Public Read and Write enabled

Task   ⊕ Row   ⊕ Column   🗑   ↻   ☰   👁

	objectId String	title String*	description String*	status String*	updatedAt Date	createdAt Date	ACL ACL
☐	BcN9Yx2URf	Exercise	body workout	Completed	18 Nov 2023 at 19:20:30 UTC	18 Nov 2023 at 17:…	Public Read + Write
☐	AxBqCgtHxB	Yoga	Everyday morning	Pending	18 Nov 2023 at 19:16:30 UTC	18 Nov 2023 at 19:…	Public Read + Write
☐	etKpxsta7j	Office work	Complete assigned …	Completed	18 Nov 2023 at 19:00:44 UTC	18 Nov 2023 at 18:…	Public Read + Write
☐	4EJIei741N	Prepare for exams	End sem exams will…	Pending	18 Nov 2023 at 18:23:02 UTC	18 Nov 2023 at 18:…	Public Read + Write

Delete task 'Workout'

	objectId	title	description	status	updatedAt	createdAt	ACL
☐	DVqynTECCg	Workout	Do it daily	Completed	18 Nov 2023 at 14:12:39 UTC	18 Nov 2023 at 14:…	Public Read + Write

Git Hub Repository Link: https://github.com/saiteja-gaddam/Flutter-App-with-Back4App-Integration