

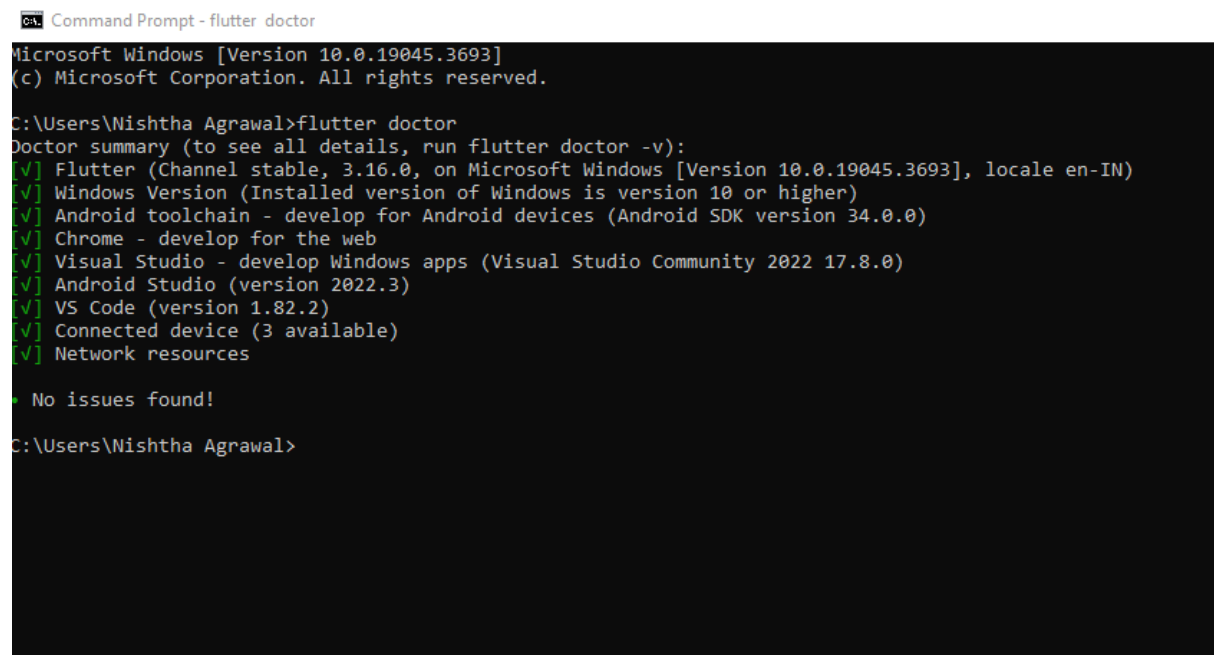
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Problem Statement: In this assignment, you will create a Flutter app that connects to Back4App, a Backend-as-a-Service (BaaS) platform, to manage tasks. You will be responsible for setting up the Back4App backend, creating the Flutter app, and implementing the necessary functionality to interact with the backend.

Solution:

1. Ensure that Flutter is installed without any error



```
Command Prompt - flutter doctor
Microsoft Windows [Version 10.0.19045.3693]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Nishtha Agrawal>flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[✓] Flutter (Channel stable, 3.16.0, on Microsoft Windows [Version 10.0.19045.3693], 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 Community 2022 17.8.0)
[✓] Android Studio (version 2022.3)
[✓] VS Code (version 1.82.2)
[✓] Connected device (3 available)
[✓] Network resources

• No issues found!

C:\Users\Nishtha Agrawal>
```

2. Ensure that Parse-server-sdk version is same in your flutter application(pubsec.yaml) file and back4app as shown below.

```

name: flutter
description: A framework for writing Flutter applications
homepage: https://flutter.dev

environment:
  sdk: '>=3.2.0-0 <4.0.0'

dependencies:
  # To update these, use "flutter update-packages --force-upgrade".
  characters: 1.3.0
  collection: 1.18.0
  material_color_utilities: 0.5.0
  meta: 1.10.0
  vector_math: 2.1.4
  web: 0.3.0
  sky_engine:
    flutter:
      sdk: flutter
  parse_sdk_server: 6.2.0

dev_dependencies:
  flutter_test:
    sdk: flutter
  flutter_goldens:
    sdk: flutter
  fake_async: 1.3.1
  leak_tracker: 9.0.7
  leak_tracker_flutter_testing: 1.0.5

  _fe_analyzer_shared: 64.0.0 # THIS LINE IS AUTOGENERATED - TO UPDATE USE "flutter update-packages --force-upgrade"
  analyzer: 6.2.0 # THIS LINE IS AUTOGENERATED - TO UPDATE USE "flutter update-packages --force-upgrade"
  args: 2.4.2 # THIS LINE IS AUTOGENERATED - TO UPDATE USE "flutter update-packages --force-upgrade"
  async: 2.11.0 # THIS LINE IS AUTOGENERATED - TO UPDATE USE "flutter update-packages --force-upgrade"
  boolean_selector: 2.1.1 # THIS LINE IS AUTOGENERATED - TO UPDATE USE "flutter update-packages --force-upgrade"
  clock: 1.1.1 # THIS LINE IS AUTOGENERATED - TO UPDATE USE "flutter update-packages --force-upgrade"
  convert: 3.1.1 # THIS LINE IS AUTOGENERATED - TO UPDATE USE "flutter update-packages --force-upgrade"
  coverage: 1.6.3 # THIS LINE IS AUTOGENERATED - TO UPDATE USE "flutter update-packages --force-upgrade"
  crypto: 3.0.3 # THIS LINE IS AUTOGENERATED - TO UPDATE USE "flutter update-packages --force-upgrade"
  # ...

```

The screenshot shows the 'Parse Version' page in the Back4app dashboard. The left sidebar contains navigation options: Database, Cloud Code, API, App Settings (selected), General, Security & Keys, Server Settings, and More. The main content area displays the 'Parse Version' section with a list of available versions. The version '6.2.0 - Parse Server 6.2.0 - Beta' is selected and highlighted. Below the list, there are radio buttons for other versions: '5.2.3 - Parse Server 5.2.3 - Beta', '4.10.4 - Parse Server 4.10.4', and '4.5.0 - Parse Server 4.5.0'. A 'Help' button is visible in the bottom right corner.

- Update keyApplicationID, final keyClientKey and final keyParseServerUrl in main.dart file. This is done so as to connect between Flutter application and Back4app.

```
main.dart x
D: > new1 > 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   final keyApplicationId = 'T2yCBBZFhaRC2V9yfJ9w7KImIrbjs14MKTaiYHuY';
9   final keyClientKey = 'TqvIbhDiA7zSQ4ZUK0LvHSE01Onke0uuVMIujjSW';
10  final keyParseServerUrl = 'https://parseapi.back4app.com';
11
12  await Parse().initialize(keyApplicationId, keyParseServerUrl, clientKey: keyClientKey, autoSendSessionId: true,
13    liveQueryUrl: 'cpadassignment.b4a.io', debug: true);
14  runApp(const MaterialApp(home: Home(),));
15
16 }
17
18 class Home extends StatefulWidget {
19   const Home({Key? key}) : super(key: key);
20
21   @override
22   _HomeState createState() => _HomeState();
23 }
24
25 class _HomeState extends State<Home> {
26   final taskController = TextEditingController();
27   final descriptionController = TextEditingController();
28   List<ParseObject> taskList = [];
29   final QueryBuilder<ParseObject> queryTask =
30     QueryBuilder<ParseObject>(ParseObject('Task'))
31     ..orderByAscending('createdAt');
```

These details can be fetched from Back4app (AppSettings>>Security & Keys and App Settings>>General)

AI Agent My Apps Dashboard Docs Support Hello, nishtha.agarwal7 NEW APP

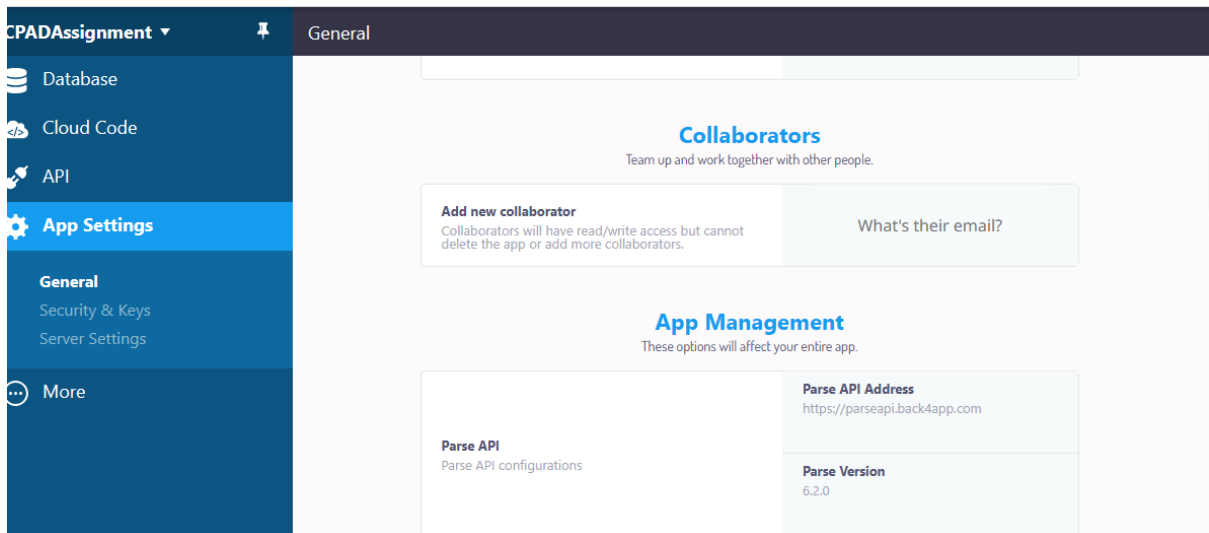
Security & Keys

App Keys

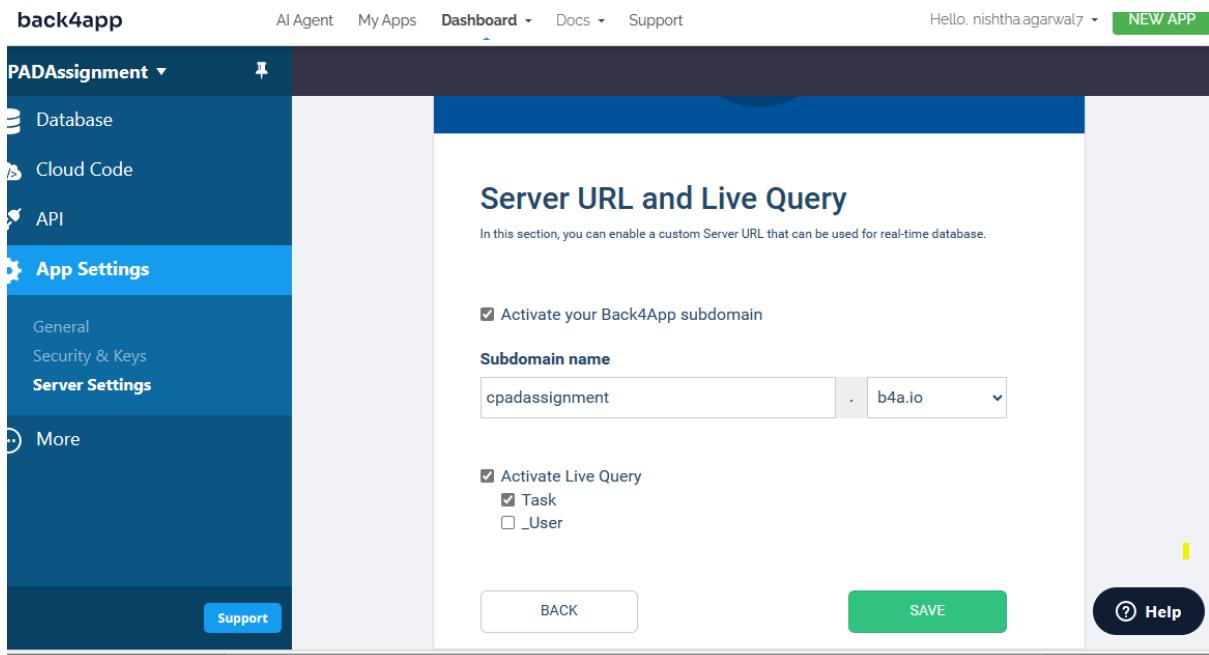
These are the unique identifiers used to access this app.

Application ID Main ID that uniquely specifies this app. Used with one of the keys below.	T2yCBBZFhaRC2V9yfJ9w7KImIrbjs14MKTaiYHuY
Client key Use this in consumer clients, such as the iOS or Android SDKs.	TqvIbhDiA7zSQ4ZUK0LvHSE01Onke0uuVMIujjSW
JavaScript key Use this when making requests from JavaScript clients.	cQYeJlZ4VBcia2cm8zkHfdHizJid2RAHWibftbzQ
.NET key Use this when making requests from Windows, Xamarin, or Unity clients.	41q020rCe8WfP8wm627fYNR560HAYTVCSHxnUMK2
REST API key Use this when making requests from server-side REST applications. Keep it secret!	Show REST Key

- Update the Parse API as shown below is same for all the Back4app.



- As we are creating Interactive/Live Application therefore, we need to make sure that Back4app subdomain is activated with Live Query. This can be done from Server URL and Live Query(AppSettings>>Server Settings>>Server URL and Live Query). The Live liveQueryURL is updated in main.dart file. This is unique for a dashboard.

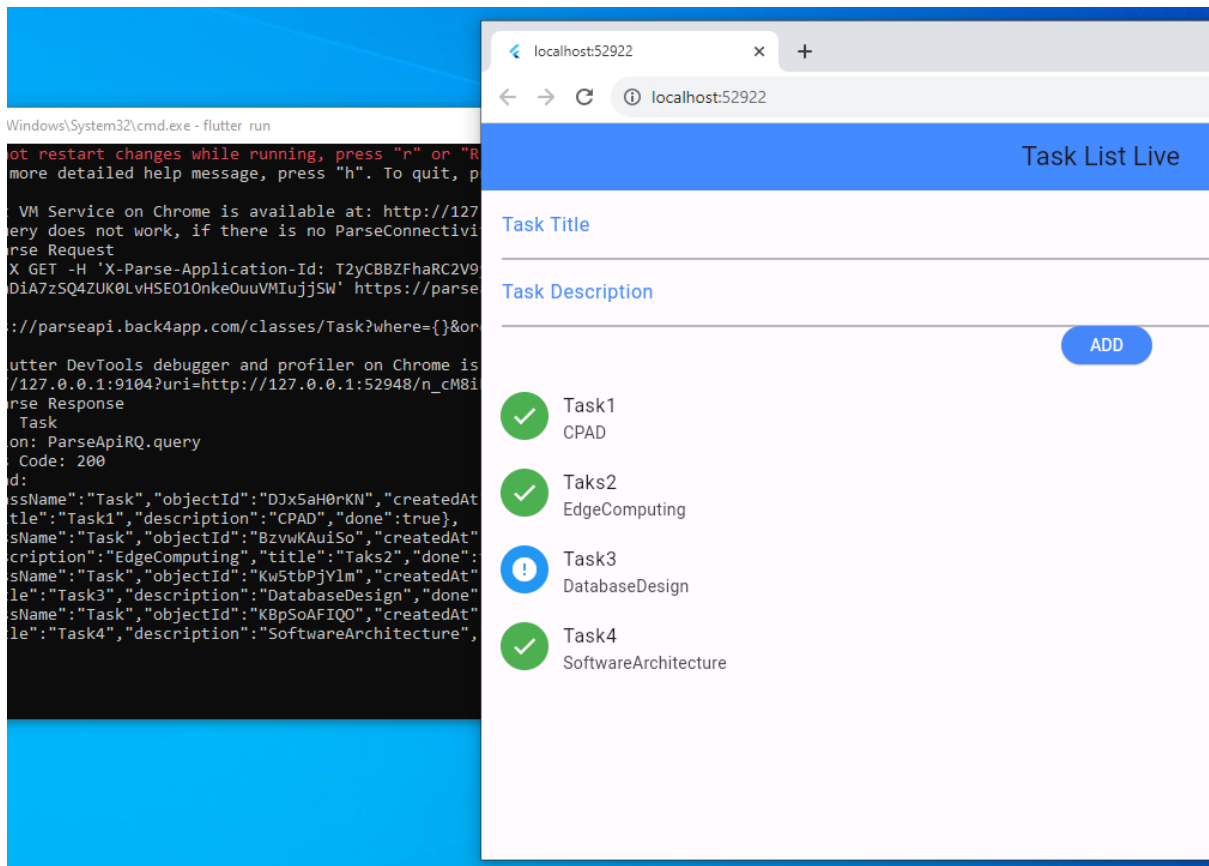


We need to startLiveQuery with CREATE, UPDATE and DELETE. This is to ensure that we can make changes while application is running.

- Execute the code by running “flutter run” command.

```
C:\Windows\System32\cmd.exe - flutter run
Microsoft Windows [Version 10.0.19045.3693]
(c) Microsoft Corporation. All rights reserved.

D:\new1>flutter run
Connected devices:
Windows (desktop) • windows • windows-x64 • Microsoft Windows [Version 10.0.19045.3693]
Chrome (web) • chrome • web-javascript • Google Chrome 116.0.5845.188
Edge (web) • edge • web-javascript • Microsoft Edge 119.0.2151.72
[1]: Windows (windows)
[2]: Chrome (chrome)
[3]: Edge (edge)
Please choose one (or "q" to quit): 2
Launching lib\main.dart on Chrome in debug mode...
Waiting for connection from debug service on Chrome...
```



7. Adding a task in Back4App will update in Flutter Application

4 objects

Task Public Read and Write enabled

+ Row + Column 🗑️ 🔄 ☰ 👁️ ⋮

createdAt	Date	updatedAt	Date	ACL	ACL	title	String	description	String	done	Boolean
(auto)		(auto)		Public Read + Write		Task5		Networking		False	<input checked="" type="checkbox"/>
19 Nov 2023 at 07:...		20 Nov 2023 at 17:...		Public Read + Write		Task4		SoftwareArchitectu...		True	<input checked="" type="checkbox"/>
19 Nov 2023 at 07:...		20 Nov 2023 at 17:...		Public Read + Write		Task3		DatabaseDesign		False	<input type="checkbox"/>
19 Nov 2023 at 07:...		20 Nov 2023 at 17:...		Public Read + Write		Taks2		EdgeComputing		True	<input checked="" type="checkbox"/>
19 Nov 2023 at 07:...		20 Nov 2023 at 17:...		Public Read + Write		Task1		CPAD		True	<input checked="" type="checkbox"/>

Create a class NEW

localhost:52922

Task List Live

Task Title

Task Description

ADD

- ☒ Task1
CPAD ☒
- ☒ Taks2
EdgeComputing ☒
- ☐ Task3
DatabaseDesign ☐
- ☒ Task4
SoftwareArchitecture ☒
- ☒ Task5
Networking ☒

- Updating a task in flutter application will be updated in Back4app. As I set value of field Done to false for Edge Computing on my Flutter Application it is set to done in Back4App as shown below.

Task List Live

Task Title

Task Description

ADD

✓ Task1
CPAD

✓ Task4
SoftwareArchitecture

! Task5
Networking

! Taks2
EdgeComputing

! Task3
DatabaseDesign

✓

✗

✗

✓

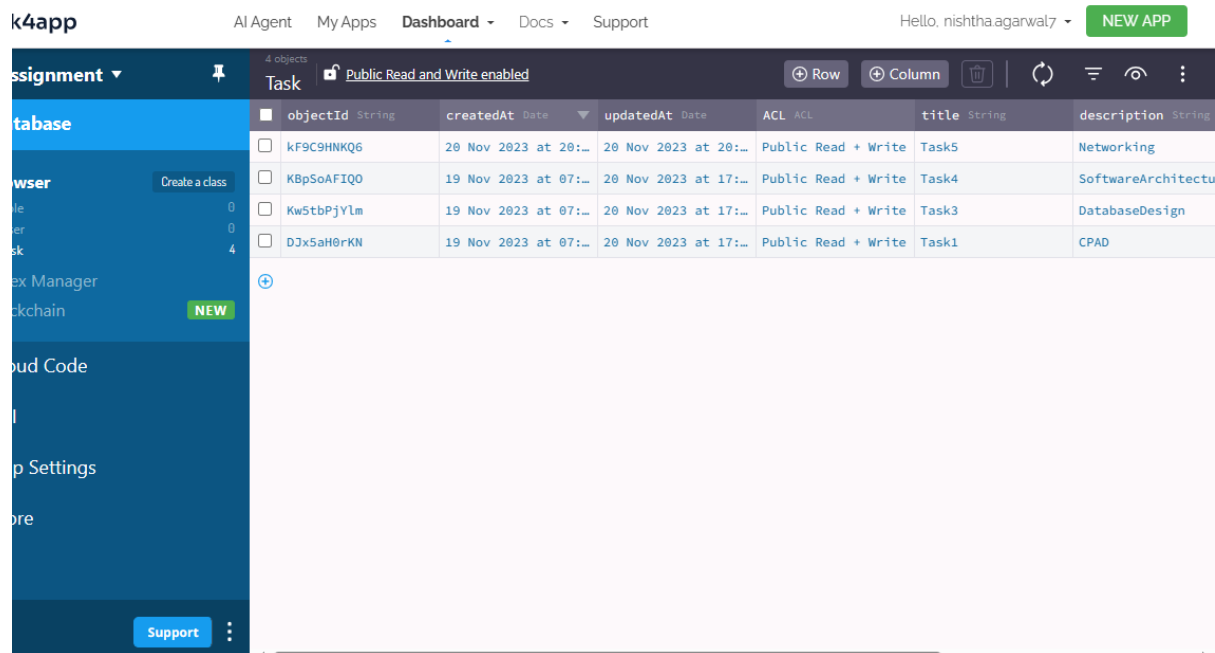
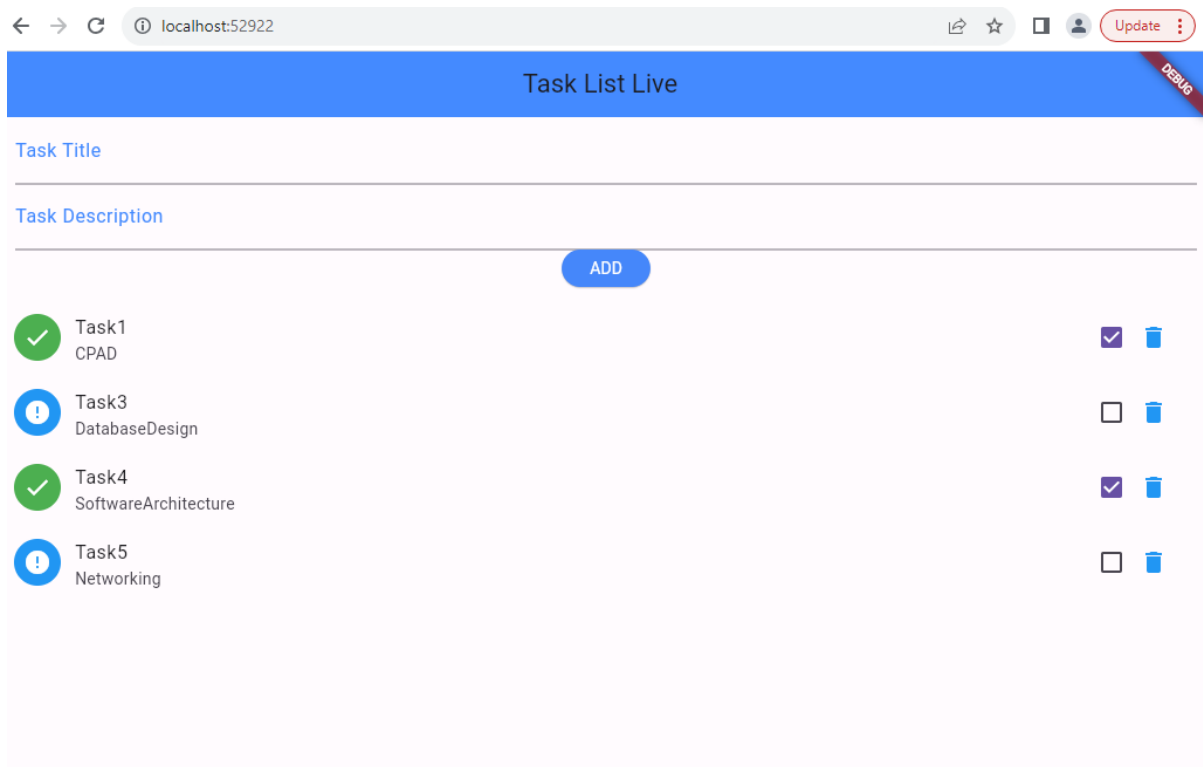
✗

✗

✗

createdAt	updatedAt	ACL	title	description	done
Nov 2023 at 20:...	20 Nov 2023 at 20:...	Public Read + Write	Task5	Networking	False
Nov 2023 at 07:...	20 Nov 2023 at 17:...	Public Read + Write	Task4	SoftwareArchitectu...	True
Nov 2023 at 07:...	20 Nov 2023 at 17:...	Public Read + Write	Task3	DatabaseDesign	False
Nov 2023 at 07:...	20 Nov 2023 at 20:...	Public Read + Write	Taks2	EdgeComputing	False
Nov 2023 at 07:...	20 Nov 2023 at 17:...	Public Read + Write	Task1	CPAD	True

9. Deleting a task in flutter Application will delete a task in Back4App.



10. The query execution can be seen as shown below in the logs:


```
C:\Windows\System32\cmd.exe - flutter run
{"title":"Task1","description":"CPAD","done":true},
{"className":"Task","objectId":"BzvwKAuiSo","createdAt":"2023-11-19T07:04:08.408Z","updatedAt":"2023-11-20T17:06:38.174Z",
"description":"EdgeComputing","title":"Taks2","done":true},
{"className":"Task","objectId":"Kw5tbPjYlm","createdAt":"2023-11-19T07:04:29.447Z","updatedAt":"2023-11-20T17:06:29.211Z",
"title":"Task3","description":"DatabaseDesign","done":false},
{"className":"Task","objectId":"KBpSoAFIQ0","createdAt":"2023-11-19T07:04:58.979Z","updatedAt":"2023-11-20T17:06:24.238Z",
"title":"Task4","description":"SoftwareArchitecture","done":true}]
--
iveQuery does not work, if there is no ParseConnectivityProvider provided.
-- Parse Request
url -X GET -H 'X-Parse-Application-Id: T2yCBBZFhaRC2V9yfJ9w7KImIrbjs14MKTAiYHuY' -H 'X-Parse-Client-Key:
qvIbhDiA7zSQ4ZUK0LvHSE01Onke0uuVMIujjSW' https://parseapi.back4app.com/classes/Task?where=%7B%7D&order=createdAt
https://parseapi.back4app.com/classes/Task?where={}&order=createdAt
--
-- Parse Response
Class: Task
Function: ParseApiRQ.query
Status Code: 200
Payload:
{"className":"Task","objectId":"DJX5aH0rKN","createdAt":"2023-11-19T07:03:43.642Z","updatedAt":"2023-11-20T17:08:40.814",
"title":"Task1","description":"CPAD","done":true},
{"className":"Task","objectId":"BzvwKAuiSo","createdAt":"2023-11-19T07:04:08.408Z","updatedAt":"2023-11-20T17:06:38.174Z",
"description":"EdgeComputing","title":"Taks2","done":true},
{"className":"Task","objectId":"Kw5tbPjYlm","createdAt":"2023-11-19T07:04:29.447Z","updatedAt":"2023-11-20T17:06:29.211Z",
"title":"Task3","description":"DatabaseDesign","done":false},
{"className":"Task","objectId":"KBpSoAFIQ0","createdAt":"2023-11-19T07:04:58.979Z","updatedAt":"2023-11-20T17:06:24.238Z",
"title":"Task4","description":"SoftwareArchitecture","done":true},
{"title":"Task5","description":"Networking","done":false}]
--
-- Parse Request
url -X DELETE -H 'X-Parse-Application-Id: T2yCBBZFhaRC2V9yfJ9w7KImIrbjs14MKTAiYHuY' -H 'X-Parse-Client-Key:
qvIbhDiA7zSQ4ZUK0LvHSE01Onke0uuVMIujjSW' https://parseapi.back4app.com/classes/Task/BzvwKAuiSo
https://parseapi.back4app.com/classes/Task/BzvwKAuiSo
--
-- Parse Response
Class: Task
Function: ParseApiRQ.delete
Status Code: 200
Payload: {"className":"Task","objectId":"BzvwKAuiSo"}
--
iveQuery does not work, if there is no ParseConnectivityProvider provided.
-- Parse Request
url -X GET -H 'X-Parse-Application-Id: T2yCBBZFhaRC2V9yfJ9w7KImIrbjs14MKTAiYHuY' -H 'X-Parse-Client-Key:
qvIbhDiA7zSQ4ZUK0LvHSE01Onke0uuVMIujjSW' https://parseapi.back4app.com/classes/Task?where=%7B%7D&order=createdAt
https://parseapi.back4app.com/classes/Task?where={}&order=createdAt
--
-- Parse Response
Class: Task
Function: ParseApiRQ.query
Status Code: 200
Payload:
```