



BITS Pilani

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Work Integrated Learning Program

M. Tech. in Software Engineering

Cross Platform Application Development

SEZG585

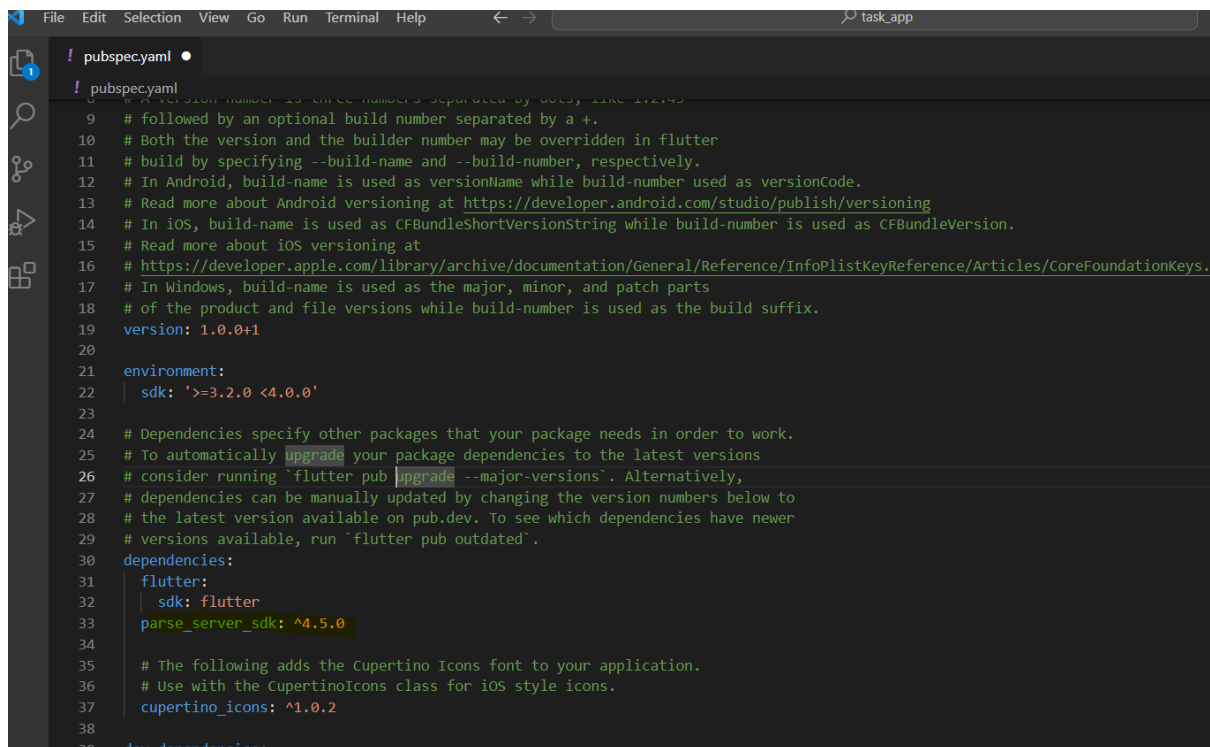
Flutter App with Back4app Integration

Name –Netrapal Singh

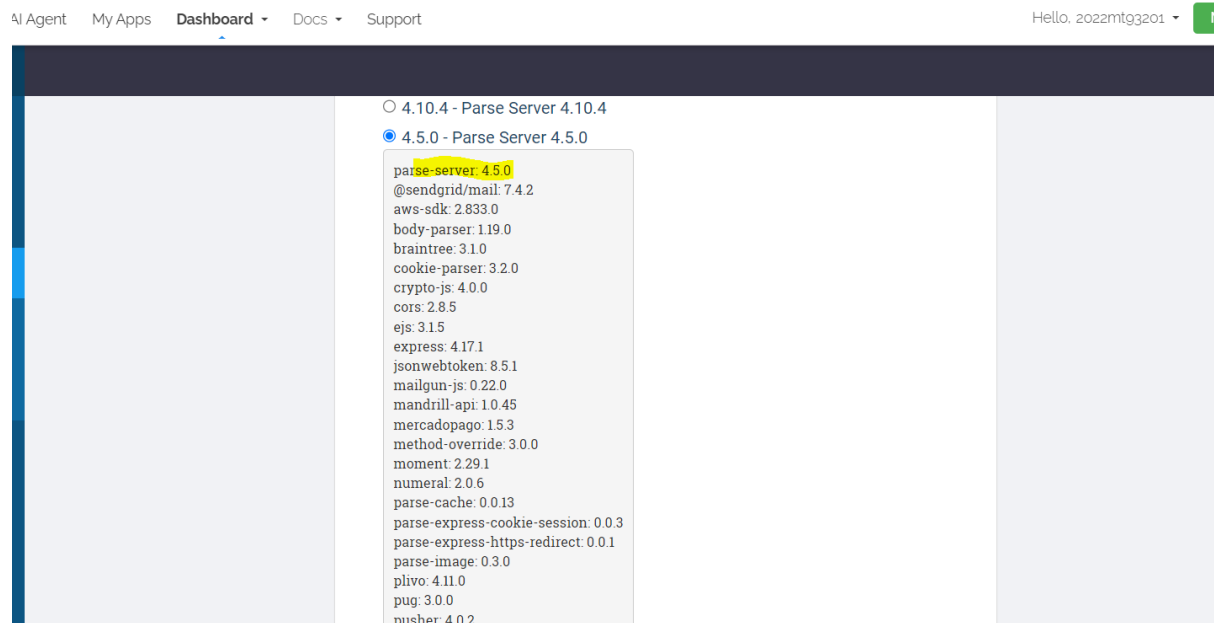
ID – 2022MT93201

Make sure everything is installed properly by running `flutter doctor` command.

And `parse-server-sdk` version is same in your flutter application (`pubspec.yaml`) and back4app (App Setting >> Server Settings >> Manage Parse server).



```
9 # followed by an optional build number separated by a +.
10 # Both the version and the builder number may be overridden in flutter
11 # build by specifying --build-name and --build-number, respectively.
12 # In Android, build-name is used as versionName while build-number used as versionCode.
13 # Read more about Android versioning at https://developer.android.com/studio/publish/versioning
14 # In iOS, build-name is used as CFBundleShortVersionString while build-number is used as CFBundleVersion.
15 # Read more about iOS versioning at
16 # https://developer.apple.com/library/archive/documentation/General/Reference/InfoPlistKeyReference/Articles/CoreFoundationKeys.
17 # In Windows, build-name is used as the major, minor, and patch parts
18 # of the product and file versions while build-number is used as the build suffix.
19 version: 1.0.0+1
20
21 environment:
22   sdk: '>=3.2.0 <4.0.0'
23
24 # Dependencies specify other packages that your package needs in order to work.
25 # To automatically upgrade your package dependencies to the latest versions
26 # consider running `flutter pub upgrade --major-versions`. Alternatively,
27 # dependencies can be manually updated by changing the version numbers below to
28 # the latest version available on pub.dev. To see which dependencies have newer
29 # versions available, run `flutter pub outdated`.
30 dependencies:
31   flutter:
32     sdk: flutter
33   parse_server_sdk: ^4.5.0
34
35 # The following adds the Cupertino Icons font to your application.
36 # Use with the CupertinoIcons class for iOS style icons.
37 cupertino_icons: ^1.0.2
38
39 dev_dependencies:
```

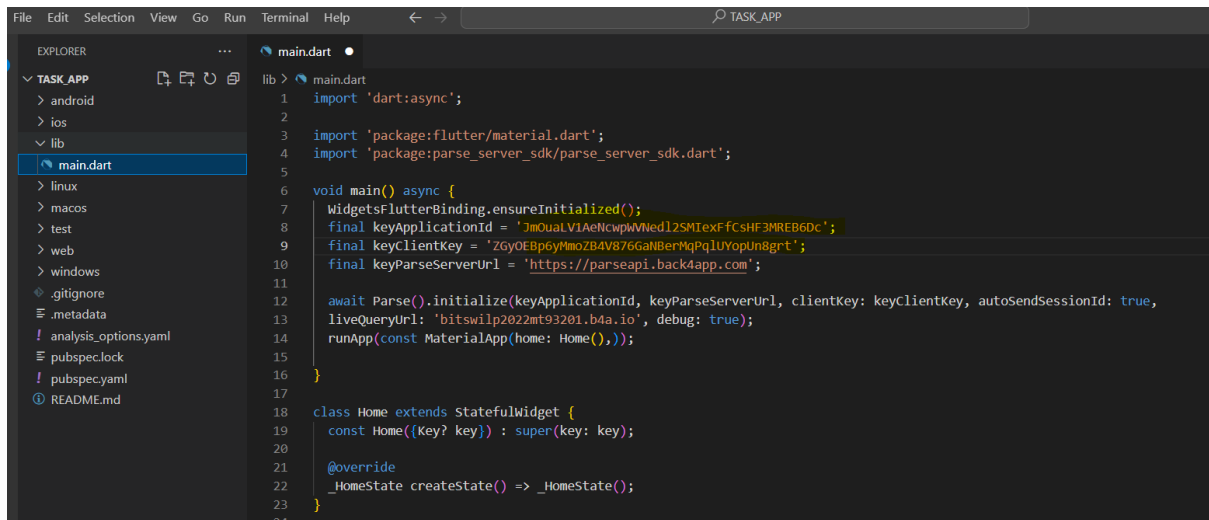


AI Agent My Apps Dashboard Docs Support Hello, 2022mtg3201

○ 4.10.4 - Parse Server 4.10.4
● 4.5.0 - Parse Server 4.5.0

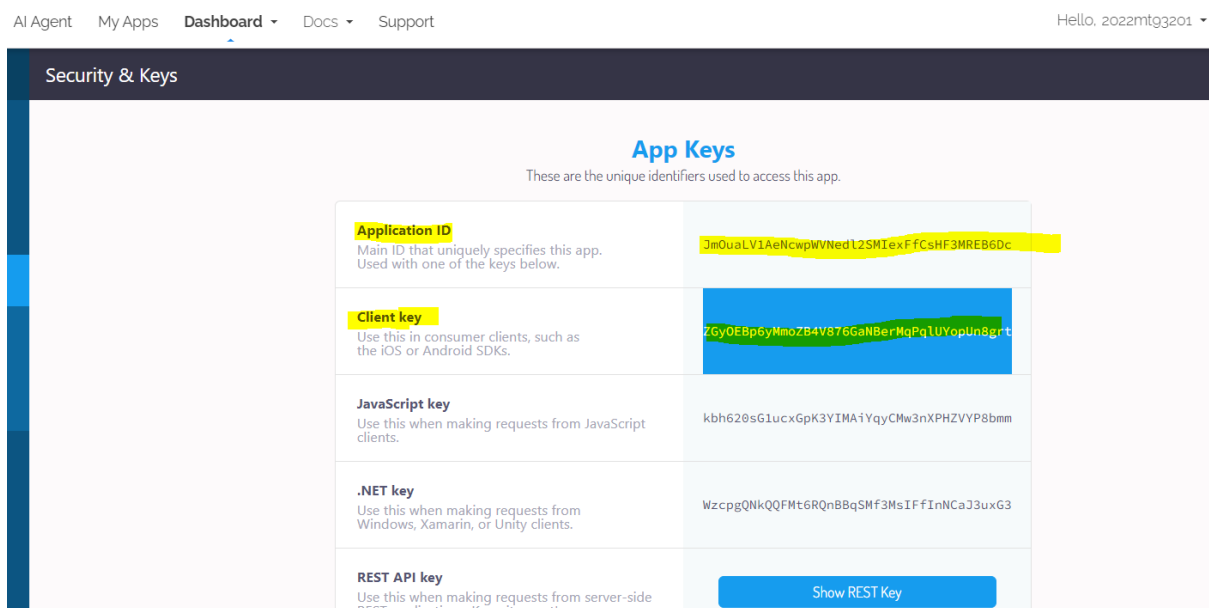
```
parse-server: 4.5.0
@sendgrid/mail: 7.4.2
aws-sdk: 2.833.0
body-parser: 1.19.0
braintree: 3.1.0
cookie-parser: 3.2.0
crypto-js: 4.0.0
cors: 2.8.5
ejs: 3.1.5
express: 4.17.1
jsonwebtoken: 8.5.1
mailgun-js: 0.22.0
mandrill-api: 1.0.45
mercadoPago: 1.5.3
method-override: 3.0.0
moment: 2.29.1
numeral: 2.0.6
parse-cache: 0.0.13
parse-express-cookie-session: 0.0.3
parse-express-https-redirect: 0.0.1
parse-image: 0.3.0
plivo: 4.11.0
pug: 3.0.0
pusher: 4.0.2
```

Update the `keyApplicationId`, final `keyClientKey`, and final `keyParseServerUrl` in `main.dart` file. This is done so as to make sure connectivity between Flutter Application and Back4app.



```
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 = 'JmOuaLV1AeNcwplVned12SMIexFfCsHF3MREB6Dc';
9   final keyClientKey = 'ZGyOEBp6yMmoZB4V876GaNBerMqPqLUYopUn8grt';
10  final keyParseServerUrl = 'https://parseapi.back4app.com';
11
12  await Parse().initialize(keyApplicationId, keyParseServerUrl, clientKey: keyClientKey, autoSendSessionId: true,
13    liveQueryUrl: 'bitswillp2022mt93201.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 }
```

We can get these details from Back4app (**App Settings >> Security & keys** and **App Settings >> General**).



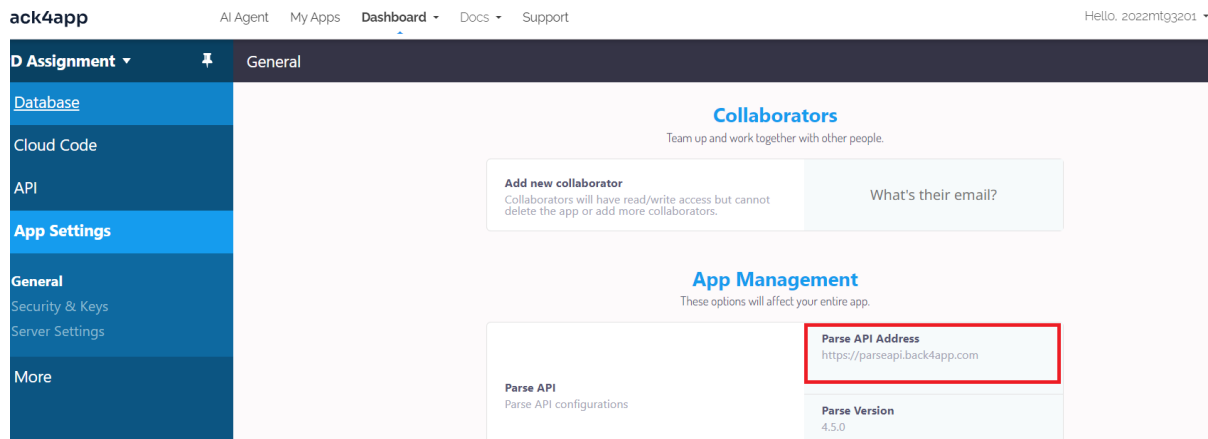
Security & Keys

App Keys

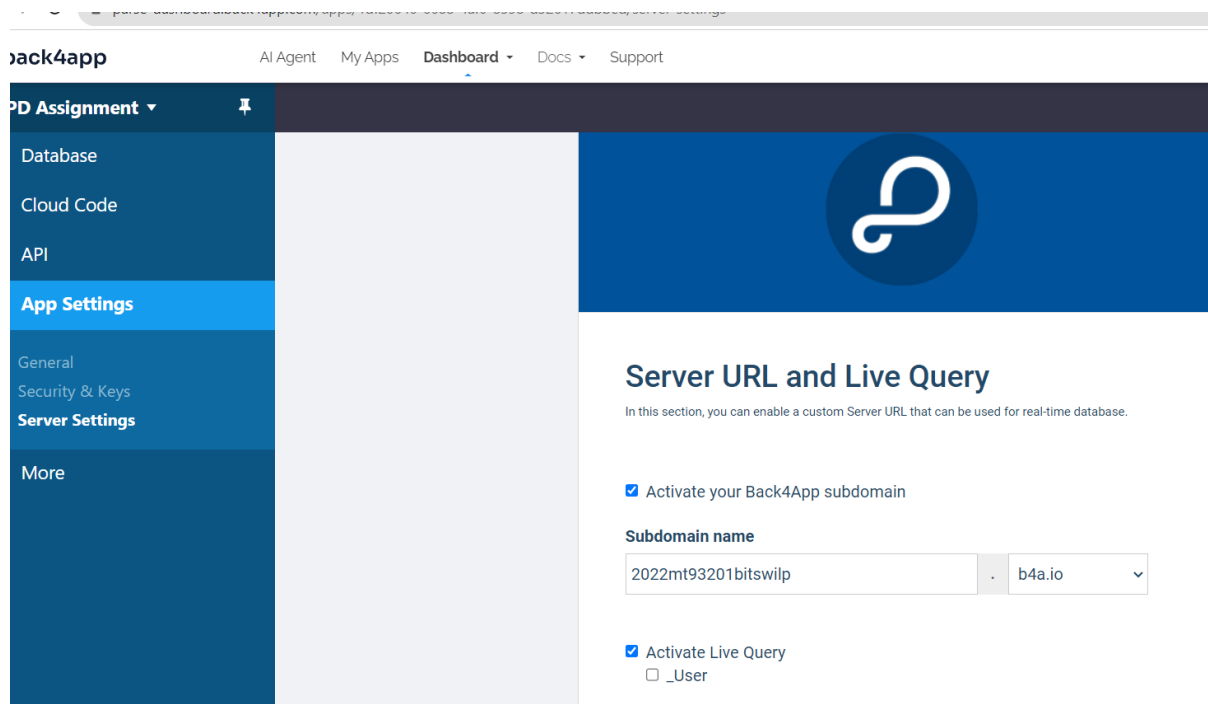
These are the unique identifiers used to access this app.

Application ID Main ID that uniquely specifies this app. Used with one of the keys below.	JmOuaLV1AeNcwplVned12SMIexFfCsHF3MREB6Dc
Client key Use this in consumer clients, such as the iOS or Android SDKs.	ZGyOEBp6yMmoZB4V876GaNBerMqPqLUYopUn8grt
JavaScript key Use this when making requests from JavaScript clients.	kbh620sG1ucxGpK3YIMAiYqyCMw3nXPZVYP8bmm
.NET key Use this when making requests from Windows, Xamarin, or Unity clients.	WzcpqQnkQQFMT6RQnBBqSMf3MsIFFInNCaJ3uxG3
REST API key Use this when making requests from server-side REST applications. <i>Keep it secret!</i>	Show REST Key

The Parse API “<https://parseapi.back4app.com>” is same for all the Back4App.



Since we are creating **Interactive/Live Application** therefore we need to make sure that Back4App subdomain is activated with **Activating Live Query**. This can be done from Server URL and Live Query (App Settings >> Server Settings >> Server URL and Live Query). The **liveQueryUrl** is updated in the **main.dart** file as shown above. This is unique to a Dashboard.



We need to **startLiveQuery** with **CREATE**, **UPDATE**, and **DELETE**. This is done to ensure that we are able to Make changes while running the application.

```
52 @override
53 void initState() {
54   super.initState();
55   getTaskList();
56   startLiveQuery();
57 }
58
59
60 void startLiveQuery() async {
61   subscription = await liveQuery.client.subscribe(queryTask);
62
63   subscription.on(LiveQueryEvent.create, (value) {
64     debugPrint('CREATE: $value ');
65     taskList.add(value);
66     streamController.add(taskList);
67   });
68
69   subscription.on(LiveQueryEvent.update, (value) {
70     debugPrint('UPDATE: $value ');
71     taskList[taskList
72       .indexWhere((element) => element.objectId == value.objectId)] = value;
73     streamController.add(taskList);
74   });
75
76   subscription.on(LiveQueryEvent.delete, (value) {
77     debugPrint('DELETE: $value ');
78     taskList.removeWhere((element) => element.objectId == value.objectId);
79     streamController.add(taskList);
80   });
81 }
```

We will execute the code by running **flutter run** command.

```
Status Code: 201
Payload: {"className":"Task","objectId":"1td35PKxtW","createdAt":"2023-11-18T02:00:35.720Z","title":"task2","description":"description2","done":false}

LiveQuery does not work, if there is no ParseConnectivityProvider provided.
r~ Parse Request
curl -X GET -H 'X-Parse-Application-Id: 3mQualV1AeNcwpWVWed12SMIexFfcshF3MRE86Dc' -H 'X-Parse-Client-Key: ZGy0EBp6yMmoZB4V876GaNBerMqPqLUYopUn8grt'
https://parseapi.back4app.com/classes/Task?where=%7B%7D&order=createdAt

r~ Parse Response
Class: Task
Function: ParseApiRQ.query
Status Code: 200
Payload: [{"className":"Task","objectId":"unJ82Yhbjh","createdAt":"2023-11-18T01:58:21.353Z","updatedAt":"2023-11-18T01:58:21.353Z","title":"Task","description":"test","done":false}, {"className":"Task","objectId":"1td35PKxtW","createdAt":"2023-11-18T02:00:35.720Z","updatedAt":"2023-11-18T02:00:35.720Z","title":"task2","description":"description2","done":false}]

localhost:59186
Task List Live
Task Title
Task Description
ADD
Task test
task2 description2
```

Adding task in Back4App will be update in flutter application.

back4app AI Agent My Apps Dashboard Docs Support Hello, 202amtg3201 NEW APP

APD Assignment Task Public Read and Write enabled

Database

Browser Create a class

Role 0

User 0

Task 2

Index Manager

Blockchain NEW

Cloud Code

API

App Settings

More

objectId	String	updatedAt	Date	createdAt	Date	ACL	ACL	title	String	description	String	done	Boolean
1td35PKxTW		18 Nov 2023 at 02:1...		18 Nov 2023 at 02:1...		Public Read + Write		task2		description2		False	
unJ82Yhbjh		18 Nov 2023 at 01:1...		18 Nov 2023 at 01:1...		Public Read + Write		Task		test		False	

localhost:59186

Task List Live

Task Title

Task Description

ADD

- Task test
- task2 description2

Updating the task in flutter application will be Updated in Back4app.

```

-- Parse Request
curl -X PUT -H 'content-type: application/json; charset=utf-8' -H 'X-Parse-Application-Id: JmOuaLV1AeNcwplWNed12SMiexFFCsHF3MREB6Dc' -H 'X-Parse-Session-Token: 2023-11-18T02:04:52.039Z' https://parseapi.back4app.com/classes/Task/unJ82Yhbjh

-- Parse Response
Class: Task
Function: ParseApiRQ.save
Status Code: 200
Payload: {"className":"Task","objectId":"unJ82Yhbjh","updatedAt":"2023-11-18T02:04:52.039Z","done":true}

```

localhost:59186

Task List Live

Task Title

Task Description

ADD

- Task test
- task2 description2

back4app AI Agent My Apps Dashboard Docs Support Hello, 2022mtg3201 NEW APP

APD Assignment

Database

Browser

Create a class

Role 0

User 0

Task 2

Index Manager

Blockchain NEW

Cloud Code

API

App Settings

More

Task

Public Read and Write enabled

objectId	String	updatedAt	Date	createdAt	Date	ACL	ACL	title	String	description	String	done	Boolean
1td35PKxtM		18 Nov 2023 at 02:1...		18 Nov 2023 at 02:1...		Public	Read + Write	task2		description2		False	
unJ82Yhbjh		18 Nov 2023 at 02:1...		18 Nov 2023 at 01:1...		Public	Read + Write	Task		test		True	

localhost:59186

Task List Live

Task Title

Task Description

ADD

Task test

task2 description2

Deleting the task in flutter application will be Delete in Back4app.

Removing completed task

back4app AI Agent My Apps Dashboard Docs Support Hello, 2022mtg3201 NEW APP

APD Assignment

Database

Browser

Create a class

Role 0

User 0

Task 2

Index Manager

Blockchain NEW

Cloud Code

API

App Settings

More

Task

Public Read and Write enabled

objectId	String	updatedAt	Date	createdAt	Date	ACL	ACL	title	String	description	String	done	Boolean
1td35PKxtM		18 Nov 2023 at 02:1...		18 Nov 2023 at 02:1...		Public	Read + Write	task2		description2		False	
unJ82Yhbjh		18 Nov 2023 at 02:1...		18 Nov 2023 at 01:1...		Public	Read + Write	Task		test		True	

localhost:59186

Task List Live

Task Title

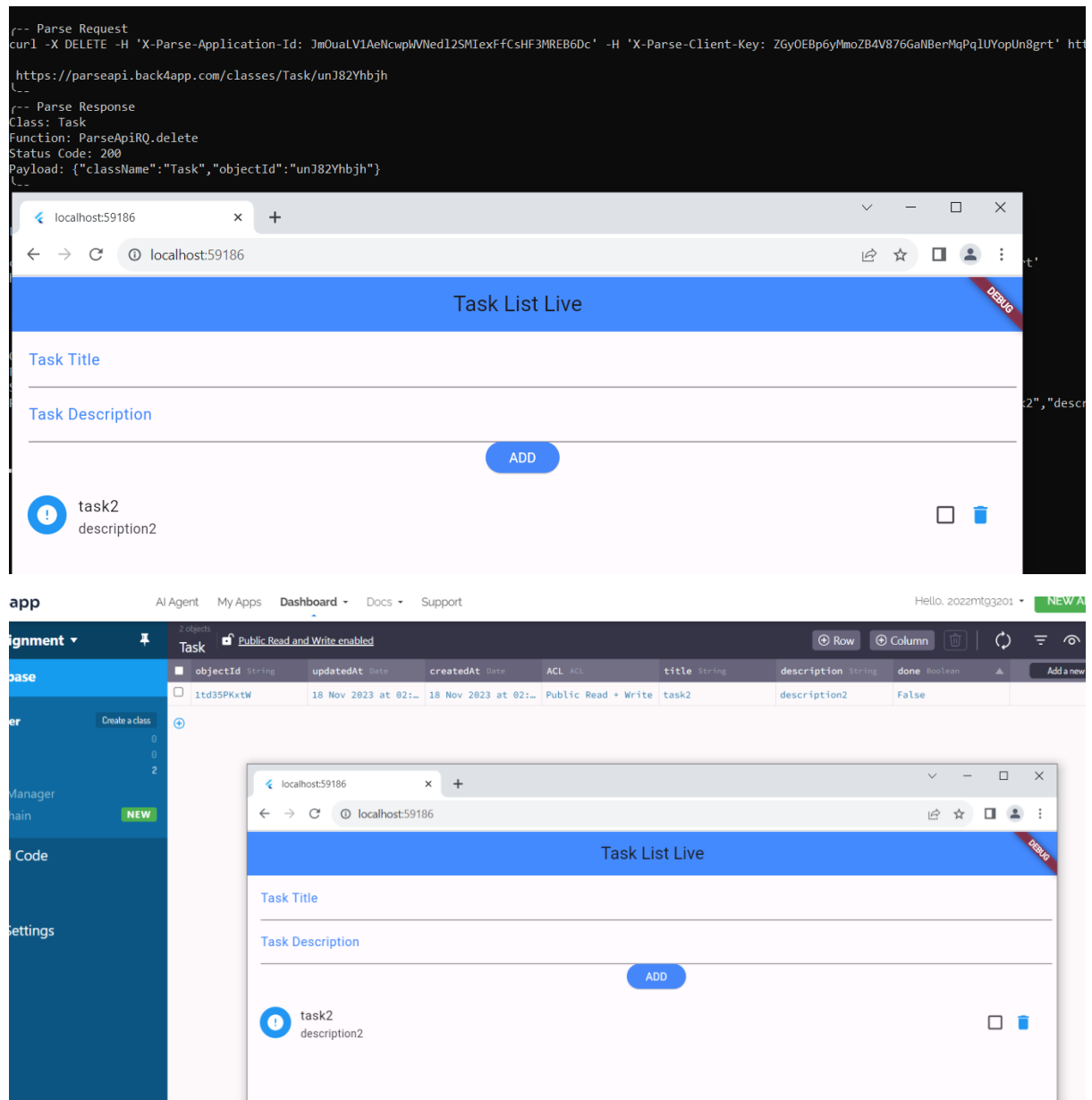
Task Description

ADD

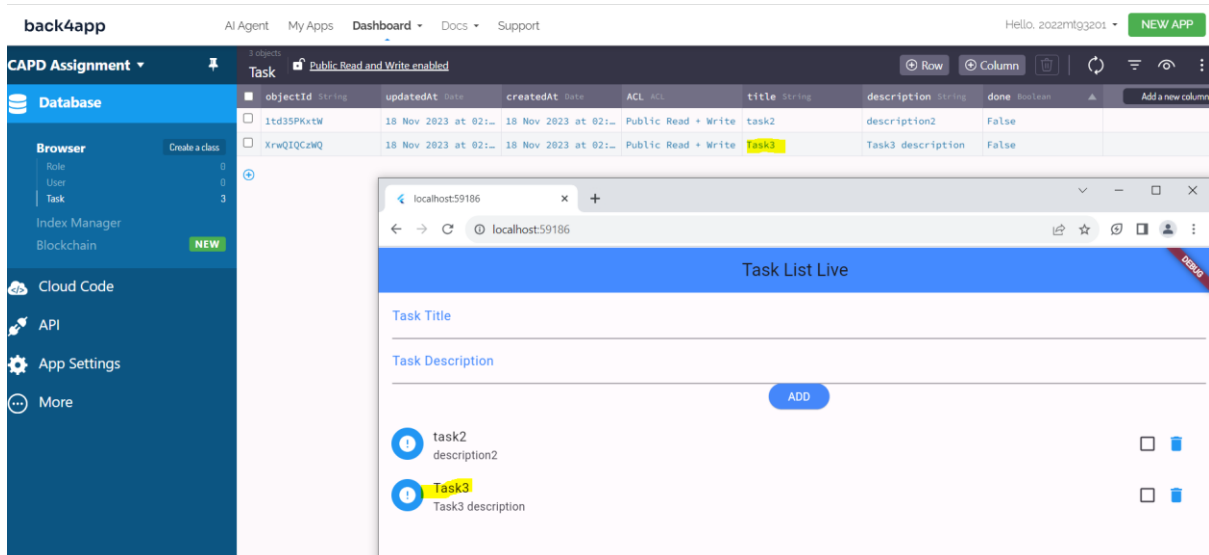
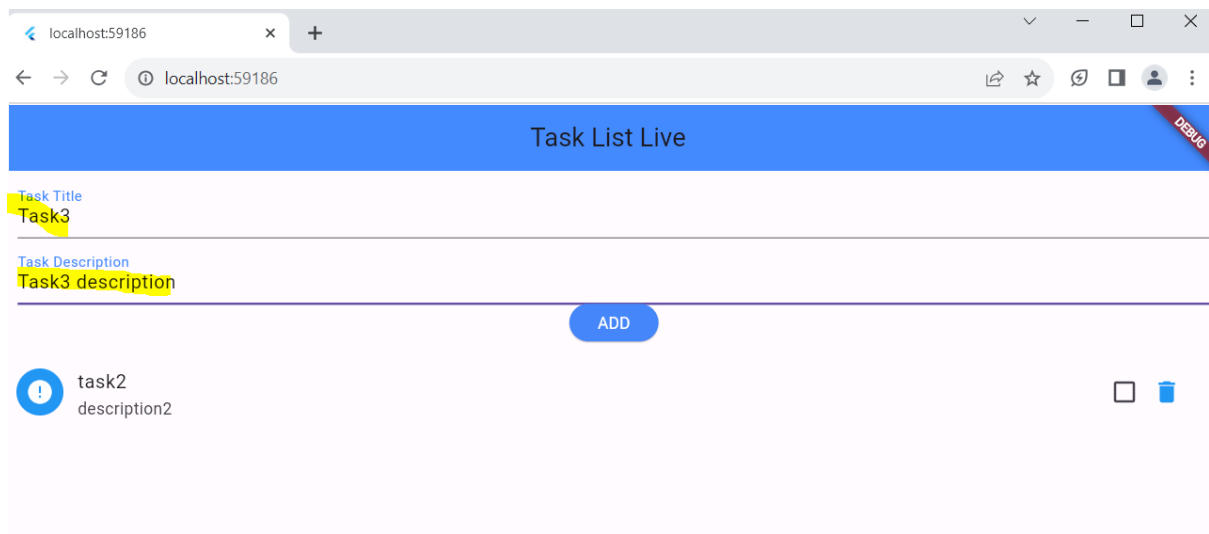
Task test

task2 description2

Object removed with id **unJ82Yhbjh**



Adding in flutter application will add in Back4App.



The Query Execution can be seen in the logs.

POST and **GET** (CREATE) Queries -

```

-- Parse Request
curl -X POST -H 'content-type: application/json; charset=utf-8' -H 'X-Parse-Application-Id: JmOualVIAeNcwpWMed12SMIexfFCsHf3MREB6Dc' -H 'X-Parse-Client-Key: ZGyOE8p6YmwoZBAV876GanBerMqPqIUyopUn8grt' -d
{"title": "Task3", "description": "Task3 description", "done": false} https://parseapi.back4app.com/classes/Task

-- Parse Response
Class: Task
Function: ParseApiRQ.create
Status Code: 201
Payload: [{"className": "Task", "objectId": "XrwQIQczMQ", "createdAt": "2023-11-18T02:15:40.929Z", "title": "Task3", "description": "Task3 description", "done": false}]

LiveQuery does not work, if there is no ParseConnectivityProvider provided.
-- Parse Request
curl -X GET -H 'X-Parse-Application-Id: JmOualVIAeNcwpWMed12SMIexfFCsHf3MREB6Dc' -H 'X-Parse-Client-Key: ZGyOE8p6YmwoZBAV876GanBerMqPqIUyopUn8grt'
https://parseapi.back4app.com/classes/Task?where={%3DcreatedAt}

-- Parse Response
Class: Task
Function: ParseApiRQ.query
Status Code: 200
Payload: [{"className": "Task", "objectId": "1td3SPKxtW", "createdAt": "2023-11-18T02:00:35.720Z", "updatedAt": "2023-11-18T02:00:35.720Z", "title": "task2", "description": "description2", "done": false},
{"className": "Task", "objectId": "XrwQIQczMQ", "createdAt": "2023-11-18T02:15:40.929Z", "updatedAt": "2023-11-18T02:15:40.929Z", "title": "Task3", "description": "Task3 description", "done": false}]

```

DELETE and GET (DELETE) Queries -

```
-- Parse Request
curl -X DELETE -H 'X-Parse-Application-Id: JmOualVIAeNcwplMWed12SHIexFFCsHF3MREB6Dc' -H 'X-Parse-Client-Key: ZGyOEBp6yMwoZB4V876GaIBerMqPqIUyOpUn8grt' https://parseapi.back4app.com/classes/Task/n9z5By5KfX
https://parseapi.back4app.com/classes/Task/n9z5By5KfX
-- Parse Response
Class: Task
Function: ParseApiRQ.delete
Status Code: 200
Payload: {"className":"Task","objectId":"n9z5By5KfX"}
--

LiveQuery does not work, if there is no ParseConnectivityProvider provided.
-- Parse Request
curl -X GET -H 'X-Parse-Application-Id: JmOualVIAeNcwplMWed12SHIexFFCsHF3MREB6Dc' -H 'X-Parse-Client-Key: ZGyOEBp6yMwoZB4V876GaIBerMqPqIUyOpUn8grt' 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":"1td35PKxtH","createdAt":"2023-11-18T02:00:35.720Z","updatedAt":"2023-11-18T02:00:35.720Z","title":"task2","description":"description2","done":false}]
--
```

PUT and GET (UPDATE) Queries -

```
-- Parse Request
curl -X PUT -H 'content-type: application/json; charset=utf-8' -H 'X-Parse-Application-Id: JmOualVIAeNcwplMWed12SHIexFFCsHF3MREB6Dc' -H 'X-Parse-Client-Key: ZGyOEBp6yMwoZB4V876GaIBerMqPqIUyOpUn8grt' -d '{"done":true}' https://parseapi.back4app.com/classes/Task/unJ82Yhbjh
https://parseapi.back4app.com/classes/Task/unJ82Yhbjh
-- Parse Response
Class: Task
Function: ParseApiRQ.save
Status Code: 200
Payload: {"className":"Task","objectId":"unJ82Yhbjh","updatedAt":"2023-11-18T02:04:52.039Z","done":true}
--

LiveQuery does not work, if there is no ParseConnectivityProvider provided.
-- Parse Request
curl -X GET -H 'X-Parse-Application-Id: JmOualVIAeNcwplMWed12SHIexFFCsHF3MREB6Dc' -H 'X-Parse-Client-Key: ZGyOEBp6yMwoZB4V876GaIBerMqPqIUyOpUn8grt' 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":"unJ82Yhbjh","createdAt":"2023-11-18T01:58:21.353Z","updatedAt":"2023-11-18T02:04:52.039Z","title":"Task","description":"test","done":true}, {"className":"Task","objectId":"1td35PKxtH","createdAt":"2023-11-18T02:00:35.720Z","updatedAt":"2023-11-18T02:00:35.720Z","title":"task2","description":"description2","done":false}]
--
```