



**BITS Pilani**

Pilani | Dubai | Goa | Hyderabad

Work Integrated Learning Program

**M. Tech. in Software Engineering**

**Cross Platform Application Development**

**SEZG585**

**Flutter App with Back4app Integration**

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**BITS Student ID – 2022MT93184**

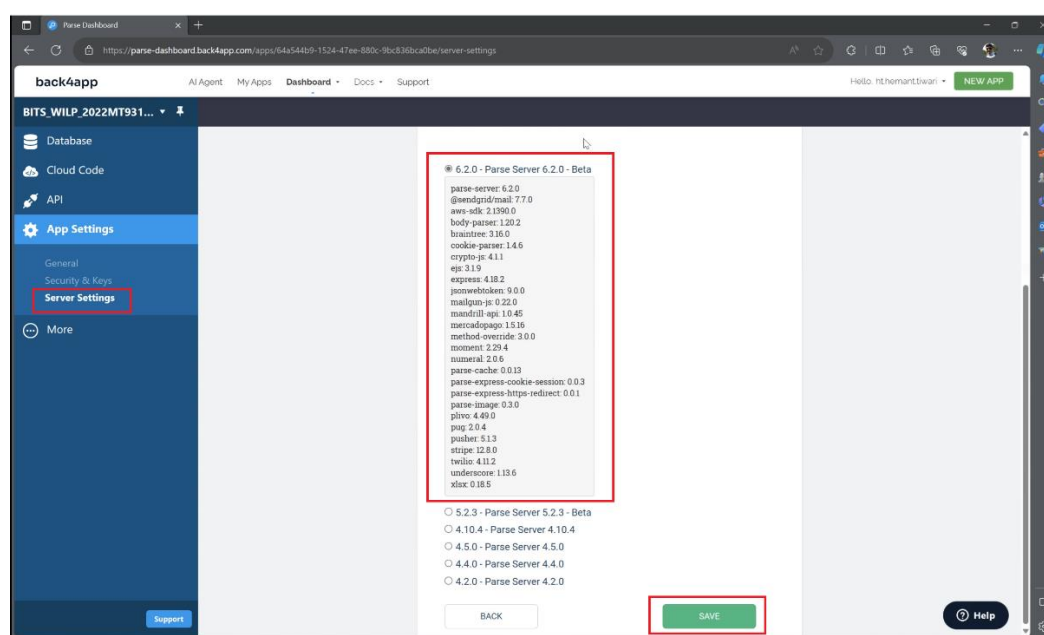
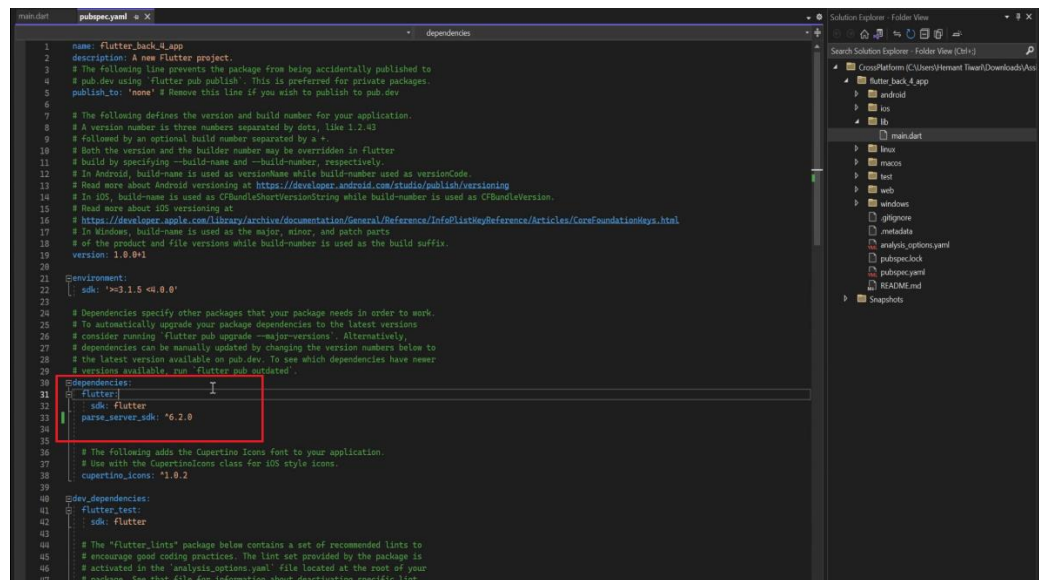
**Semester – 1<sup>st</sup> FY 2023-2024**

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

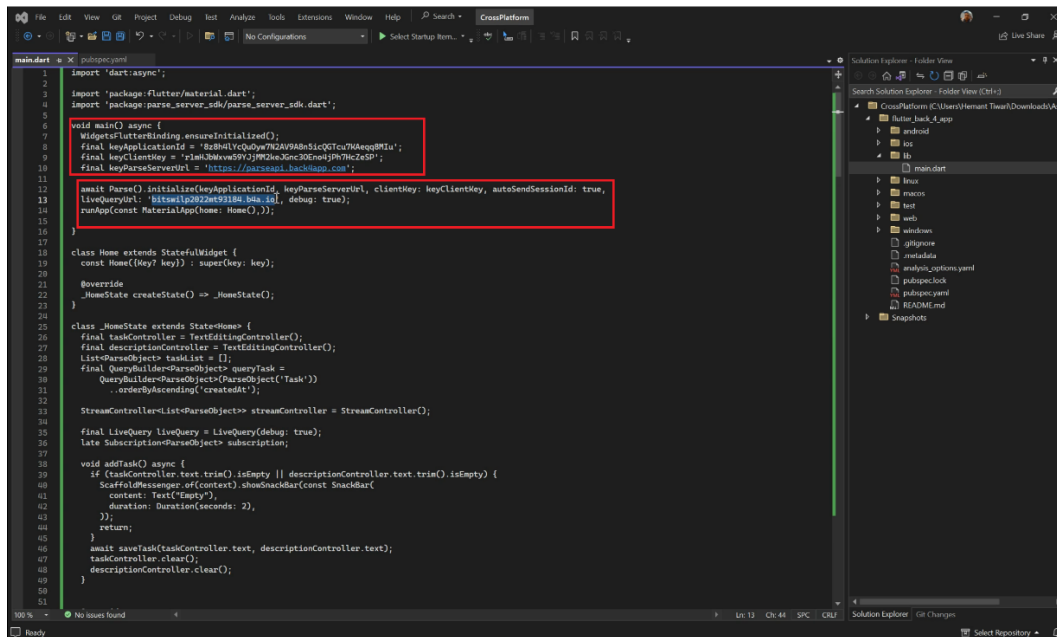
```
PS C:\Users\Hemant Tiwari\Downloads\Assignments\CrossPlatform\flutter_back_4_app> flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[V] Flutter (Channel stable, 3.13.9, on Microsoft Windows [Version 10.0.22621.2428], locale en-IN)
[V] Windows Version (Installed version of Windows is version 10 or higher)
[V] Android toolchain - develop for Android devices (Android SDK version 34.0.0)
[V] Chrome - develop for the web
[V] Visual Studio - develop Windows apps (Visual Studio Community 2022 17.7.6)
[V] Android Studio (version 2022.3)
[V] Connected device (3 available)
[V] Network resources

• No issues found!
PS C:\Users\Hemant Tiwari\Downloads\Assignments\CrossPlatform\flutter_back_4_app>
```

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

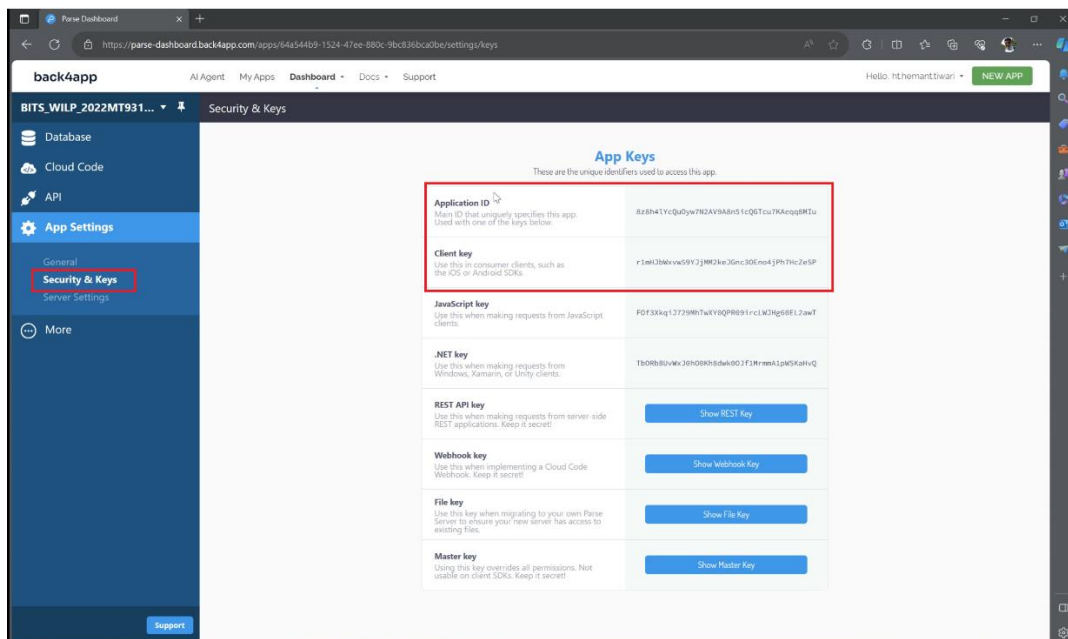


Update the **keyApplicationId**, final **keyClientKey**, and final **keyParseServerUrl** in **main.dart** file. This is done so as to make sure connectivity between Flutter Application and Back4app.

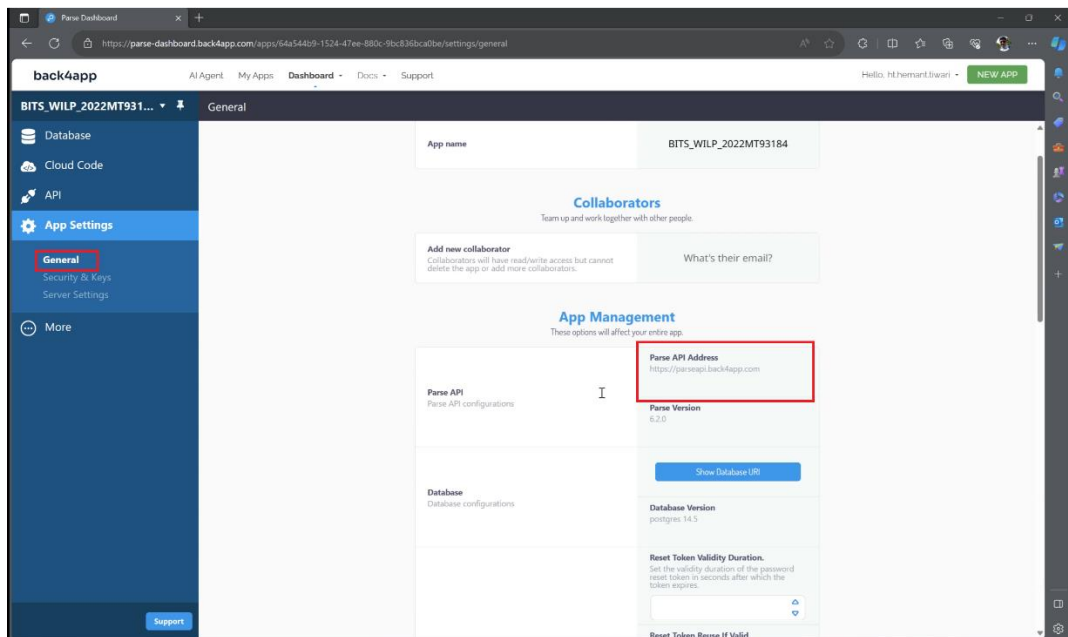


```
1 import 'dart:async';
2 import 'package:flutter/material.dart';
3 import 'package:parse_server_sdk/parse_server_sdk.dart';
4
5
6 void main() async {
7   WidgetsFlutterBinding.ensureInitialized();
8   final keyApplicationId = '8z8H4TYQd7w7N2AV9A8s1cQSTcu7KAeqg8MIu';
9   final keyClientKey = 'r1m13Bwvw5Y2jM23keXGnc30Eno4jPh7HcZeSP';
10  final keyParseServerUrl = 'https://parseapi.back4app.com';
11
12  await Parse.initialize(keyApplicationId, keyParseServerUrl, clientKey: keyClientKey, autoSendSessionId: true,
13    liveQueryUrl: 'https://livequery.back4app.com', debug: true);
14  runApp(const MaterialApp(home: Home()));
15
16
17
18 class Home extends StatefulWidget {
19   const Home({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>('Task')
31     ..orderByAscending('createdAt');
32
33   StreamController<List<ParseObject>> streamController = StreamController();
34
35   final LiveQuery liveQuery = LiveQuery(debug: true);
36   late Subscription<ParseObject> subscription;
37
38   void addTask() async {
39     if (taskController.text.trim().isEmpty || descriptionController.text.trim().isEmpty) {
40       ScaffoldMessenger.of(context).showSnackBar(const SnackBar(
41         content: Text("Empty"),
42         duration: Duration(seconds: 2),
43       ));
44       return;
45     }
46     await saveTask(taskController.text, descriptionController.text);
47     taskController.clear();
48     descriptionController.clear();
49   }
50
51 }
```

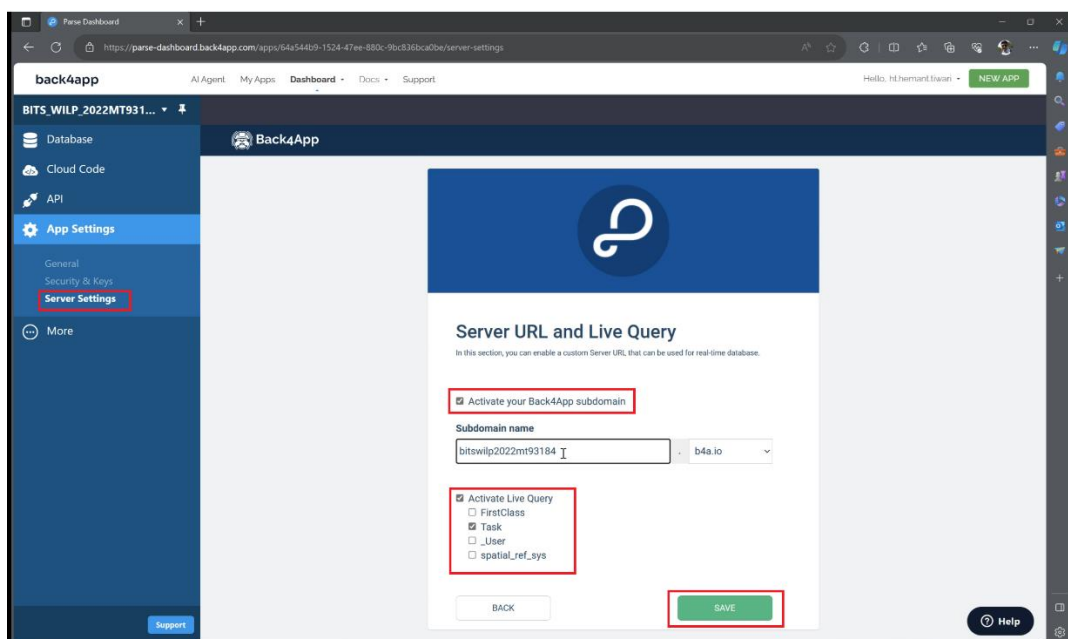
We can get these details from Back4app (**App Settings >> Security & keys** and **App Settings >> General**).



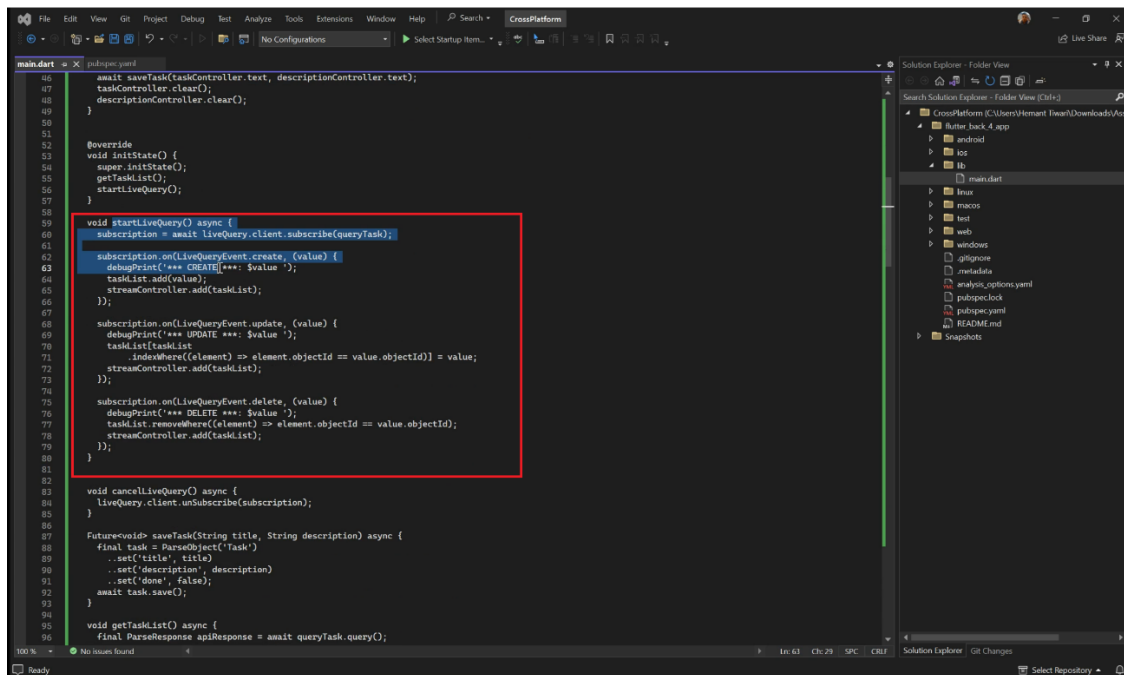
The Parse API “<https://parseapi.back4app.com>” is same for all the Back4App.



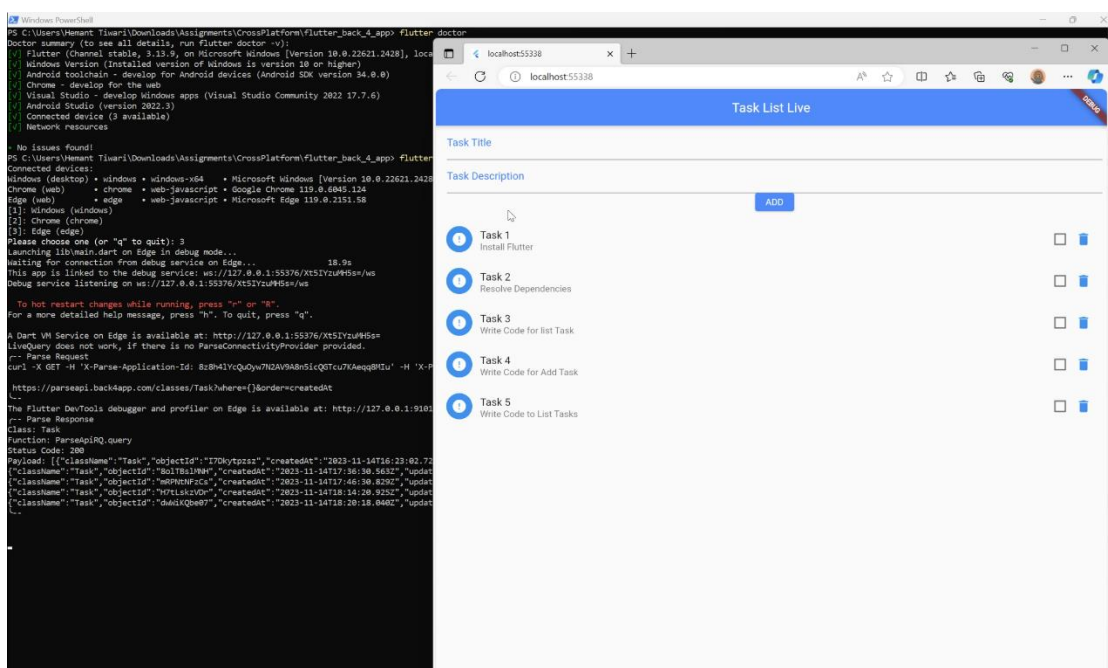
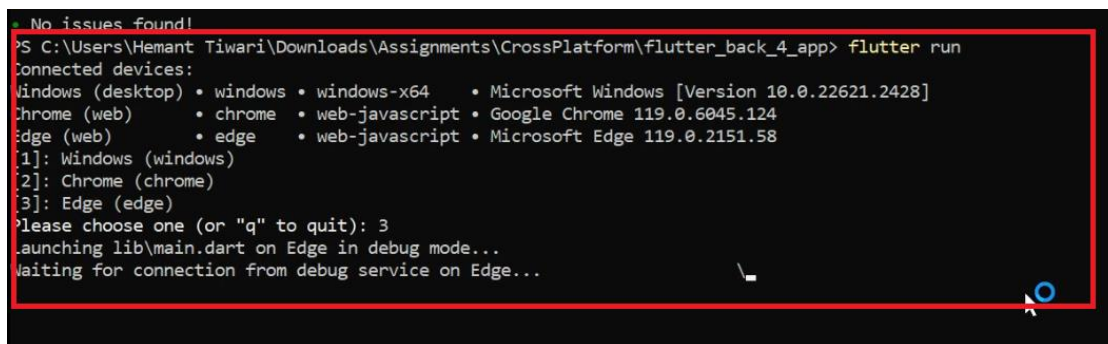
Since we are creating **Interactive/Live Application** therefore we need to make sure that Back4App subdomain is activated with **Activating Live Query**. This can be done from Server URL and Live Query (**App Settings >> Server Settings >> Server URL and Live Query**). The **liveQueryUrl** is updated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



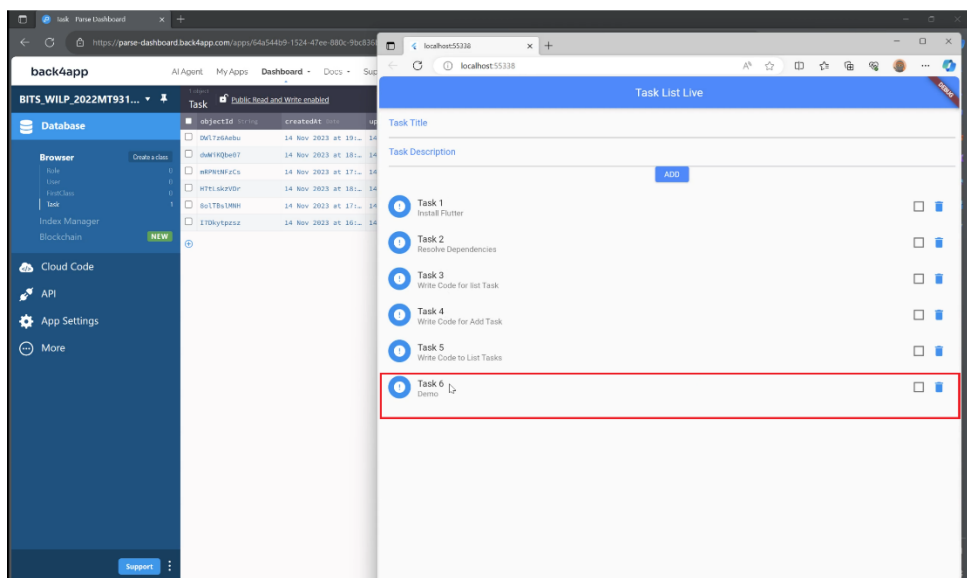
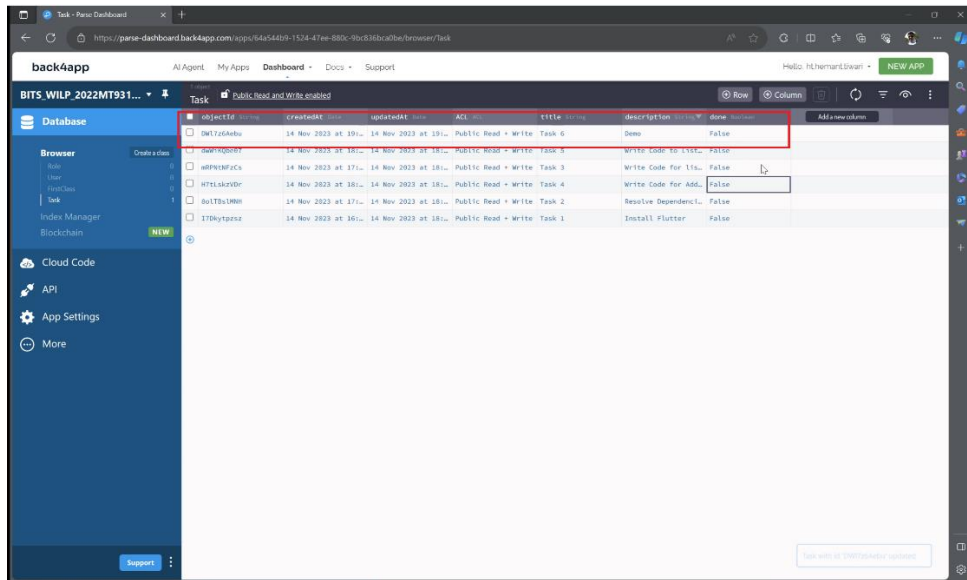
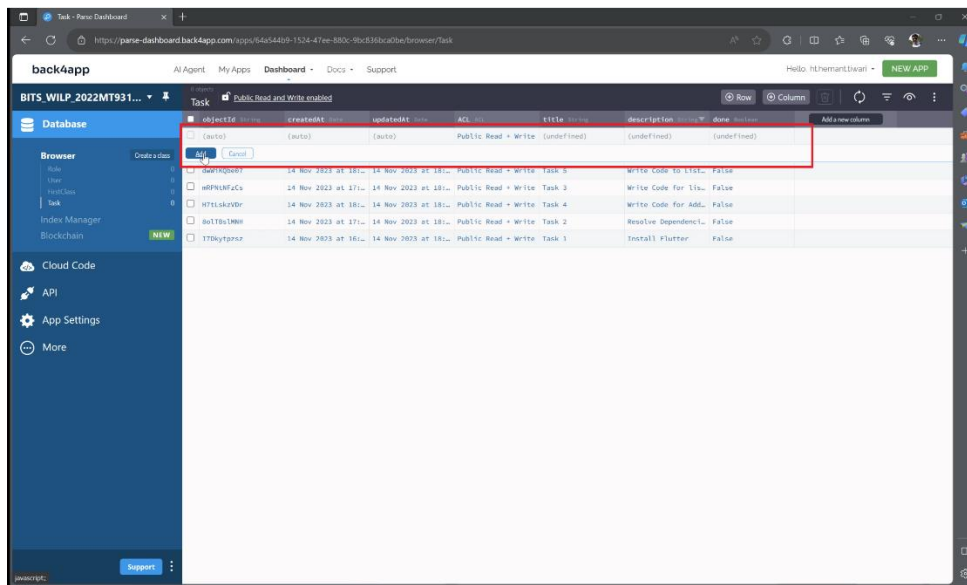
We need to **startLiveQuery** with **CREATE**, **UPDATE**, and **DELETE**. This is done to ensure that we are able to Make changes while running the application.



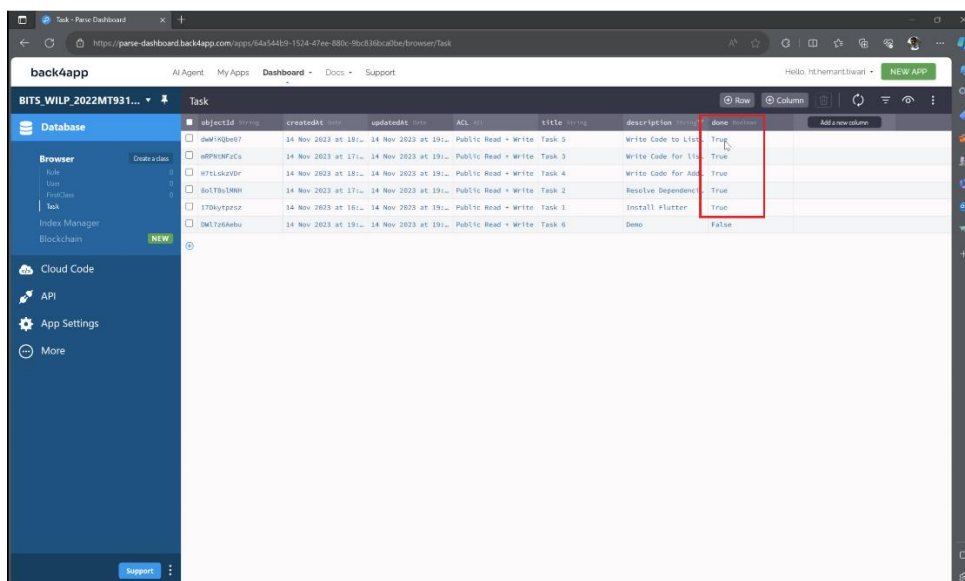
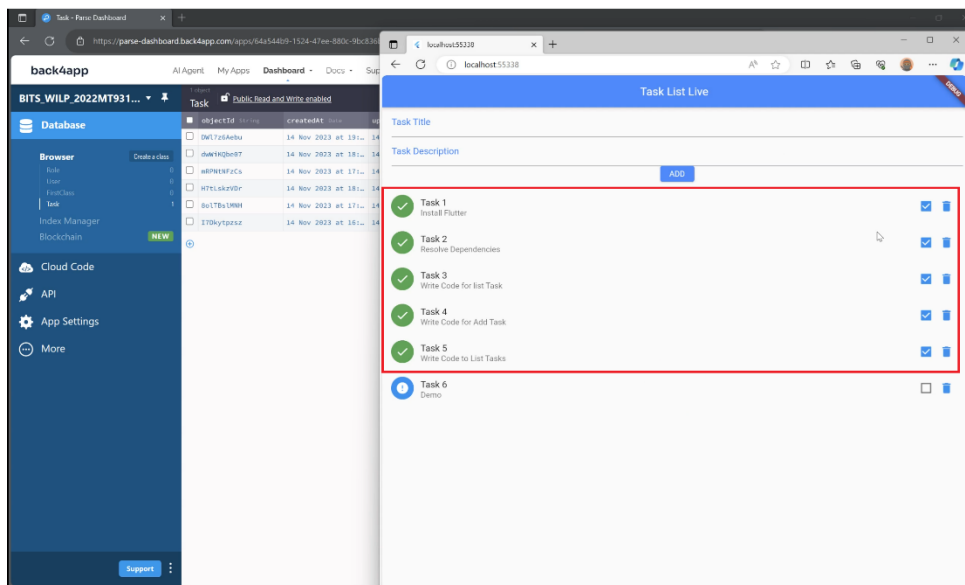
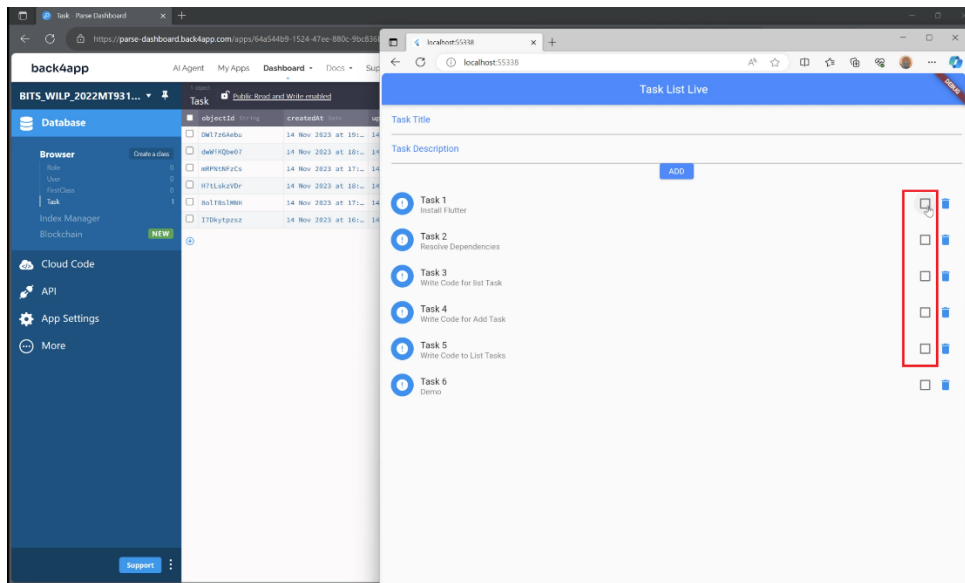
We will execute the code by running `flutter run` command.



Adding task in Back4App will be update in flutter application.

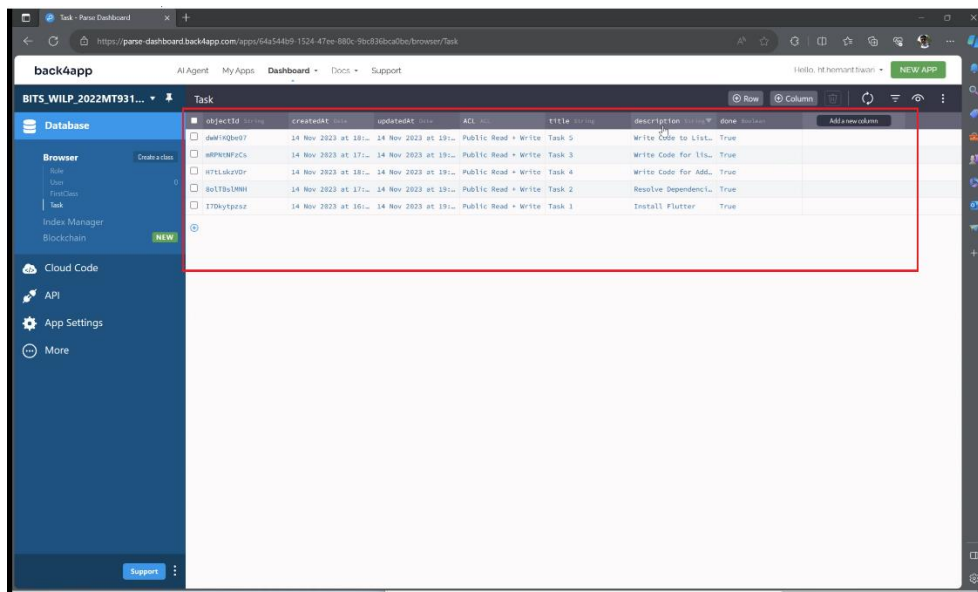
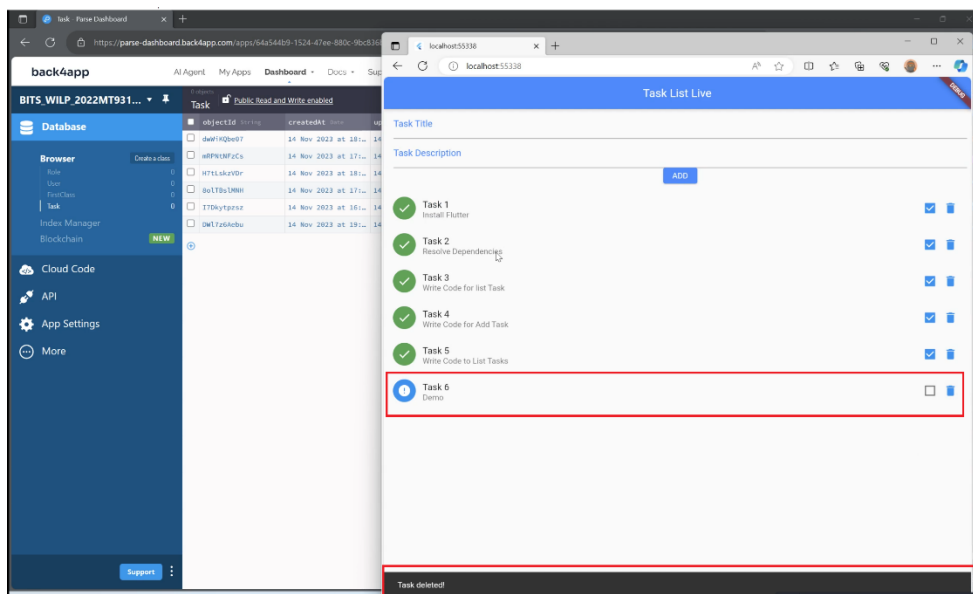


Updating the task in flutter application will be Updated in Back4app.



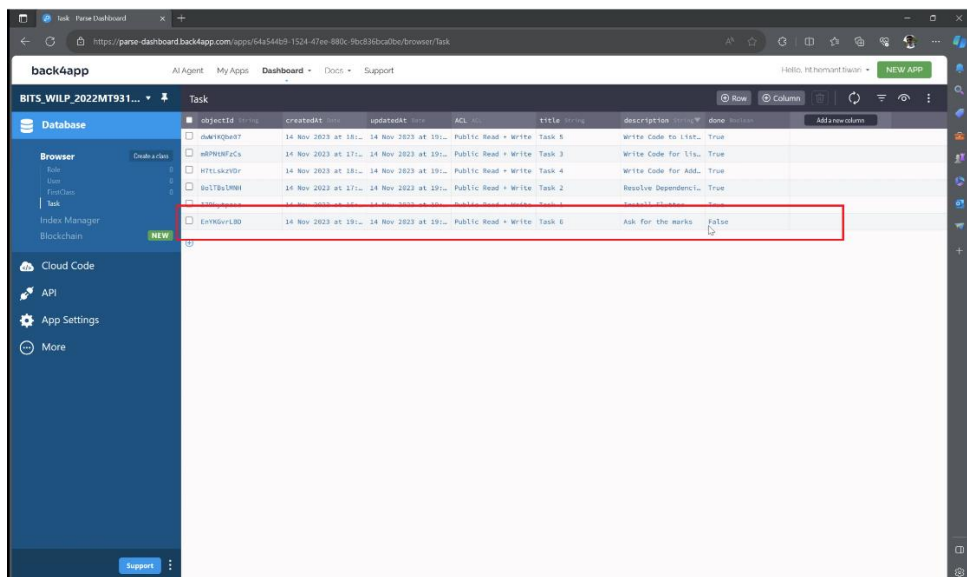
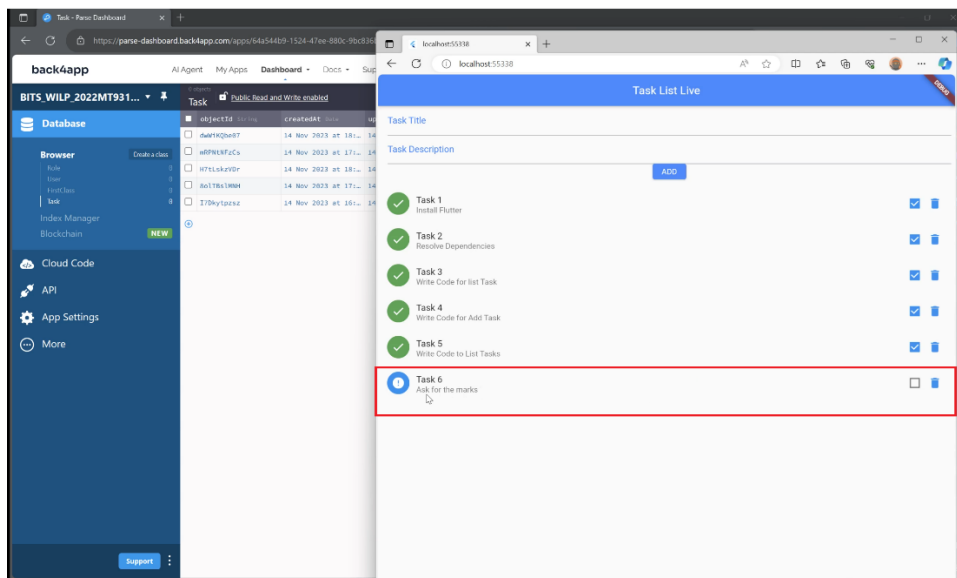
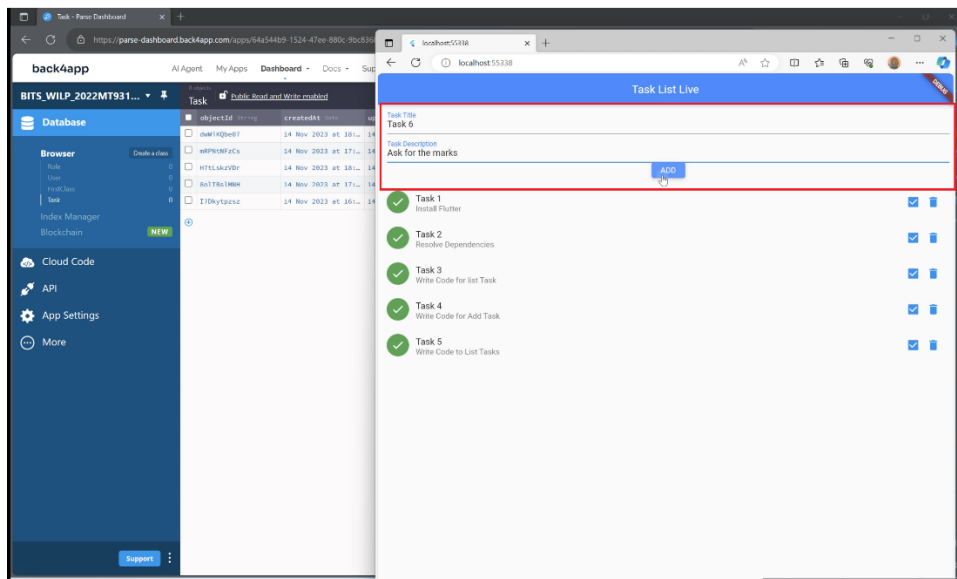


Deleting the task in flutter application will be Delete in Back4app.





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: 8z8H4lyCqQyW7N2AV9A8nSicQGTcu7XAeqg8IUu' -H 'X-Parse-Client-Key: r1m0B6kvw59Vj3jWQka3Gnc30Eno4jPh7HcZeSP' -d '{"title": "Task 6", "description": "Ask for the marks", "done": false}' https://parseapi.back4app.com/classes/Task
https://parseapi.back4app.com/classes/Task

Parse Response
Class: Task
Function: ParseApiRQ.create
Status Code: 200
Payload: {"className": "Task", "objectId": "EnVKGrLBD", "createdAt": "2023-11-14T19:04:26.849Z", "title": "Task 6", "description": "Ask for the marks", "done": false}

LiveQuery does not work, if there is no ParseConnectivityProvider provided.
Parse Request
curl -X GET -H 'X-Parse-Application-Id: 8z8H4lyCqQyW7N2AV9A8nSicQGTcu7XAeqg8IUu' -H 'X-Parse-Client-Key: r1m0B6kvw59Vj3jWQka3Gnc30Eno4jPh7HcZeSP' https://parseapi.back4app.com/classes/Task?where=%7B%7D&border=createdAt
https://parseapi.back4app.com/classes/Task?where=%7B%7D&border=createdAt

Parse Response
Class: Task
Function: ParseApiRQ.query
Status Code: 200
Payload: [{"className": "Task", "objectId": "7Dkytpzs", "createdAt": "2023-11-14T16:23:02.722Z", "updatedAt": "2023-11-14T19:03:09.784Z", "title": "Task 1", "description": "Install Flutter", "done": true}, {"className": "Task", "objectId": "Bolt81W9H", "createdAt": "2023-11-14T17:36:30.563Z", "updatedAt": "2023-11-14T19:03:13.173Z", "title": "Task 2", "description": "Resolve Dependencies", "done": true}, {"className": "Task", "objectId": "mRPNrNFcs", "createdAt": "2023-11-14T17:46:30.829Z", "updatedAt": "2023-11-14T19:03:16.978Z", "title": "Task 3", "description": "Write Code for list Task", "done": true}, {"className": "Task", "objectId": "H7tlskzVDr", "createdAt": "2023-11-14T18:14:20.925Z", "updatedAt": "2023-11-14T19:03:20.810Z", "title": "Task 4", "description": "Write Code for Add Task", "done": true}, {"className": "Task", "objectId": "dwdIXQbe07", "createdAt": "2023-11-14T18:20:18.040Z", "updatedAt": "2023-11-14T19:03:22.952Z", "title": "Task 5", "description": "Write Code to List Tasks", "done": true}, {"className": "Task", "objectId": "EnVKGrLBD", "createdAt": "2023-11-14T19:04:26.849Z", "updatedAt": "2023-11-14T19:04:26.849Z", "title": "Task 6", "description": "Ask for the marks", "done": false}]
```

## DELETE and GET (DELETE) Queries -

```
Parse Request
curl -X DELETE -H 'X-Parse-Application-Id: 8z8H4lyCqQyW7N2AV9A8nSicQGTcu7XAeqg8IUu' -H 'X-Parse-Client-Key: r1m0B6kvw59Vj3jWQka3Gnc30Eno4jPh7HcZeSP' https://parseapi.back4app.com/classes/Task/Dwl7z6Aebu
https://parseapi.back4app.com/classes/Task/Dwl7z6Aebu

Parse Response
Class: Task
Function: ParseApiRQ.delete
Status Code: 200
Payload: {"className": "Task", "objectId": "Dwl7z6Aebu"}

LiveQuery does not work, if there is no ParseConnectivityProvider provided.
Parse Request
curl -X GET -H 'X-Parse-Application-Id: 8z8H4lyCqQyW7N2AV9A8nSicQGTcu7XAeqg8IUu' -H 'X-Parse-Client-Key: r1m0B6kvw59Vj3jWQka3Gnc30Eno4jPh7HcZeSP' https://parseapi.back4app.com/classes/Task?where=%7B%7D&border=createdAt
https://parseapi.back4app.com/classes/Task?where=%7B%7D&border=createdAt

Parse Response
Class: Task
Function: ParseApiRQ.query
Status Code: 200
Payload: [{"className": "Task", "objectId": "7Dkytpzs", "createdAt": "2023-11-14T16:23:02.722Z", "updatedAt": "2023-11-14T19:03:09.784Z", "title": "Task 1", "description": "Install Flutter", "done": true}, {"className": "Task", "objectId": "Bolt81W9H", "createdAt": "2023-11-14T17:36:30.563Z", "updatedAt": "2023-11-14T19:03:13.173Z", "title": "Task 2", "description": "Resolve Dependencies", "done": true}, {"className": "Task", "objectId": "mRPNrNFcs", "createdAt": "2023-11-14T17:46:30.829Z", "updatedAt": "2023-11-14T19:03:16.978Z", "title": "Task 3", "description": "Write Code for list Task", "done": true}, {"className": "Task", "objectId": "H7tlskzVDr", "createdAt": "2023-11-14T18:14:20.925Z", "updatedAt": "2023-11-14T19:03:20.810Z", "title": "Task 4", "description": "Write Code for Add Task", "done": true}, {"className": "Task", "objectId": "dwdIXQbe07", "createdAt": "2023-11-14T18:20:18.040Z", "updatedAt": "2023-11-14T19:03:22.952Z", "title": "Task 5", "description": "Write Code to List Tasks", "done": true}]
```

## PUT and GET (UPDATE) Queries -

```
Parse Request
curl -X PUT -H 'content-type: application/json; charset=utf-8' -H 'X-Parse-Application-Id: 8z8H4lyCqQyW7N2AV9A8nSicQGTcu7XAeqg8IUu' -H 'X-Parse-Client-Key: r1m0B6kvw59Vj3jWQka3Gnc30Eno4jPh7HcZeSP' -d '{"done": true}' https://parseapi.back4app.com/classes/Task/mRPNrNFcs
https://parseapi.back4app.com/classes/Task/mRPNrNFcs

Parse Response
Class: Task
Function: ParseApiRQ.save
Status Code: 200
Payload: {"className": "Task", "objectId": "mRPNrNFcs", "updatedAt": "2023-11-14T19:03:16.978Z", "done": true}

Parse Request
curl -X PUT -H 'content-type: application/json; charset=utf-8' -H 'X-Parse-Application-Id: 8z8H4lyCqQyW7N2AV9A8nSicQGTcu7XAeqg8IUu' -H 'X-Parse-Client-Key: r1m0B6kvw59Vj3jWQka3Gnc30Eno4jPh7HcZeSP' -d '{"done": true}' https://parseapi.back4app.com/classes/Task/H7tlskzVDr
https://parseapi.back4app.com/classes/Task/H7tlskzVDr

Parse Response
Class: Task
Function: ParseApiRQ.save
Status Code: 200
Payload: {"className": "Task", "objectId": "H7tlskzVDr", "updatedAt": "2023-11-14T19:03:20.810Z", "done": true}

Parse Request
curl -X PUT -H 'content-type: application/json; charset=utf-8' -H 'X-Parse-Application-Id: 8z8H4lyCqQyW7N2AV9A8nSicQGTcu7XAeqg8IUu' -H 'X-Parse-Client-Key: r1m0B6kvw59Vj3jWQka3Gnc30Eno4jPh7HcZeSP' -d '{"done": true}' https://parseapi.back4app.com/classes/Task/dwdIXQbe07
https://parseapi.back4app.com/classes/Task/dwdIXQbe07

Parse Response
Class: Task
Function: ParseApiRQ.save
Status Code: 200
Payload: {"className": "Task", "objectId": "dwdIXQbe07", "updatedAt": "2023-11-14T19:03:22.952Z", "done": true}

LiveQuery does not work, if there is no ParseConnectivityProvider provided.
Parse Request
curl -X GET -H 'X-Parse-Application-Id: 8z8H4lyCqQyW7N2AV9A8nSicQGTcu7XAeqg8IUu' -H 'X-Parse-Client-Key: r1m0B6kvw59Vj3jWQka3Gnc30Eno4jPh7HcZeSP' https://parseapi.back4app.com/classes/Task?where=%7B%7D&border=createdAt
https://parseapi.back4app.com/classes/Task?where=%7B%7D&border=createdAt

Parse Response
Class: Task
Function: ParseApiRQ.query
Status Code: 200
Payload: [{"className": "Task", "objectId": "7Dkytpzs", "createdAt": "2023-11-14T16:23:02.722Z", "updatedAt": "2023-11-14T19:03:09.784Z", "title": "Task 1", "description": "Install Flutter", "done": true}, {"className": "Task", "objectId": "Bolt81W9H", "createdAt": "2023-11-14T17:36:30.563Z", "updatedAt": "2023-11-14T19:03:13.173Z", "title": "Task 2", "description": "Resolve Dependencies", "done": true}, {"className": "Task", "objectId": "mRPNrNFcs", "createdAt": "2023-11-14T17:46:30.829Z", "updatedAt": "2023-11-14T19:03:16.978Z", "title": "Task 3", "description": "Write Code for list Task", "done": true}, {"className": "Task", "objectId": "H7tlskzVDr", "createdAt": "2023-11-14T18:14:20.925Z", "updatedAt": "2023-11-14T19:03:20.810Z", "title": "Task 4", "description": "Write Code for Add Task", "done": true}, {"className": "Task", "objectId": "dwdIXQbe07", "createdAt": "2023-11-14T18:20:18.040Z", "updatedAt": "2023-11-14T19:03:22.952Z", "title": "Task 5", "description": "Write Code to List Tasks", "done": true}, {"className": "Task", "objectId": "Dwl7z6Aebu", "createdAt": "2023-11-14T19:02:40.096Z", "updatedAt": "2023-11-14T19:02:40.766Z", "title": "Task 6", "description": "Demo", "done": false}]
```