Firebase

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About the Tutorial

Firebase is a backend platform for building Web, Android and IOS applications. It offers real time database, different APIs, multiple authentication types and hosting platform.

This is an introductory tutorial, which covers the basics of the Firebase platform and explains how to deal with its various components and sub-components.

Audience

This tutorial is directed towards developers in need for a simple, user-friendly backend platform. After you finish this tutorial, you will be familiar with the Firebase Web Platform. You can also use this as a reference in your future development.

This tutorial is intended to make you comfortable in getting started with the Firebase backend platform and its various functions.

Prerequisites

You will need some JavaScript knowledge to be able to follow this tutorial. Knowledge about some backend platform is not necessary, but it could help you to understand the various Firebase concepts.

Copyright and Disclaimer

Table of Contents

About the Tutorial i

Audience i

Prerequisites i

Copyright and Disclaimer i

Table of Contents ii

1. FIREBASE – OVERVIEW 1

2. FIREBASE – ENVIRONMENT SETUP 3

3. FIREBASE – DATA 6

4. FIREBASE – ARRAYS 8

5. FIREBASE – WRITE DATA 11

Set 11

Update 12

6. FIREBASE – WRITE LIST DATA 14

The Push Method 14

The Key Method 15

7. FIREBASE – WRITE TRANSACTIONAL DATA 17

8. FIREBASE – READ DATA 19

9. FIREBASE – EVENT TYPES 23

10. FIREBASE – DETACHING CALLBACKS 25

11. FIREBASE – QUERIES 26

Order by Child **26**

Order by Key **27**

Order by Value **27**

12. FIREBASE – FILTERING DATA 30

Limit to First and Last **30**

Other Filters **31**

13. FIREBASE – BEST PRACTICES 33

14. FIREBASE – EMAIL AUTHENTICATION 34

Create user **34**

Sign In **35**

Signout **35**

15. FIREBASE – GOOGLE AUTHENTICATION 37

16. FIREBASE – FACEBOOK AUTHENTICATION 40

17. FIREBASE – TWITTER AUTHENTICATION 44

18. FIREBASE – GITHUB AUTHENTICATION 47

19. FIREBASE – ANONYMOUS AUTHENTICATION 50

20. FIREBASE – OFFLINE CAPABILITIES 52

21. FIREBASE – SECURITY 54

Read and Write **54**

22. FIREBASE – DEPLOYING 56

1. FIREBASE – OVERVIEW

As per official Firebase documentation –

Firebase can power your app's backend, including data storage, user authentication, static hosting, and more. Focus on creating extraordinary user experiences. We will take care of the rest. Build cross-platform native mobile and web apps with our Android, iOS, and JavaScript SDKs. You can also connect Firebase to your existing backend using our server-side libraries or our REST API.

Firebase Features

- **Real-time Database** – Firebase supports JSON data and all users connected to it receive live updates after every change.
- **Authentication** – We can use anonymous, password or different social authentications.
- **Hosting** – The applications can be deployed over secured connection to Firebase servers.

Firebase Advantages

- It is simple and user friendly. No need for complicated configuration.
- The data is real-time, which means that every change will automatically update connected clients.
- Firebase offers simple control dashboard.
- There are a number of useful services to choose.

Firebase Limitations

- Firebase free plan is limited to 50 Connections and 100 MB of storage.

In the next chapter, we will discuss the environment setup of Firebase.

2. FIREBASE – ENVIRONMENT SETUP

In this chapter, we will show you how to add Firebase to the existing application. We will need **NodeJS**. Check the link from the following table, if you do not have it already.

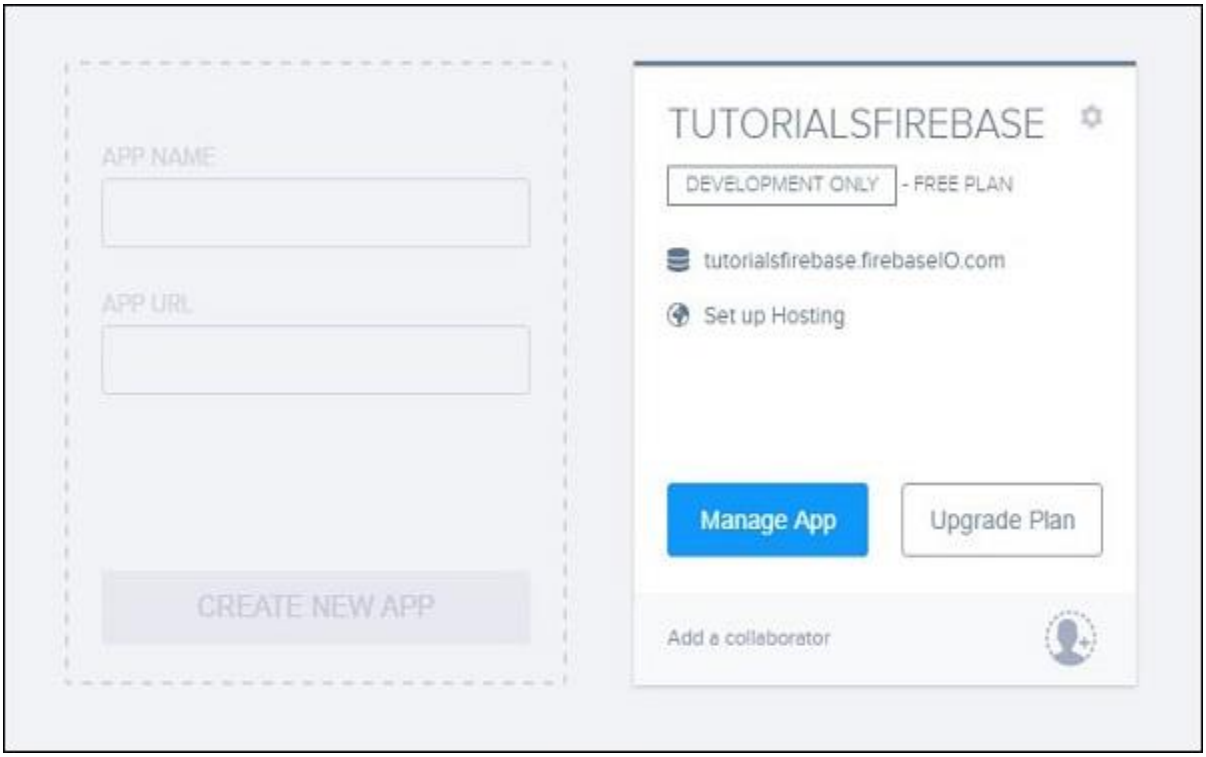
S No.	Software & Description
1	**NodeJS and NPM** NodeJS is the platform needed for Firebase development. Checkout our **NodeJS Environment Setup**.

Step 1 – Create a Firebase Account

You can create a Firebase account here.

Step 2 – Create Firebase App

You can create new app from the dashboard page. The following image shows the app we created. We can click the **Manage App** button to enter the app.



Step 3a – Create a basic HTML/JS App

You just need to create a folder where your app will be placed. Inside that folder, we will need **index.html** and **index.js** files. We will add Firebase to the header of our app.

index.html

```
<html>
   <head>
      <script src =
"https://cdn.firebase.com/js/client/2.4.2/firebase.js"></script>
      <script type = "text/javascript" src = "index.js"></script>
   </head>

   <body>

   </body>

</html>
```

Step 3b - Use NPM or Bower

If you want to use your existing app, you can use Firebase NPM or Bowers packages. Run one of the following command from your apps root folder.

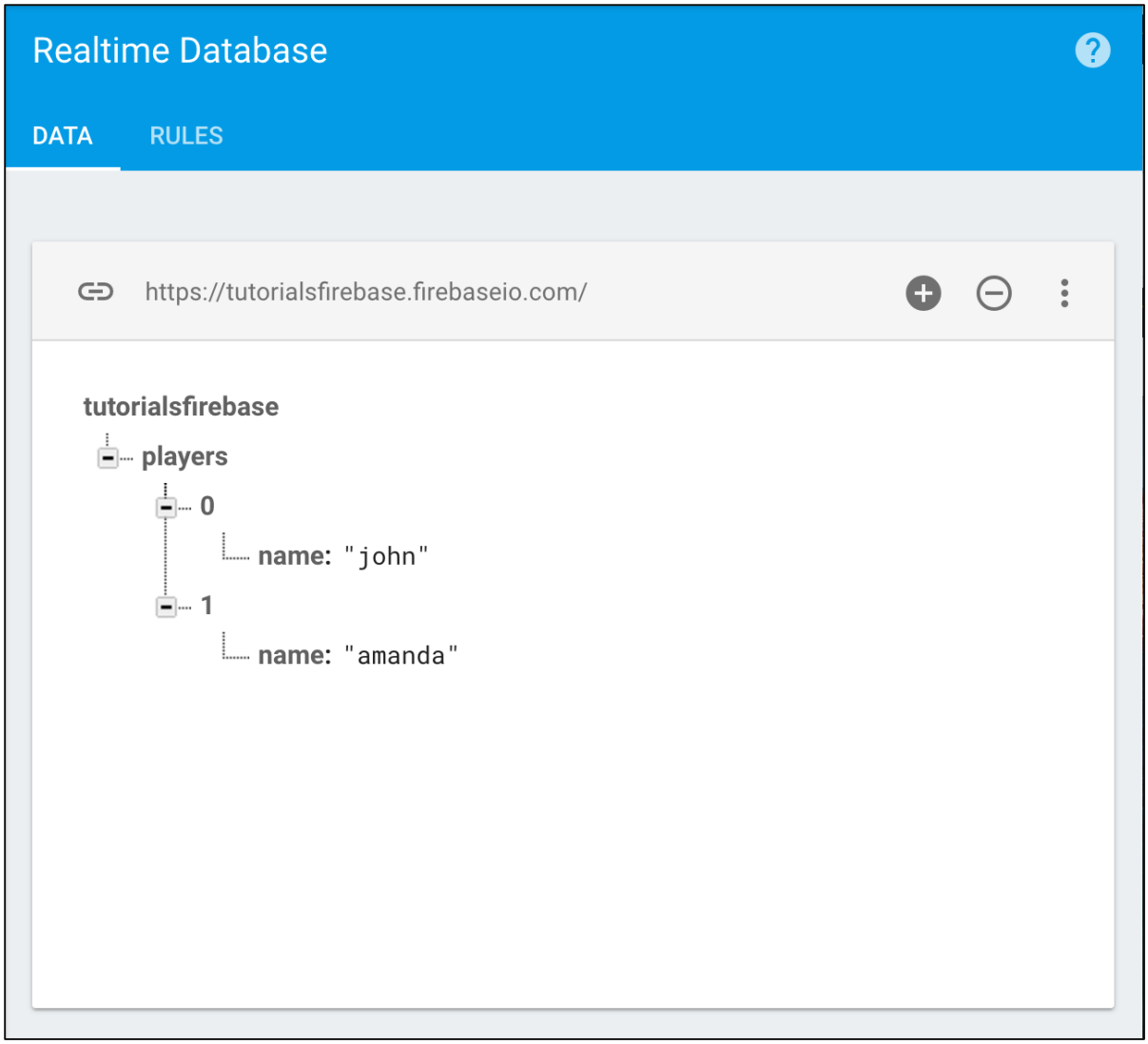
```
npm install firebase --save
```

```
bower install firebase
```

3. FIREBASE – DATA

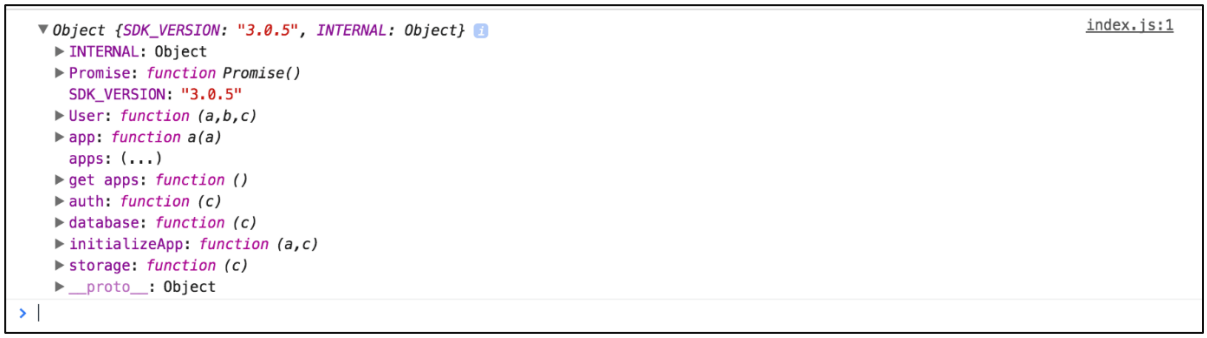
The Firebase data is representing JSON objects. If you open your app from Firebase dashboard, you can add data manually by clicking on the **+** sign.

We will create a simple data structure. You can check the image below.



In the previous chapter, we connected Firebase to our app. Now, we can log Firebase to the console.

```
console.log(firebase)
```



We can create a reference to our player's collection.

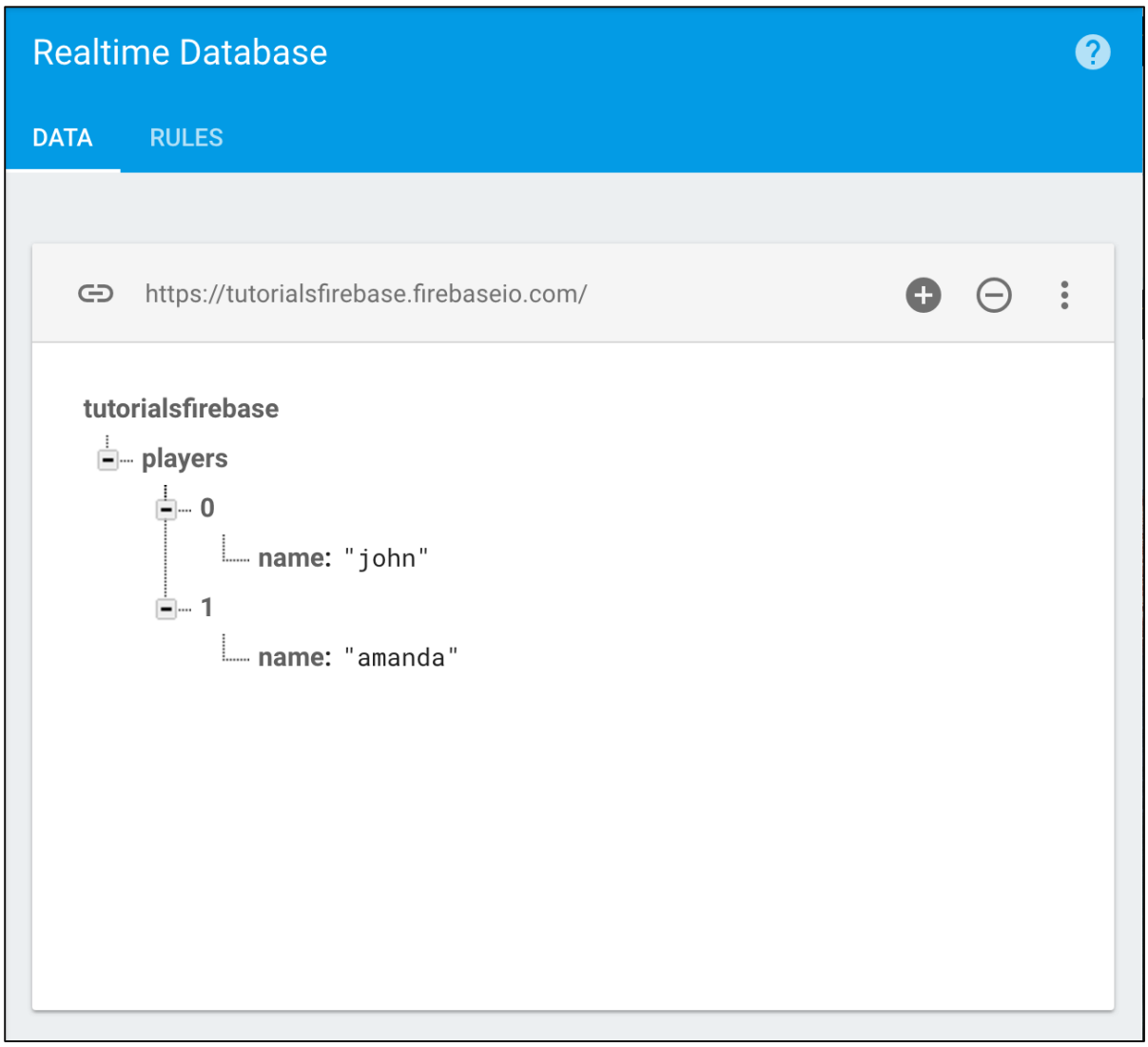
```
var ref = firebase.database().ref('players');


console.log(ref);
```

We can see the following result in the console.

4. FIREBASE – ARRAYS

This chapter will explain the Firebase representation of arrays. We will use the same data from the previous chapter.



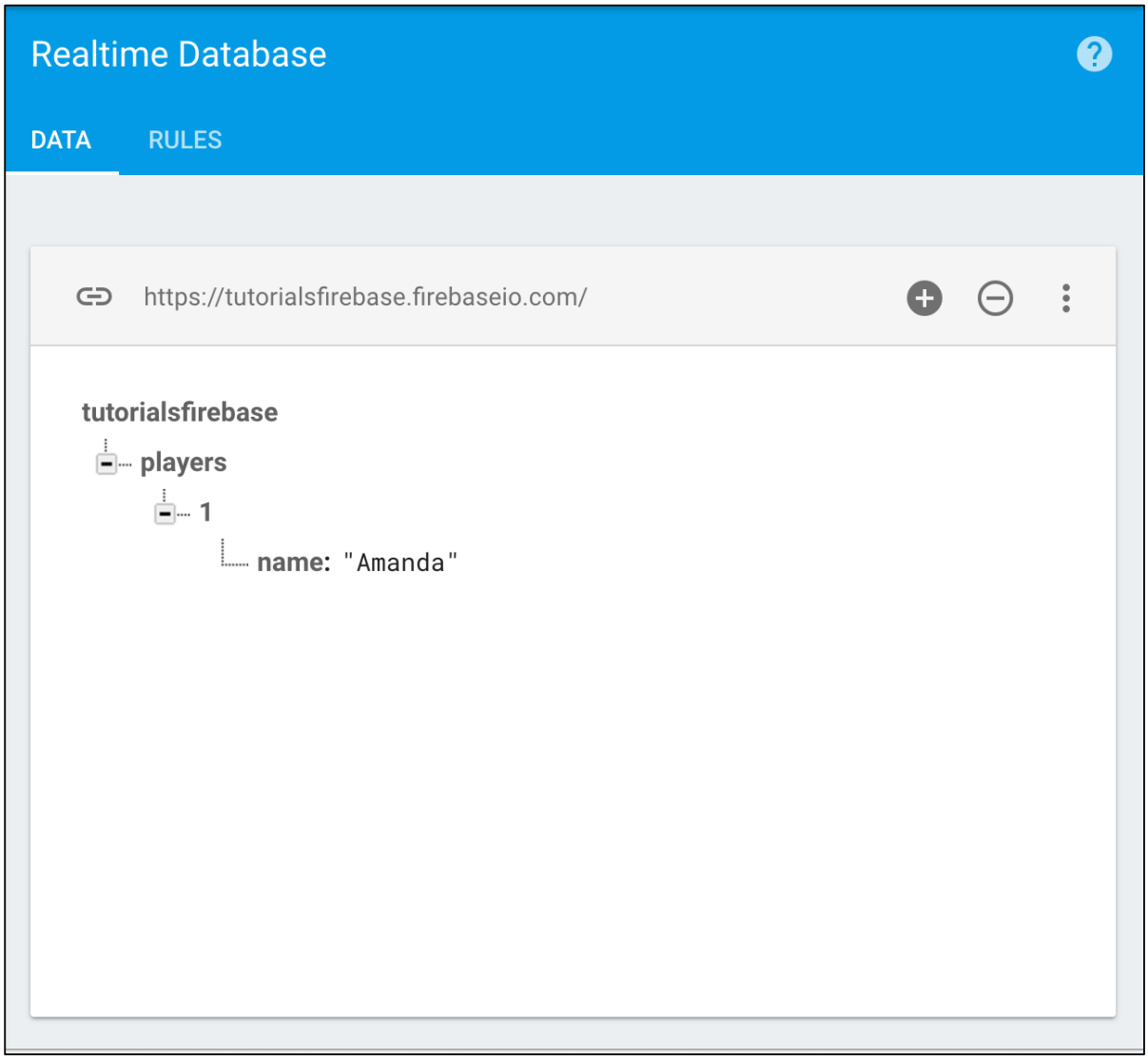
We could create this data by sending the following JSON tree to the player's collection.

```
['john', 'amanda']
```

This is because Firebase does not support Arrays directly, but it creates a list of objects with integers as key names.

The reason for not using arrays is because Firebase acts as a real time database and if a couple of users were to manipulate arrays at the same time, the result could be problematic since array indexes are constantly changing.

The way Firebase handles it, the keys (indexes) will always stay the same. We could delete **john** and **amanda** would still have the key (index) 1.



5. FIREBASE – WRITE DATA

In this chapter, we will show you how to save your data to Firebase.

Set

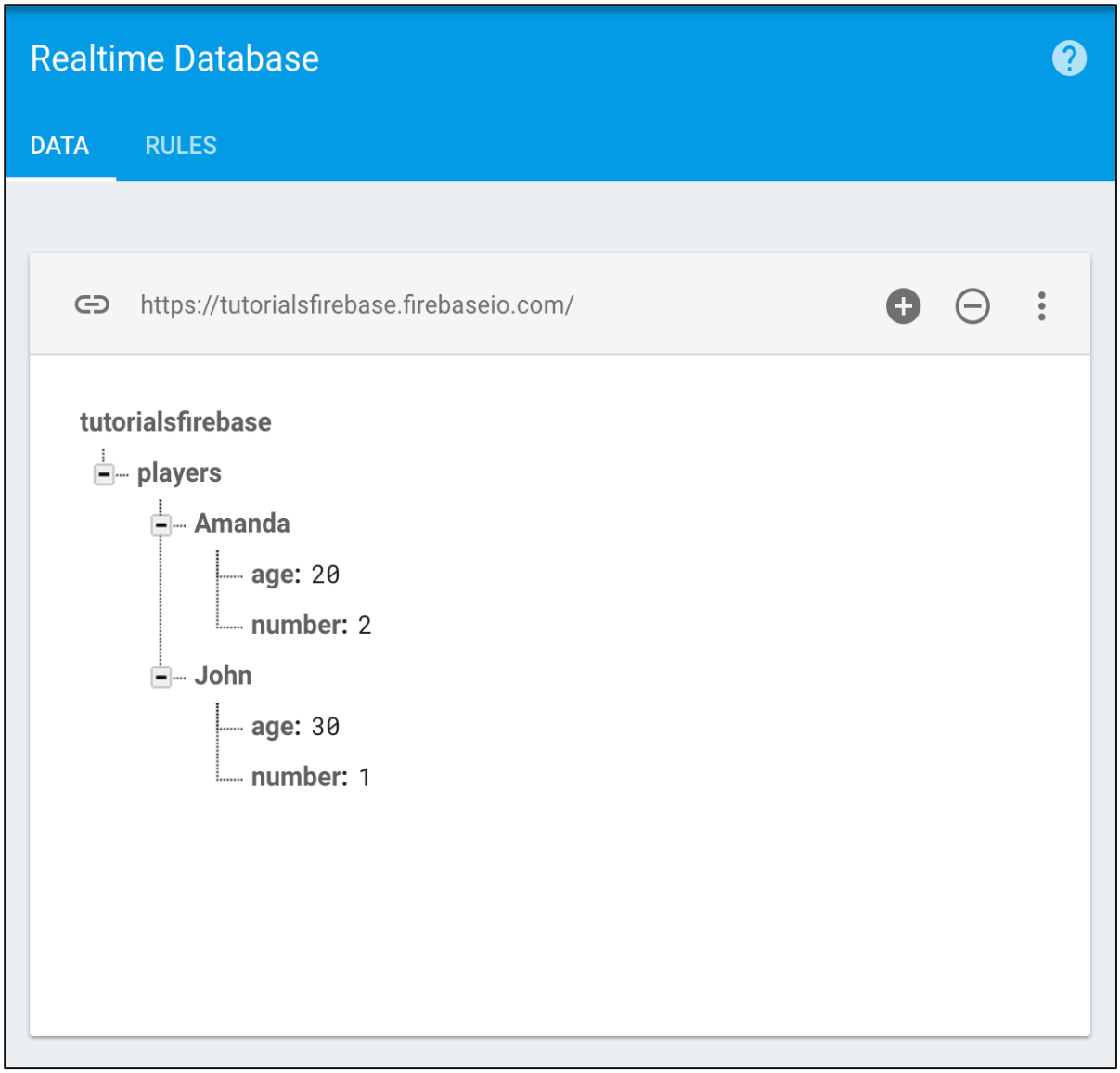
The **set** method will write or replace data on a specified path. Let us create a reference to the player's collection and set two players.

```
var playersRef = firebase.database().ref("players/");

playersRef.set({
   John: {
      number: 1,
      age: 30
   },

   Amanda: {
      number: 2,
      age: 20
   }
});
```

We will see the following result.



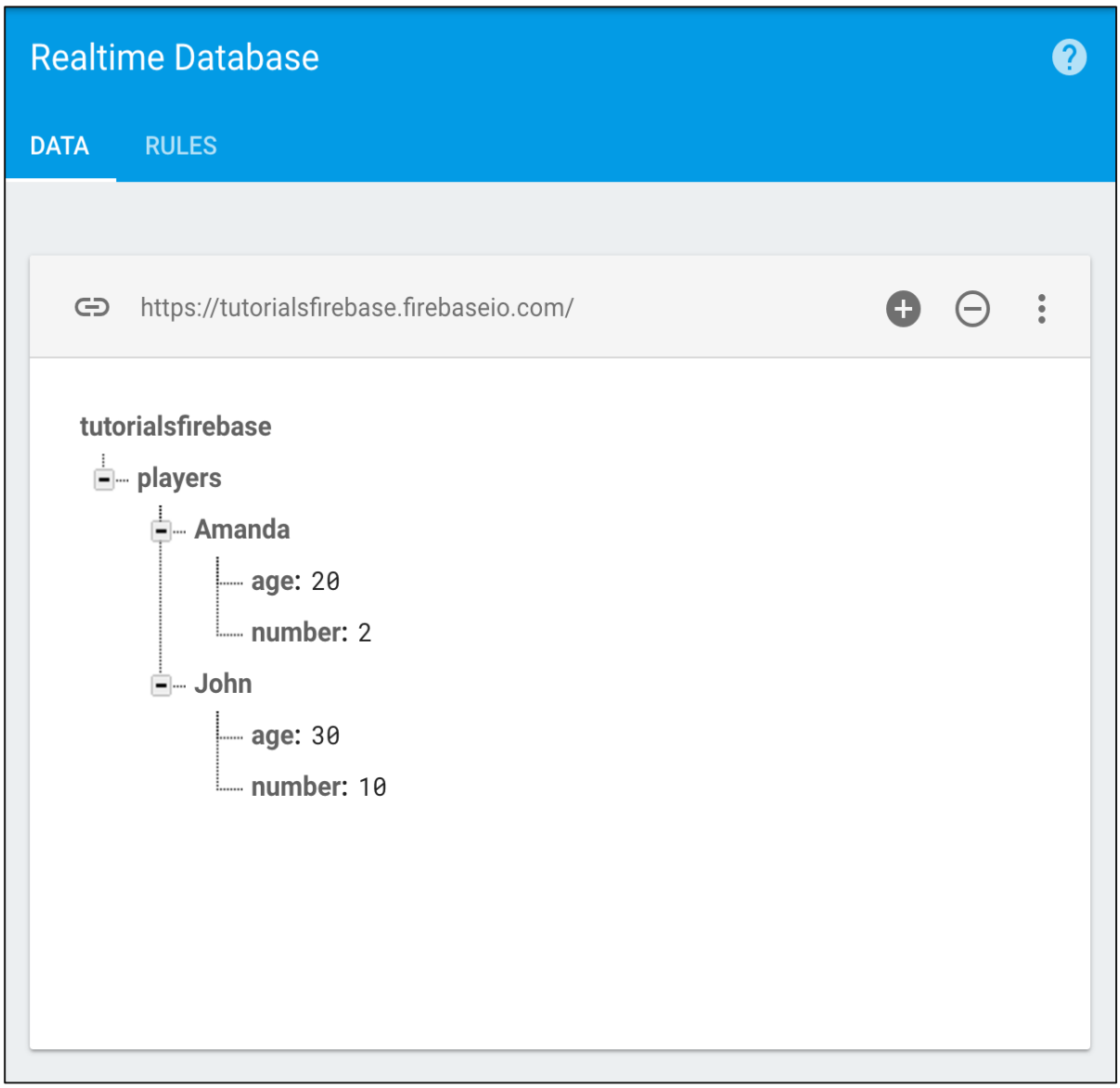
Update

We can update the Firebase data in a similar fashion. Notice how we are using the **players/john** path.

```
var johnRef = firebase.database().ref("players/John");


johnRef.update({
   "number": 10
});
```

When we refresh our app, we can see that the Firebase data is updating.



6. FIREBASE – WRITE LIST DATA

In our last chapter, we showed you how to write data in Firebase. Sometimes you need to have a unique identifier for your data. When you want to create unique identifiers for your data, you need to use the push method instead of the set method.

The Push Method

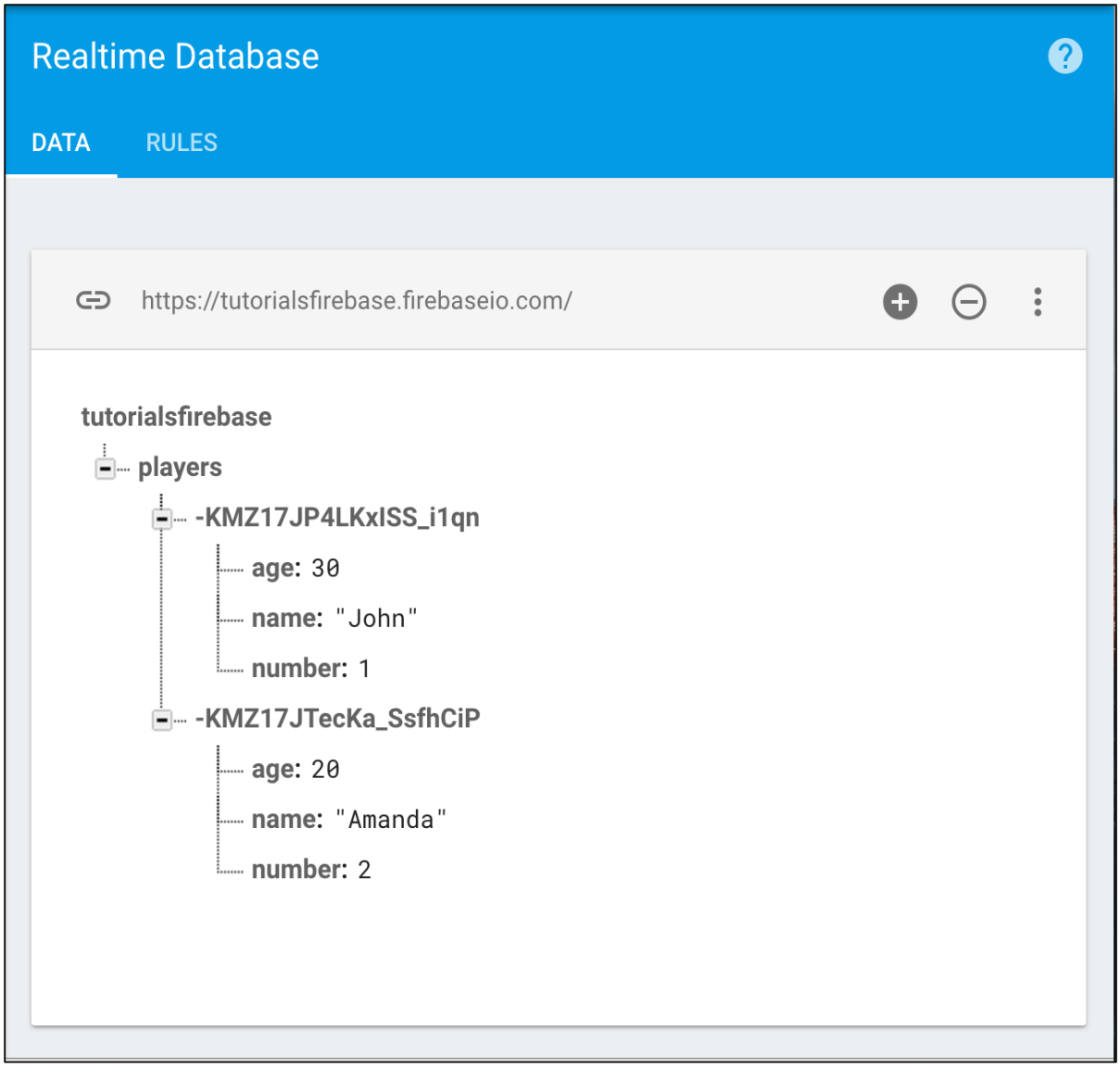
The **push()** method will create a unique id when the data is pushed. If we want to create our players from the previous chapters with a unique id, we could use the code snippet given below.

```
var ref = new Firebase('https://tutorialsfirebase.firebaseio.com');

var playersRef = ref.child("players");
playersRef.push({
   name: "John",
   number: 1,
   age: 30
});

playersRef.push({
   name: "Amanda",
   number: 2,
   age: 20
});
```

Now our data will look differently. The name will just be a name/value pair like the rest of the properties.



The Key Method

We can get any key from Firebase by using the **key()** method. For example, if we want to get our collection name, we could use the following snippet.

```
var ref = new Firebase('https://tutorialsfirebase.firebaseio.com');

var playersRef = ref.child("players");

var playersKey = playersRef.key();
console.log(playersKey);
```