

DocTool: Firebase

Introduction

Firebase is Google's mobile and web application development platform that provides backend services like:

- Realtime NoSQL database
- User authentication
- Cloud storage
- Hosting
- Analytics
- Machine learning APIs

It's particularly popular for rapid prototyping and serverless architectures.

Documentation

Click- <https://firebase.google.com/docs>

Installation & Usage

1. How to install Firebase

For Node.js projects:

```
bash
npm install firebase
```

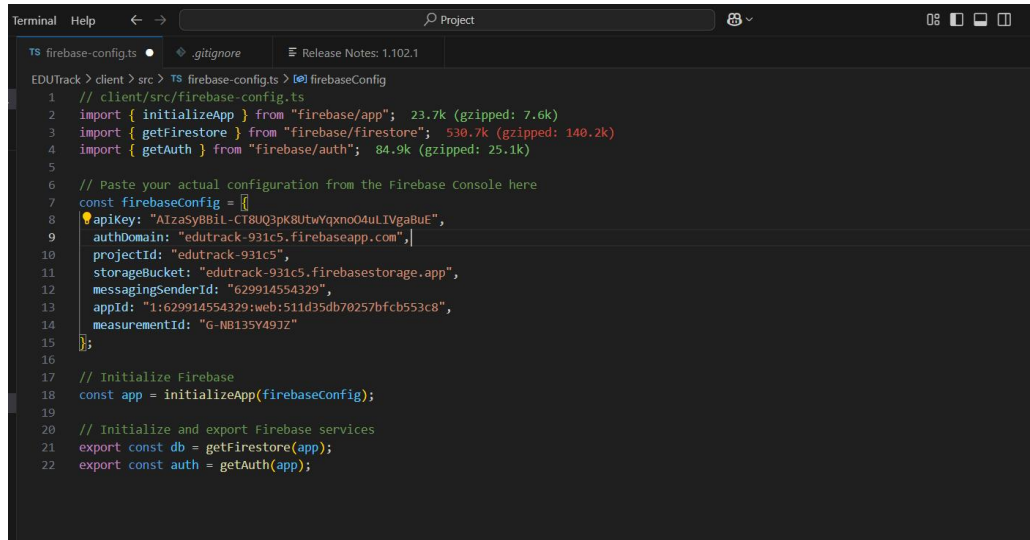
2. How to create Firebase documentation?

1. Initialize Firebase in your project.
2. Use firebase-docs for auto-generation.

3. Deploy to Firebase Hosting.

3.Source Code:

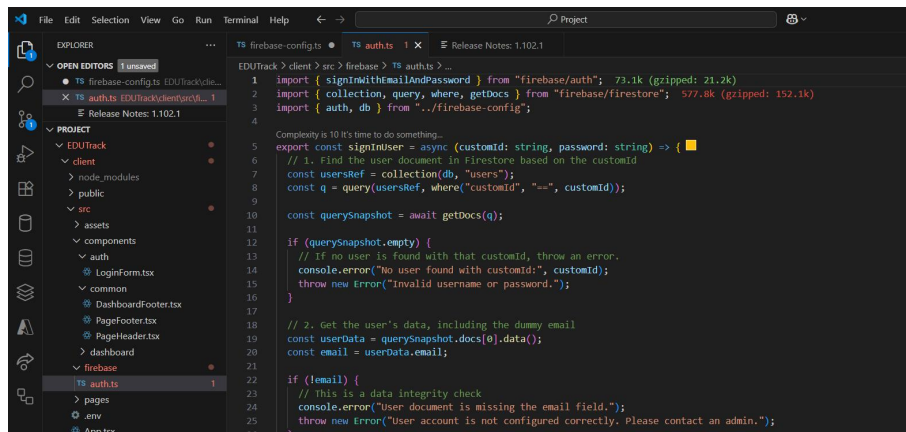
For firebase initialization-



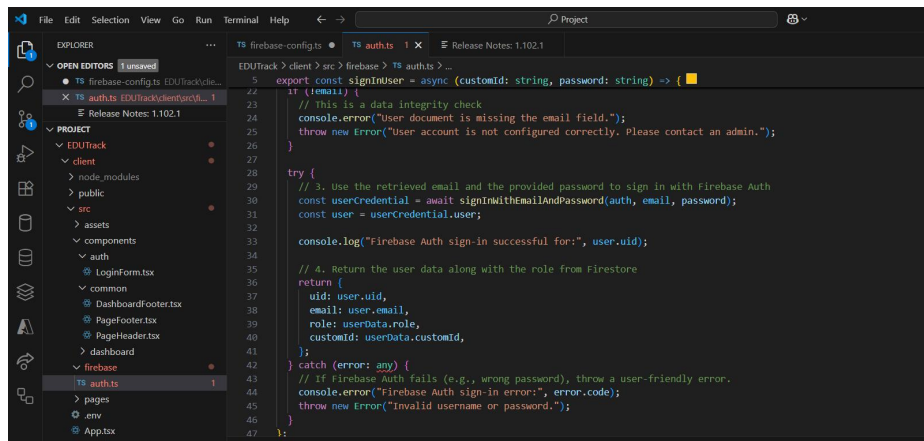
```
1 // client/src/firebase-config.ts
2 import { initializeApp } from "firebase/app"; 23.7k (gzipped: 7.6k)
3 import { getFirestore } from "firebase/firestore"; 530.7k (gzipped: 140.2k)
4 import { getAuth } from "firebase/auth"; 84.9k (gzipped: 25.1k)
5
6 // Paste your actual configuration from the Firebase Console here
7 const firebaseConfig = {
8   apiKey: "AIzaSy8Bil-CT8UQ3pK8UtwVqxno04uLIVgaBuE",
9   authDomain: "edutrack-931c5.firebaseio.com",
10  projectId: "edutrack-931c5",
11  storageBucket: "edutrack-931c5.firebaseio.com",
12  messagingSenderId: "629914554329",
13  appId: "1:629914554329:web:511d35db70257bfc553c8",
14  measurementId: "G-NB135Y49JZ"
15 };
16
17 // Initialize Firebase
18 const app = initializeApp(firebaseConfig);
19
20 // Initialize and export Firebase services
21 export const db = getFirestore(app);
22 export const auth = getAuth(app);
```

4.Produced Documentation:

Here are the documentation file created for the firebase initialization-



```
1 import { signInWithEmailAndPassword } from "firebase/auth"; 73.1k (gzipped: 21.2k)
2 import { collection, query, where, getDocs } from "firebase/firestore"; 577.0k (gzipped: 152.1k)
3 import { auth, db } from "../firebase-config";
4
5 Complexity is 10 It's time to do something...
6 export const signInUser = async (customId: string, password: string) => {
7   // 1. Find the user document in Firestore based on the customId
8   const usersRef = collection(db, "users");
9   const q = query(usersRef, where("customId", "==", customId));
10  const querySnapshot = await getDocs(q);
11
12  if (querySnapshot.empty) {
13    // If no user is found with that customId, throw an error.
14    console.error("No user found with customId:", customId);
15    throw new Error("Invalid username or password.");
16  }
17
18  // 2. Get the user's data, including the dummy email
19  const userData = querySnapshot.docs[0].data();
20  const email = userData.email;
21
22  if (!email) {
23    // This is a data integrity check
24    console.error("User document is missing the email field.");
25    throw new Error("User account is not configured correctly. Please contact an admin.");
26  }
27 }
```



Pros & Cons of Firebase-

1. Why Firebase?

- Real-time updates: Sync data instantly across clients.
- Scalability: Handles traffic spikes effortlessly.
- Authentication: Supports Google, Facebook, and email/password.
- Free tier: Generous limits for small projects.

2. Why Not Firebase?

- Cost: Pricing scales with usage (watch for read/write ops).
- Limited queries: No SQL-like joins or complex queries.
- Vendor lock-in: Migrating away requires significant effort.

Despite limitations, Firebase is ideal for rapid prototyping and full-stack apps.