CIS 371 Web Application Programming

Cloud DataBase

Firebase User Authentication

Lecturer: Dr. Yong Zhuang

Based on the original version by Professor Hans Dulimarta.

Firebase: A collection of many products

- Authentication
- Cloud Firestore
- Cloud Storage
- Cloud Functions
- …

Setup: Install and Initialize Firebase

```
yarn init -y
yarn add firebase
```

OR

```
npm init -y
npm install firebase
```

main.ts

```ts
import { createApp } from "vue";
import App from "./App.vue";
import router from "./router";
import { initializeApp } from "firebase/app";

const firebaseConfig = {
  apiKey: "your-api-key-goes-here",
  authDomain: "your-project-name.firebaseapp.com",
  projectId: "your-project-id",
  storageBucket: "your-project-name.appspot.com",
  messagingSenderId: "xxxxxxxxxxx",
};

initializeApp(firebaseConfig);
createApp(App).use(router).mount("#app");
```

Setup: Use Auth Functions

```
yarn init -y
yarn add firebase
```

OR

```
npm init -y
npm install firebase
```

login.vue

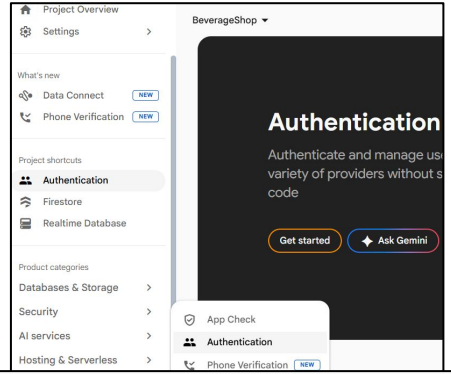
```
import {
  getAuth,
  signInWithPopup,
  createUserWithEmailAndPassword,
  signInWithEmailAndPassword,
  sendEmailVerification,
  signOut,
} from "firebase/auth";

const auth = getAuth();
createUserWithEmailAndPassword(auth, "user_email", "user_password");
sendEmailVerification(auth.currentUser);
signInWithEmailAndPassword(auth, "user_email", "user_password");
signInWithPopUp(auth, _____);
signOut(auth);
```

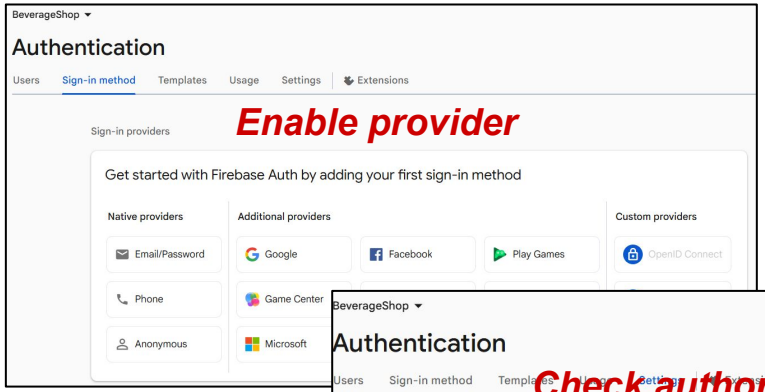
Authentication Options

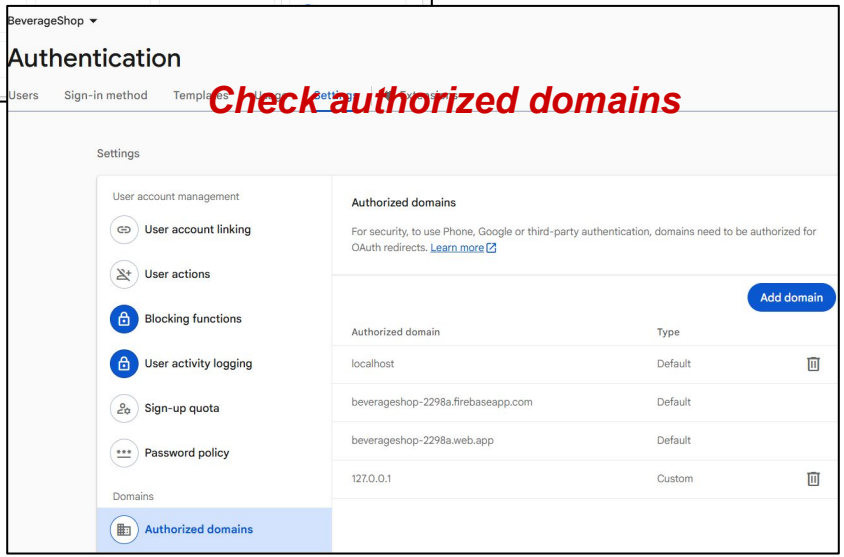
- Email/Password
- GitHub accounts
- Google accounts
- …

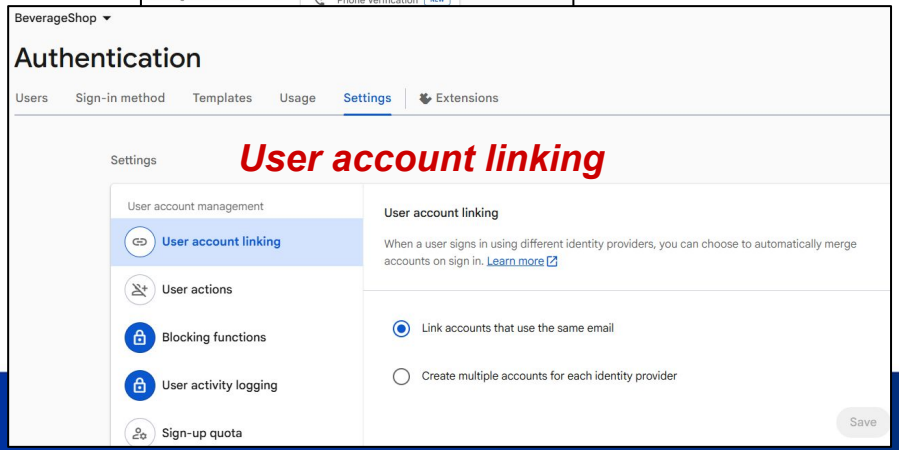
- **Firebase Authentication Web docs.**

What to configure in Firebase Console









Authentication Functions are async

Use Promise.then or await to handle the result

Firebase Auth: Create A New Account

```
import {
  getAuth,
  createUserWithEmailAndPassword,
  UserCredential,
} from "firebase/auth";
const auth = getAuth();

createUserWithEmailAndPassword(auth, "me@sample.com", "1q2w3e4r5")
  .then((cred: UserCredential) => {
    sendEmailVerification(cred.user);
    console.log("Verification email has been sent to", cred.user?.email);
    auth.signOut();
  })
  .catch((err: any) => {
    console.error("Oops", err);
  });
```

What will happen after calling the `createUserWithEmailAndPassword` function?

Firebase Auth: Signin With Email

```
import {
  getAuth,
  signInWithEmailAndPassword,
  UserCredential,
} from "firebase/auth";
const auth = getAuth();

signInWithUserWithEmailAndPassword(auth, "me@sample.com", "1q2w3e4r5")
  .then((cred: UserCredential) => {
    if (cred.user?.emailVerified) console.log("Signed in as", cred.user?.email);
    else {
      console.log("Please verify your email first");
      auth.signOut();
    }
  })
  .catch((err: any) => {
    console.error("Oops", err);
  });
```

Firebase Auth: Sign In With Providers

```
import { getAuth, GoogleAuthProvider, signInWithPopup } from "firebase/auth";
const auth = getAuth();

const provider = new GoogleAuthProvider();

signInWithPopup(auth, provider)
  .then((result) => {
    const cred = GoogleAuthProvider.credentialFromResult(result);
    console.log("Signed in as", cred.user?.email);
  })
  .catch((err: any) => {
    console.error("Oops", err);
  });
```

Make sure you have added the login provider in the Authentication Dashboard

Monitor Authentication in Background

```
import { getAuth, User, onAuthStateChanged } from "firebase/auth";
const auth = getAuth();

onAuthStateChanged(auth, (user: User | null) => {
  if ((currentUser == null) & (user != null)) {
    currentUser = user;
    /* User just logged in */
  } else if ((currentUser != null) & (user == null)) {
    /* User just logged out, do clean up work */
  }
});
```

a list of available properties

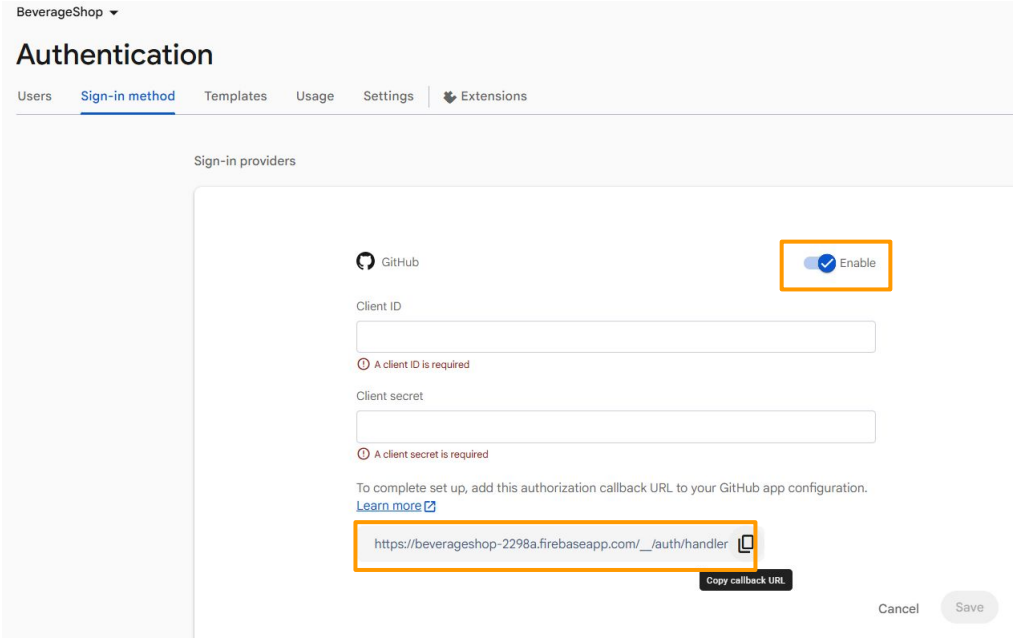
Use onAuthStateChanged if you need to monitor login status in background

3rd party Account Providers

Account Provider	Provider Class
Facebook	FacebookAuthProvider
GitHub	GithubAuthProvider
Google	GoogleAuthProvider
Phone	PhoneAuthProvider
Twitter	TwitterAuthProvider

Example: GitHub SignIn

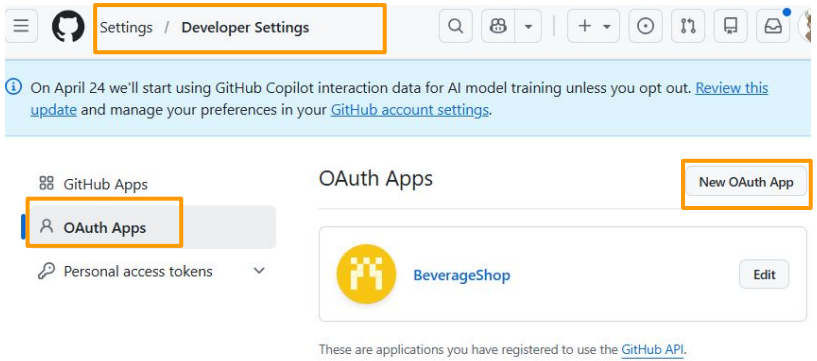
Step A: Enable Github Login



Do this step from Firebase Authentication Dashboard

Step B: Create an OAuth App (On Github Settings)

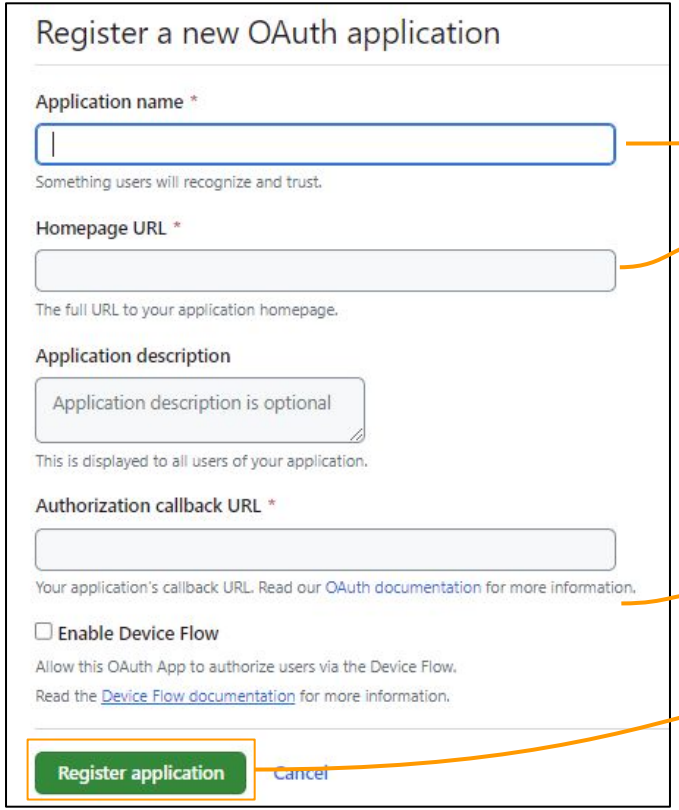
The following page is under Settings => Developer Setting



Create a new Github OAuth App

Do this step from GitHub Developer Settings

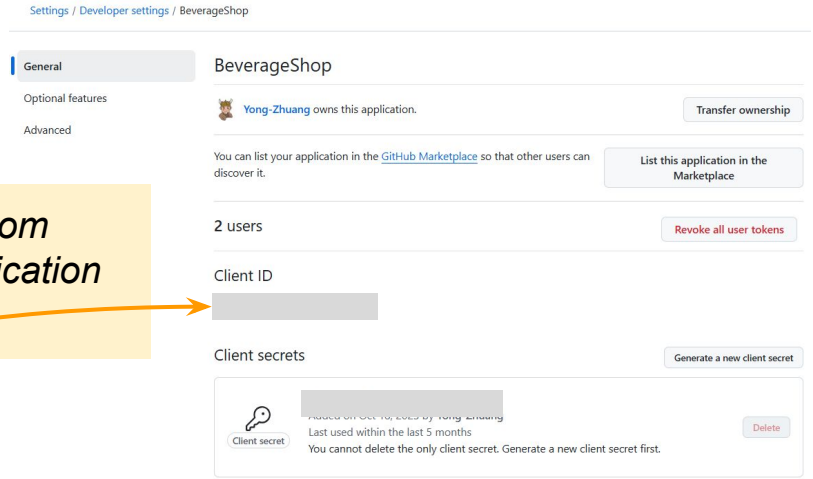
Step D: Copy Client ID & Client Secret



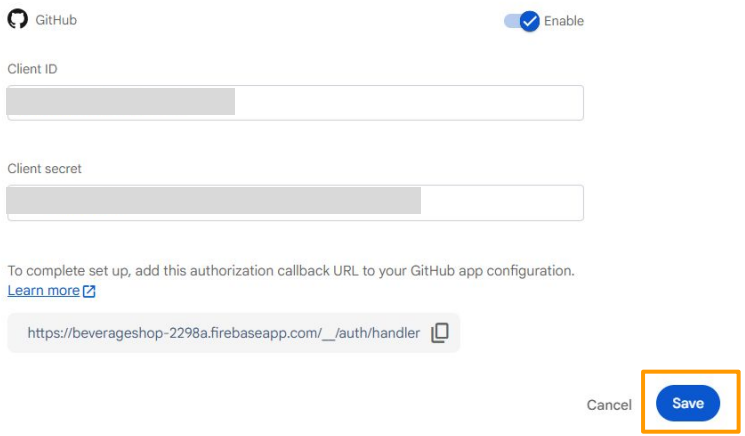
app name to show to the user at log in time

enter a valid URL and this can be changed later

copy and paste from Firebase Authentication (from Step A)



Step D: Copy Client ID & Client Secret



Do this step from Firebase Authentication Dashboard

Exercises: Try User Authentication

1. Open Your Firebase Project

- Go to Firebase Console and open your **BeverageShop** project
- In the left sidebar, go to **Build → Authentication**
- Click **Get started**

2. Enable a Sign-In Method

- Open the **Sign-in method** tab
- Enable **Google Sign-In**
- Save the changes

3. Check Authorized Domains

- Open the **Settings** tab in Authentication
- Find **Authorized domains**
- Make sure your local development domain is listed, such as localhost, 127.0.0.1