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MPL Practical 06

Aim: To integrate Firebase Authentication in a Flutter app.

Theory:

Firebase Authentication in Our Code

- User Registration – Users sign up with email & password, and a verification email is sent.
- Email Verification – Users must verify their email before logging in.
- User Login – Users can log in only after verifying their email.
- Google Sign-In – Users can log in using their Google account.
- Password Reset – Users receive a reset link via email if they forget their password.
- Logout – Users can securely log out.

Firebase Integration Steps

- Configured Firebase Project and enabled authentication.
- Initialized Firebase in Flutter and added required dependencies.
- Implemented Firebase Authentication in auth_service.dart for sign-up, login, password reset, and logout.

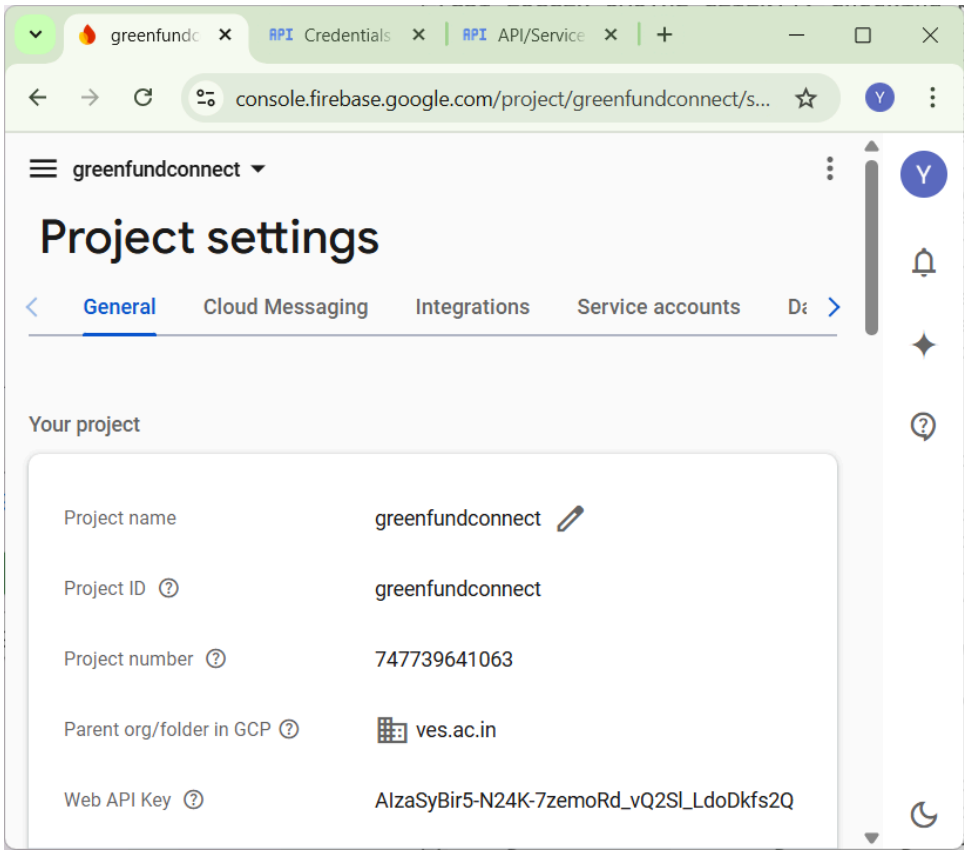
Code:

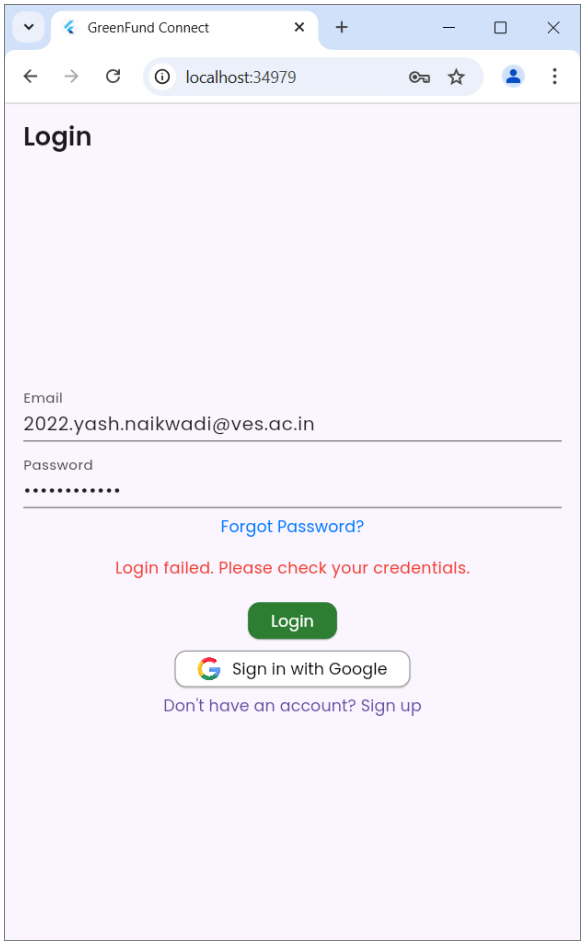
```
import 'package:firebase_auth/firebase_auth.dart';
import 'package:google_sign_in/google_sign_in.dart';

class AuthService {
  final FirebaseAuth _auth = FirebaseAuth.instance;
  final GoogleSignIn _googleSignIn = GoogleSignIn(
    clientId: "906491462662-tlb834jjlnn3beter7oapo8d0j1hbvch.apps.googleusercontent.com",
  );

  // Sign Up with Email & Password and Send Verification Email
  Future<User?> signUp(String email, String password) async {
    try {
      UserCredential userCredential = await _auth.createUserWithEmailAndPassword(
        email: email,
        password: password,
      );

      User? user = userCredential.user;

      if (user != null) {
        await user.sendEmailVerification(); // Send verification email
      }
```

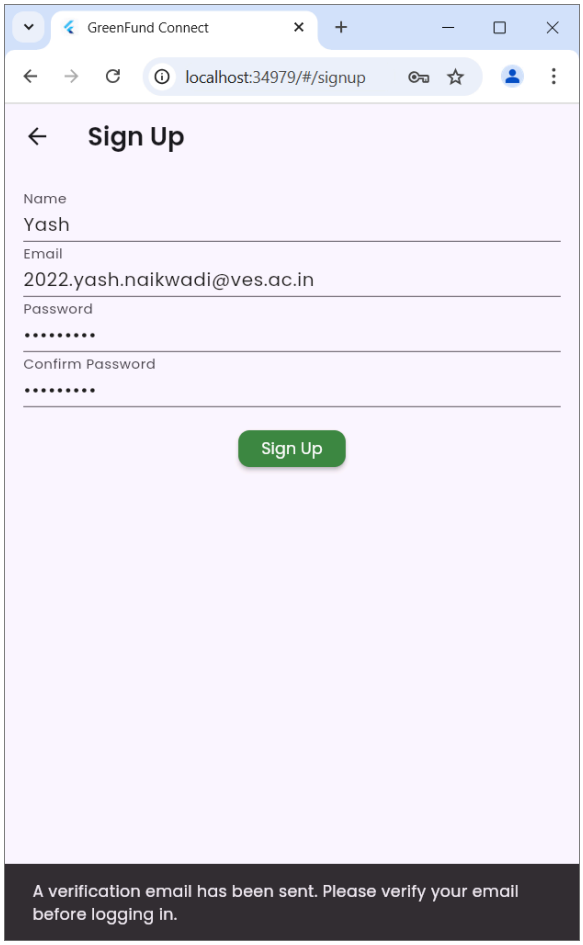
```
    return user;
  } catch (e) {
    print("Sign Up Error: $e");
    return null;
  }
}

// Check if email is verified
Future<bool> isEmailVerified() async {
  User? user = _auth.currentUser;
  await user?.reload(); // Refresh user data
  return user?.emailVerified ?? false;
}

// Login with Email & Password (Only if email is verified)
Future<User?> signIn(String email, String password) async {
  try {
    UserCredential userCredential = await _auth.signInWithEmailAndPassword(
      email: email,
      password: password,
    );

    User? user = userCredential.user;

    if (user != null && user.emailVerified) {
      return user;
    } else {
      print("Email not verified");
      return null;
    }
  } catch (e) {
    print("Login Error: $e");
    return null;
  }
}

// Google Sign-In
Future<User?> signInWithGoogle() async {
  try {
    final GoogleSignInAccount? googleUser = await _googleSignIn.signIn();
    if (googleUser == null) return null;

    final GoogleSignInAuthentication googleAuth = await googleUser.authentication;
    final AuthCredential credential = GoogleAuthProvider.credential(
```

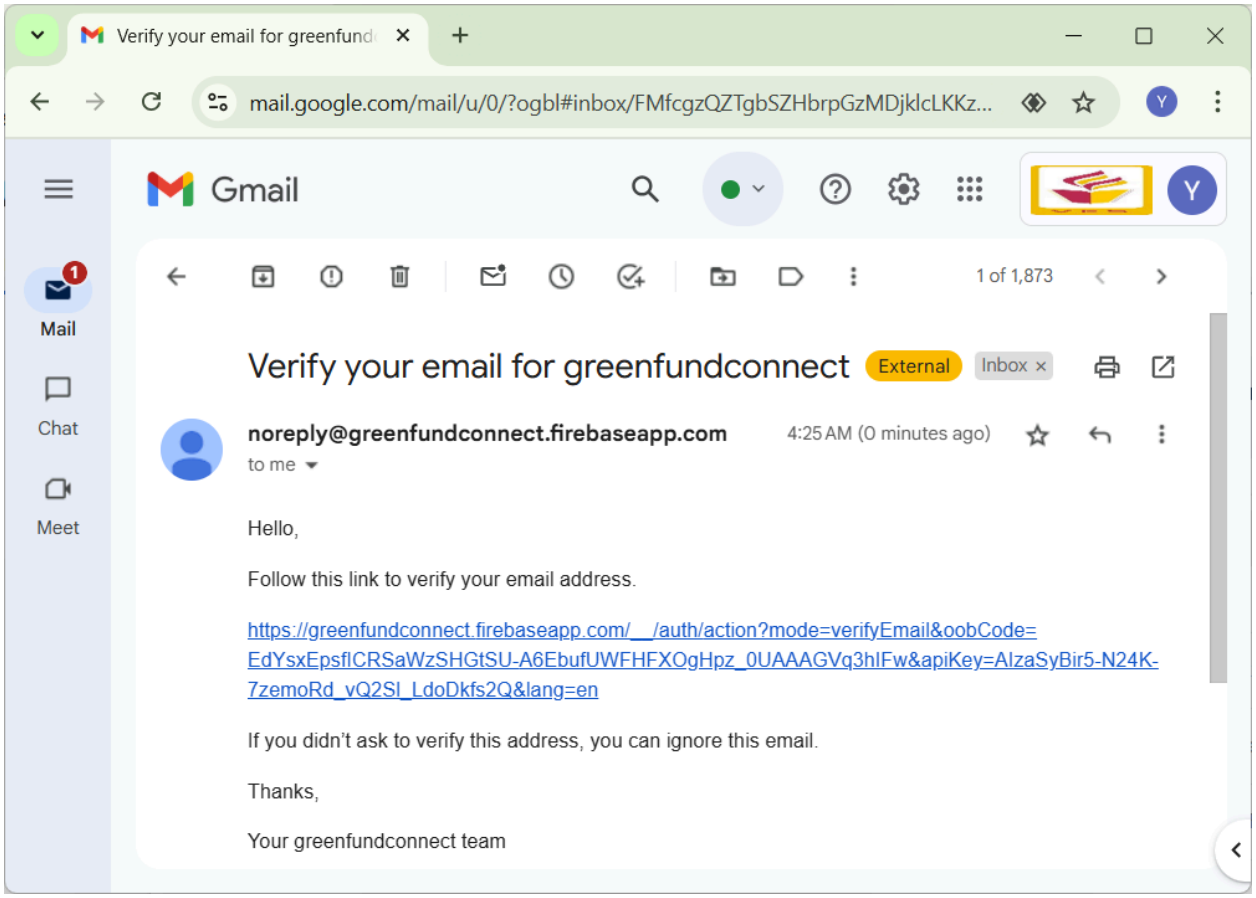
```
      accessToken: googleAuth.accessToken,
      idToken: googleAuth.idToken,
    );

    UserCredential userCredential = await _auth.signInWithCredential(credential);
    return userCredential.user;
  } catch (e) {
    print("Google Sign-In Error: $e");
    return null;
  }
 }

 // Sign Out
 Future<void> signOut() async {
  try {
    await _auth.signOut();
    await _googleSignIn.signOut();
  } catch (e) {
    print("Sign Out Error: $e");
  }
 }

 // Reset Password
 Future<bool> resetPassword(String email) async {
  try {
    await _auth.sendPasswordResetEmail(email: email);
    return true;
  } catch (e) {
    print("Password Reset Error: $e");
    return false;
  }
 }
}
```

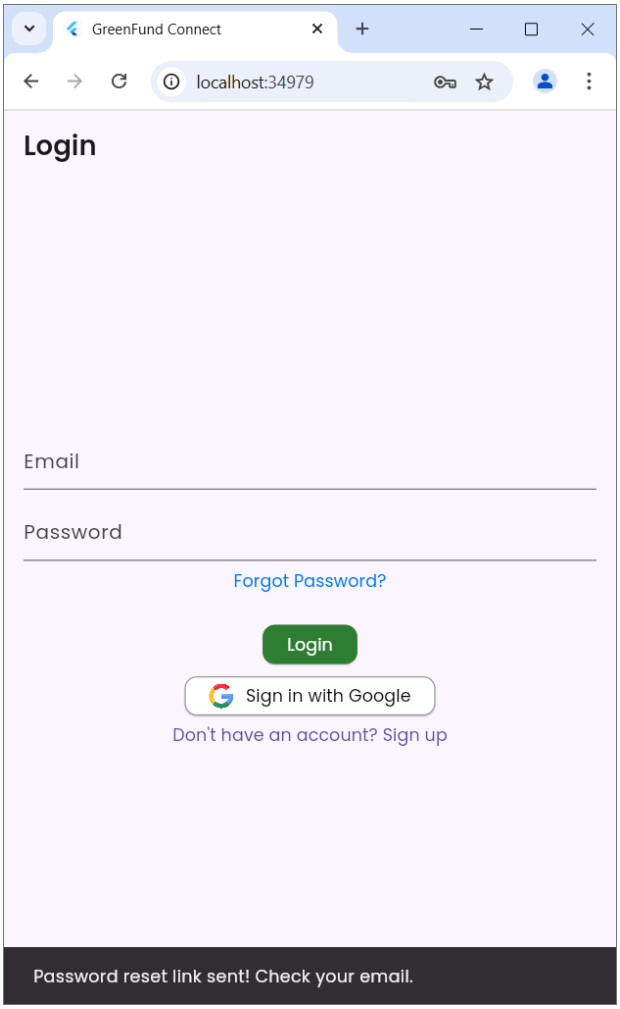
Screenshot:

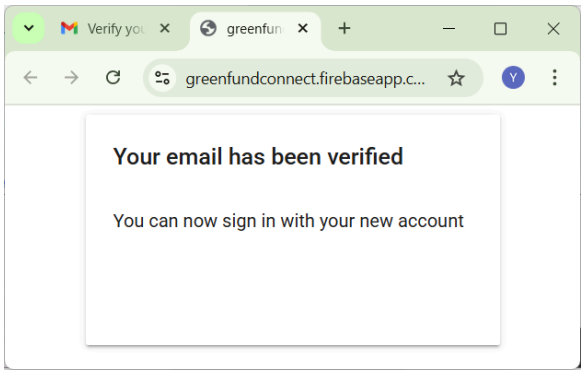

greenfundc
API Credentials
API API/Service
console.firebase.google.com/project/greenfundconnect/s...
greenfundconnect
Project settings
General
Cloud Messaging
Integrations
Service accounts
Your project
Project name
greenfundconnect
Project ID
greenfundconnect
Project number
747739641063
Parent org/folder in GCP
ves.ac.in
Web API Key
AIzaSyBir5-N24K-7zemoRd_vQ2Sl_LdoDkfs2Q

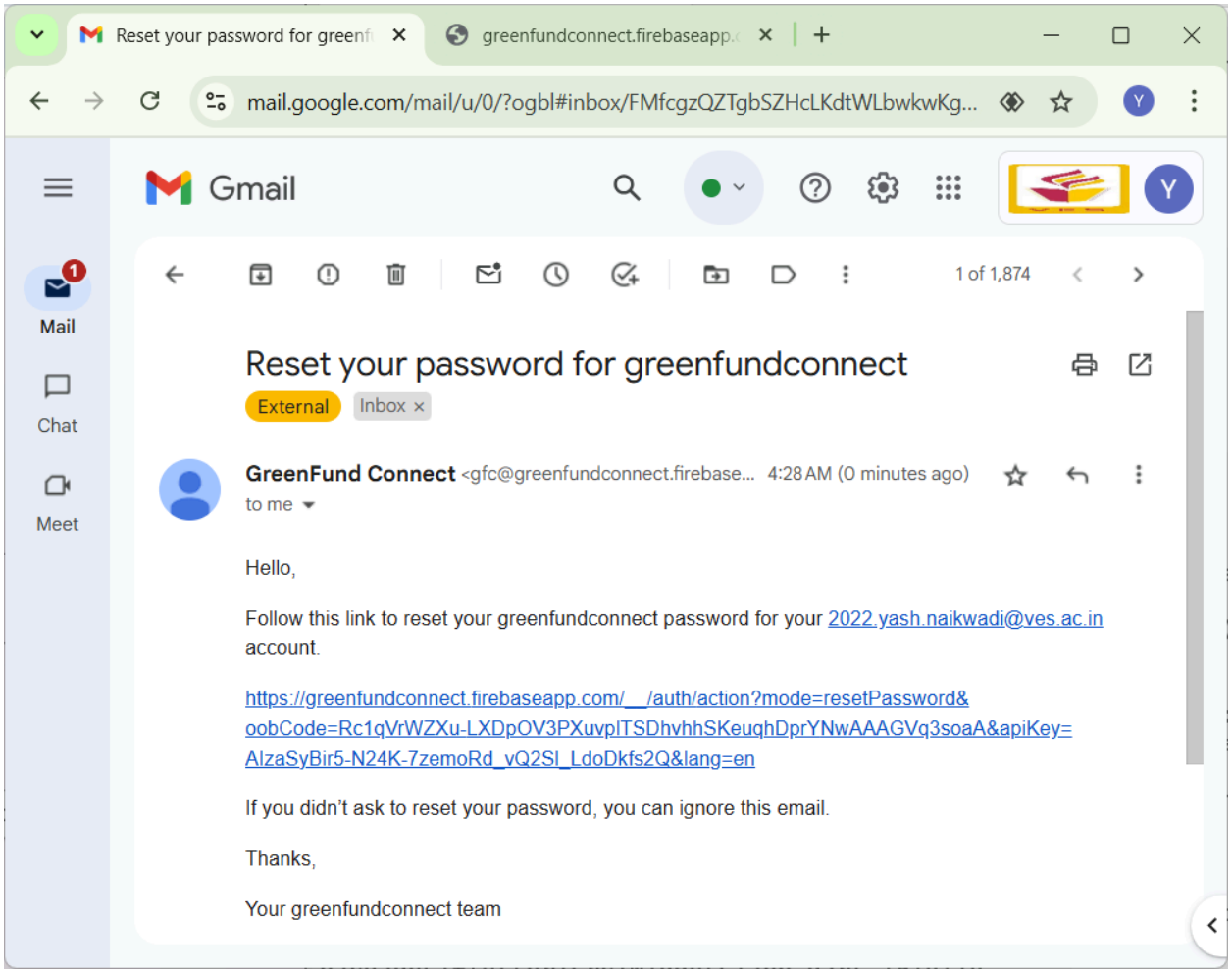

GreenFund Connect
localhost:34979
Login
Email
2022.yash.naikwadi@ves.ac.in
Password
Forgot Password?
Login failed. Please check your credentials.
Login
Sign in with Google
Don't have an account? Sign up

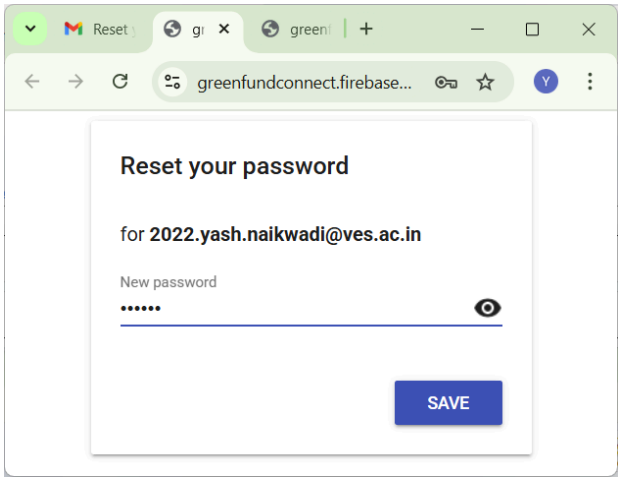

GreenFund Connect
localhost:34979/#/signup
Sign Up
Name
Yash
Email
2022.yash.naikwadi@ves.ac.in
Password
Confirm Password
Sign Up
A verification email has been sent. Please verify your email before logging in.

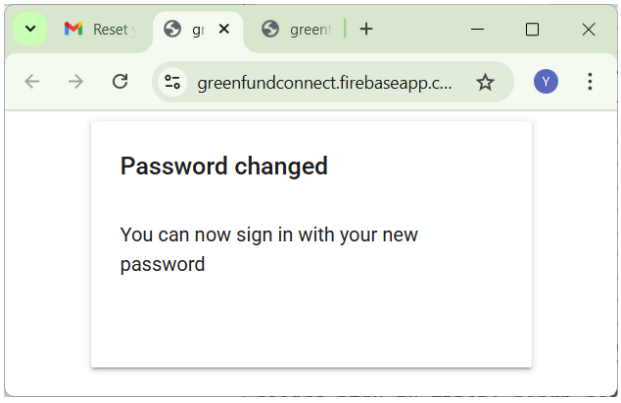

Verify your email for greenfund
mail.google.com/mail/u/0/?ogbl#inbox/FMfcgzQZTgbSZHbrpGzMDjklcLKKz...
Gmail
Mail
Chat
Meet
1 of 1,873
Verify your email for greenfundconnect
External
Inbox ×
noreply@greenfundconnect.firebaseapp.com
4:25 AM (0 minutes ago)
to me
Hello,
Follow this link to verify your email address.
https://greenfundconnect.firebaseapp.com/__/auth/action?mode=verifyEmail&oobCode=EdYsxEpsfICRSaWzSHGtSU-A6EbufUWFHFXOgHpz_0UAAAGVq3hIFw&apiKey=AIzaSyBir5-N24K-7zemoRd_vQ2SI_LdoDkfs2Q&lang=en
If you didn't ask to verify this address, you can ignore this email.
Thanks,
Your greenfundconnect team

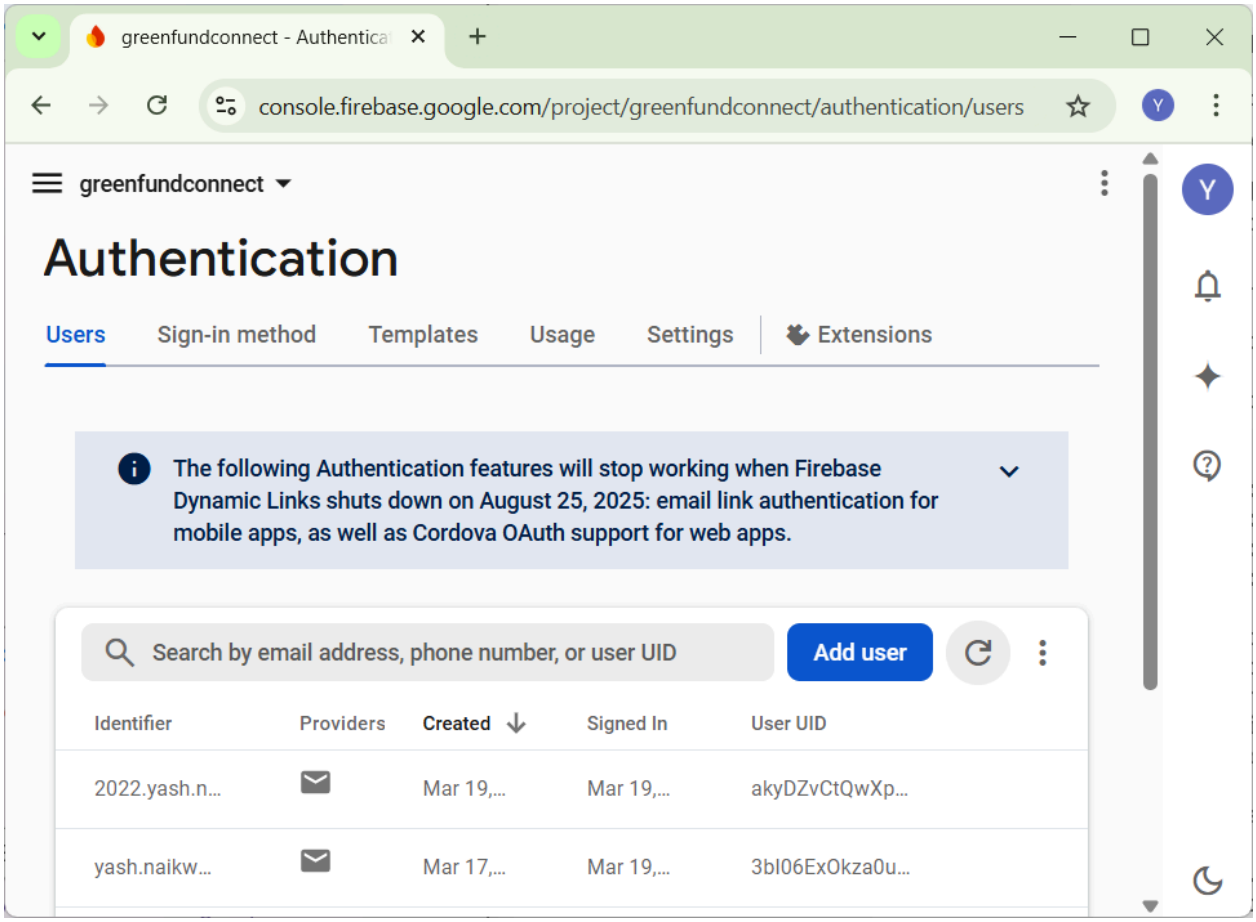

GreenFund Connect
localhost:34979
Login
Email
Password
Forgot Password?
Login
Sign in with Google
Don't have an account? Sign up
Password reset link sent! Check your email.


greenfundconnect.firebaseapp.c...
Your email has been verified
You can now sign in with your new account


Reset your password for greenf
greenfundconnect.firebaseapp.
mail.google.com/mail/u/0/?ogbl#inbox/FMfcgzQZTgbSZHcLKdtWLbwkwKg...
Gmail
Mail
Chat
Meet
1 of 1,874
Reset your password for greenfundconnect
External
Inbox ×
GreenFund Connect <gfc@greenfundconnect.firebase... 4:28 AM (0 minutes ago)
to me
Hello,
Follow this link to reset your greenfundconnect password for your 2022.yash.naikwadi@ves.ac.in account.
https://greenfundconnect.firebaseapp.com/__/auth/action?mode=resetPassword&oobCode=Rc1qVrWZXu-LXDpOV3PXuvplTSDhvhhSKeuqhDprYNwAAAGVq3soaA&apiKey=AIzaSyBir5-N24K-7zemoRd_vQ2SI_LdoDkfs2Q&lang=en
If you didn't ask to reset your password, you can ignore this email.
Thanks,
Your greenfundconnect team


greenfundconnect.firebase...
Reset your password
for 2022.yash.naikwadi@ves.ac.in
New password
••••••
SAVE


greenfundconnect.firebaseapp.c...
Password changed
You can now sign in with your new password


greenfundconnect - Authentica
console.firebase.google.com/project/greenfundconnect/authentication/users
greenfundconnect
Authentication
Users
Sign-in method
Templates
Usage
Settings
Extensions
The following Authentication features will stop working when Firebase Dynamic Links shuts down on August 25, 2025: email link authentication for mobile apps, as well as Cordova OAuth support for web apps.
Search by email address, phone number, or user UID
Add user
Identifier
Providers
Created
Signed In
User UID
2022.yash.n...
Mar 19,...
Mar 19,...
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Mar 17,...
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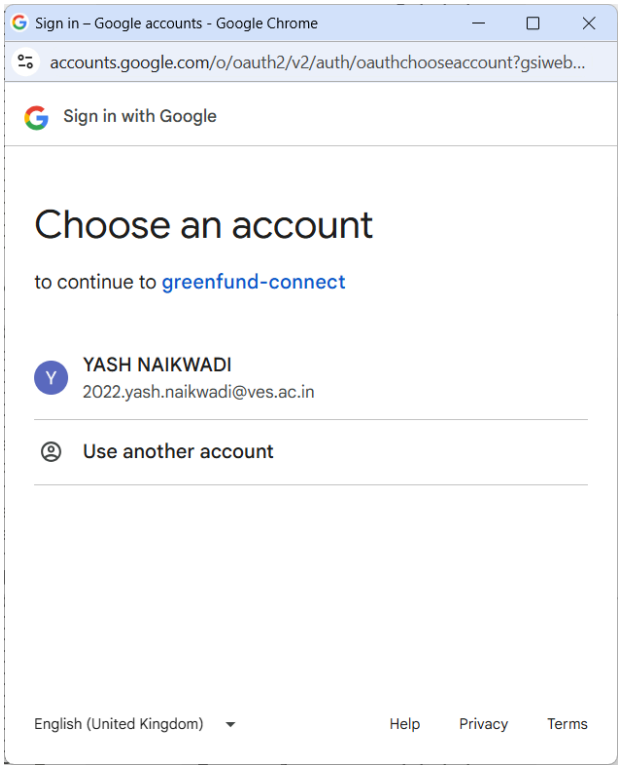
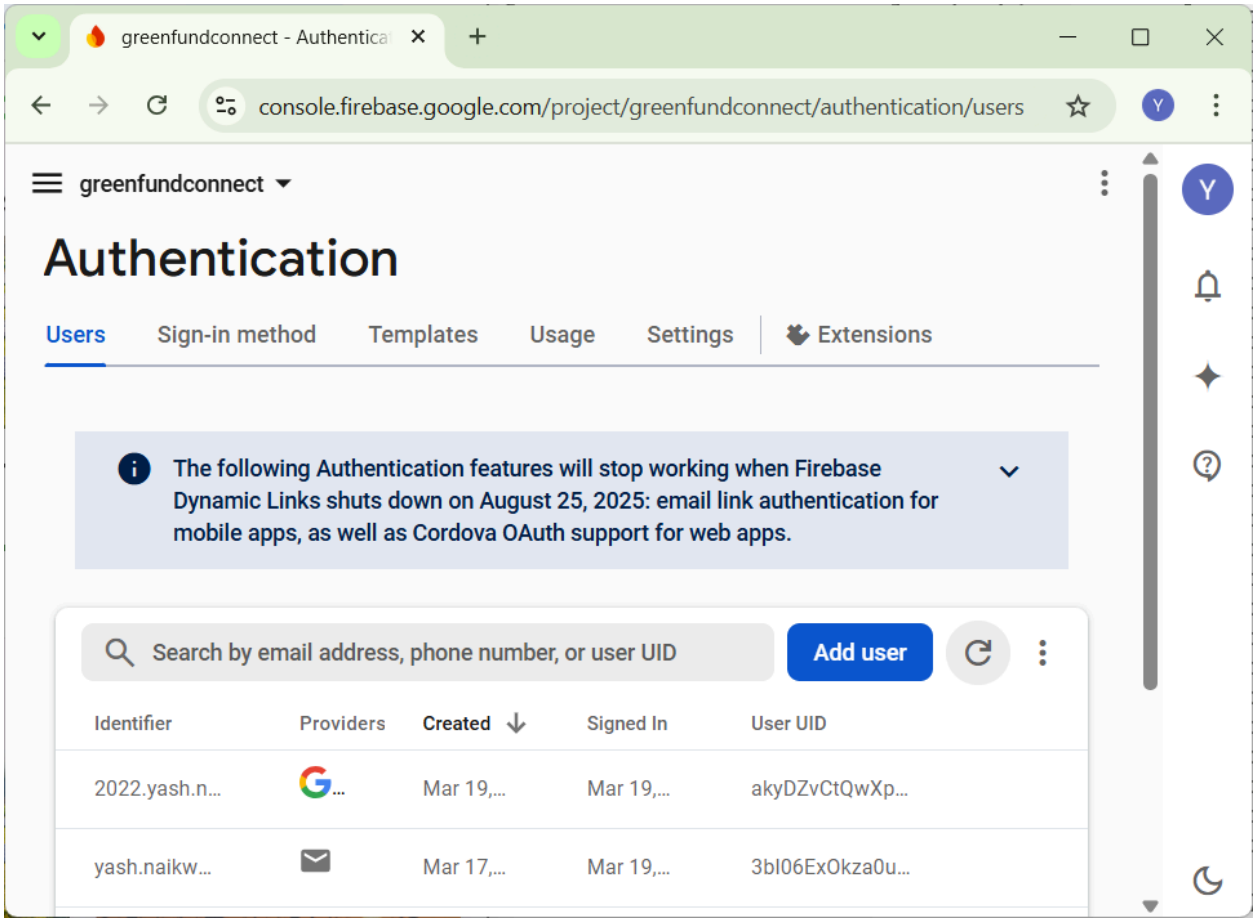

Sign in – Google accounts - Google Chrome
accounts.google.com/o/oauth2/v2/auth/oauthchooseaccount?gsiweb...
Sign in with Google
Choose an account
to continue to greenfund-connect
YASH NAIKWADI
2022.yash.naikwadi@ves.ac.in
Use another account
English (United Kingdom)
Help
Privacy
Terms



Conclusion

In GreenFund-Connect, we successfully integrated Firebase Authentication, implementing user sign-up, email verification, login, Google Sign-In, password reset, and logout. During development, we faced issues like Google Sign-In popup closing unexpectedly and email verification delays, which we resolved by correcting OAuth credentials, enabling the People API, and ensuring proper Firebase authentication settings.