Learning Firebase - Comprehensive Guide

Table of Content:

1. Introduction

2. Prerequisites

3. Firebase Overview

4. Setting up Firebase Project

5. Authentication

6. Fire store Database

7. Firebase Storage

8. Cloud Functions

9. Firebase Hosting

10. Cloud Messaging

11. Security Rules

12. Testing and Debugging

13. Advanced Topics

14. Best Practices

15. Resources

16. Demo Project

- **Created Under guidance Of Nilesh Prajapati.**
- **Level of Document: Basic / Intermediate.**
- **Outcome: Basic understanding of Firebase and able to create a basic project.**

LEARNING FIREBASE

Introduction:

- Welcome to the comprehensive guide for learning Firebase! Firebase, developed by Google, is a robust platform for building web and mobile applications. This guide is designed for both beginners and experienced developers seeking to enhance their skills in Firebase. It covers essential concepts, setup procedures, and resources to master Firebase development.

Prerequisites:

- Before diving into Firebase, ensure you have a solid understanding of the following:

  - ✓ Basic HTML/CSS.
  - ✓ JavaScript Fundamentals.
  - ✓ Node.js and npm.
  - ✓ ReactJs https://github.com/nil-01/ReactjsBasic (For Demo).
  - ✓ Account on firebase.

Firebase Overview:

- Firebase offers a comprehensive set of tools and services, including real-time database, authentication, cloud functions, hosting, and more. It simplifies the development process and enhances the functionality of your applications.

- **Pros:**

  - 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.

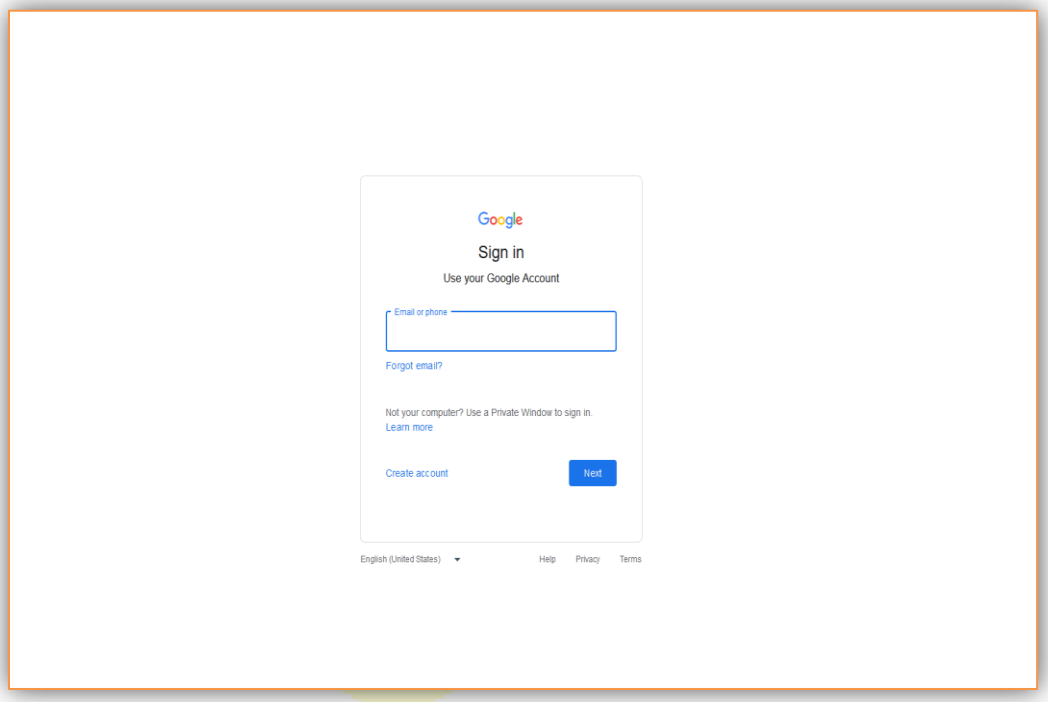
- **Cons:**

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

Setting Up Firebase Project:

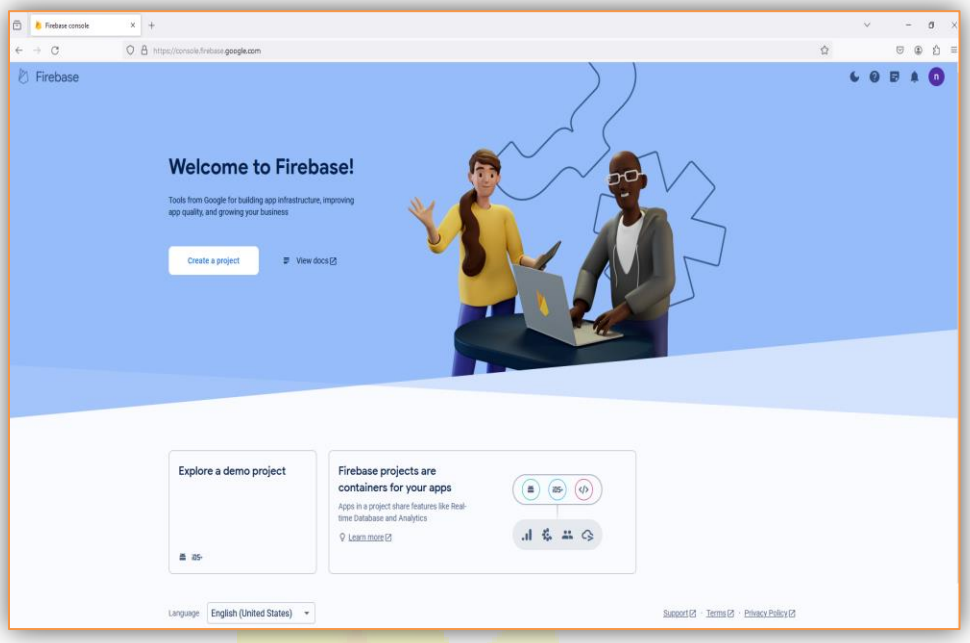
1. Creating a Firebase Project:

- ✓ Visit the **Firebase Console (**https://console.firebase.google.com/).

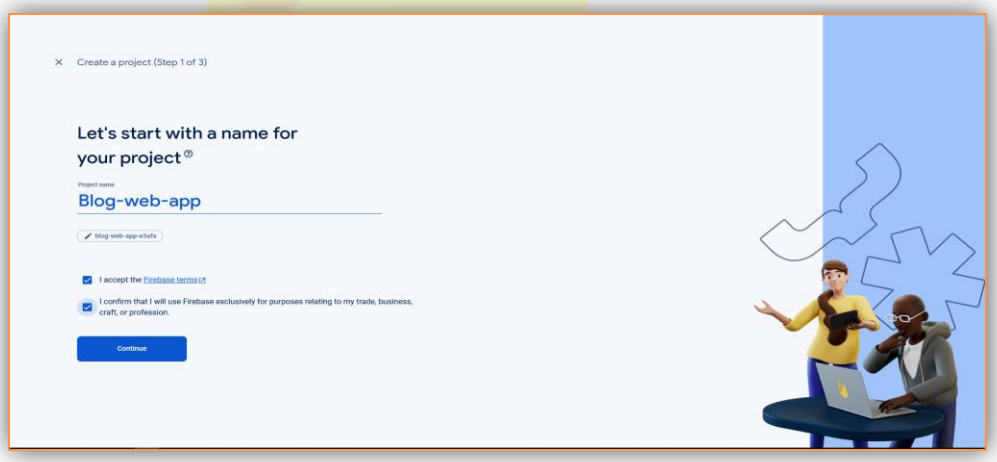


- ✓ Sign Up Or Sign In (Note : If you already login in your browser this pop up will not come)

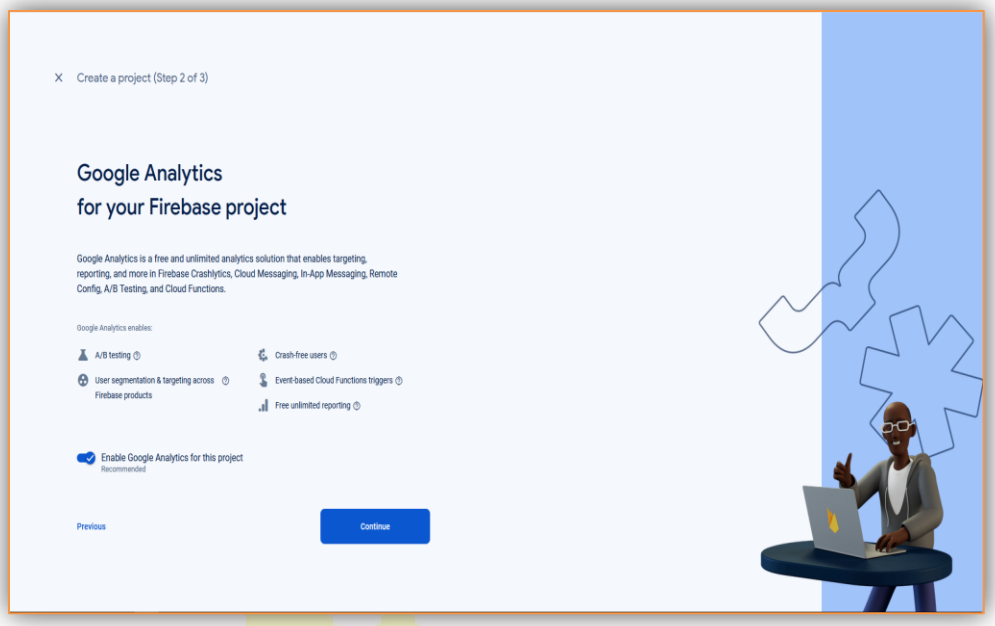
✓ If you are already login in browser with Google account you will redirect to this page.



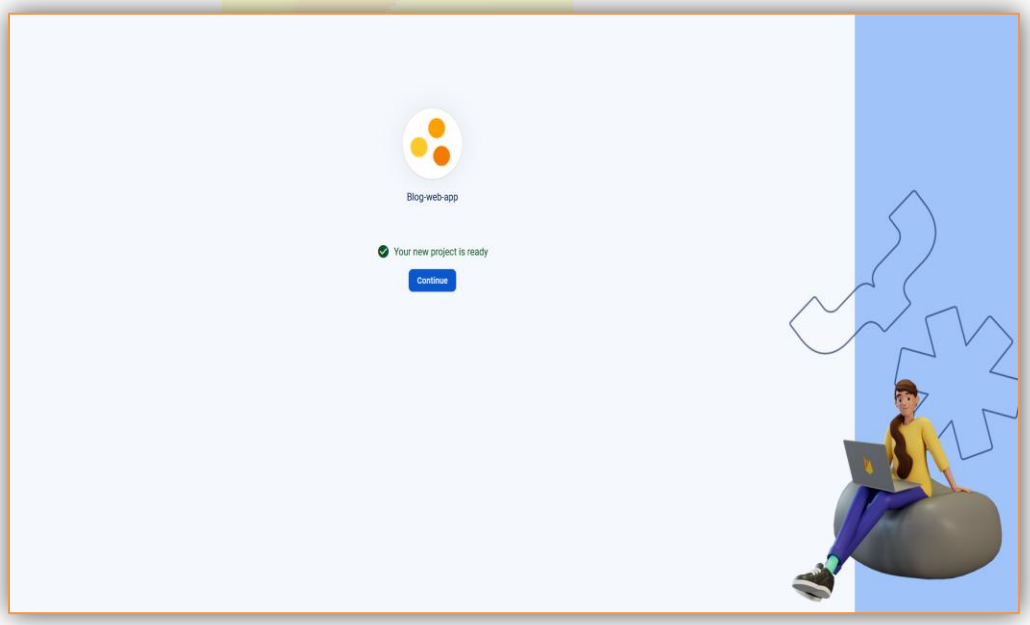
✓ Click on "Create a Project" and follow the setup instructions.



✓ Click on Continue and you will redirect to next page.

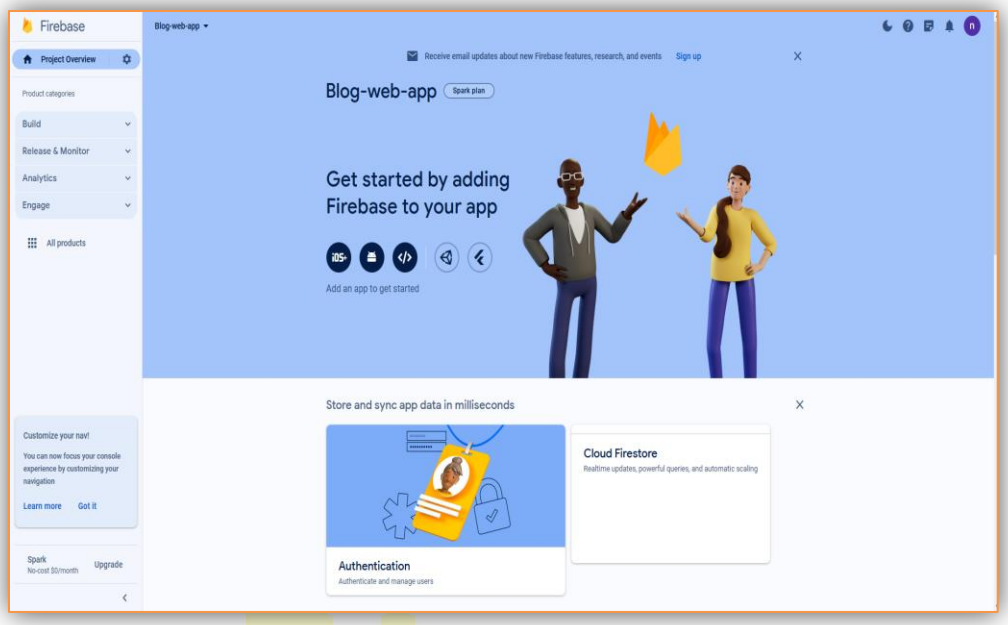


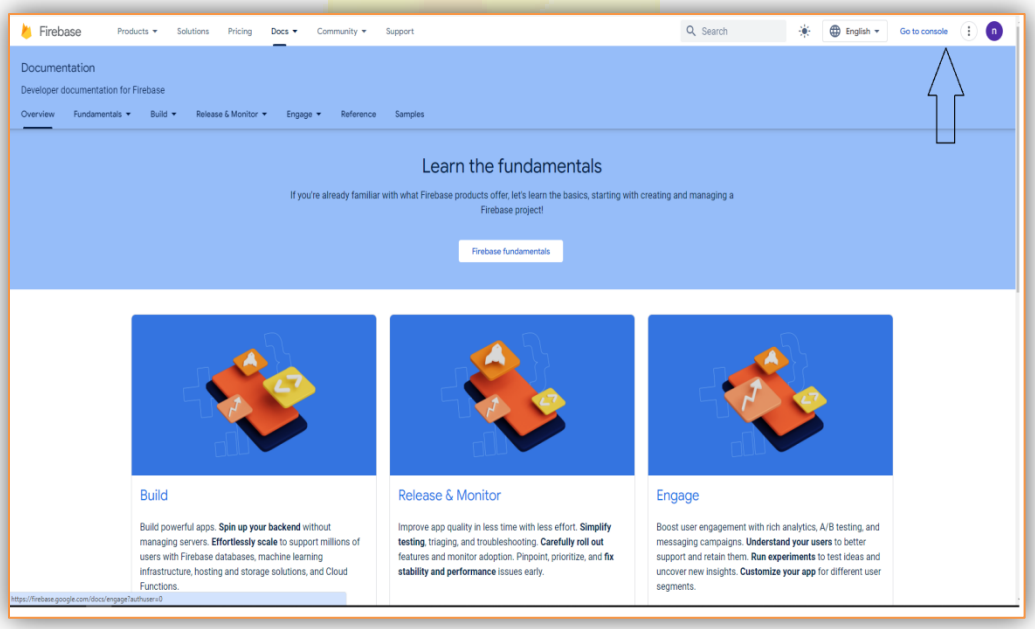
✓ Click on Continue and you will redirect to next page.



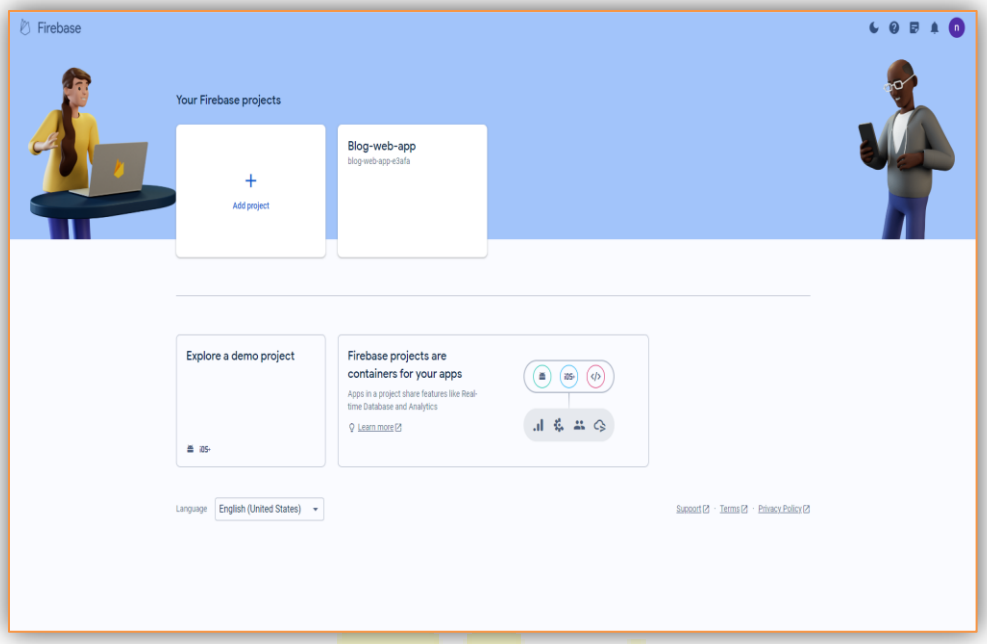
✓ Click on Continue and you app is created.

✓ After now your dashboard look as below.

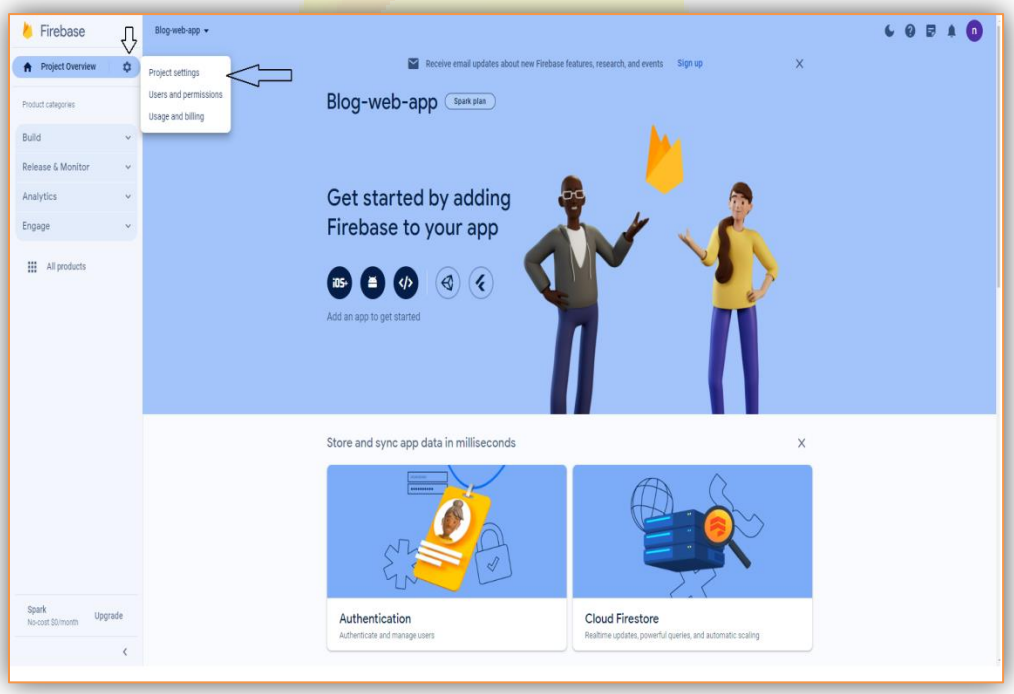


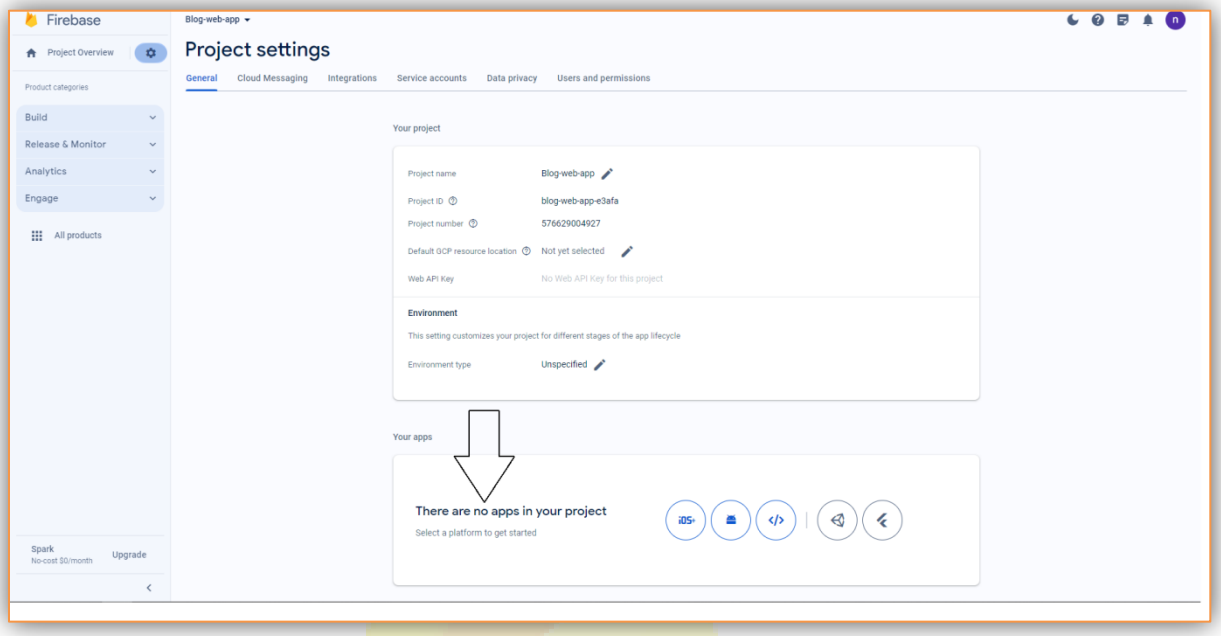


2. Adding Firebase to your Web App:

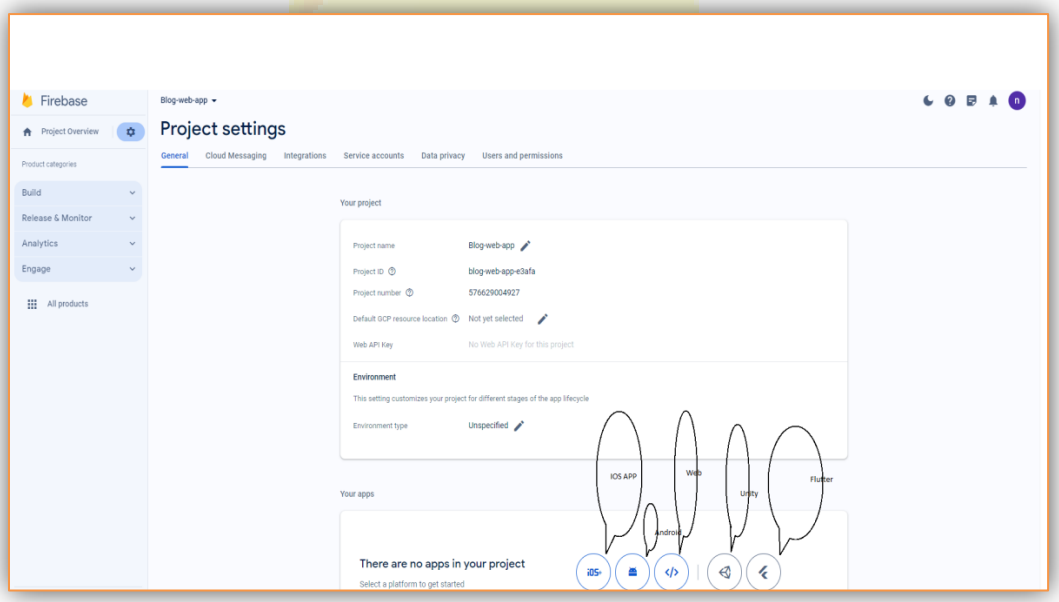


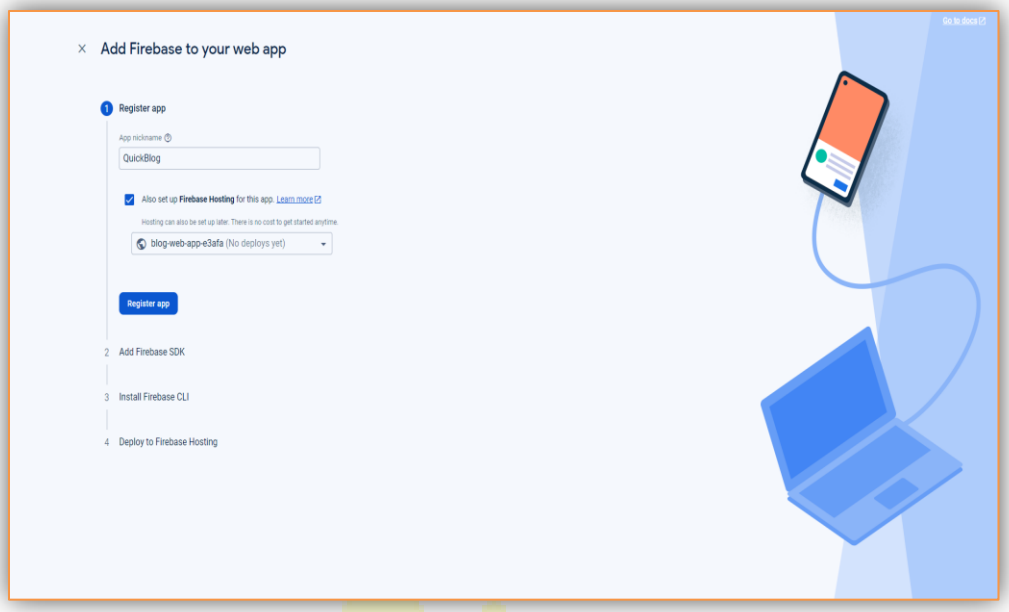
✓ In the Firebase Console, select your project.



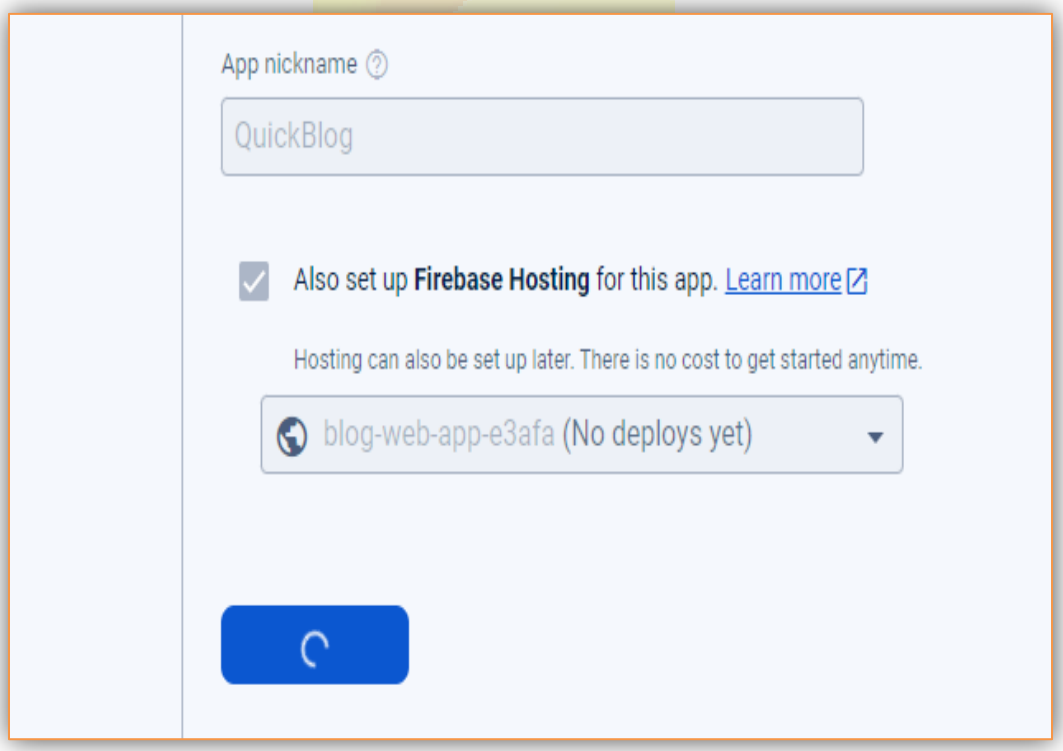


✓ Note if you find tab like this that not app found then click on web tab as shown below you can select based on your choice but here I am developing with web app so I am going with web.

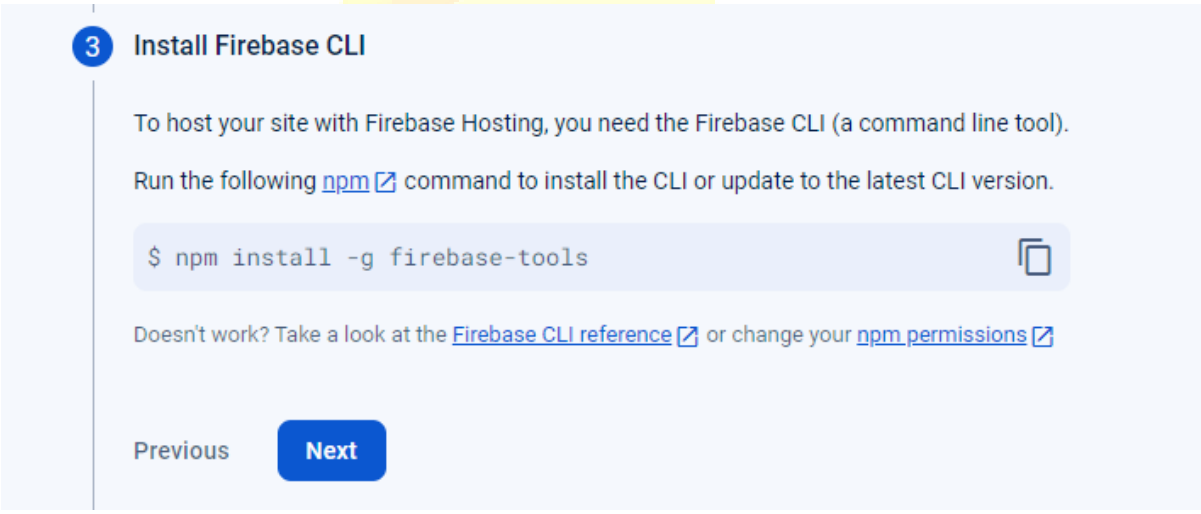




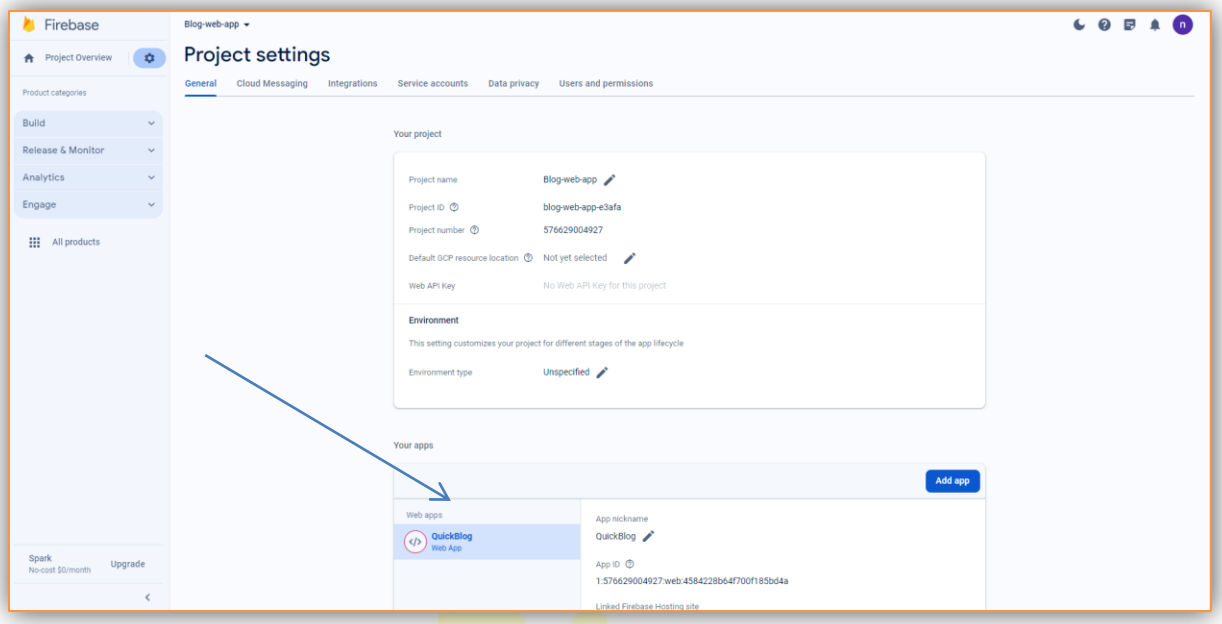
✓ Write name of your own choice for app and click on register app.



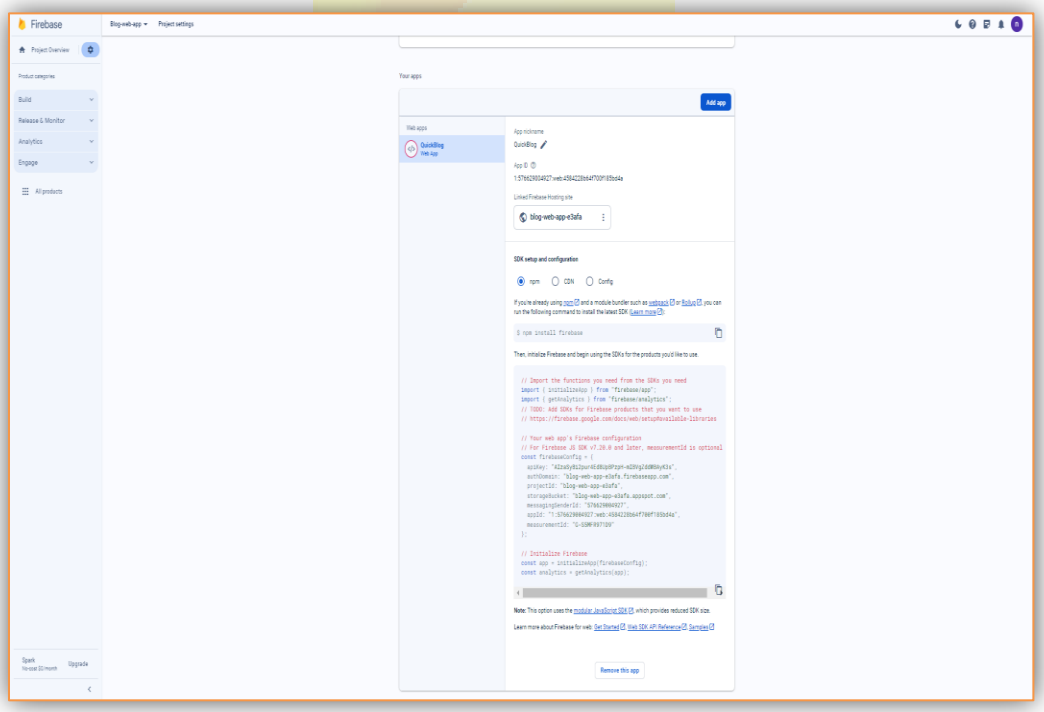
- ✓ Click next and we will understand about the code written in demo.



- ✓ Click next and command shown in above image is for installing the tool globally it is mainly used when we deploy our project.
- ✓ Click on continue to console and you are ready with project creation and app creation and set up with firebase setup.



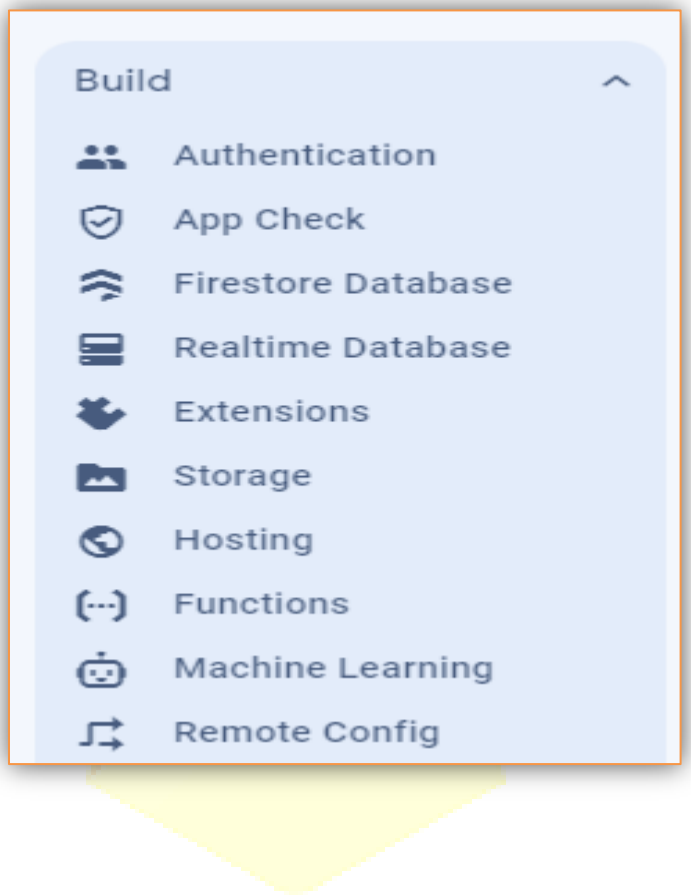
✓ You will able to see your app now in general tab.



✓ Go to Project settings, and under the General tab, find your app's configuration.
✓ Copy the configuration and add it to your web app.

LEARNING FIREBASE

- Before configuring firebase app set up in our web app project let us get familiar with the firebase tool and its feature.



Authentication:

- ✓ Firebase Authentication provides secure sign-in methods, including email/password, Google, Facebook, etc. Implement user authentication to enhance the security of your application.
- ✓ Click me to learn more about me.

Fire store Database:

- ✓ Firestore is a NoSQL document database that enables real-time data synchronization. Learn data modeling, querying, and real-time updates for building dynamic applications.
- ✓ Click me to learn more about me.

Firebase Storage:

- ✓ Firebase Storage allows you to store and serve user-generated content, such as images or videos. Integrate Firebase Storage to handle media assets in your application.
- ✓ Click me to learn more about me.

Cloud Functions:

- ✓ Use Cloud Functions to run server-side code in response to events triggered by Firebase features or HTTP requests. Explore server less architecture and automate backend processes.
- ✓ Click me to learn more about me.

Firebase Hosting:

- ✓ Firebase Hosting provides a platform to deploy and host your web applications. Learn to deploy your app easily and ensure a seamless user experience.
- ✓ Click me to learn more about me.

Cloud Messaging:

- ✓ Firebase Cloud Messaging (FCM) enables push notifications for your app. Implement push notifications to engage users and keep them informed.
- ✓ Click me to learn more about me.

Security Rules:

- ✓ Firebase Security Rules control access to your data and resources. Understand how to write effective security rules to protect your application.
- ✓ Click me to learn more about me.

Testing and Debugging:

- ✓ Learn effective strategies for testing and debugging Firebase applications. Ensure the reliability and performance of your app through thorough testing.
- ✓ Click me to learn more about me.

Advanced Topics:

- ✓ Explore advanced Firebase topics, including machine learning with Firebase ML Kit, A/B testing, and performance monitoring. Unlock additional functionalities to enhance your applications.
- ✓ Click me for ML learning.
- ✓ Click me to learn about test lab.
- ✓ Click on me to learn query writing in firebase.
- ✓ Click me to learn about my pricing.

Best Practices:

- ✓ Adopt best practices for Firebase development:
- ✓ Modularization: Keep Firebase services modular and focused on specific tasks.
- ✓ Data Security: Implement strong security rules to protect user data.
- ✓ Real-time Updates: Leverage real-time features for dynamic and responsive applications.
- ✓ Code Structure: Maintain a clean and organized code structure for scalability.

Resources:

Explore additional resources to deepen your understanding of Firebase:

✓ Community Resources:

- Firebase Documentation(https://firebase.google.com/docs)
- Firebase GitHub Repository(https://github.com/firebase)
- Firebase Blog(https://firebase.googleblog.com/)
- Firebase YouTube Channel(https://www.youtube.com/user/Firebase)

✓ Other Resources:

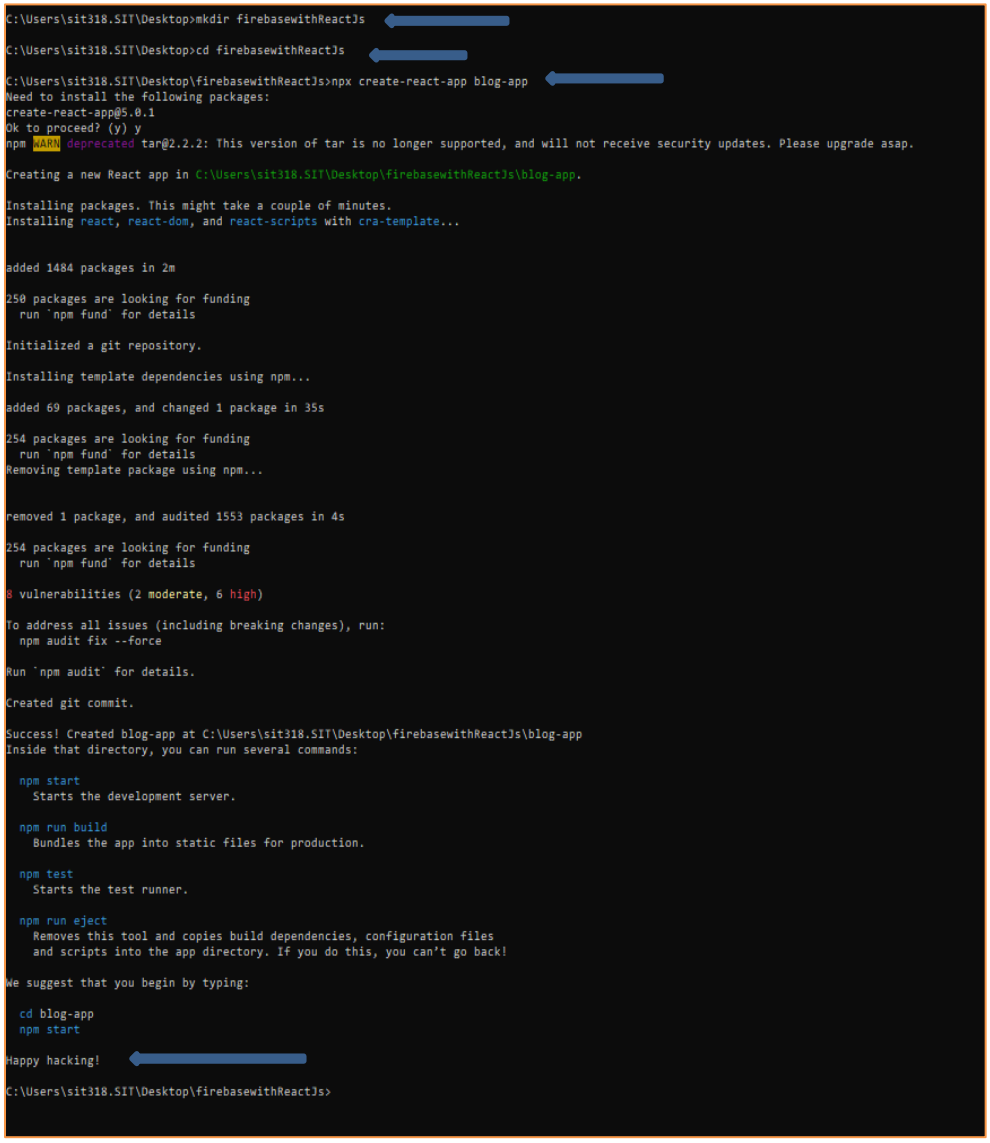
- Fire base by Pedro Tech **(Video):** **https://www.youtube.com/watch?v=fgdpvwEWJ9M**
- **Fire base integration with ReactJs by nil (Docs + Demo)** **https://github.com/nil-01/FirebaseLearning**

DEMO: Firebase with React-JS.

- For Learning React-JS visit: [Click me to learn ReactJS]

Let start with demo

1. Open command prompt.

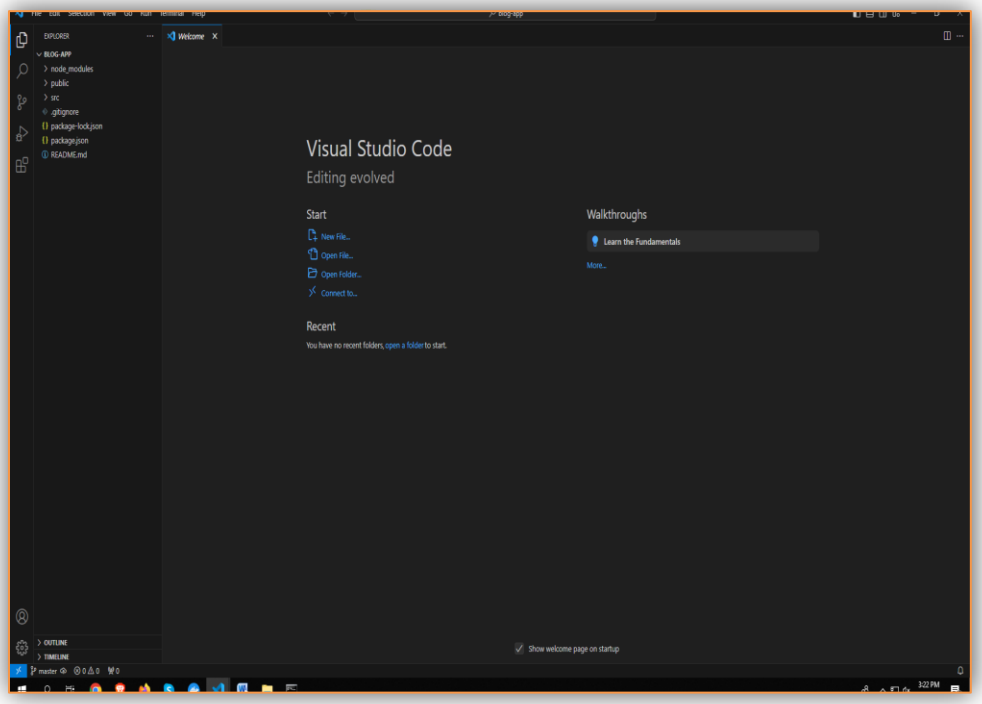


- ✓ I have created a folder inside the desktop folder with folder name firebasewithreactjs and then created reactjs project using cmd "npx create-react-app blog-app". Finally you will see happy hacking.

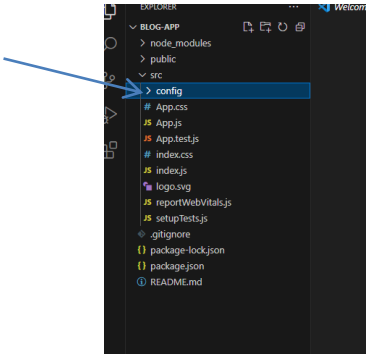
✓ Open your ReactJS project app using these two basic command.

```
Happy hacking!

C:\Users\sit318.SIT\Desktop\firebasewithReactJs>cd blog-app

C:\Users\sit318.SIT\Desktop\firebasewithReactJs\blog-app>code .

C:\Users\sit318.SIT\Desktop\firebasewithReactJs\blog-app>
```

✓ I am considering that you have installed the visual studio in your pc.



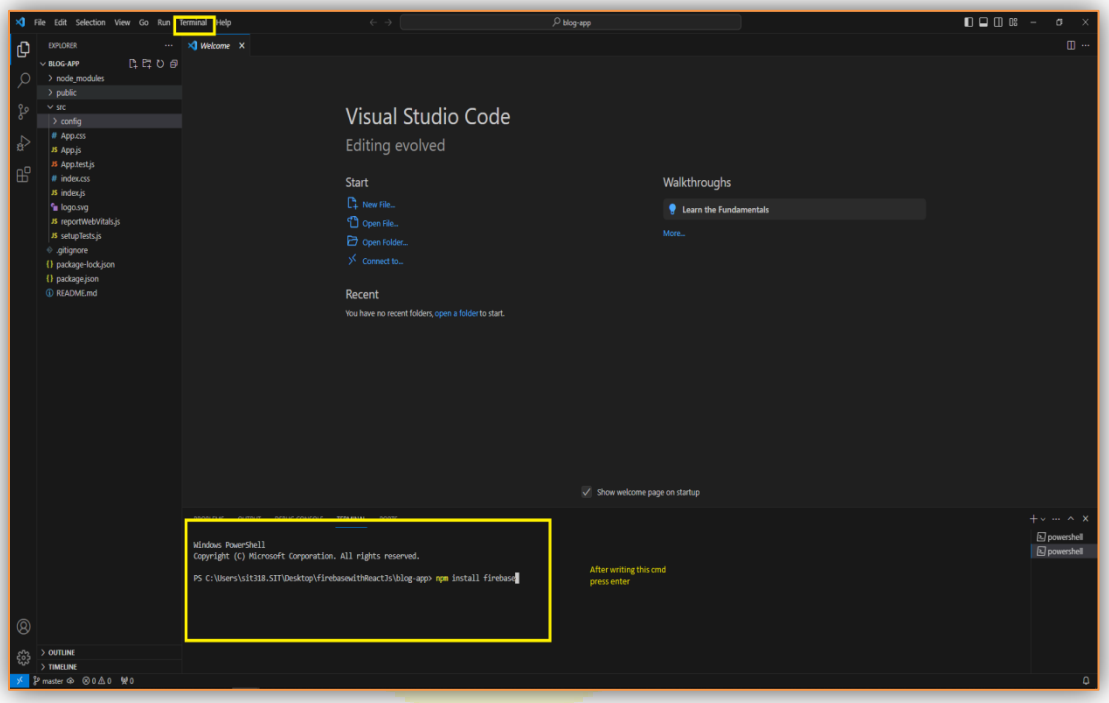
✓ Created a folder named as config ./src.

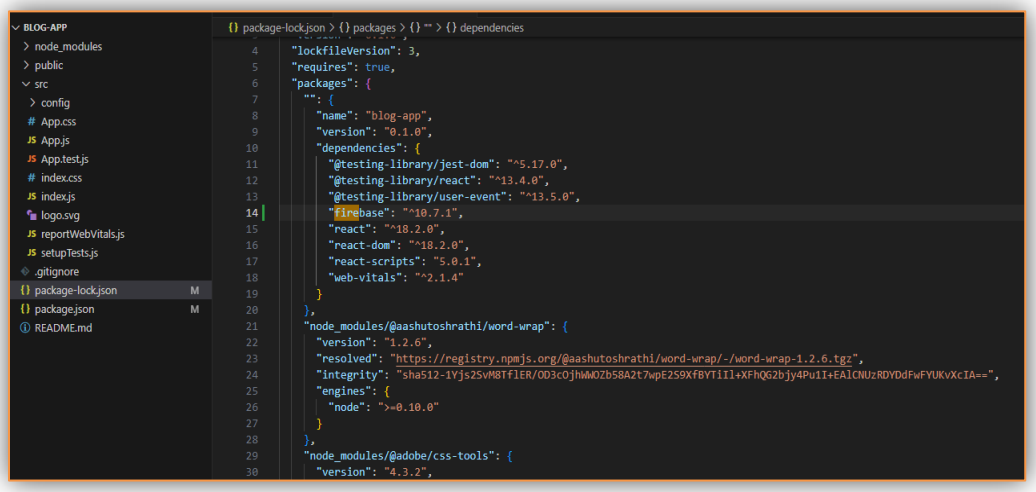


- Now we are ready to integrate out Reactjs project with our earlier created app in firebase as mentioned in the starting of document.

✓ Let start our first step to dive into firebase with Reactjs.

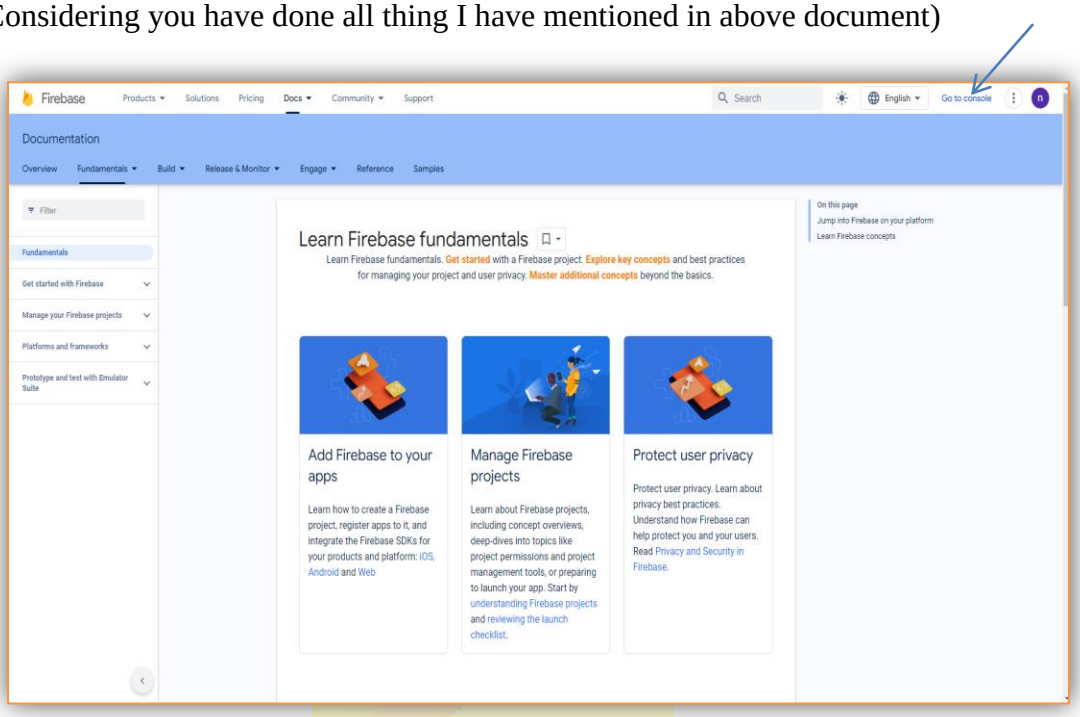
➢ Open Terminal in your visual studio. (if you are using yarn “yarn add firebase”).



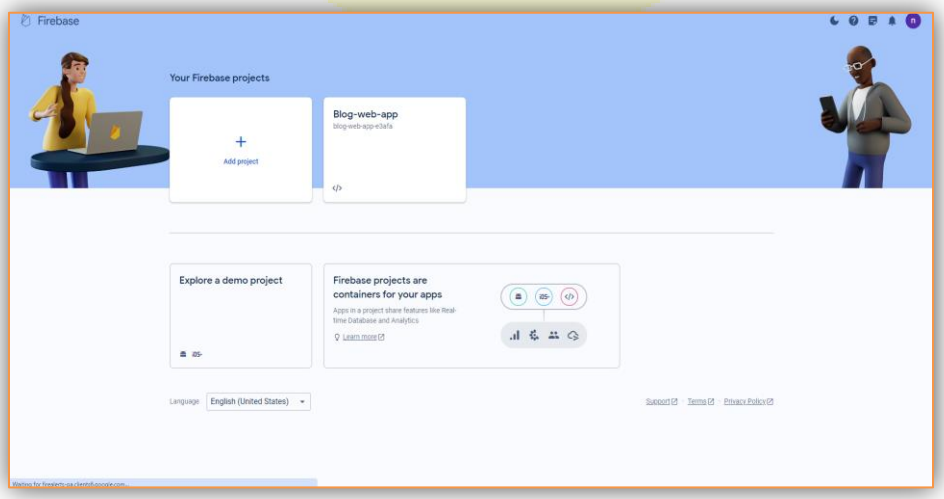


- As firebase is installed in our app now let connect our reactjs app with firebase.

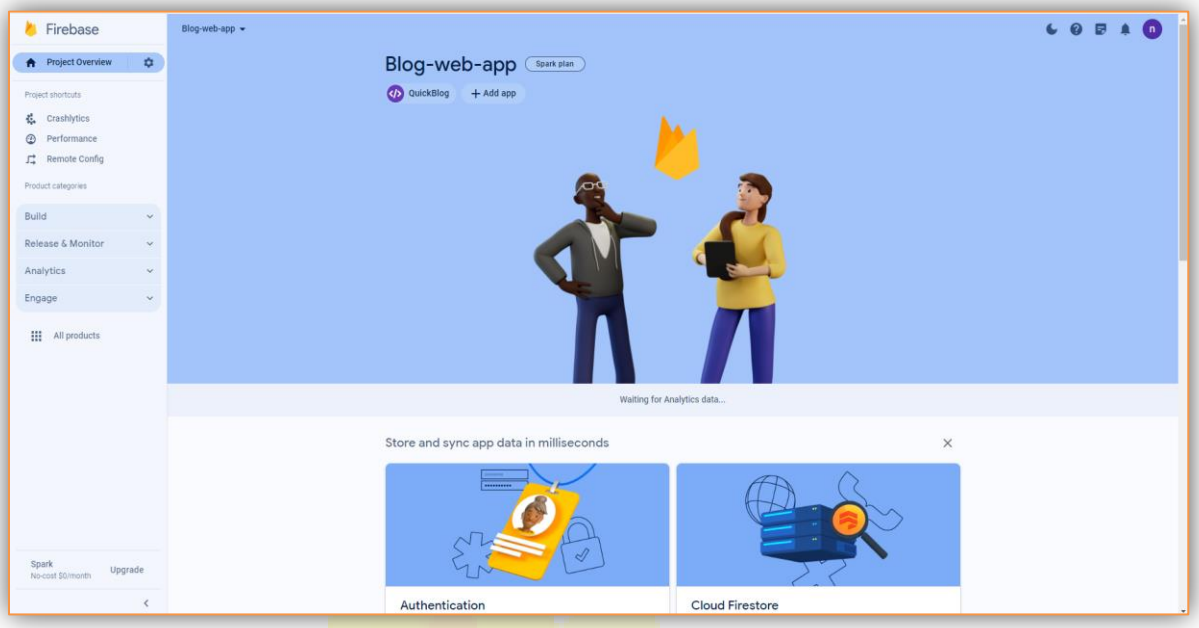
- Open the Firebase from your browser or Click me you will redirect to this page .(Considering you have done all thing I have mentioned in above document)

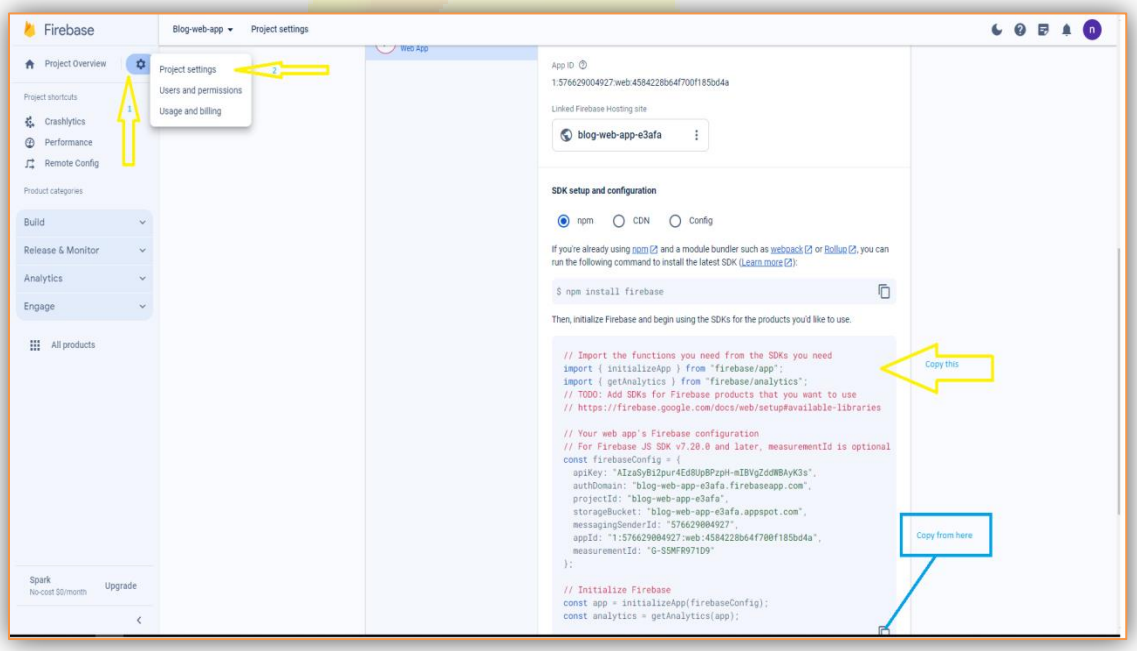


- Click on **Go to Console**.

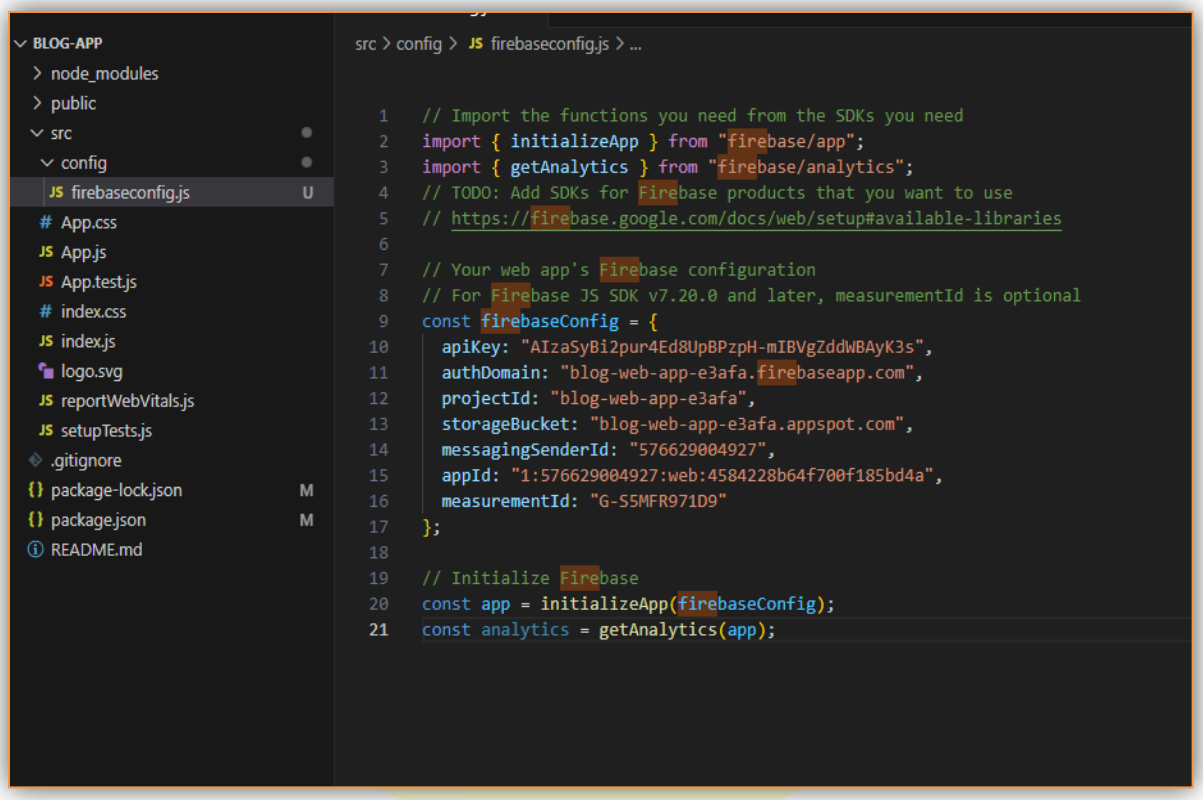


- Click on App I will choose Blog-web-app project and you will redirect on the below page.

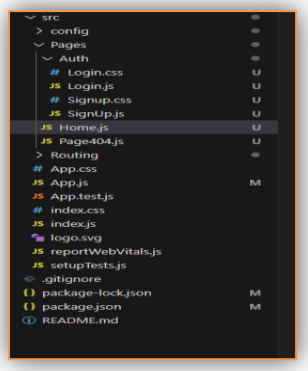




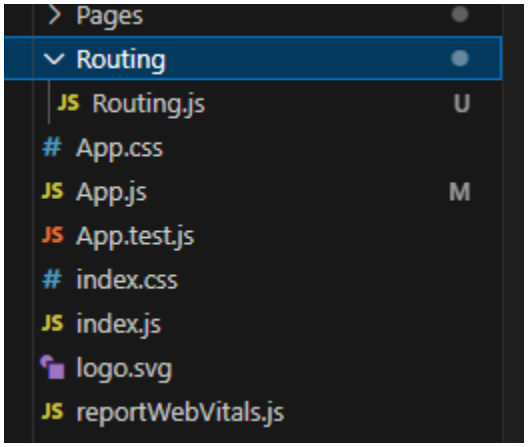
- Open the config folder in your react-js app and create a file name firebaseconfig.js and paste the code which has been copied from firebase. (Note: This file will be different for your app so don't copy paste this.)



- Now app has been integrated with firebase let implement login page.
- Consider you have basic idea of React js I had implemented Login page , Sign Up Page, Home Page in folder of Page.



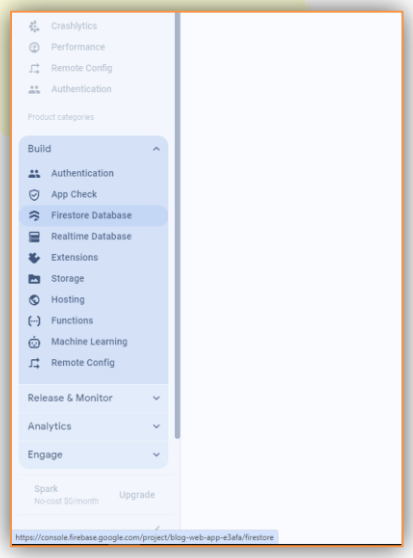
- Routing is also implemented using Routing Folder with file name routing.js



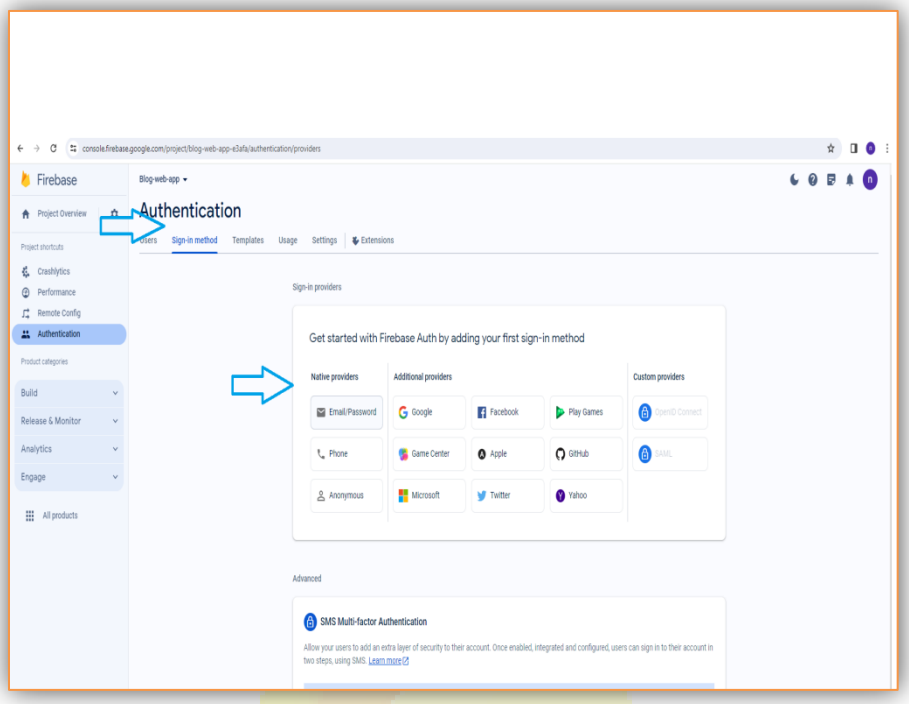
- I am considering here you have basic idea of routing how to implement it in React-js if not please go through the link mentioned in the starting of demo section.

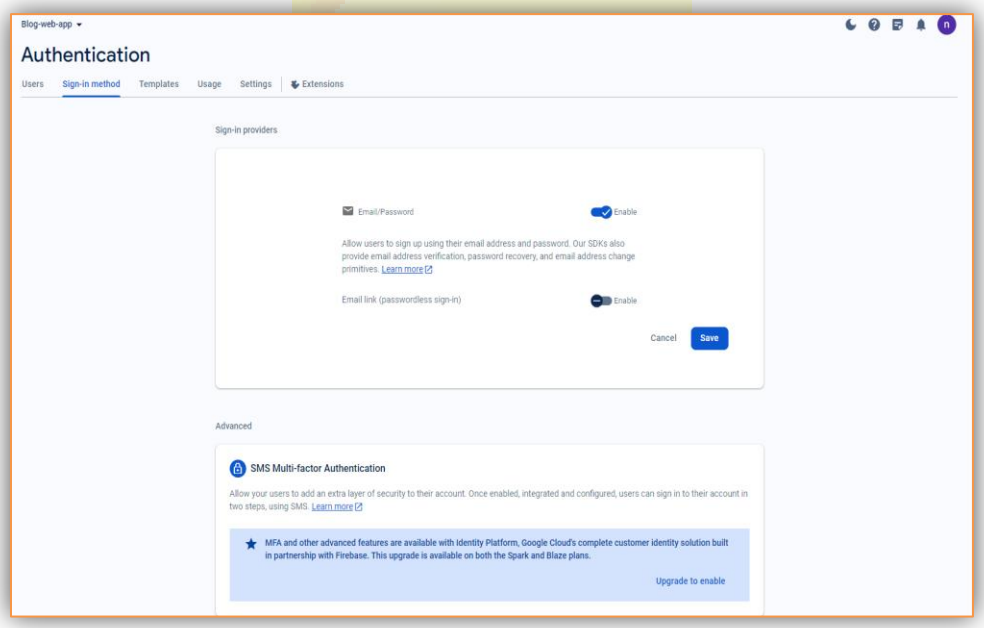
➢ Authentication Implementation:

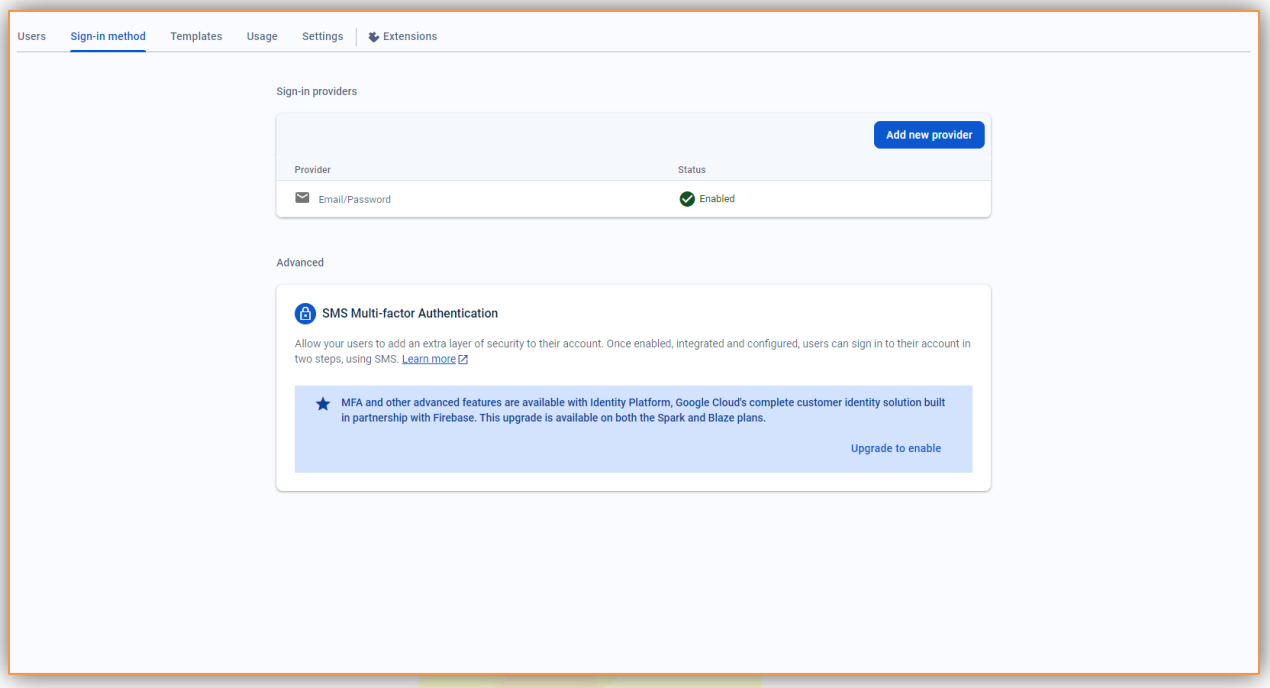
1. Implementation with Email and password.
   - Visit to firebase console and click on build and then on authentication.



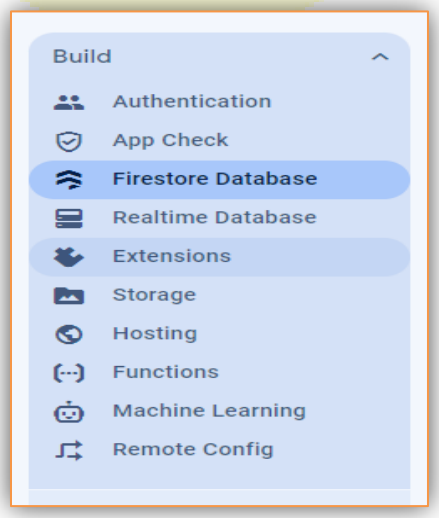
2. Click on Sign In method and then click on Email and Password and enable email password as shown below and then save it.

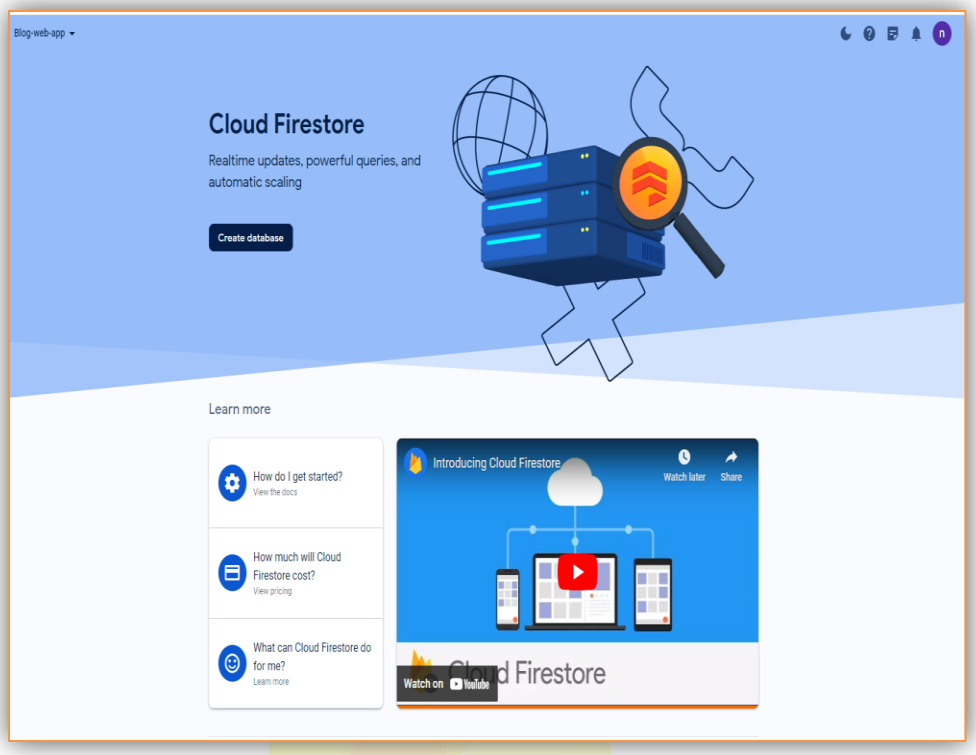


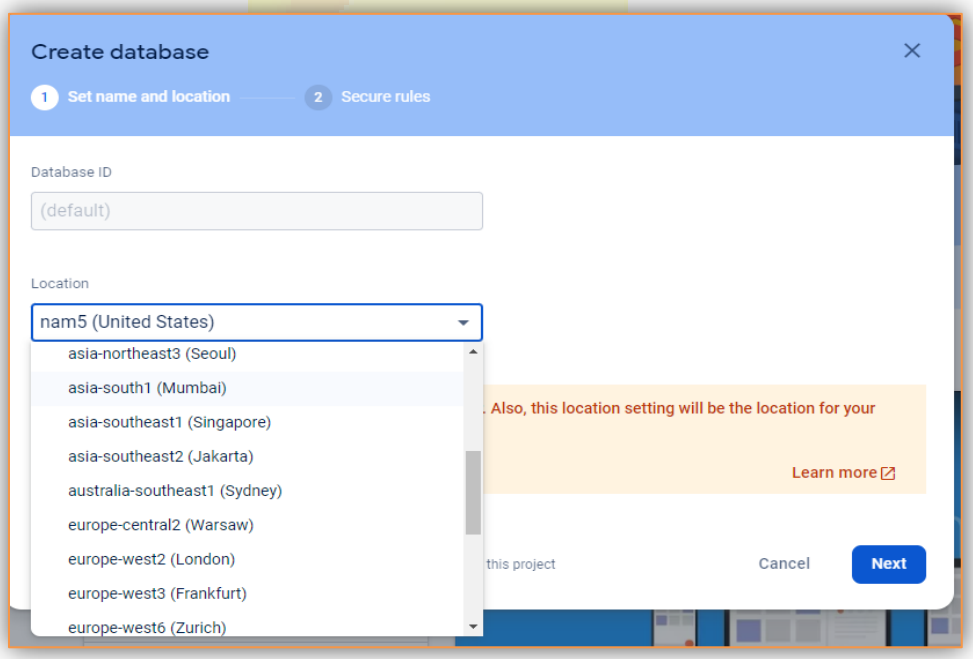


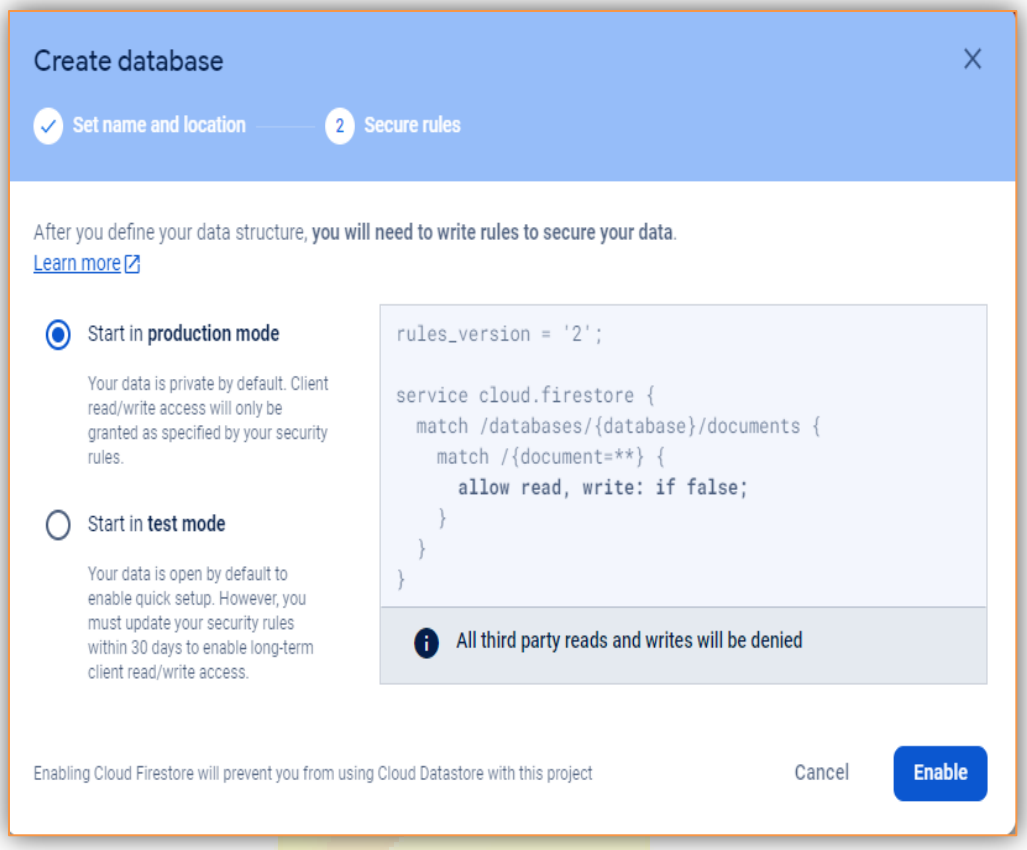


- Now let Set up our No-Sql database for Firebase for storing the user also called as collection . Step: Build → Firestore Database→Create Database→SetDatabaseLocation(Near to your location)→Next→(Production/test)→Enable→DataBaseReady.

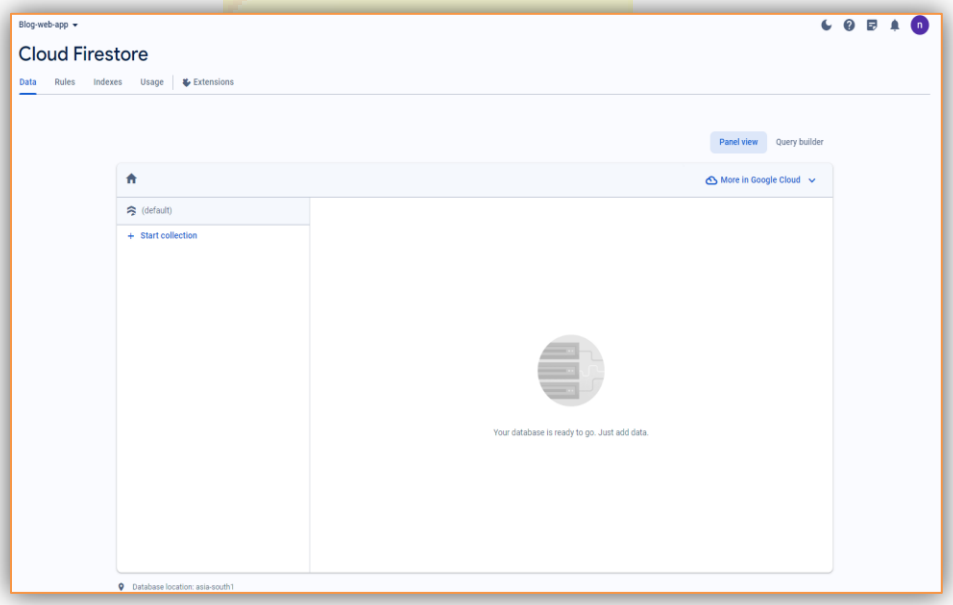


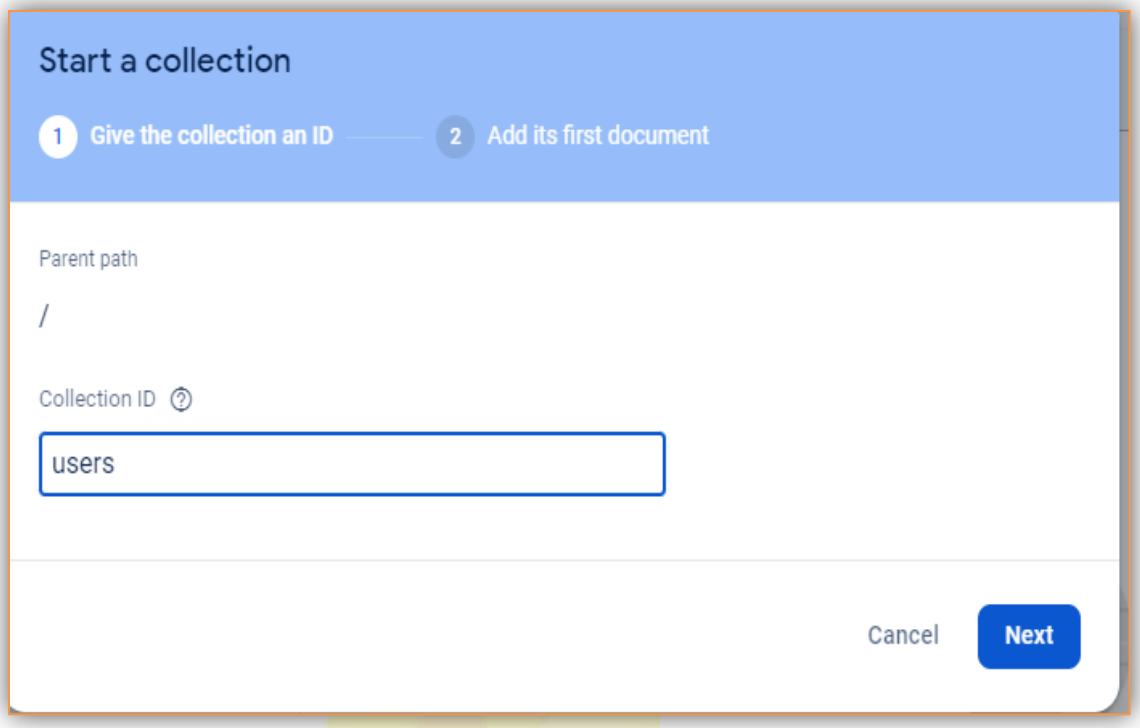

Blog-web-app
Cloud Firestore
Realtime updates, powerful queries, and automatic scaling
Create database
Learn more
How do I get started?
View the docs
How much will Cloud Firestore cost?
View pricing
What can Cloud Firestore do for me?
Learn more
Introducing Cloud Firestore
Watch later
Share
Watch on YouTube

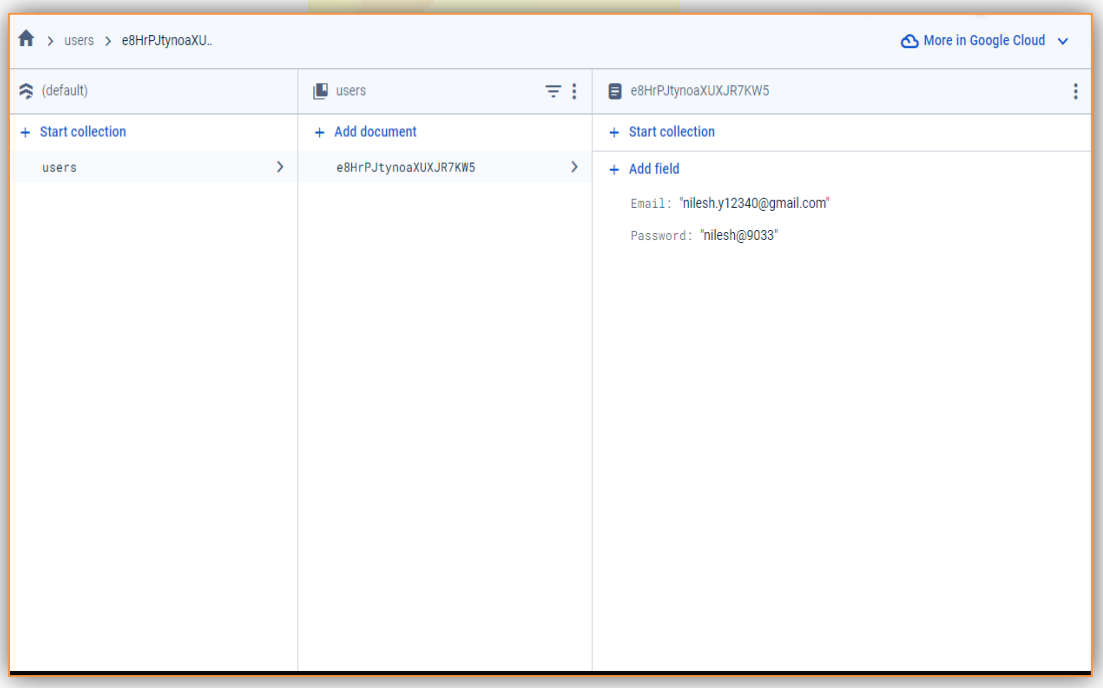

Create database
1 Set name and location
2 Secure rules
Database ID
(default)
Location
nam5 (United States)
asia-northeast3 (Seoul)
asia-south1 (Mumbai)
asia-southeast1 (Singapore)
asia-southeast2 (Jakarta)
australia-southeast1 (Sydney)
europe-central2 (Warsaw)
europe-west2 (London)
europe-west3 (Frankfurt)
europe-west6 (Zurich)
Also, this location setting will be the location for your
Learn more
this project
Cancel
Next



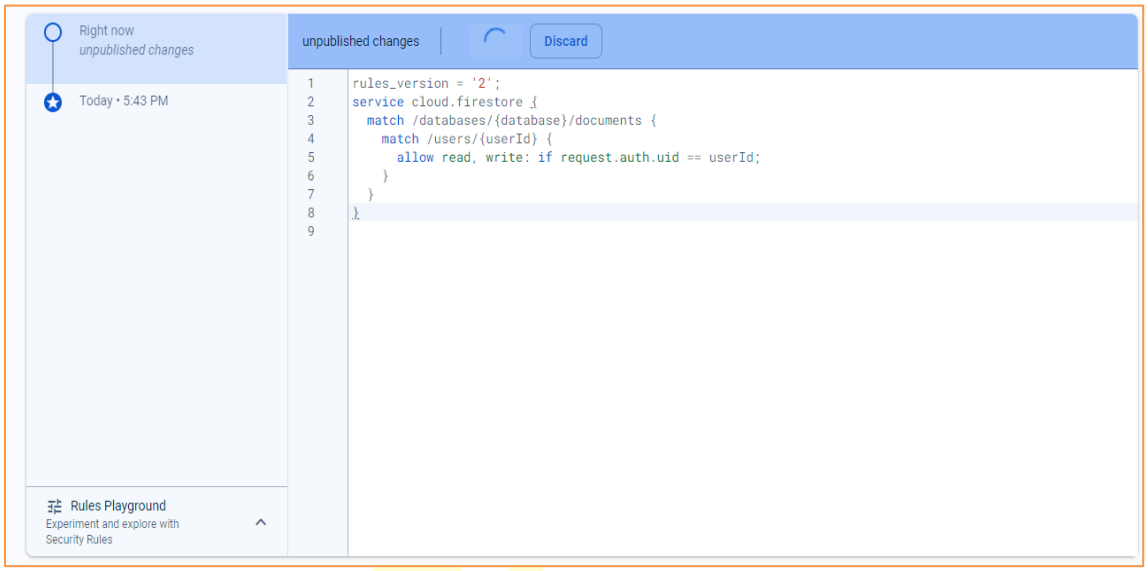
- After enable the cloud fire store look like this click on : Start collection→Next→Save.




Start a collection
1 Give the collection an ID
2 Add its first document
Parent path
/
Collection ID
users
Cancel
Next


users > e8HrPJtynoaXU..
More in Google Cloud
(default)
users
e8HrPJtynoaXUXJR7KW5
Start collection
users
Add document
e8HrPJtynoaXUXJR7KW5
Start collection
Add field
Email: "nilesh.y12340@gmail.com"
Password: "nilesh@9033"

- Write some rule to access the data base for authenticate user.



Step: Rule→Write above code what I have written → Publish.

Authentication:

- ✓ For Email and Password: Click me to learn.
- ✓ For Google: Click me to learn.

Cloud Fire-Store CRUD:

- ✓ Click me to learn about my predefined function.

Security Rule:

- ✓ Secure your database click me to know about that.

Hosting App:

- ✓ Host your app on me

Implementation for all this predefined function is mentioned is project. Considering you have idea about react-js.

Link for Project: Project File

THANK YOU

Any Question

Do you have any questions or comments for me before we conclude?