
1▢ Import Firebase Modules

```
import { initializeApp } from "https://www.gstatic.com/firebasejs/11.3.1/firebase-app.js";
import { getAuth, createUserWithEmailAndPassword, signInWithEmailAndPassword, signOut }
from "https://www.gstatic.com/firebasejs/11.3.1/firebase-auth.js";
```

✓ What does this do?

- `initializeApp`: Initializes the Firebase project.
- `getAuth`: Enables authentication services (signup, login, logout).
- `createUserWithEmailAndPassword`: Registers a user with email & password.
- `signInWithEmailAndPassword`: Logs in an existing user.
- `signOut`: Logs out the user.

2▢ Firebase Configuration & Initialization

```
const firebaseConfig = {
  apiKey: "AlzaSyBEmRheNCEiRGcLOJBb8FoaEYmrdaGYKv0",
  authDomain: "signup-login-form-754b4.firebaseio.com",
  projectId: "signup-login-form-754b4",
  storageBucket: "signup-login-form-754b4.appspot.com",
  messagingSenderId: "273901785995",
  appId: "1:273901785995:web:7bde48c92fc7b6e771958e",
  measurementId: "G-19RZ9G15J0"
};
```

✓ What does this do?

- This object contains the **Firestore project credentials**.
- Firebase uses these values to **connect your app** to Firebase services.
- The values are unique to **your** Firebase project.

```
const app = initializeApp(firebaseConfig);
const auth = getAuth(app);
```

✓ What does this do?

- `initializeApp(firebaseConfig)`: Connects your app to Firebase.
 - `getAuth(app)`: Enables authentication functionality.
-

3▣ Signup Function

```
document.getElementById("signupBtn")?.addEventListener("click", () => {
```

✓ What does this do?

- It **checks if the "signupBtn" exists** before adding an event listener.
- `?` (optional chaining) prevents errors if the button is not found.

```
const email = document.getElementById("email").value;  
const password = document.getElementById("password").value;
```

✓ What does this do?

- **Gets user input** from the text fields (email and password).

```
createUserWithEmailAndPassword(auth, email, password)  
  .then(() => {  
    alert("Signup Successful");  
    window.location.href = "welcome.html";  
  })
```

✓ What does this do?

- Calls `createUserWithEmailAndPassword(auth, email, password)`, which:
 - Creates a **new account** in Firebase Authentication.
 - Automatically signs the user in.
- If successful:
 - Shows an **alert** saying "Signup Successful".
 - Redirects the user to `welcome.html`.

```
.catch(error => document.getElementById("message").innerText = error.message);
```

✓ What does this do?

- If there's an error (e.g., **weak password, email already in use**), it **displays the error message** inside the `<p id="message">` element.
-

4☐ Login Function

```
document.getElementById("loginBtn").addEventListener("click", () => {
```

✓ What does this do?

- Adds a click event to the login button (if it exists).

```
const email = document.getElementById("email").value;  
const password = document.getElementById("password").value;
```

✓ What does this do?

- Gets the **email and password** entered by the user.

```
signInWithEmailAndPassword(auth, email, password)  
  .then(() => {  
    alert("Login Successful");  
    window.location.href = "welcome.html";  
  })
```

✓ What does this do?

- Calls `signInWithEmailAndPassword(auth, email, password)`, which:
 - **Checks Firebase** for the user's credentials.
 - Logs in the user if credentials match.
- If successful:
 - Shows an **alert**: "Login Successful".
 - Redirects to **welcome.html**.

```
.catch(error => document.getElementById("message").innerText = error.message);
```

✓ What does this do?

- If the **email or password is incorrect**, it shows an error message.

5 Logout Function

```
export function logout() {
```

✓ What does this do?

- The logout function is **exported** so it can be used in welcome.html.

```
  signOut(auth)
```

✓ What does this do?

- Calls `signOut(auth)`, which **logs out the user** from Firebase.

```
    .then(() => {  
      alert("Logged out");  
      window.location.href = "index.html";  
    })
```

✓ What does this do?

- If logout is **successful**:
 - Shows an **alert**: "Logged out".
 - Redirects the user to **index.html** (login page).

```
    .catch(error => console.error("Logout Error:", error));
```

✓ What does this do?

- If there's an error while logging out, it prints the error in the **console**.

🔥 Summary of Key Concepts

Functionality	Method Used	Purpose
Signup	<code>createUserWithEmailAndPassword(auth, email, password)</code>	Creates a new user account

Functionality	Method Used	Purpose
Login	signInWithEmailAndPassword(auth, email, password)	Logs in an existing user
Logout	signOut(auth)	Logs out the user
