Super Mall Web Application

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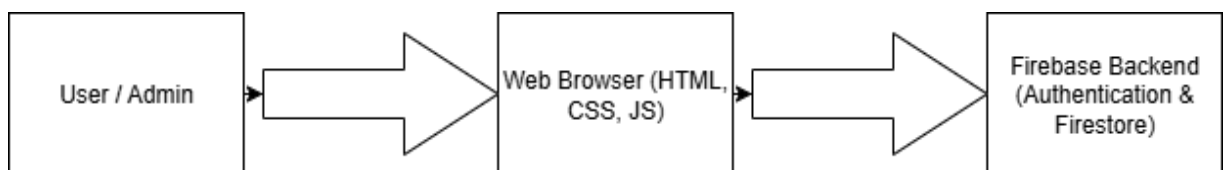
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1. Project Overview

The Super Mall Web Application is a modern, feature-rich web portal designed to connect merchants and consumers in a seamless digital marketplace. The core purpose of this project is to provide a platform where mall administrators can manage shop details, categories, floors, and promotional offers in real-time.

The application features a secure, comprehensive admin panel with a live statistics dashboard and a user-friendly storefront where customers can browse, search, and filter shops to find the latest deals. Built with HTML, CSS, and vanilla JavaScript, and powered by Google's Firebase for authentication and its Firestore real-time database, the project demonstrates a complete, modular, and maintainable full-stack application.

2. System Architecture Design

Our Super Mall Web Application employs a robust client-server architecture, leveraging Firebase as a comprehensive Backend-as-a-Service (BaaS) solution. This design ensures high scalability, security, and a clear separation of concerns between the frontend and backend.

Key Architectural Components:

- **Client-Side (Frontend):** Developed using standard web technologies (HTML, CSS, JavaScript), the frontend provides the user interface for both regular users and administrators. It is fully decoupled from the backend logic, directly interacting with Firebase services.

- **Firebase (Backend-as-a-Service):**
  - **Firebase Authentication:** Handles user and administrator authentication securely, managing user accounts and access control.

○ **Cloud Firestore:** A NoSQL cloud database used to store all application data, including shop details, offers, categories, and user information. Its real-time synchronization capabilities are utilized for dynamic content updates.

This architecture offers several advantages, including reduced development overhead due to managed backend services, automatic scaling to handle varying loads, and inherent security features provided by Firebase.

3. LLD (Low-Level Design)

This section describes the main functions in the application's JavaScript files.

I. `js/main.js` (Client-side functions):

- `fetchShops()`: Asynchronously fetches all shop documents and their "offers" sub-collection from Firestore.
- `displayShops()`: Renders an array of shop objects into HTML cards and displays them on the page.
- `applyFilters()`: Filters the list of all shops based on the current values of the category, floor, and search inputs.
- `openModal()`: Populates and displays the shop details modal with information for a specific shop.

II. `js/admin.js` (Admin-side functions):

- `initializeDashboard()`: A master function that runs after a successful admin login to load all necessary data and set up event listeners.
- `updateDashboardStats()`: Sets up real-time listeners on the Firestore collections to display live counts of shops, categories, and floors.
- `loadShopsIntoTable()`: Fetches all shops and renders them into the admin data table.
- `openOfferModal()`: Opens a modal for a specific shop, loading its existing offers and allowing the admin to add or delete them.

4. Test Cases:

- The following test cases were performed to ensure application functionality.

Test Case ID	Feature	Steps	Expected Result	Actual Result
TC-01	Admin Login	Enter valid admin credentials and click "Login".	Admin dashboard is displayed.	Pass ▾
TC-02	Create Shop	Add a new category and floor, then create a new shop.	The new shop appears in the admin table.	Pass ▾
TC-03	User View	Add a shop in the admin panel. Open the user page.	The new shop is visible on the user page.	Pass ▾
TC-04	Search	On the user page, type a shop's name into the search bar.	Only the matching shop(s) are displayed.	Pass ▾
TC-05	Offer Modal	On the admin page, add an offer. On the user page, click "View Details" for that shop.	The offer is correctly displayed in the modal.	Pass ▾

6. Live Links

- **Live Demo URL:**   https://super-mall-app-614a9.web.app

- **GitHub Repository:** https://github.com/buildsbysaif/super-mall-webapp

THANK YOU!!