

Project: MERN User Management System (UMS)

Approach:

1. Implemented a clean MERN stack with JWT authentication, role-based access (admin/user), and secure profile image uploads.
2. Centralized configuration via environment variables: server CORS using `CLIENT_URLS`, client API base using `VITE_API_BASE_URL`.
3. Used Axios interceptors to attach Bearer tokens and refresh access tokens on 401.
4. Kept UI minimal and modern with smooth animations; ensured functionality remained intact.
5. Image URLs normalized to work across environments; served via Express static `/uploads`.

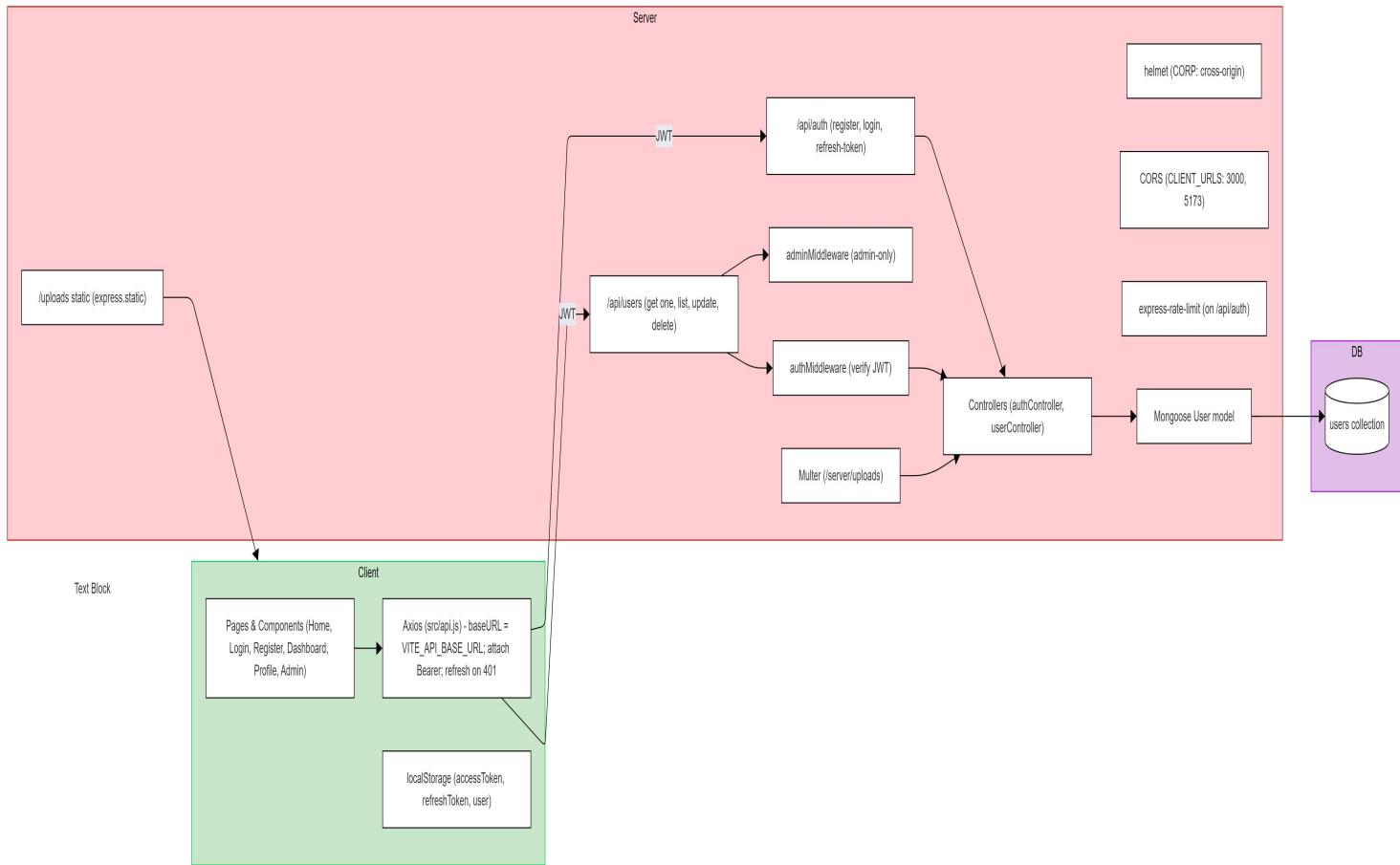
Challenges & Resolutions:

1. CORS Mismatch: Client on 3000 vs Vite default 5173 caused preflight failures with credentials. Resolved by allowing multiple origins via `CLIENT_URLS` and a dynamic origin function in CORS middleware.
2. Cross-Origin Resource Policy (COPR): Helmet default blocked images from different origins. Configured helmet with cross-origin policy and set explicit header on `/uploads`.
3. URL Consistency: Hardcoded API/image URLs were brittle. Introduced `VITE_API_BASE_URL` for client and normalized image paths (absolute or relative) at render.
4. Token Lifecycle: Ensured smooth refresh logic while avoiding redirect loops by carefully updating storage and retrying failed requests.

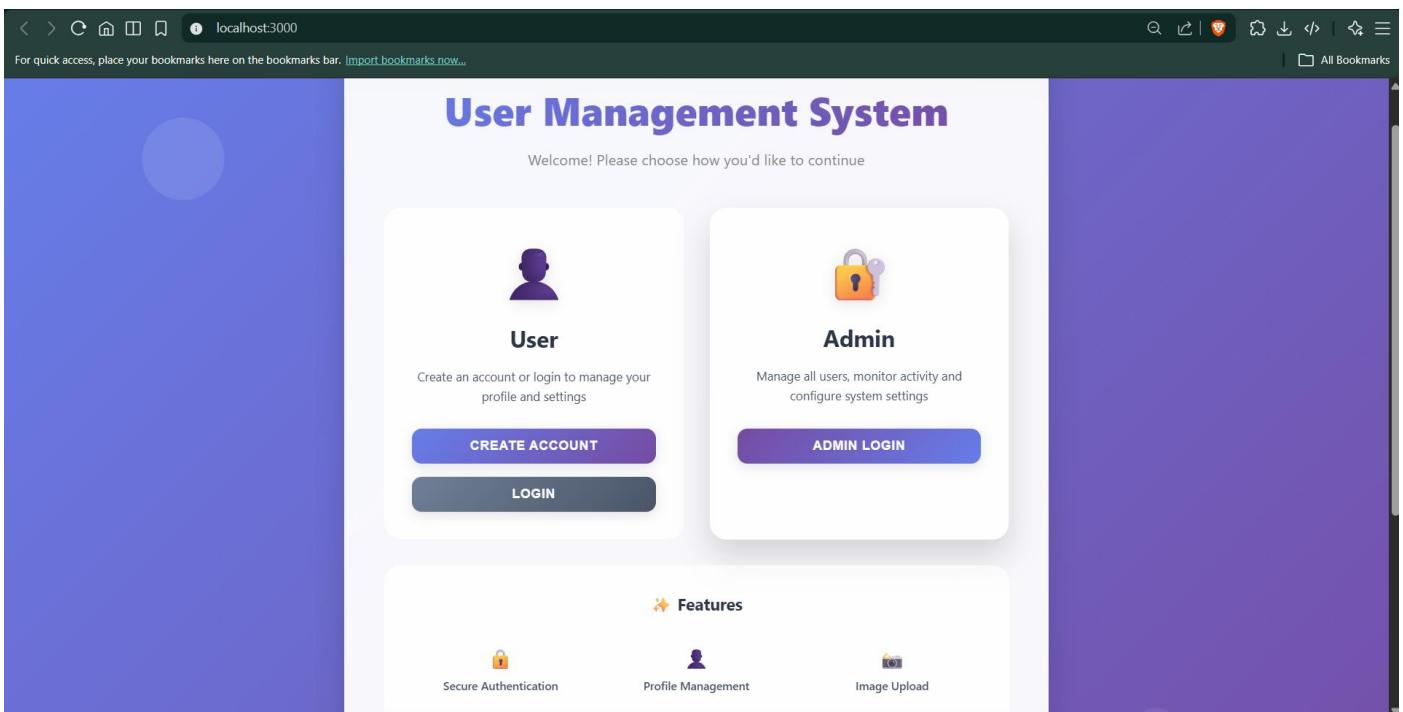
ER Diagram:

USER			
string	_id	PK	
string	name		
string	email	UK	
string	phone	UK	
string	password		bcrypt hash
string	address		
string	city		
string	state		
string	country		
string	pincode		
string	role		enum: admin user (default: user)
string	profile_image		e.g. /uploads/
string	refreshToken		
datetime	created_at		
datetime	updated_at		

Architecture Diagram:



Screenshots :



The screenshot shows the 'Users List' page for the Admin user. The title at the top is 'User Management System' with a 'Logout' button. A 'Welcome, Admin User' message is also present. The main content area is titled 'Users List (4 total)'. It includes a search bar and three filter buttons: 'Filter by state', 'Filter by city', and 'SEARCH'. Below is a table with columns: NAME, EMAIL, PHONE, CITY, STATE, ROLE, and ACTIONS. The table contains four rows of data:

NAME	EMAIL	PHONE	CITY	STATE	ROLE	ACTIONS
naruto	naruto@gmail.com	2342565674	hidden leaf	konaga	user	VIEW EDIT DELETE
alice	alice@gmail.com	1234567894	kavindapadi	Tamil Nadu	user	VIEW EDIT DELETE
SABARIVASAN S M	sabarivasan1239@gmail.com	9677465071	kavindapadi	Tamil Nadu	user	VIEW EDIT DELETE
Admin User	admin@example.com	1234567890	San Francisco	California	admin	VIEW EDIT DELETE

localhost:3000/register

For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#)

All Bookmarks

Create Account

Join our user management system

Full Name *

Email *

Phone *

Password *

City *

State *

Country *

Pincode *

Address

A screenshot of a web-based user dashboard. At the top, there's a dark purple header with a back arrow, a search bar containing 'localhost:3000/dashboard', and a 'All Bookmarks' link. Below the header is a white rectangular card with rounded corners. Inside the card, there's a circular profile picture of a man in a suit and tie. Below the picture, the text 'Welcome, SABARIVASAN S M!' is displayed in bold black font, followed by a blue clapping hands emoji. Underneath that, the email address 'sabarivasan1239@gmail.com' is shown. At the bottom of the card, there are two sections: 'Email' with the address 'sabarivasan1239@gmail.com' and 'Phone' with the number '9677465071'. The background of the entire dashboard is a light purple color. At the very bottom of the page, there are small icons for location and role.