



**College of Applied Sciences
Computer Science Department
COSC 333 – Web Programming
Fall 2025**

Course Project:

TechLink – A Bridge Between Engineers and Businesses

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1. Introduction

1.1 Project Overview

TechLink Hub is designed to bridge the gap between engineers and businesses. The platform allows companies to post technical project requirements and enables engineers to apply, collaborate, bid, and communicate efficiently.

TechLink was inspired by the real challenges engineers face in Lebanon. Many skilled engineers struggle to find opportunities locally, while companies abroad are actively hiring. TechLink will bridge this gap allowing not only engineers and companies to collaborate and facilitate means of communication between them, but it will also allow engineers to contact each other and work on personal projects that will allow them to grow together.

1.2 Target Audience

- Engineers(Senior-Junior-Graduates)
- Freelancers and consulting engineers
- Startups and entrepreneurs
- Companies seeking cost-effective engineering solutions
- Tech-focused communities

1.3 Purpose, Objectives & Motivation

The system aims to:

- Enable businesses to find qualified engineers quickly
- Provide engineers with opportunities and income
- Support transparent project bidding and communication
- Reduce friction in hiring and improve collaboration
- Offer a modern, intuitive platform for both engineers and companies

Motivation stems from the real-world difficulty businesses face in finding reliable engineering talent, and the difficulty new engineers face in finding opportunities.

2. Problem Statement & Requirements

2.1 Problem Statement

Businesses struggle to hire engineers efficiently due to scattered resources, lack of centralized platforms, and slow communication often landing with the safest options and hiring from connections. In addition, engineers lack opportunities and visibility specially with a very huge market.

TechLink Hub solves this by providing a centralized marketplace for engineering talent.

2.2 Functional Requirements

- The home page layout was **inspired by modern platforms** like LinkedIn, Behance, and hiring portals.
- The Engineers page inspiration came from the **Restaurant project** done in class.
- The Projects page was inspired by the **Travel Trip assignment** but repurposed for engineering bids.
- The Chat system was **heavily inspired by WhatsApp Web**, and Movie description Lab project.
- Features Like the Burger Navigation, toggle html, and header design were based on the lab work done during the session.

User Accounts

- Login and signup (localStorage + JSON validation).
- Store user session and display username across pages.
- Allow user to view profile and edit his information.

Engineering System

- Load engineers dynamically from JSON
- Search engineers by name, title, skills, or category
- Fetch Data from the json file and customizing the filter accordingly.
- Filter engineers by field
- Favorite engineers (with Local Storage persistence)
- View detailed profile modal: experience, skills, portfolio, rating
- Contact and Hire buttons

Project System

- Load projects from JSON
- Search and filter projects
- View project details in modal
- Submit bids (stored in localStorage to persist after refresh)

Messaging System

- Full chat interface
- Persistent messages using localStorage
- Star chats, sort starred chats on top
- Send messages via button or Enter key
- Support messaging submission

Login/Signup System

- Switch between login/signup views dynamically
- Validate email against engineer list
- Store new users in localStorage
- Redirect and display username globally

User Profile System

- Enter the Editing Section if no information is found
- Editing Feature(with Local Storage Persistence)
- Default image if no image is found

2.3 Non-Functional Requirements

| Requirement | Description |
|-----------------|--------------------------------------------------|
| Usability | Clean UI, intuitive navigation, consistent style |
| Responsiveness | Works on desktop, tablet, and mobile |
| Accessibility | Large fonts, alt text, structured layout |
| Performance | Fast loading JSON, smooth animations |
| Maintainability | Clear folder structure, organized JS files |

3. System Design & Structure

3.1 Sitemap

Home (index.html)

|

|— Engineers (engineers.html)

| |— Engineer Profiles Modal

| |— Favorites

| └— Search & Filter

|

|— Projects (projects.html)

| |— Project Modal

| └— Bidding System

|

|— Messages (chat.html)

| └— Support Chat

|

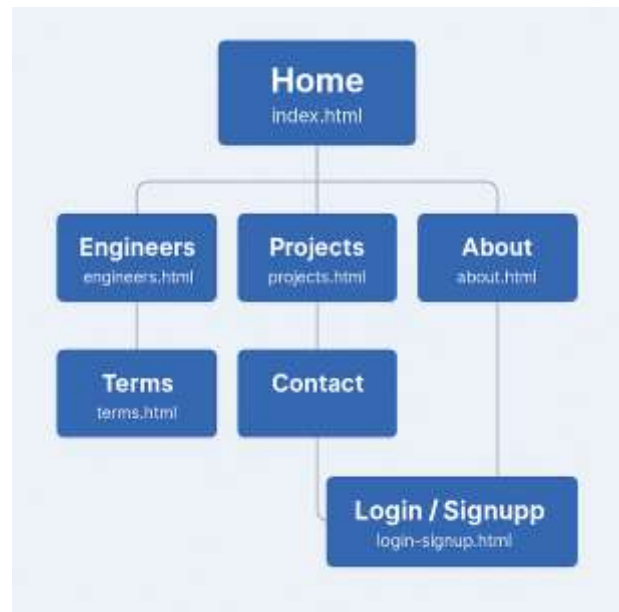
|— Login / Signup (login-signup.html)

|

|— About (about.html)

|— Contact (contact.html)

└— Terms and Conditions (terms.html)

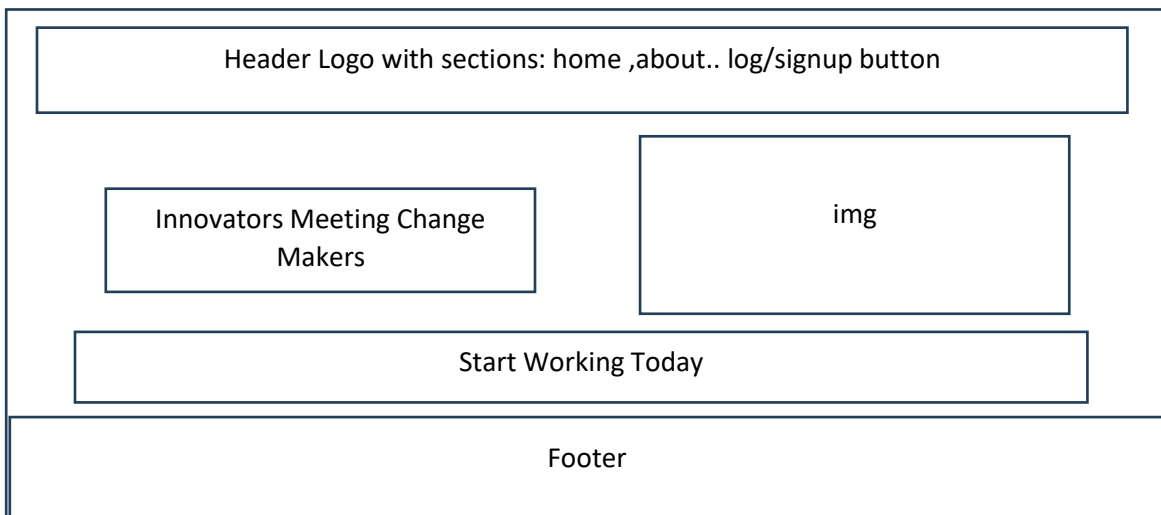


The Website will be working as a closed loop with no loose ends (only links for Instagram and LinkedIn were omitted)

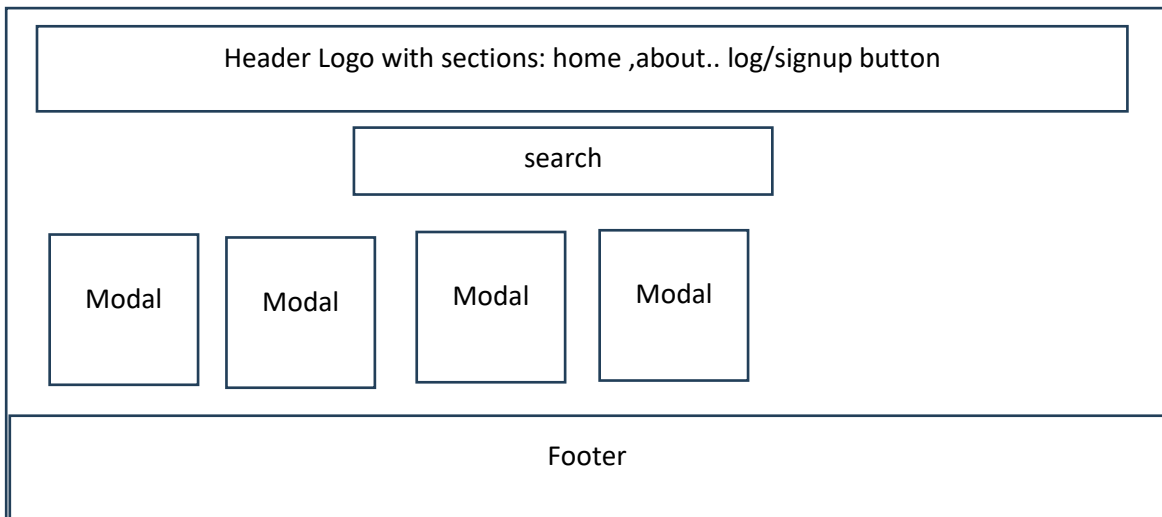
- Home → Engineers → Engineer modal → Hire/Contact → Chat
- Home → Projects → Apply → Stored Bids
- Login affects all pages
- Username shown globally
- Favorites saved locally
- Chats saved and displayed persistently

3.2 Wireframes

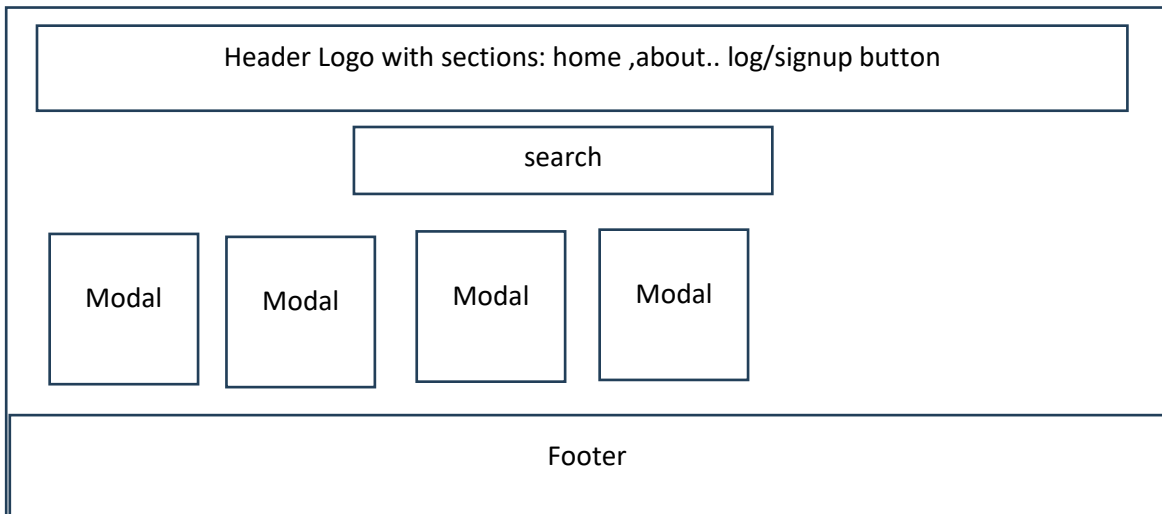
Home Page



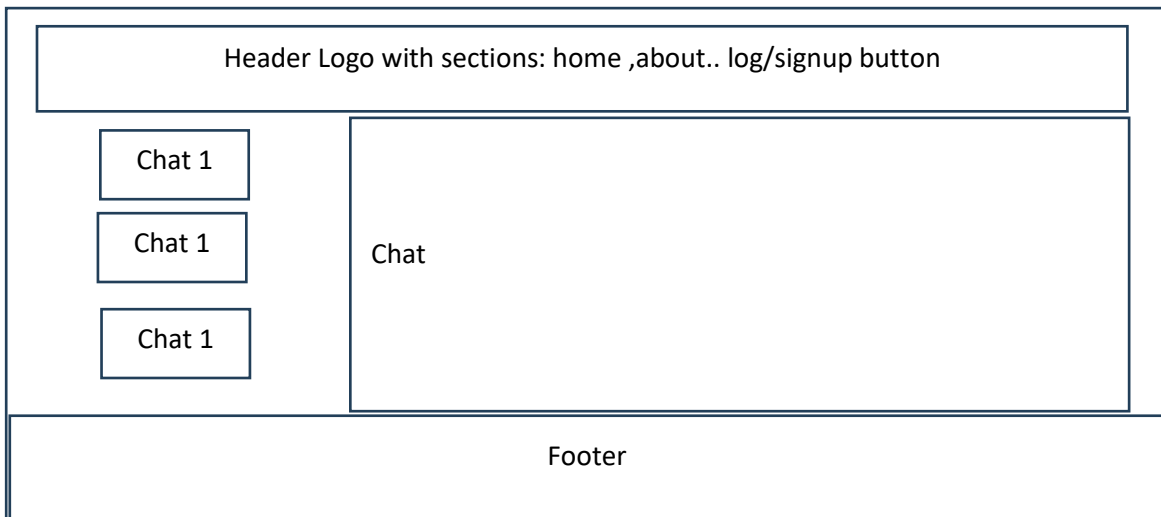
Engineers Page



Projects Page



Chat Page (inspired by WhatsApp web)



3.3 Navigation Flow

1. User lands on **Home**
2. User explores **Engineers, Projects, Messages**
3. Login/Signup updates UI dynamically
4. Clicking categories redirects to filtered engineer results
5. Modals used for detailed viewing
6. Local Storage persists:
 - user login
 - favorites
 - bids
 - messages
 - starred chats

3.4 Folder Structure

Final Project

```
|
|
|— index.html
|
|— html
|   |— engineers.html
|   |— projects.html
|   |— chat.html
|   |— about.html
|   |— contact.html
|   |— profile.html
|   |— login-signup.html
|
|
|— style
|   |— style.css
|   |— engineersstyles.css
|   |— contstyles.css
|   |— logstyles.css
|   |— profilestyles.css
|   |— abtstyles.css
|   |— termsstyles.css
|   |— common.css
|   |— projstyles.css
|
|
|— jquery
|   |— script.js
|   |— engscript.js
|   |— common.js
```

```
|   |— projscript.js
|   |— contscript.js
|   |— profilescript.js
|   |— logscript.js
|
|— data
|   |— engineers.json
|   |— projects.json
|   |— chats.json
|— img
|   |— engineers(eng profile images)
|   |— illustrations(default images-collab-contact images)
|   |— logos
```

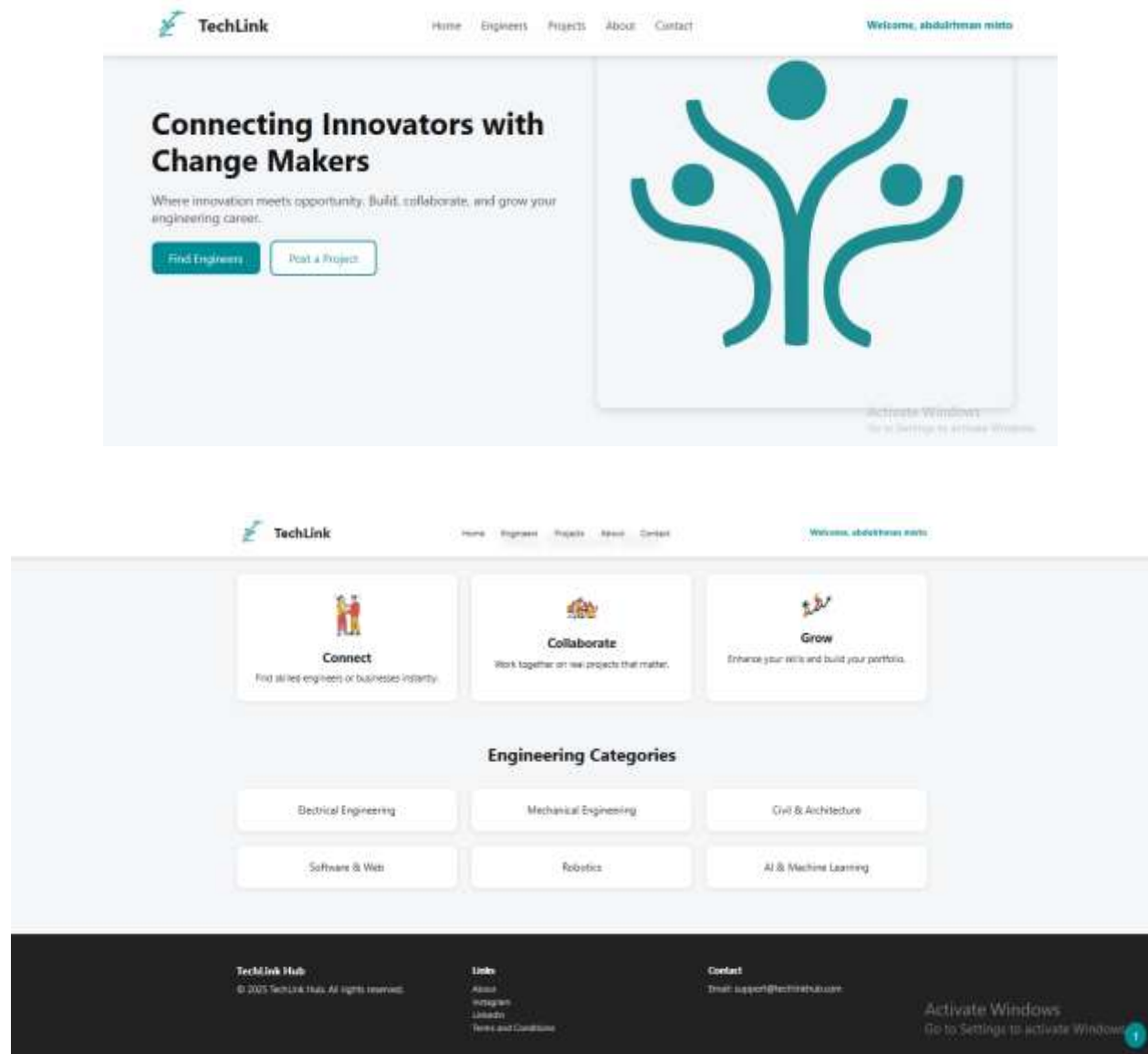
Branding:

- Logo created using Adobe Illustrator
- Inspiration from Microsoft Teams (modern minimalistic blocks)
- SpaceX geometric style (sharp angles, futuristic look)
- Cyan/teal palette chosen intentionally
- Color psychology: innovation, precision, technology, trust

4. Implementation & Features

4.1 Home Page

- Category filters redirect with URL parameters
- Dynamic header adjusting after login
- CTA removed after login
- Sponsors grid with clickable logos
- Back up feature

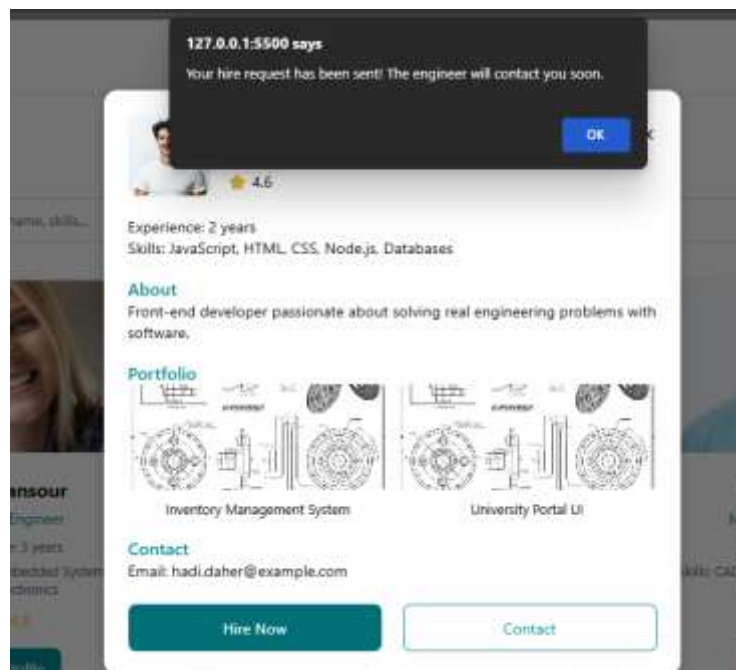
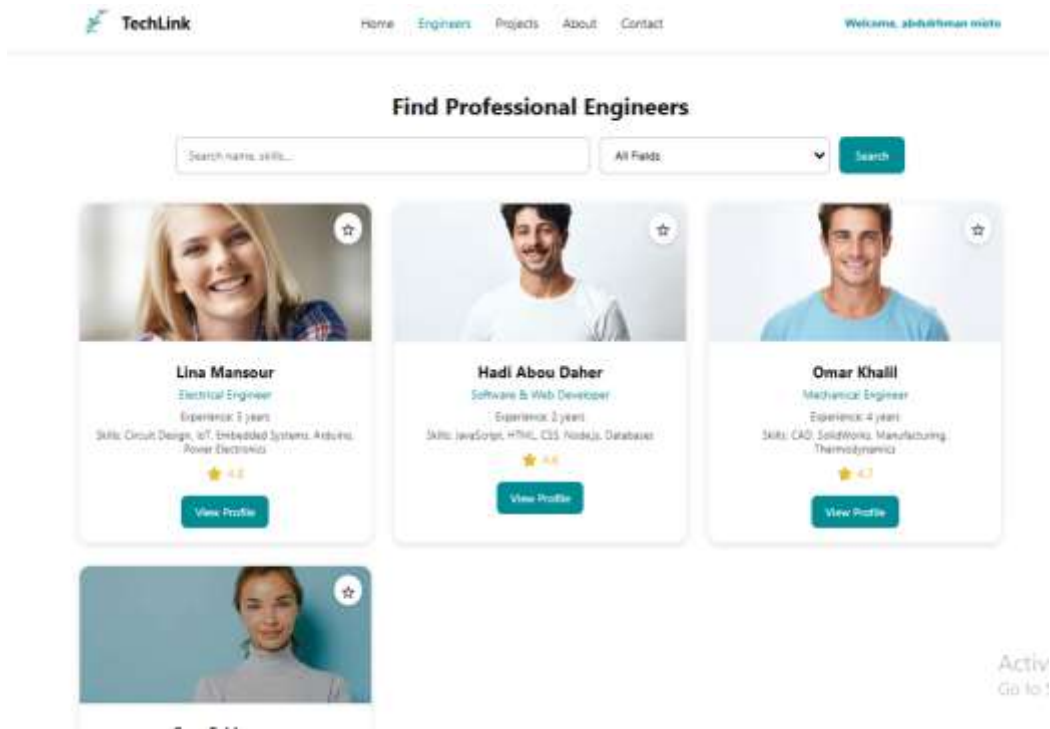


4.2 Engineer System

Features implemented:

- JSON loading
- Card generation via template cloning
- Search + filtering
- URL-based filtering from Home
- Favorite system (Local Storage)

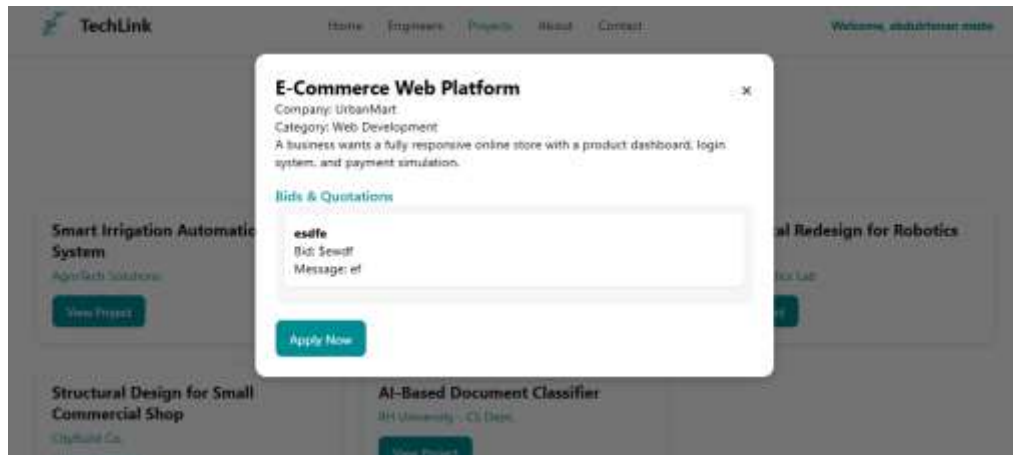
- Modal with portfolio gallery
- Contact → contact page
- Hire → confirmation popup
- Profile→ User Information



4.3 Project System

Features:

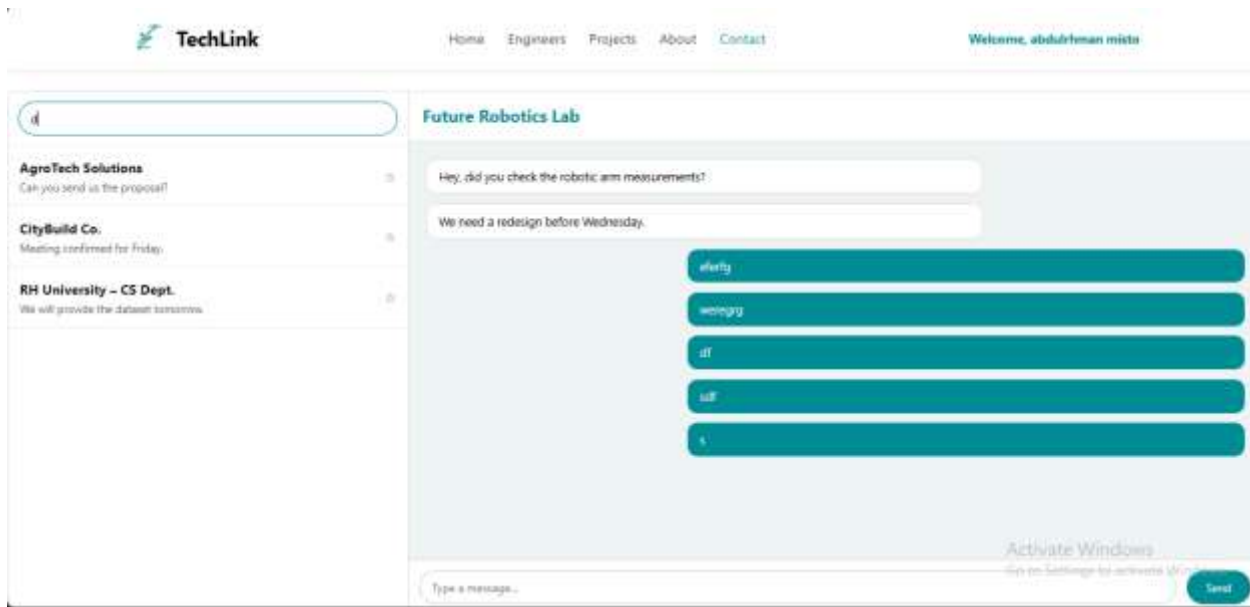
- Load projects from JSON
- Search bar + category filtering
- Modal showing company, description, and bids
- Apply button uses:
 - Name input
 - Bid input
 - Message input
- Persist bids using localStorage



4.4 Chat System

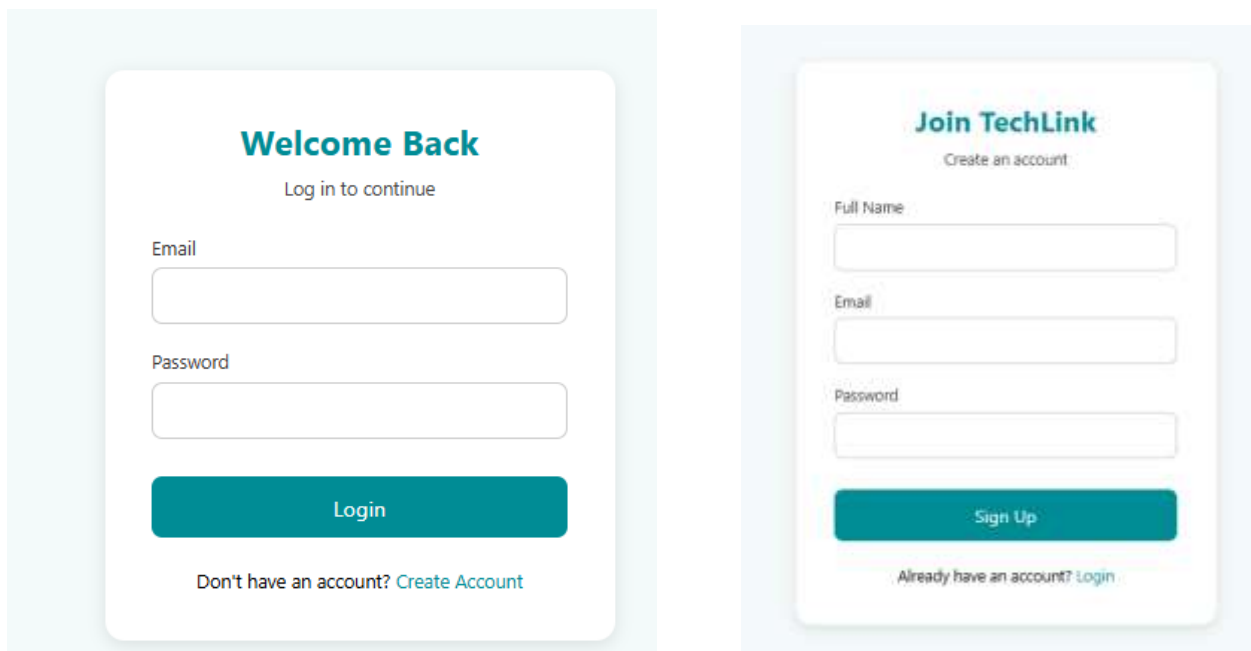
Fully interactive chat window:

- Loads messages from chats.json
- Syncs messages with localStorage
- Sorts starred chats on top
- Star toggle used to favorite conversations
- Real-time message send (Enter or button)
- Auto scroll
- Search chat list



4.5 Login & Signup

- Switch between Login ↔ Sign Up dynamically
- Validate against engineer emails
- Store new users in localStorage
- Redirect to home page
- Replace Login/Signup buttons with user greeting
- Remove CTA on home page



5. Hosting & Deployment

5.1 Platform

Hosted on **GitHub Pages**, which provides free static site hosting.

5.2 Deployment Steps

1. Create GitHub repository
2. Push project folder
3. Go to: **Settings** → **Pages**
4. Set:
 - Source: **Deploy from Branch**
 - Branch: **main**
 - Folder: **root**
5. Save
6. GitHub generates hosting URL

5.3 Final Live Link

<https://axm01.github.io/TechLink/>

6. Conclusion & Future Enhancements

6.1 Summary

TechLink Hub successfully implements a dynamic platform that connects engineers with businesses through:

- Searchable engineer directory
- Bid & project management
- Chat system
- Login and user persistence
- Responsive and modern UI
- Full front-end functionality with persistent data

6.2 Future Enhancements

- Real authentication with backend
- Real-time messaging via WebSockets
- Payment integration
- Engineer CV upload
- Company dashboards
- Admin panel
- AI-based engineer recommendations
- Notification system
- Mobile app version

6.3 Current Limitations

- No real database (localStorage only)
- No backend validation
- No role-based authentication
- Limited security

7. References

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<https://www.microsoft.com/>

SpaceX. (2025). Brand Style

<https://www.spacex.com/>

8. Appendix

Tools Used

- **Visual Studio Code**
- **GitHub Pages**
- **Google Chrome**
- **JSON Formatter**
- **Canva**
- **Adobe Illustrator**
- **ChatGPT**

Assets List

- **Engineer images**
- **Portfolio images**
- **Partner logos**
- **All sample data (engineer bios, skills, portfolio descriptions, project descriptions) was generated using ChatGPT.**