

# **ARCHICRAFT ENGINEERING COMPANY**

## **Team members**

الاسم	السكشن
هبة عادل علي عبدالعزيز	٤
هبة ماهر الشحات	٤
نور هان أيمن عبدالمعطي	٤

## **Under supervision**

Doc: Shaimaa Talaat

Eng: Eman Mahmoud

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# **Ch1**

## **Introduction:**

- Imagine a world where your every need is anticipated and met. A world where your home is not just a place to live, but a sanctuary of luxury and security. This is the vision we strive to achieve here at **ArchiCraft Engineering**, an engineering company specializing in the construction and service of exquisite homes and palaces within secure compounds.

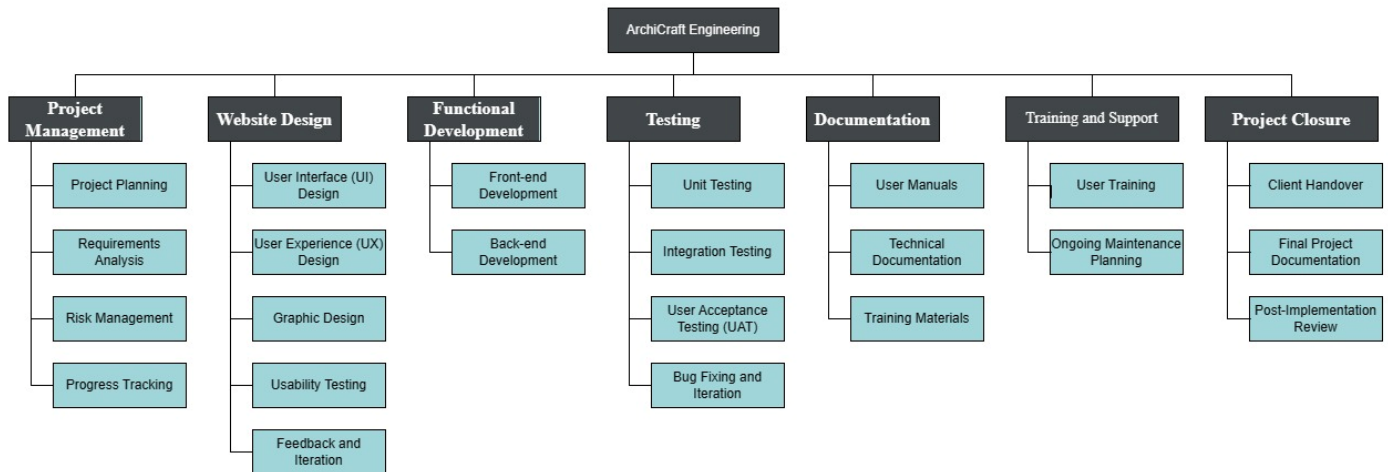
## **Problem Definition:**

- Difficulty in finding a single company that can handle all aspects of building and servicing luxurious homes and palaces within secure compounds.
- Lack of transparency and communication during the design and construction process.
- Concerns about quality of materials and workmanship.
- Unease regarding the integration of complex technology into the home environment.
- Uncertainty about security measures and protocols within the compound.

## **System Objectives:**

- To become the leading provider of luxury building and palace services within secure compounds, exceeding client expectations and creating lasting value.
- Design and build exquisite homes and palaces that are tailored to the unique needs and preferences of each client.
- Provide a comprehensive range of services, from initial consultation to post-construction maintenance.
- Streamline the design and construction process for efficiency and timely completion.
- Ensure the highest standards of quality in materials, workmanship, and design.
- Integrate cutting-edge technology seamlessly into the home environment for convenience and security.
- Create a secure and private compound environment with effective access control and surveillance.
- Build a strong brand reputation for excellence, professionalism, and reliability.
- Maintain competitive pricing while upholding high-quality standards and innovative practices.

## WBS:



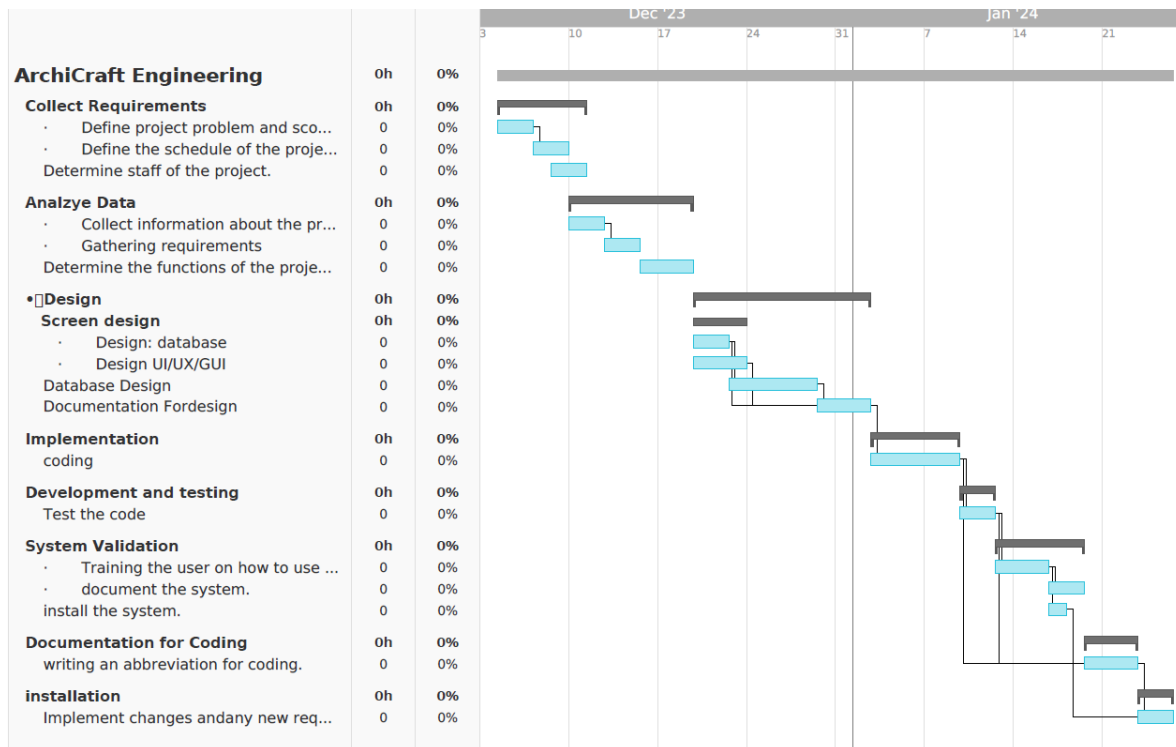
## Risk Management:

Risk Description	Probability	Impact	Strategy
<b>Cost</b>	Low	High	<i>Included in project plan, subject to amendment as new details regarding project scope are revealed</i>
<b>Time</b>	Low	High	<i>We must calculate well time we will spend in each task.</i>
<b>Team Size</b>	Low	High	<i>We must find an extra employees with an experience and train them well.</i>
<b>Software bugs</b>	Low	Low	perform an impact analysis and decide what we should do after discussing it with the management and the client
<b>Narrow Knowledge Level of Users</b>	Low	High	<i>train them well and give them all knowledge they will need and provide them with all possible resources.</i>

## Project plan:

Phase	Activity
1.Collect Requirements	<ul style="list-style-type: none"> <li>Define project problem and scope.</li> <li>Define the schedule of the project.</li> <li>Determine staff of the project.</li> </ul>
2-Analyze Data	<ul style="list-style-type: none"> <li>Gathering requirements</li> <li>Collect information about the project.</li> <li>Determine the functions of the project.</li> </ul>
3.Screen design	<ul style="list-style-type: none"> <li>Design: database</li> <li>Design UI/UX/GUI</li> </ul>
4- Database Design	<ul style="list-style-type: none"> <li>Information about the project</li> </ul>
5.Documentation For design	<ul style="list-style-type: none"> <li>writing an abbreviation for the design.</li> </ul>
6.Implementation	<ul style="list-style-type: none"> <li>Implement the code of the project.</li> </ul>
7.Development and testing	<ul style="list-style-type: none"> <li>Test the code</li> </ul>
8.System Validation	<ul style="list-style-type: none"> <li>Training the user on how to use the project.</li> <li>document the system.</li> <li>install the system.</li> </ul>
9.Documentation for Coding	<ul style="list-style-type: none"> <li>writing an abbreviation for coding.</li> </ul>
10.installation	<ul style="list-style-type: none"> <li>Implement changes and any new requirements.</li> </ul>

## Gantt chart:



## How to achieve security:

Security Measure	Description	Estimated Implementation Cost	Estimated Time to Implement
Strong password requirements	Enforce minimum password length, complexity, and regular password changes	Low	Low
Multi-factor authentication (MFA)	Implement MFA using SMS, email, or authenticator apps	Medium	Medium
Role-based access control (RBAC)	Assign user roles with specific permissions to access sensitive data and functionalities	Medium	High
Software updates	Regularly update website software and plugins to address vulnerabilities	Low	Low
Data encryption	Encrypt sensitive data, both in transit and at rest, using AES or RSA encryption	Medium	Medium
Security audits and penetration testing	Conduct regular security audits and penetration testing to identify and address potential weaknesses	High	High

## How to achieve safety:

1. Secure user accounts: Implement strong authentication and authorization mechanisms, including strong passwords, multi-factor authentication (MFA), and role-based access control (RBAC).
2. Protect against data breaches and cyberattacks: Regularly update website software and plugins, encrypt sensitive data, and conduct security audits and penetration testing to identify and address potential vulnerabilities.
3. Ensure compliance with data privacy regulations: Implement a comprehensive privacy policy, obtain user consent for data collection and usage practices, and comply with applicable data privacy regulations.
4. Secure payment processing: Utilize a reputable payment gateway that adheres to industry security standards, avoid storing sensitive payment information on the website's servers, and implement secure communication protocols for payment transactions.
5. Educate users about online safety: Provide clear and concise instructions on creating strong passwords, identifying phishing scams, and avoiding social engineering attacks. Encourage users to report any suspicious activity or security concerns.

## **Ch2**

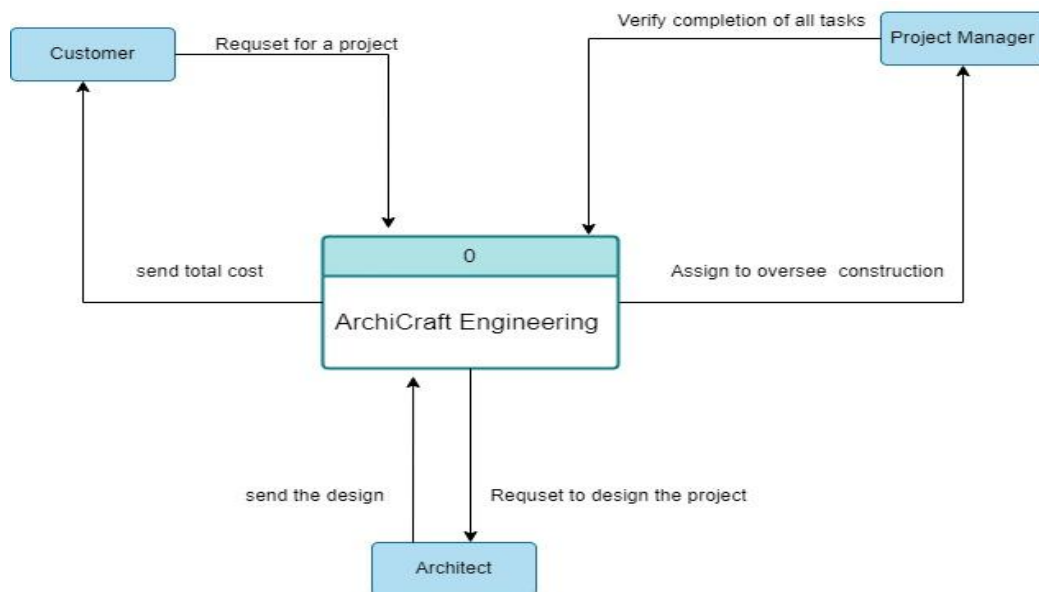
### **Non-Functional Requirements:**

<b>Performance</b>	The website should be fast, responsive, and able to handle a high volume of users without performance bottlenecks
<b>Security</b>	The website should implement robust security measures to protect user data, including data encryption, secure authentication, and vulnerability management.
<b>Accessibility</b>	The website should be accessible to users with disabilities, adhering to WCAG guidelines and providing alternative text for images, transcripts for videos, and keyboard navigation.
<b>Search Engine Optimization (SEO)</b>	The website should be optimized for search engines to improve its visibility and attract organic traffic.
<b>Cross-Browser Compatibility</b>	The website should be compatible with all major web browsers, including Chrome, Firefox, Safari, and Edge.

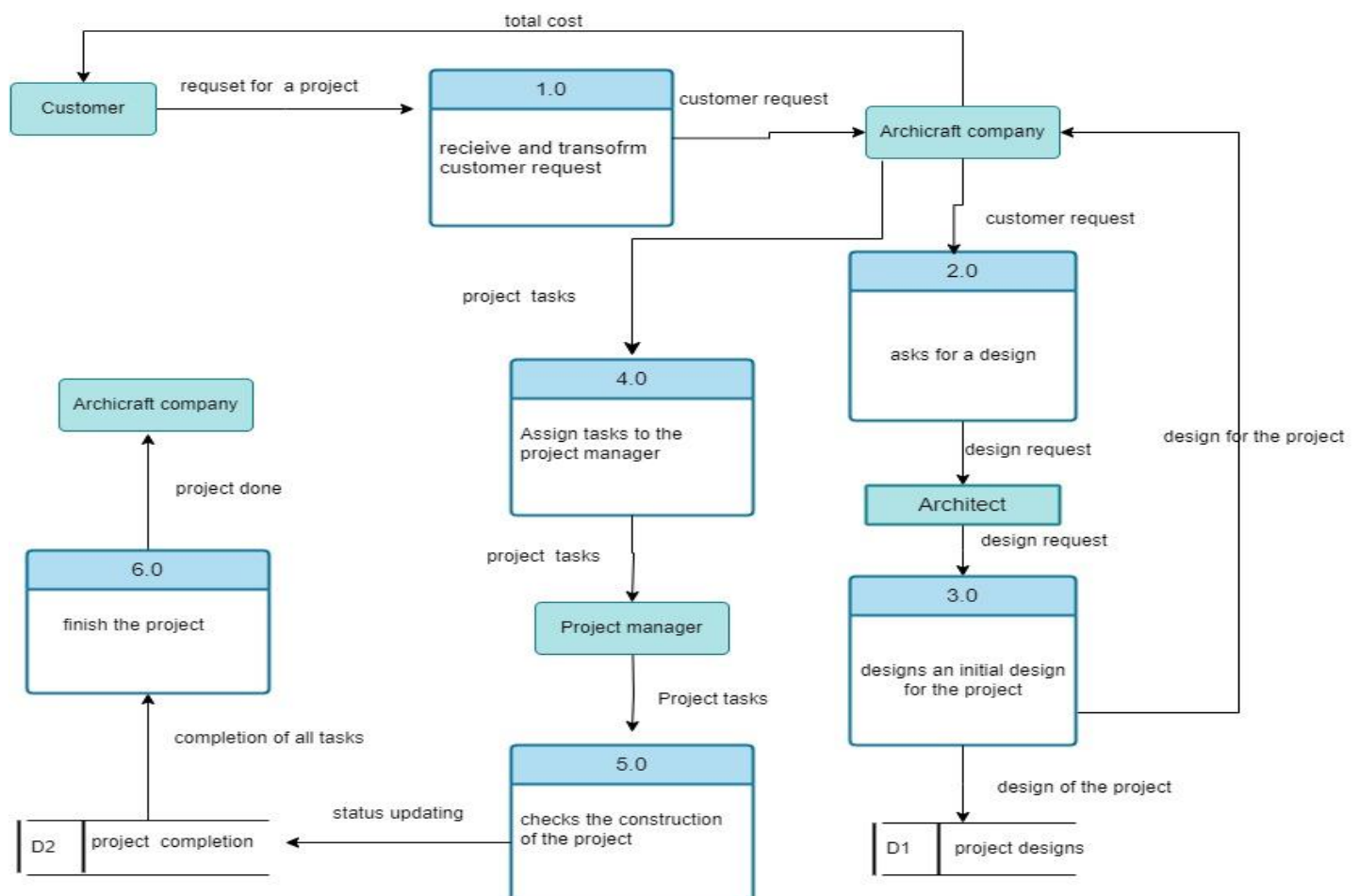
### **Functional Requirements:**

<b>User Registration and Authentication</b>	Users should be able to create accounts and log in securely. Different access levels for architects, clients, and administrators.
<b>Project Management</b>	Ability to create, edit, and delete design projects. Assigning architects to specific projects.
<b>Client Dashboard</b>	Overview of projects. Access to project files and designs.
<b>Mobile Responsiveness</b>	Ensuring the website is accessible and functional on various devices.
<b>Feedback and Review System</b>	Collecting feedback from clients and architects.

## Context Diagram:

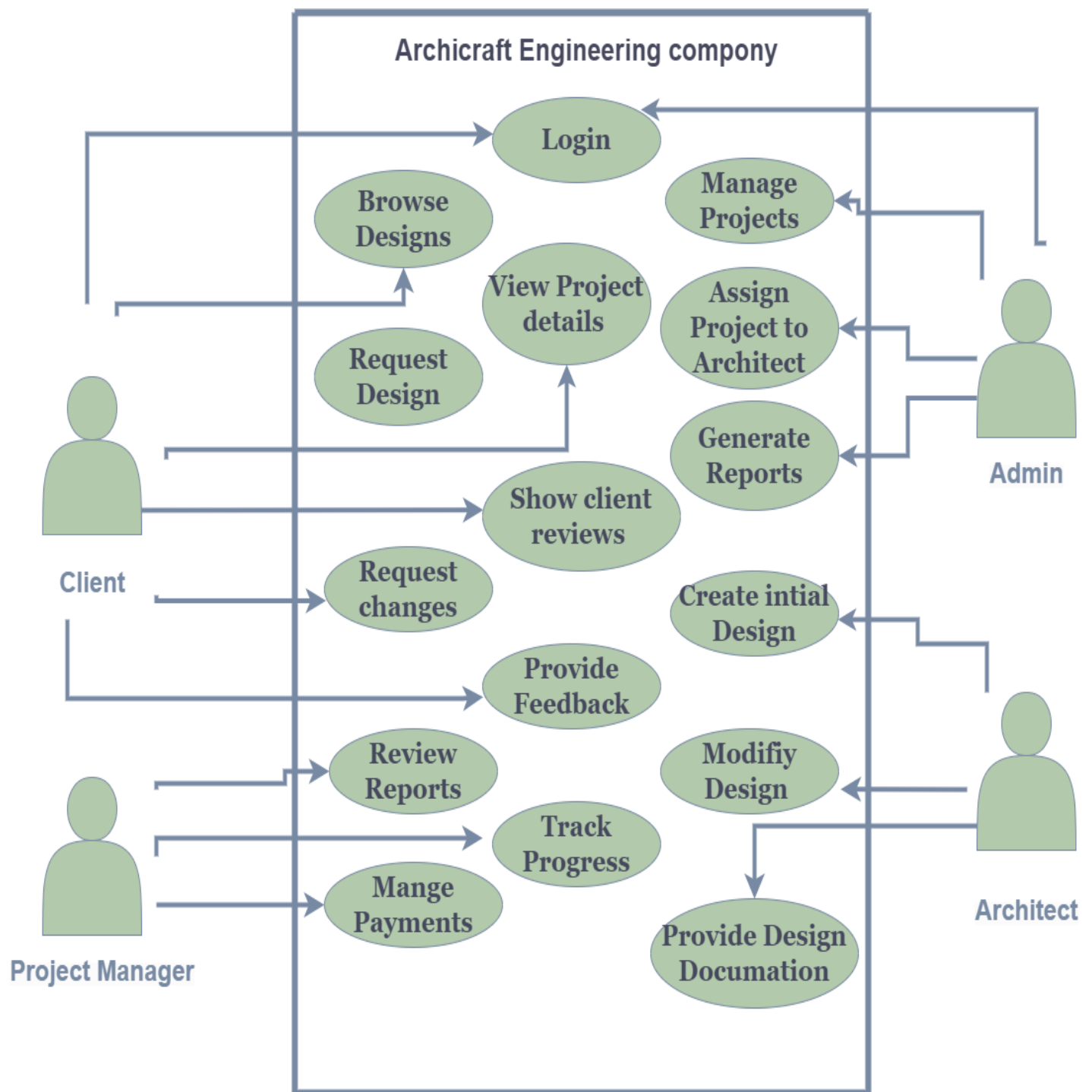


## DFD:



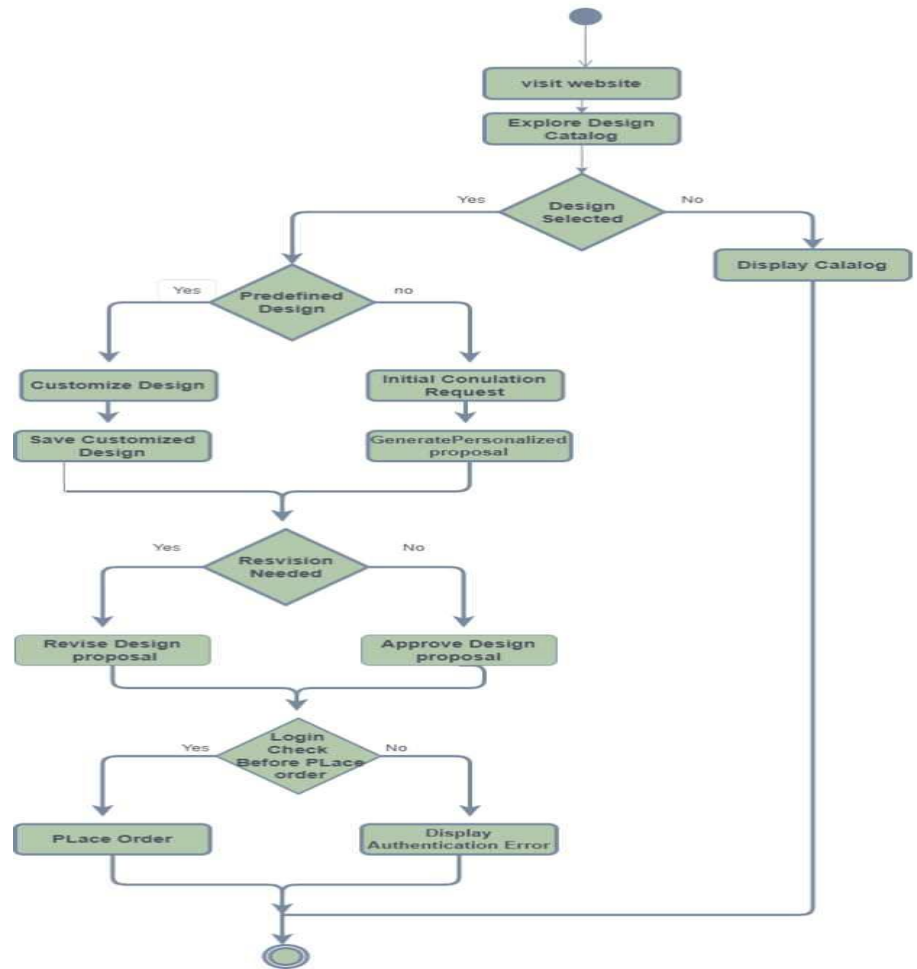


## Use case Diagram:

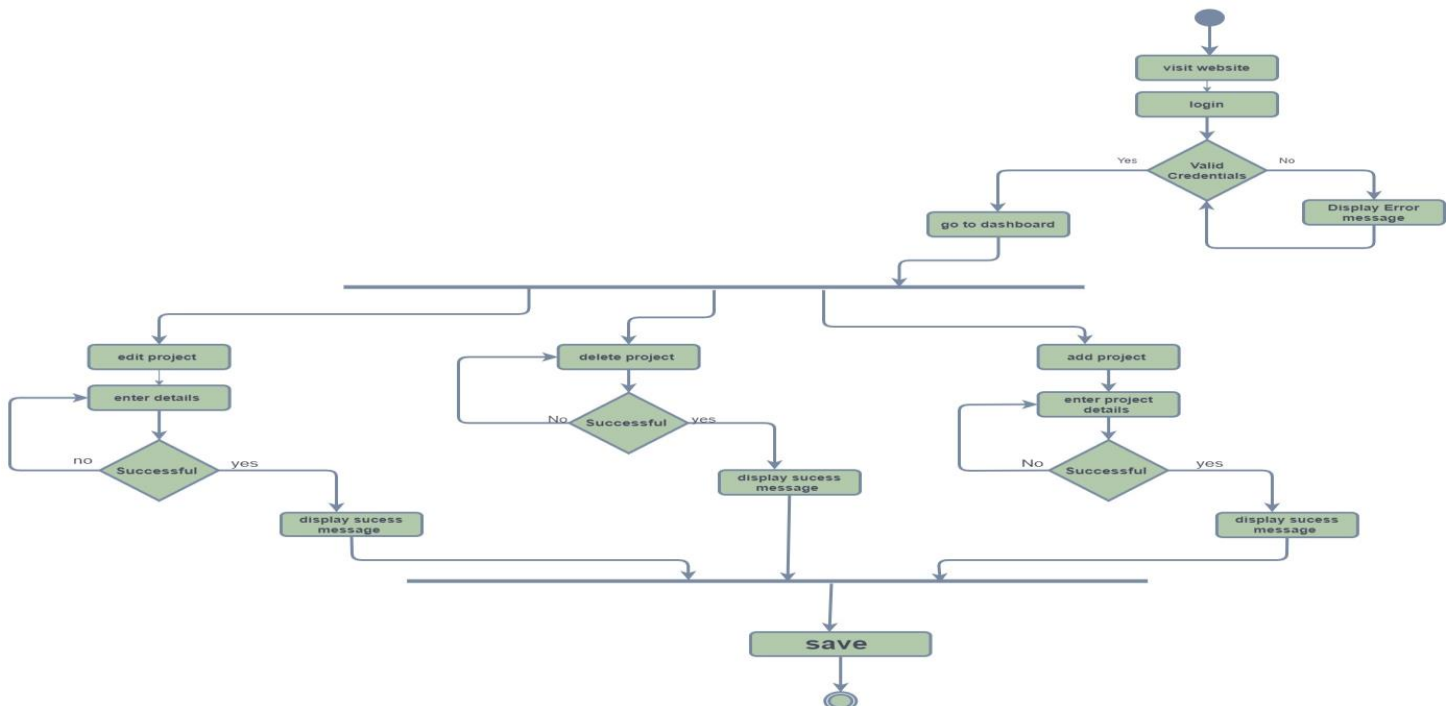


## Activity Diagram:

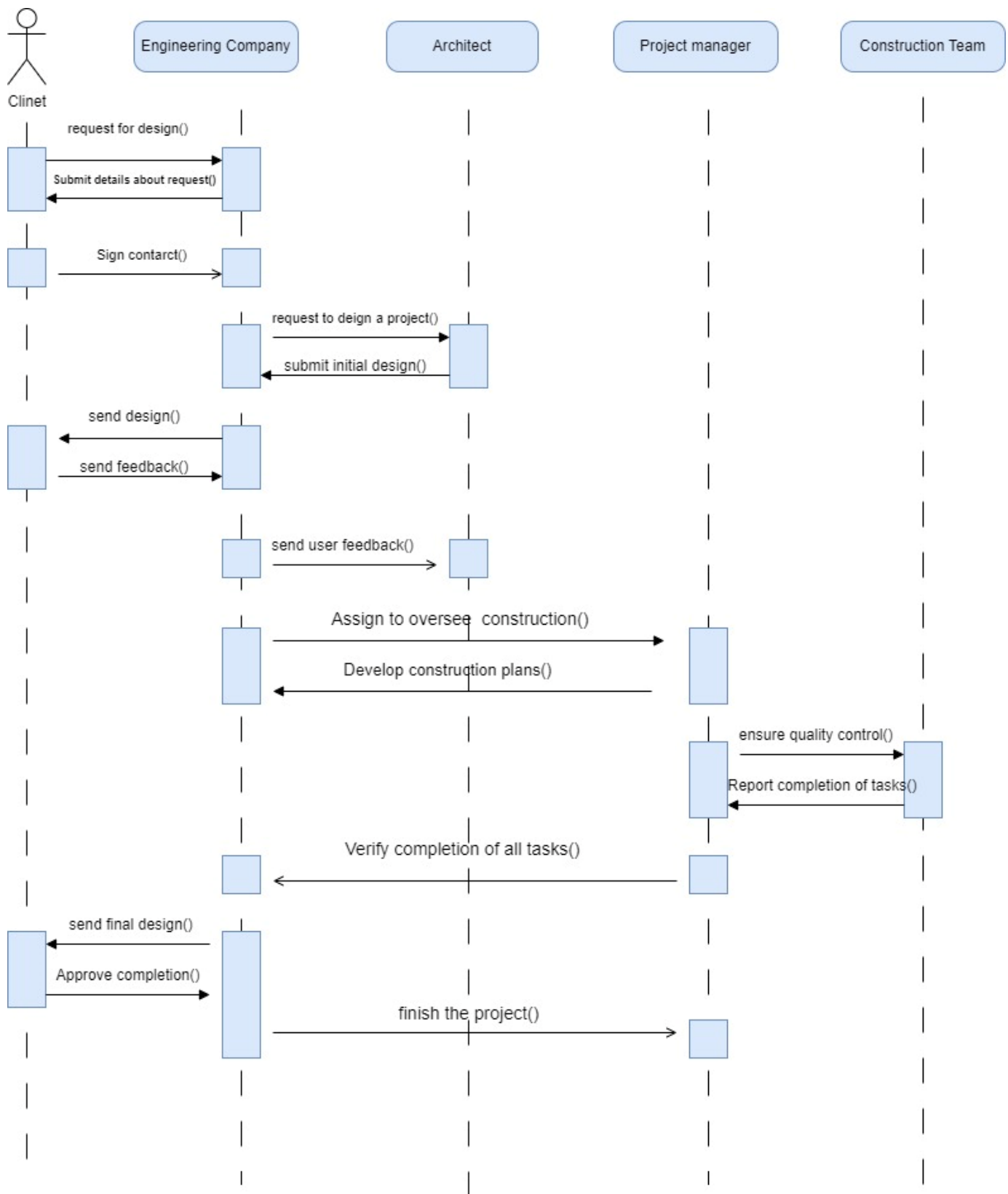
**\*\* client \*\***



**\*\* Admin \*\***

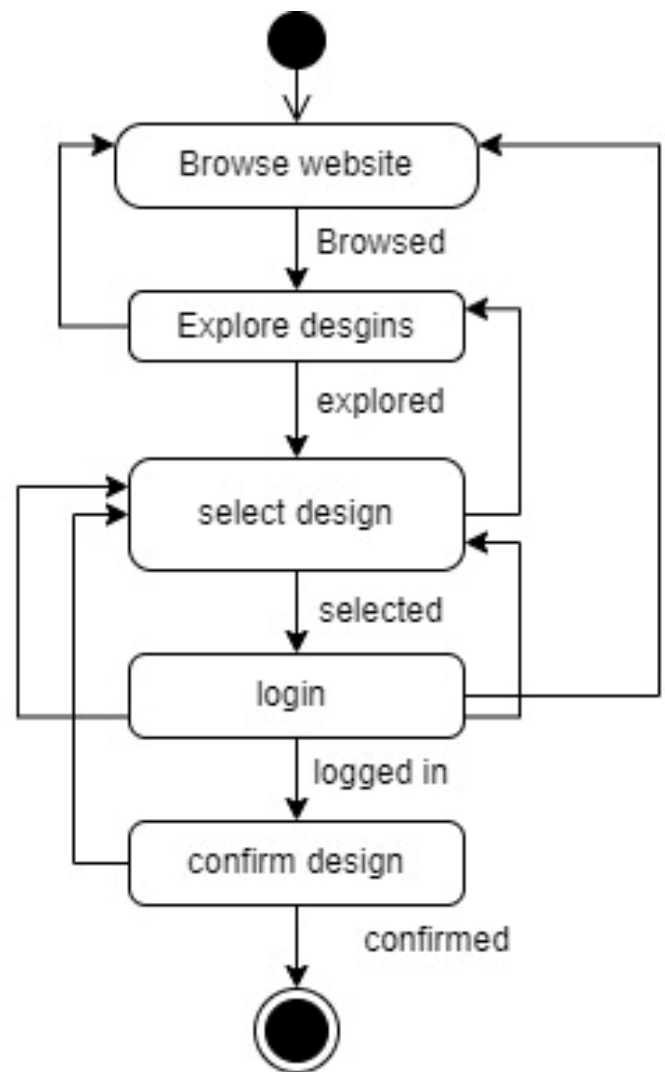


## Sequence Diagram:

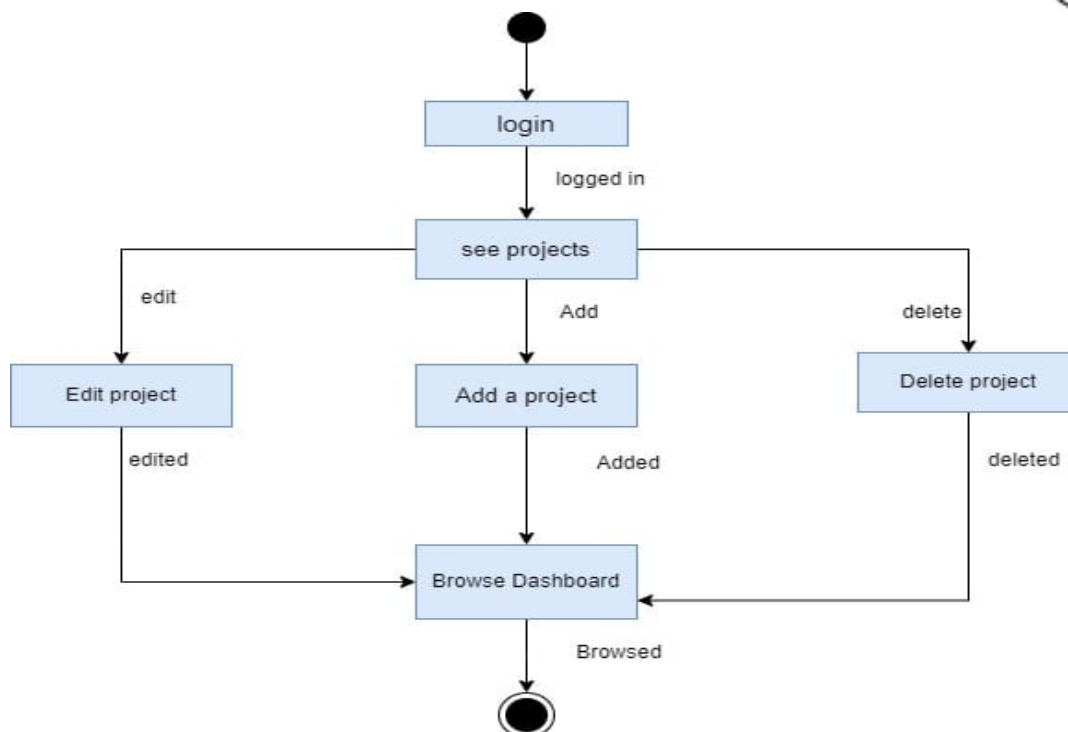


## State Diagram:

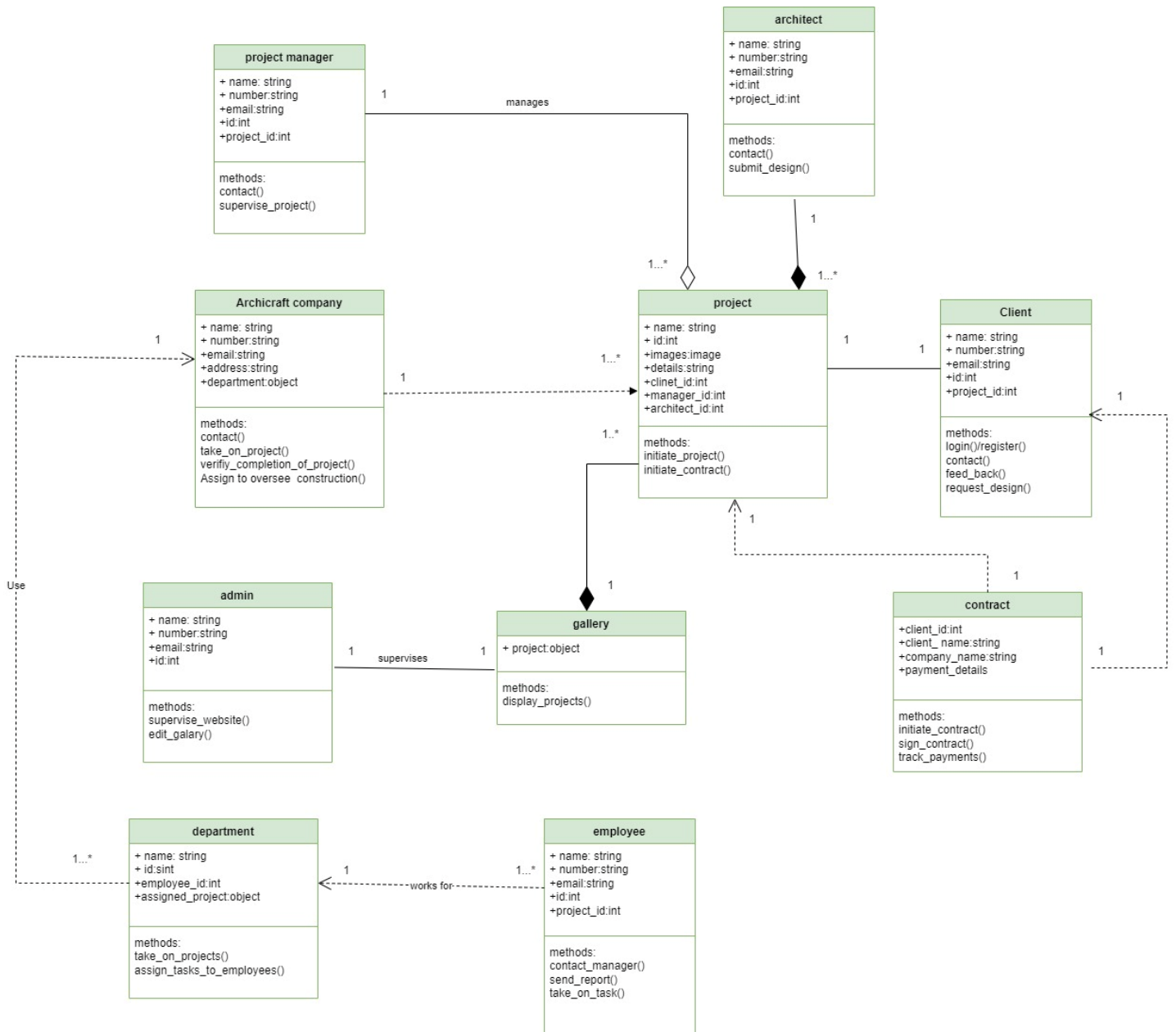
**\*\* client \*\***



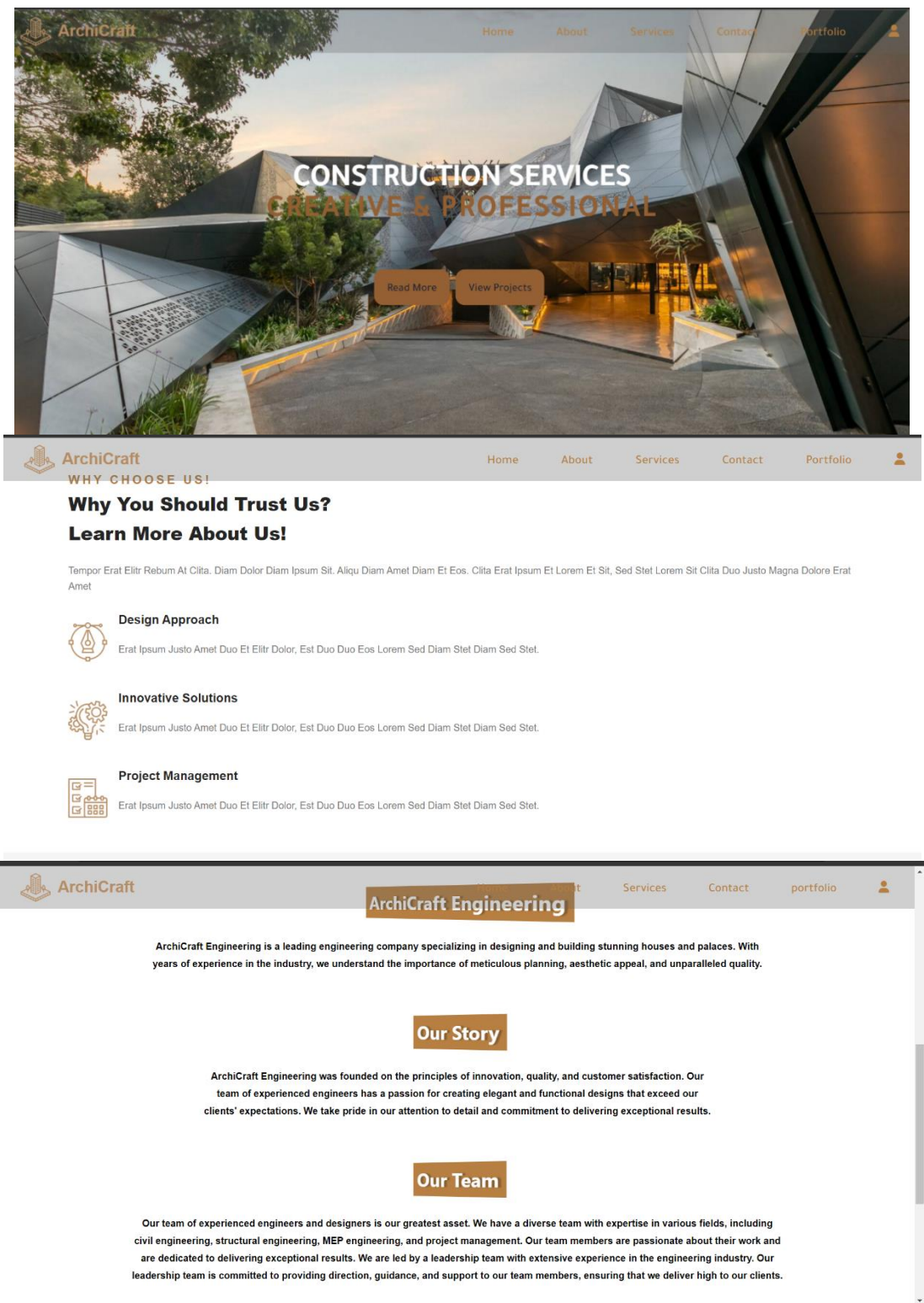
**\*\* Admin \*\***

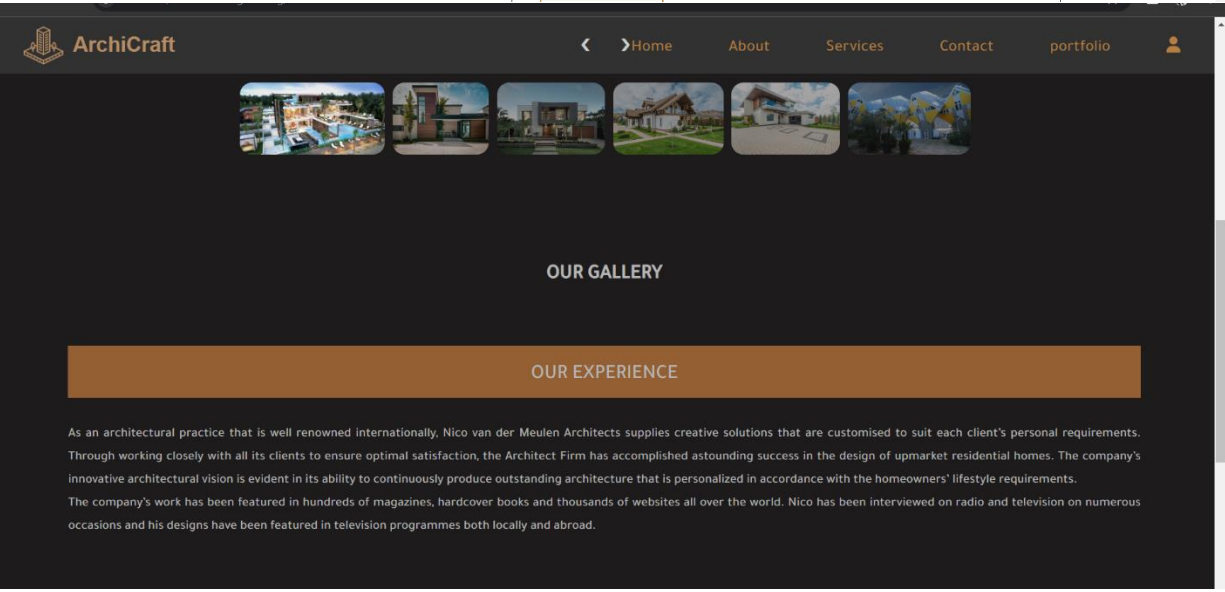
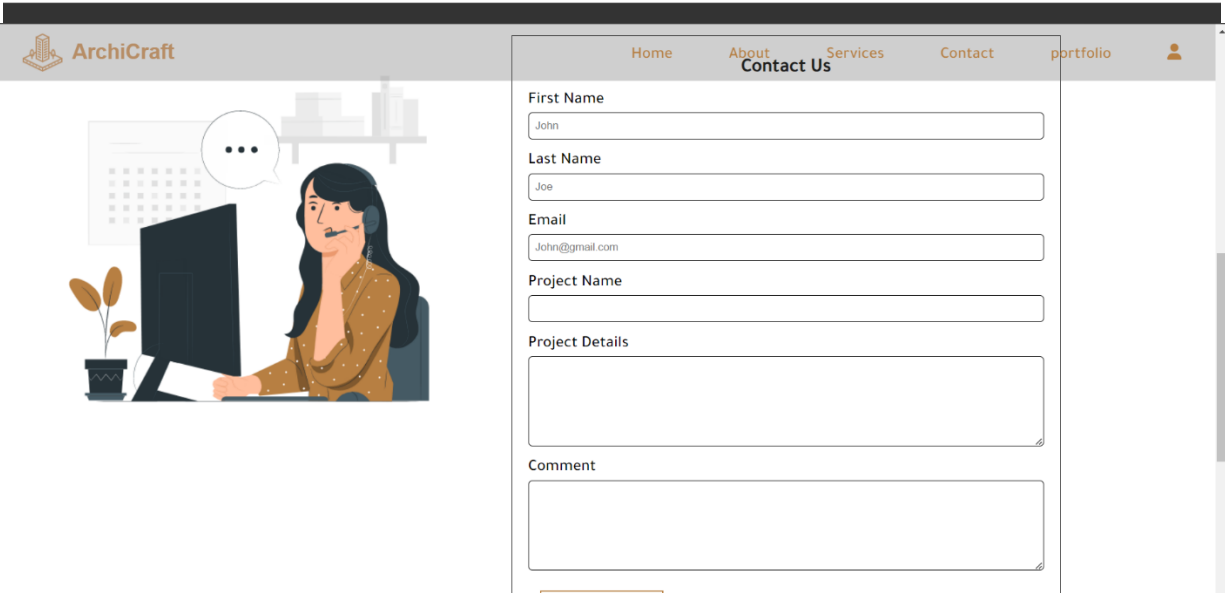


# Class Diagram:





GUI:










ArchiCraft

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price\_range : 2500\$-4000\$

Residence Wonder is a high-end private residence, situated on the slopes of Mooikloof Estate in Pretoria was designed as an oasis for luxury contemporary living. The building mainly consists over three levels with the approach from basement level, cut into the site. natural stone, off-shutter concrete and cutting edge perforated screens are all carefully incorporated throughout the design. The idea of hanging gardens form a big part of the overall aesthetic of Wonder Residence and were used mainly to soften the building and blend it in to the natural environment.






**MOOIKLOOF HEIGHTS**

price\_range : 2500\$-4000\$

East of Tswane in Gauteng, South Africa is the spectacular Mooikloof Heights home which is situated on a north sloping 15000sq.m. site. The home is approached from the north where it is completely transparent, but as the driveway curves around the west side it becomes a collection of stacked, rusted boxes without any openings. Due to the size of the site, the house could be stretched to extend to nearly 85m from east to west: The north elevation is totally glazed

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ID	Title	architect	price_range	Edit/ Delete
1	S RESIDENCE	Raffaello Rosselli	1000\$-2000\$	<div>EditDelete</div>
2	SANDTON RESIDENCE	Norman Foster	4000\$-6000\$	<div>EditDelete</div>
3	YP Vineyards	Alvar Aalto	2500\$-4000\$	<div>EditDelete</div>
4	WONDER RESIDENCE	Pascale Sablan	2500\$-4000\$	<div>EditDelete</div>
5	MOOIKLOOF HEIGHTS	Mike Riscica	2500\$-4000\$	<div>EditDelete</div>
6	BLAIR ATHOLL	Koray Duman	1000\$-2800\$	<div>EditDelete</div>
7	LATM RESIDENCE	Helena Lucas Vieira	3500\$-5000\$	<div>EditDelete</div>
8	HOUSE KHAY'ELISHA	Pedro Miguel Ferreira	4500\$-6000\$	<div>EditDelete</div>
9	STACKS MOUNTAIN HOUSE	Lora Teagarden	4500\$-6000\$	<div>EditDelete</div>

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