Faculty of Business and Economics

Business Administration Department

Engineering Project Management (BUSA2302)

Course Project

Web App For Reservations

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Project Scope

Description

The project will start from July to August 2023.

The half of this period is to analyze the project and to introduce use cases the requirement spesfications.

The other half of the period for work setup, setup all departments and the site will be done.

Objective

This project is to create a seamless and user-friendly experience for all stakeholders involved. For users, the application aims to simplify the request registration process, providing a straightforward interface that allows them to effortlessly submit their requests with just a few clicks. On the other hand, for business owners, the goal is to enable remote request management, ensuring they can receive and respond to requests promptly, even from the comfort of their homes. Real-time notifications and an intuitive dashboard offer a transparent view of incoming requests, allowing businesses to prioritize and handle them efficiently. With secure communication channels and mobile accessibility, the application ensures that interactions between users and businesses are smooth, secure, and convenient. By achieving these objectives, project aims to enhance customer satisfaction, optimize business processes, and elevate the overall experience for both requestors and service providers.

Deliverables

Fully Functional Web Application, User Registration and Authentication System, Effortless Request Submission ,Real-time Notification Mechanism ,Status Tracking for Users ,Secure Communication Channels ,Mobile-Responsive Design ,Documentation and User Guides and Deployment and Post-Launch Support.

Limits and Exclusions

- Project completion by the August 2023.
- fixed budget.
- defined project team.
- specific technology stack and user capacity.
- Hardware and infrastructure setup.
- development of third-party services.
- data migration.
- end-user training.
- future feature enhancements.

Project Plan

1- **Project Initiation Phase:**

- Define project objectives, scope, and deliverables.
- Identify key stakeholders and their roles.
- Create a project team and assign responsibilities.
- Conduct a kickoff meeting to align everyone with the project goals.

2- **Requirements Gathering and Analysis:**

- Conduct interviews and meetings with stakeholders to gather detailed requirements.
- Analyze the gathered information to finalize the project scope and specifications.

3- **Design and Planning:**

- Create a detailed design for the web application, including user interface (UI) design and system architecture.
- Plan the development phases and define milestones.
- Allocate resources and plan the project schedule.

4- **Development:**

- Begin the development of the web application, including frontend and backend components.

- Implement the user registration and authentication system.
- Build the request submission interface and notification mechanism.
- Develop the request processing dashboard and status tracking mechanism.
- Integrate secure communication channels and reporting features.

5- Testing and Quality Assurance:

- Conduct rigorous testing to identify and resolve any bugs or issues.
- Perform functional testing, usability testing, and performance testing.
- Ensure the application meets security and quality standards.

6- Deployment and User Training:

- Deploy the web application to a production environment.
- Provide user training and documentation to help users navigate the application effectively.

7- User Acceptance Testing (UAT):

- Involve stakeholders and potential users in UAT to validate the functionality and user experience.
- Gather feedback and make any necessary adjustments based on user input.

8- Finalization and Approval:

- Address any remaining issues and make final refinements to the application.
- Seek approval from stakeholders and the electric company, if required.

9- Project Completion and Handover:

- Review the project against the initial objectives and requirements.
- Create comprehensive project documentation and handover the application to the client or relevant stakeholders.

10- Post-Launch Support and Maintenance:

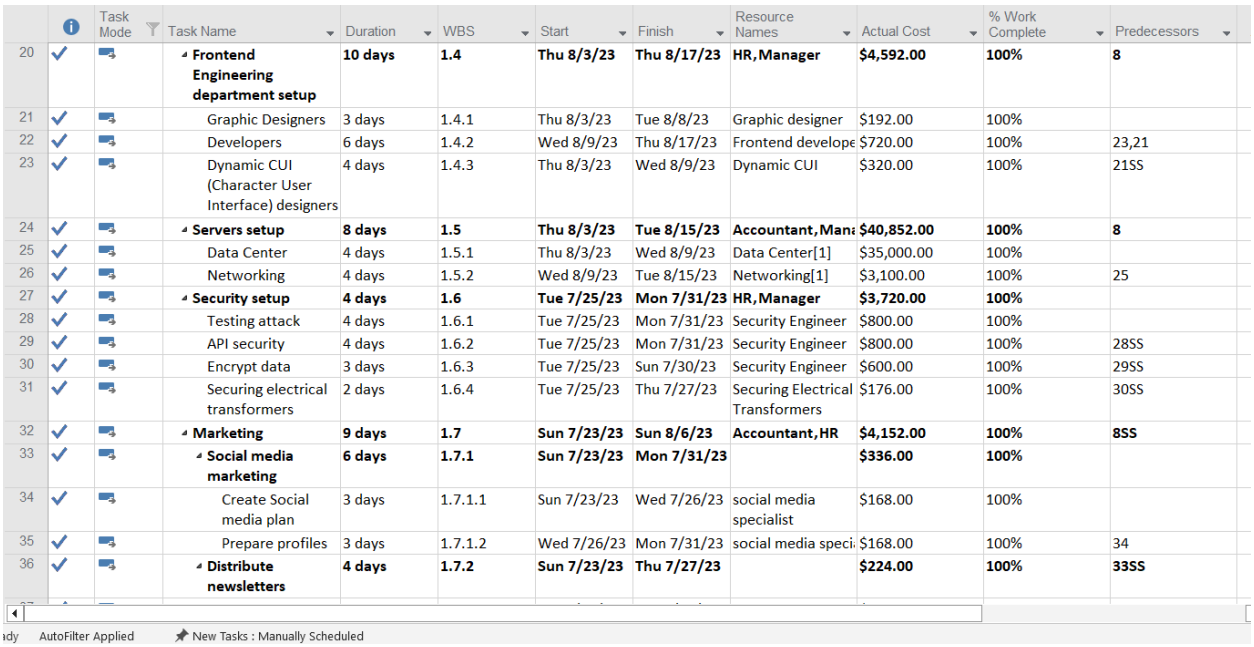
- Provide post-launch support to address any issues or questions from users.
- Implement a maintenance plan to ensure the application's ongoing stability and security.

Work Breakdown Structure

In the Work Breakdown Structure, we put all the activities we need to do and the milestones of the project. After adding all the activities and putting a start and finish time for each one we got a duration from the program and a plot for us to understand how each one of them will be worked in compare to the other activities.

	Task Mode	Task Name	Duration	WBS	Start	Finish	Resource Names	Actual Cost	% Work Complete	Predecessors
1		**Web App For Reservations**	**31.88 days**	**1**	**Mon 7/3/23**	**Thu 8/17/23**		**$170,606.00**	**100%**	
2		**Analysis**	**18 days**	**1.1**	**Mon 7/3/23**	**Sun 7/30/23**		**$4,320.00**	**100%**	
3		Interviews	5 days	1.1.1	Mon 7/3/23	Mon 7/10/23	Manager	$1,200.00	100%	
4		Requirement Specifications	4 days	1.1.2	Mon 7/3/23	Sun 7/9/23	Manager	$960.00	100%	3
5		Use Cases	6 days	1.1.3	Mon 7/10/23	Tue 7/18/23	Manager	$1,440.00	100%	4
6		Reporting Needs	3 days	1.1.4	Tue 7/18/23	Sun 7/23/23	Manager	$720.00	100%	5
8		**Work Setup**	**8 days**	**1.2**	**Sun 7/23/23**	**Thu 8/3/23**		**$108,162.00**	**100%**	**2**
9		Apartment for the business	2.63 days	1.2.1	Sun 7/23/23	Tue 7/25/23	Manager, Apartement	$550.00	100%	
10		Bring tabels	1 day	1.2.2	Tue 7/25/23	Wed 7/26/23	Manager,Table[12	$13,440.00	100%	9
11		Bring chairs	1 day	1.2.3	Tue 7/25/23	Wed 7/26/23	Manager,Chair[14]	$14,240.00	100%	9
12		Bring Computers	2 days	1.2.4	Wed 7/26/23	Sun 7/30/23	Manager,Compute	$78,480.00	100%	9,10,11
13		Bring coolers	1 day	1.2.5	Tue 7/25/23	Wed 7/26/23	Manager,Cooler[3	$540.00	100%	9
14		Appointing a human resources officer	3 days	1.2.6	Sun 7/30/23	Thu 8/3/23	Manager	$720.00	100%	9,10,11,12,13
15		Appointment of an accountant	2 days	1.2.7	Sun 7/30/23	Wed 8/2/23	HR	$192.00	100%	9,10,11,12,13
16		**Backend Engineering department setup**	**9 days**	**1.3**	**Thu 8/3/23**	**Wed 8/16/23**	**HR,Manager**	**$4,808.00**	**100%**	**8**
17		Database engineers	5 days	1.3.1	Thu 8/3/23	Thu 8/10/23	DataBase Engineer	$800.00	100%	
18		Developers	5 days	1.3.2	Thu 8/3/23	Thu 8/10/23	Backend develope	$600.00	100%	17SS
19		Quality Assurance	4 days	1.3.3	Thu 8/10/23	Wed 8/16/23	QA engineer	$384.00	100%	17,18

Figure 1: WBSES-1



		Task Mode	Task Name	Duration	WBS	Start	Finish	Resource Names	Actual Cost	% Work Complete	Predecessors
20	✓		**Frontend Engineering department setup**	**10 days**	**1.4**	**Thu 8/3/23**	**Thu 8/17/23**	**HR,Manager**	**$4,592.00**	**100%**	**8**
21	✓		Graphic Designers	3 days	1.4.1	Thu 8/3/23	Tue 8/8/23	Graphic designer	$192.00	100%	
22	✓		Developers	6 days	1.4.2	Wed 8/9/23	Thu 8/17/23	Frontend develope	$720.00	100%	23,21
23	✓		Dynamic CUI (Character User Interface) designers	4 days	1.4.3	Thu 8/3/23	Wed 8/9/23	Dynamic CUI	$320.00	100%	21SS
24	✓		**Servers setup**	**8 days**	**1.5**	**Thu 8/3/23**	**Tue 8/15/23**	**Accountant,Mana**	**$40,852.00**	**100%**	**8**
25	✓		Data Center	4 days	1.5.1	Thu 8/3/23	Wed 8/9/23	Data Center[1]	$35,000.00	100%	
26	✓		Networking	4 days	1.5.2	Wed 8/9/23	Tue 8/15/23	Networking[1]	$3,100.00	100%	25
27	✓		**Security setup**	**4 days**	**1.6**	**Tue 7/25/23**	**Mon 7/31/23**	**HR,Manager**	**$3,720.00**	**100%**	
28	✓		Testing attack	4 days	1.6.1	Tue 7/25/23	Mon 7/31/23	Security Engineer	$800.00	100%	
29	✓		API security	4 days	1.6.2	Tue 7/25/23	Mon 7/31/23	Security Engineer	$800.00	100%	28SS
30	✓		Encrypt data	3 days	1.6.3	Tue 7/25/23	Sun 7/30/23	Security Engineer	$600.00	100%	29SS
31	✓		Securing electrical transformers	2 days	1.6.4	Tue 7/25/23	Thu 7/27/23	Securing Electrical Transformers	$176.00	100%	30SS
32	✓		**Marketing**	**9 days**	**1.7**	**Sun 7/23/23**	**Sun 8/6/23**	**Accountant,HR**	**$4,152.00**	**100%**	**8SS**
33	✓		**Social media marketing**	**6 days**	**1.7.1**	**Sun 7/23/23**	**Mon 7/31/23**		**$336.00**	**100%**	
34	✓		Create Social media plan	3 days	1.7.1.1	Sun 7/23/23	Wed 7/26/23	social media specialist	$168.00	100%	
35	✓		Prepare profiles	3 days	1.7.1.2	Wed 7/26/23	Mon 7/31/23	social media speci	$168.00	100%	34
36	✓		**Distribute newsletters**	**4 days**	**1.7.2**	**Sun 7/23/23**	**Thu 7/27/23**		**$224.00**	**100%**	**33SS**

dy AutoFilter Applied New Tasks : Manually Scheduled

Figure 2: WBSES-2

		Task Mode	Task Name	Duration	WBS	Start	Finish	Resource Names	Actual Cost	% Work Complete	Predecessors
24	✓		**Servers setup**	**8 days**	**1.5**	**Thu 8/3/23**	**Tue 8/15/23**	**Accountant,Mana**	**$40,852.00**	**100%**	**8**
25	✓		Data Center	4 days	1.5.1	Thu 8/3/23	Wed 8/9/23	Data Center[1]	$35,000.00	100%	
26	✓		Networking	4 days	1.5.2	Wed 8/9/23	Tue 8/15/23	Networking[1]	$3,100.00	100%	25
27	✓		**Security setup**	**4 days**	**1.6**	**Tue 7/25/23**	**Mon 7/31/23**	**HR,Manager**	**$3,720.00**	**100%**	
28	✓		Testing attack	4 days	1.6.1	Tue 7/25/23	Mon 7/31/23	Security Engineer	$800.00	100%	
29	✓		API security	4 days	1.6.2	Tue 7/25/23	Mon 7/31/23	Security Engineer	$800.00	100%	28SS
30	✓		Encrypt data	3 days	1.6.3	Tue 7/25/23	Sun 7/30/23	Security Engineer	$600.00	100%	29SS
31	✓		Securing electrical transformers	2 days	1.6.4	Tue 7/25/23	Thu 7/27/23	Securing Electrical Transformers	$176.00	100%	30SS
32	✓		**Marketing**	**9 days**	**1.7**	**Sun 7/23/23**	**Sun 8/6/23**	**Accountant,HR**	**$4,152.00**	**100%**	**8SS**
33	✓		**Social media marketing**	**6 days**	**1.7.1**	**Sun 7/23/23**	**Mon 7/31/23**		**$336.00**	**100%**	
34	✓		Create Social media plan	3 days	1.7.1.1	Sun 7/23/23	Wed 7/26/23	social media specialist	$168.00	100%	
35	✓		Prepare profiles	3 days	1.7.1.2	Wed 7/26/23	Mon 7/31/23	social media speci	$168.00	100%	34
36	✓		**Distribute newsletters**	**4 days**	**1.7.2**	**Sun 7/23/23**	**Thu 7/27/23**		**$224.00**	**100%**	**33SS**
37	✓		Create newsletter	2 days	1.7.2.1	Sun 7/23/23	Tue 7/25/23	Content Writer	$112.00	100%	
38	✓		Create and proofread	2 days	1.7.2.2	Tue 7/25/23	Thu 7/27/23	Content Writer	$112.00	100%	37
39	✓		**Inform customers**	**3 days**	**1.7.3**	**Tue 8/1/23**	**Sun 8/6/23**		**$1,792.00**	**100%**	**33,36**
40	✓		Prepare emails	2 days	1.7.3.1	Tue 8/1/23	Thu 8/3/23	Content Writer,HR	$784.00	100%	
41	✓		Check distributor	3 days	1.7.3.2	Tue 8/1/23	Sun 8/6/23	HR,Manager	$1,008.00	100%	40SS

Figure 3: WBSES-3

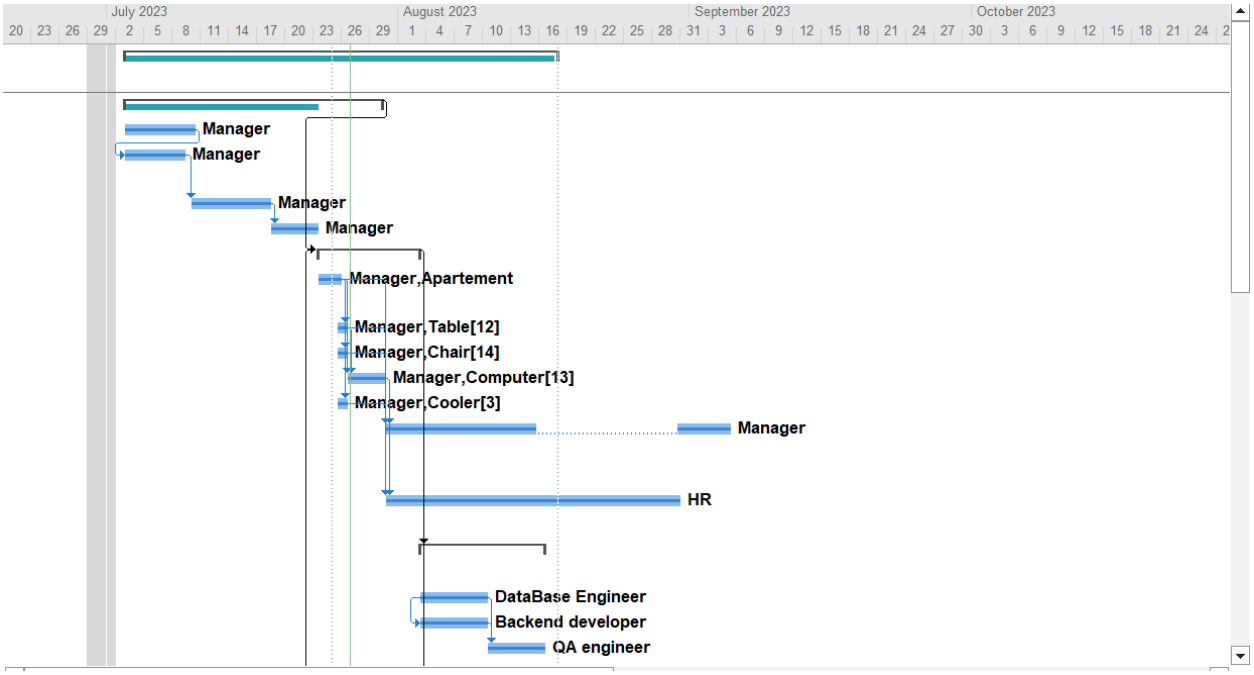


Figure 4: GANTT-CHART-1

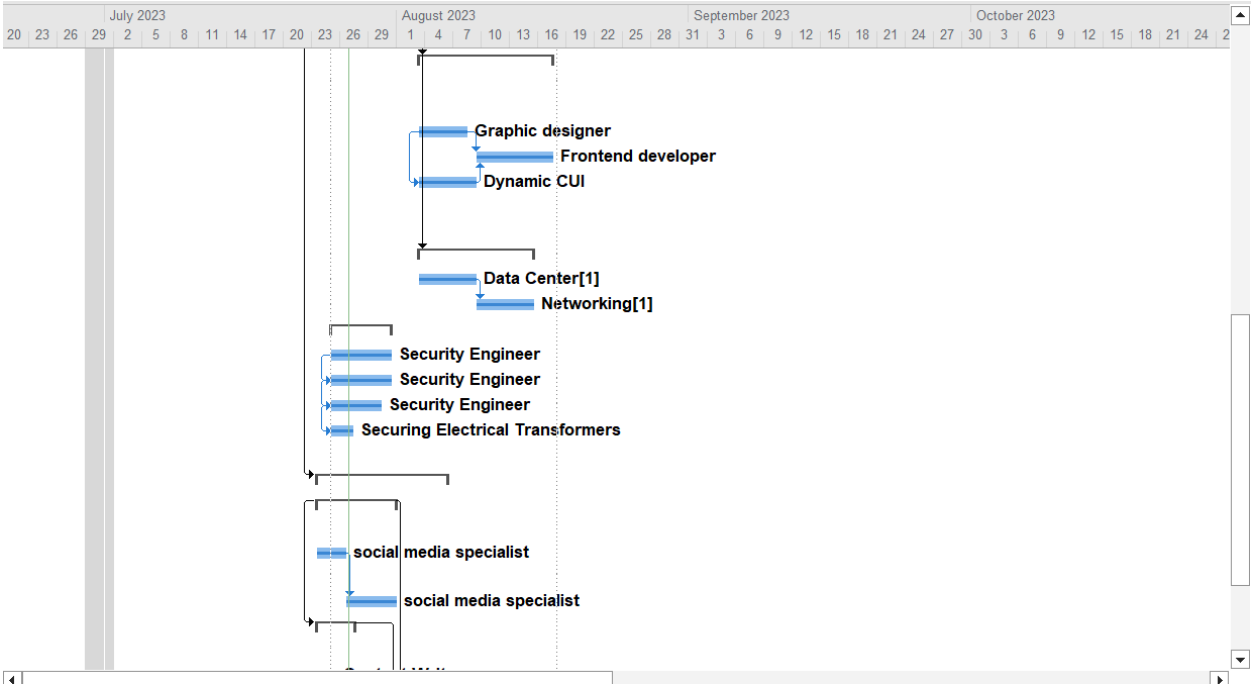


Figure 5: GANTT-CHART-2

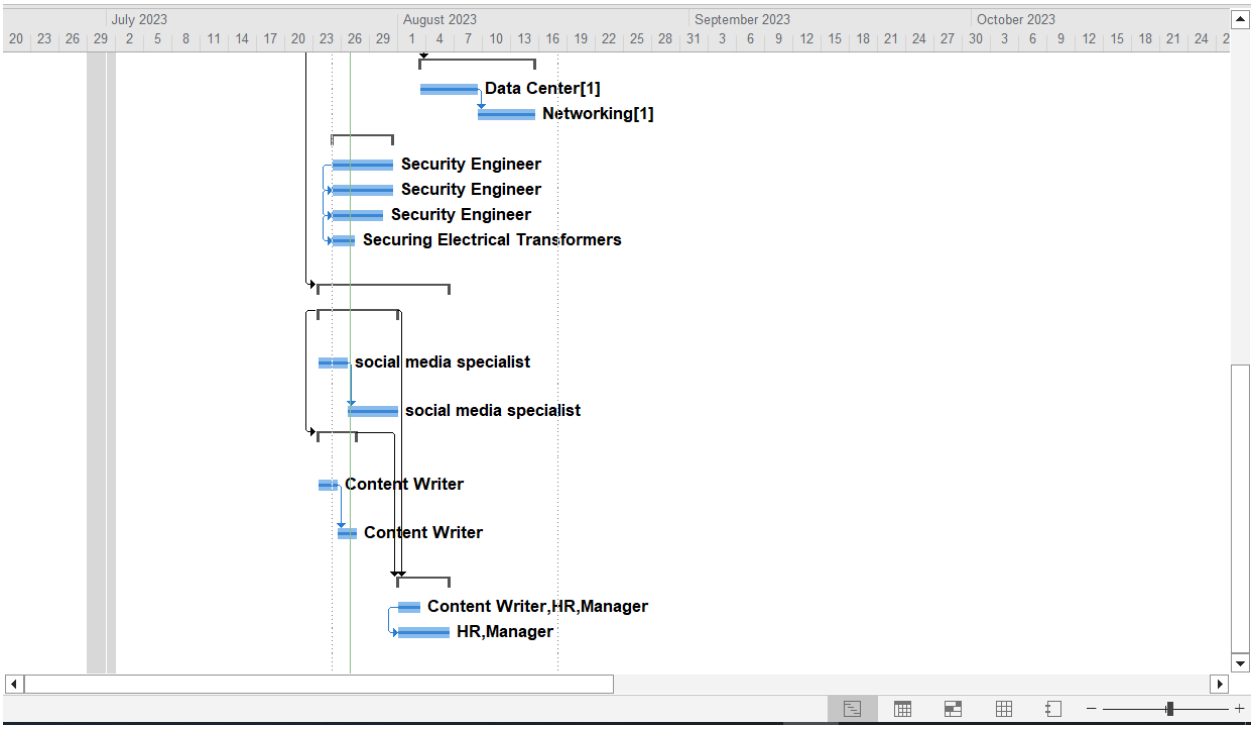


Figure 6: GANTT-CHART-3

Communication Plan

Stakeholders:

1- **Client:** The client is the primary stakeholder who initiates and funds the project. They have the ultimate authority and decision-making power over the project's direction, scope, and budget.

2- **End Users:** The individuals or businesses who will be using the web application to submit and manage requests are critical stakeholders. Their needs and preferences will drive the design and functionalities of the application.

3- **Project Team:** The team responsible for developing and implementing the web application consists of various stakeholders, including project managers, developers, designers, testers, and other relevant personnel.

4- **Business Owners and Managers:** Stakeholders representing the businesses or service providers that will receive and process the requests are vital to the success of the application. Their input and feedback are crucial in defining the system's requirements.
5- **Electric Company Representatives**: If the web application needs approval from the electric company or any relevant regulatory authority, their representatives become important stakeholders in the project.
6- **Marketing Team:** Stakeholders from the marketing team are responsible for promoting the application to potential users and ensuring its successful adoption.
7- **Quality Assurance and Testing Team:** The team responsible for testing the application to ensure it meets quality standards and performs as expected is also a significant stakeholder.
8- **IT Support Team:** The IT support team plays a vital role in managing the application after deployment, providing ongoing support and maintenance.
9- **Management and Executives:** Senior management and executives within the client organization are stakeholders who have a vested interest in the project's success and alignment with the overall business strategy.
10- **Vendors and Third-Party Providers:** If the project involves integrating third-party services or purchasing specific software components, vendors and providers become stakeholders.

Comunication Plan:

- **With the employees**: Talking and communicating with them in a kind and polite, and the way to communicate via e-mail or phone calls. Talking about the project and what problems we might face.

- **With the customers**: Talking and communicating with them in a nice, polite and somewhat formal way, and the way to communicate via e-mail in English and in an

official way, and that everything between them be documented and official to avoid any disputes or problems in the future. Also, they must be informed of the cost of the project and its true price.

- **With sellers of materials**: Talking and communicating with them in a kind, polite and somewhat formal manner, and the method of communication via email in English and in an official manner, and that everything between them be formally documented to avoid any quarrels or problems in the future. Determine the quantity and number of materials (computers, tables, chairs, etc.) and the time required to be received, as well as their real cost, and is it possible to calculate them at a lower price than regular customers.

- **With the owner of the apartment:** Speak and communicate with them kindly and politely. Transparency and clarity from the outset, the real monthly cost of renting an apartment, and not considering it commercial and cheating on the price. Confirmation that the mediator between us is the contract.

HR Plan

Role:

Project Manager

Authority:

has primary control over the entire project. Although he has the power to make decisions and control the budget, he is unable to make engineering-related judgments and must instead defer to their judgment.

Responsibility:

Observe sure everything is proceeding as expected and that nothing exceeds the estimated budget. Maintain contact with all project participants and work closely with them.

Competency:

possesses strong communication skills and the capacity to compute the budget. He ought to have past project management knowledge.

Role:

Developers

Authority:

They have authority over their assigned tasks' technical aspects but must defer to the Project Manager for higher-level engineering decisions and project-wide matters.

Responsibility:

- Code Implementation: Develop and implement code in line with project requirements.
- Code Quality: Ensure code meets quality standards and best practices.
- Collaboration: Work closely with team members for seamless integration.
- Bug Fixes: Identify and resolve technical issues within their code.
- Task Management: Deliver tasks within agreed timelines.
- Estimations: Provide accurate effort estimates for tasks.
- Continuous Learning: Stay updated with relevant technologies.

Competency:

- Technical Expertise: Strong knowledge of relevant programming languages and tools.
- Problem-Solving: Ability to overcome technical challenges.
- Communication: Effective communication within the team.
- Team Player: Collaborative and respectful of others' input.
- Time Management: Efficiently meet project deadlines.
- Adaptability: Openness to change and new technologies.
- Experience: Prior development or similar experience is valuable.

Role:

Designers

Authority:

Designers have authority over the creative and artistic aspects of their tasks but defer to the Project Manager for higher-level engineering decisions and project-wide matters.

Responsibility:

- Conceptualization: Develop creative design concepts aligned with project goals.
- Design Quality: Ensure designs meet standards and brand guidelines.

- Collaboration: Work closely with the team for seamless integration.
- Iterative Refinement: Continuously improve designs based on feedback.
- Task Management: Deliver design assets within agreed timelines.
- Estimations: Provide accurate effort estimates for design tasks.
- Stay Updated: Keep up with the latest design trends and technologies.

Competency:

- Creativity: Think innovatively to create compelling designs.
- Problem-Solving: Overcome design challenges effectively.
- Communication: Convey design ideas clearly with the team and stakeholders.
- Collaboration: Accept and incorporate feedback from peers and clients.
- Time Management: Prioritize tasks to meet project deadlines.
- Adaptability: Adjust designs to accommodate changes in requirements.
- Experience: Prior design or related experience is valuable.

Role:

Marketing team

Authority:

Marketing team members have authority over marketing tasks but defer to the Project Manager for higher-level decisions and project-wide matters.

Responsibility:

- Execute marketing strategies and campaigns.
- Create engaging marketing content.
- Conduct market research and analysis.
- Collaborate with cross-functional teams.
- Track marketing performance metrics.
- Manage marketing tasks and timelines.
- Communicate marketing plans and progress.

Competency:

- Creativity in strategy and content.
- Analytical skills for data-driven decisions.
- Effective communication and collaboration.

- Team player, working well with others.
- Time management for meeting deadlines.
- Adaptability to project changes.
- Valuable experience in marketing or related fields.

Quality Assurance

- User Experience Testing: Ensure a user-friendly and intuitive interface through usability testing and feedback incorporation.
- Functionality and Performance: Thoroughly test features, fix bugs, and optimize performance for smooth operation.
- Security and Compliance: Implement robust security measures and adhere to relevant regulations to protect user data.
- Compatibility and Accessibility: Verify compatibility across devices and browsers, and ensure accessibility for all users.
- Documentation and Code Quality: Provide comprehensive guides and maintain clean, maintainable code following best practices.
- User Acceptance Testing: Involve end users for feedback and improvements.
- Continuous Monitoring: Monitor post-launch for issues and seek continuous feedback for enhancements.

Cost Estimation

Site preparation:

- Apartment: 550$

The needed Material:

- Tables: 13440$
- Chairs: 14240$
- Computers: 78480$

- Coolers: 540$
- Social media: 4152$

Salaries:

- Database engineers: 800$
- Developers: (backend)600$ + (frontend)720$
- Graphic designers: 192$
- QA engineers: 384$
- Security engineer: 2376$
- Dynamic CUI designers: 320$

Total Estimated cost: 116602$

Risk Management

1- Technical Complexity

- Description: The project involves complex technical requirements and integrations that may pose challenges during development.
- Mitigation: Conduct a thorough analysis of technical requirements during the planning phase. Ensure the project team has the necessary expertise or consider hiring external experts if needed.

2- Budget Overruns

- Description: Unforeseen expenses or changes in project scope may lead to budget overruns.
- Mitigation: Create a detailed budget and regularly track expenses. Have a contingency fund in place to address unexpected costs. Obtain approval from stakeholders for any changes impacting the budget.

3- Scope Creep

- Description: Additional requirements or features may be requested during the project, expanding the scope beyond the initial plan.

- Mitigation: Define the project scope clearly at the outset and establish a formal change request process. Any scope changes should be carefully evaluated for their impact on the project timeline and budget.

4- Resource Constraints

- Description: The project may face resource limitations, such as a shortage of skilled developers or hardware.
- Mitigation: Plan resource allocation in advance and ensure team members have the necessary skills and training. Consider outsourcing certain tasks if internal resources are insufficient.

5- Security Vulnerabilities

- Description: The web application may be susceptible to security breaches or data leaks.
- Mitigation: Implement robust security measures, conduct regular security audits, and adhere to best practices for data protection. Involve security experts in the development process.

6- Delayed Delivery

- Description: Unforeseen challenges or issues may cause delays in the project timeline.
- Mitigation: Build buffer time into the schedule to account for unexpected delays. Continuously monitor progress and address any roadblocks promptly.

7- User Acceptance

- Description: The end users may not fully adopt or use the web application as intended.
- Mitigation: Involve end users in the development process through regular feedback sessions and user testing. Incorporate their preferences and address any usability concerns.

8- Vendor Reliability

- Description: Dependence on third-party vendors for certain components may lead to delays or quality issues.
- Mitigation: Choose reputable vendors with a track record of reliability and performance. Have clear contracts and service level agreements in place.

9- Regulatory Compliance

- Description: Failure to comply with relevant regulations and data privacy laws.
- Mitigation: Stay informed about relevant regulations and ensure the web application meets all necessary compliance requirements.

10- Change Resistance

- Description: Stakeholders or end users may resist adopting the new web application.
- Mitigation: Provide adequate training and support to stakeholders and end users. Communicate the benefits of the new system and address any concerns proactively.