Tribhuvan University

Faculty of Humanities and Social Science

MAISON & ARCHITECTURE: A COMPREHENSIVE PLATFORM FOR ARCHITECTURAL SERVICES

INTERNSHIP REPORT

Submitted to

Department of Computer Application

Nepathya College

Tillottama-05, Rupandehi

In partial fulfillment of the requirements for the Bachelors in Computer Application

Submitted by:

Prem Gautam

[TU Reg No: 6-2-1182-48-2020]

April, 2025

Hyteno Tech Pvt.Ltd
www.hyteno.com

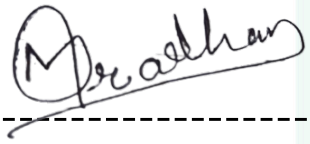
ADDRESS
Chandragiri 14, Kathmandu, Nepal

Date : 10/04/2025

MENTOR'S RECOMMENDATION

This is to certify that this report, prepared and submitted by Mr. Prem Gautam in partial fulfillment of the requirements of the degree of Bachelors in Computer Application (BCA) 7th semester awarded by Tribhuvan University (Faculty of Humanities and Social Science), has been under my mentorship and supervision from **Dec 24th, 2024** to **Feb 24th, 2025**. I recommend the same for acceptance by Tribhuvan University.

Warm Regards,



Niraj Pradhan
Sr. Frontend Developer
Hyteno Tech Pvt. Ltd.
Chandragiri 14, Kathmandu

Tribhuvan University

Faculty of Humanities and Social Science

Nepathya College

Supervisor Recommendation

I hereby recommend that this internship report under my supervision by **Prem Gautam** entitled *"MAISON & ARCHITECTURE: A COMPREHENSIVE PLATFORM FOR ARCHITECTURAL SERVICES"* in partial fulfillment of the requirement for Bachelor's Degree in Computer Application of Tribhuvan University be processed for the evaluation.

.....

Niraj Bhattarai

Supervisor

Lecturer

Nepathya College

Tilottama - 5, Manigram

Tribhuvan University

Faculty of Humanities and Social Science

Nepathya College

LETTER OF APPROVAL

This is to certify that this project prepared by **Prem Gautam** entitled *"MAISON & ARCHITECTURE: A COMPREHENSIVE PLATFORM FOR ARCHITECTURAL SERVICES"* in partial fulfillment of the requirements for the degree of Bachelor in Computer Application has been evaluated. In our opinion, it is satisfactory in the scope and quality as a project for the required degree.

.....	.....
Niraj Bhattarai	**Sanjeev Bhandari**
Supervisor	Principal
Nepathya College	Nepathya College
.....	.....
Shiva Bhattarai	——
Internal Examiner	External Examiner
Nepathya College	——

Acknowledgment

I extend my sincere gratitude to all who contributed to the success of the *Maison & Architecture: A Comprehensive Platform for Architectural Services* project. This achievement was made possible by the support and guidance of numerous individuals and institutions.

I express my deepest appreciation to my project supervisor, **Niraj Bhattarai**, and Head of Department, **Shiva Bhattarai**, for their invaluable expertise and insightful feedback, which were instrumental in shaping this project.

I also extend my sincere thanks to my mentor, **Niraj Pradhan**, for their guidance and support throughout this internship. Their expertise and advice were invaluable in navigating the challenges encountered during this project.

I am grateful to the faculty and staff of **Nepathya College**, affiliated with **Tribhuvan University**, for fostering an environment of learning and innovation. Their dedication to academic excellence and commitment to providing the best educational resources have been integral to my journey.

My heartfelt thanks go to **Mr. Adish Kattel**, CEO of Hyteno, for providing the opportunity to work on this project and for his support throughout the internship. I also thank all my colleagues at Hyteno for their assistance and collaboration.

Finally, I acknowledge and appreciate everyone who contributed directly or indirectly to this project's success. Your collective support has been a driving force in this achievement.

With Gratitude

Prem Gautam

Abstract

This internship report details my contributions to the Maison & Architecture platform, a Hyteno-developed digital solution designed to connect clients with architects, builders, and artisans in France. The primary goal of the platform is to streamline the architectural project lifecycle by centralizing service listings, simplifying the bidding process, and enhancing user engagement. My work focused on enhancing the frontend user experience using Next.js, integrated with a NestJS and GraphQL backend, across customer, partner, and admin dashboards.

Key responsibilities included implementing ad tracking functionality to monitor user engagement and campaign effectiveness, enhancing gallery functionalities to improve the presentation of architectural projects, and developing a real-time chat system using Socket.IO to facilitate direct communication between clients and professionals. Additionally, I contributed to the development of the Leo AI Assistant, an interactive tool designed to guide users through project estimation and service booking, providing a user-friendly approach to project planning.

The report outlines the problem statement, objectives, methodologies, and challenges encountered during the internship, along with the solutions implemented to address them. The outcomes of this work include improved user functionality, performance optimizations, and adherence to accessibility standards, contributing to the overall success of the Maison & Architecture platform and enhancing my skills in frontend development and collaborative software engineering.

Contents

List of Figures

List of Tables

Abbreviations

- IoT – Internet of Things
- API – Application Programming Interface

Chapter 1: Introduction

1.1 Overview

The Maison Architecture project, developed by Hyteno, is a digital platform that helps people turn their architectural ideas into reality. It connects clients with skilled architects and builders for projects like home renovations, extensions, or new builds. The platform makes it simple to find trusted professionals for every step, from the initial idea to the final handover.

It has three main sections:

Customer Dashboard: For clients to explore professionals and manage projects.

Partner Dashboard: For architects and builders to showcase their work and collaborate.

Admin Dashboard: For managing the platform and ensuring smooth operations.

During my internship at Hyteno, I worked as a frontend developer on all parts of the platform. I used Next.js to improve how users interact with the site, while the backend team used Nest.js and GraphQL. My tasks focused on making project posting, bidding, and admin tools easier to use. I also ensured the designs were responsive and simple for both clients and professionals.

1.2 Problem Statement

Finding the right architect or builder can feel overwhelming. Clients often find it hard to compare services, verify qualifications, or communicate clearly. Professionals also struggle to showcase their skills or manage multiple projects without a central system.

The Maison Architecture platform solves these issues by providing one place for project listings, profiles, and updates. However, the frontend needed improvements to make the

experience smooth and engaging for everyone. This was the challenge I worked on during my internship.

1.3 Objectives

The Maison Architecture project aims :

- To bring all project tasks—like posting, bidding, and completion—into one easy-to-use platform.
- To create a simple interface for clear navigation and communication.
- To add real-time features to manage projects and track progress effectively.
- To ensure the platform works well on any device and is accessible to all users.

1.4 Scope and Limitations

1.4.1 Scope

The Maison Architecture platform is designed to digitize the entire process of planning, managing, and executing architectural projects. Its key features include:

- A service creation and bidding system where clients can post projects and receive offers from professionals.
- Interactive support through the M&A Assistant, guiding users through cost estimation and service booking steps.
- Separate dashboards for clients, professionals, and admins, offering customized tools for each role.
- A modern, responsive frontend built with Next.js, and integration with a robust backend using Nest.js and GraphQL.

1.4.2 Limitations

- The accuracy of service cost estimations depends on the information provided by users, which may vary.
- Manual onboarding and moderation of professionals may affect platform scalability in the short term.
- Some platform functionalities are still in iterative development and will continue to evolve over time.

1.5 Report Organization

This report is organized into five chapters:

- **Chapter 1:** Introduces the project, its core problem, objectives, scope, and structure.
- **Chapter 2:** Describes Hyteno as an organization and the team dynamics during the internship.
- **Chapter 3:** Discusses relevant technologies and similar platforms for context.
- **Chapter 4:** Explains my internship tasks, responsibilities, and progress.
- **Chapter 5:** Summarizes the outcomes of the internship and my learning experience.

Chapter 2: Introduction to Organization

2.1 Organization Details

Hyteno is a tech company based in Paris with a branch in Kathmandu, Nepal, focusing on creating innovative software that helps businesses succeed in the digital world. One of their key projects, Maison Architecture, connects clients with professionals in the architecture and construction industries. Hyteno's goal is to make complex processes simpler by offering easy-to-use digital tools that improve efficiency for both businesses and customers. Their platform helps companies boost their online visibility with SEO-friendly websites and Google Maps review optimization, engage customers through SMS and email marketing, and increase sales through commission-free online reservations and loyalty programs. Hyteno also offers a free trial and flexible pricing to meet different business needs, and shares helpful content on topics like customer loyalty, growth strategies, and inventory management through blogs.

During my internship, I had the opportunity to contribute to one of Hyteno's key projects, Maison Architecture, which showcases the company's commitment to innovation and user-centered design.

2.2 Organizational Hierarchy

Hyteno operates with a straightforward organizational structure that encourages collaboration across teams. The company is led by a CEO who oversees several departments, including:

- **Development Team:** Responsible for building and maintaining the software. It is further divided into Frontend Unit and Backend Unit.
- **Design Team:** Focuses on creating user-friendly interfaces and experiences.

- **Operations Team:** Ensures smooth daily operations and project management.
- **Marketing Team:** Promotes Hyteno's products and services.

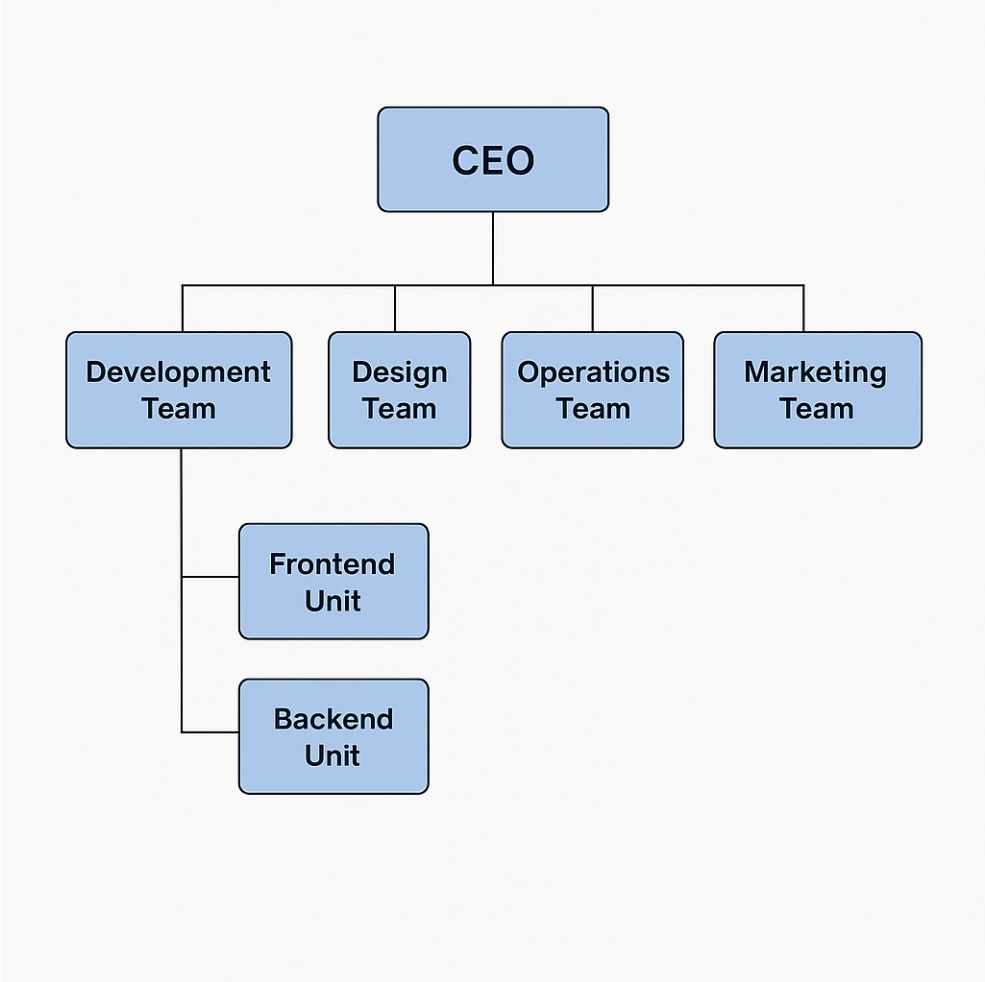


Figure 2.1: Hyteno Org Chart

This structure allows for clear roles and efficient communication, ensuring that projects like Maison Architecture are delivered successfully.

2.3 Working Domains of Organization

Hyteno specializes in several key areas, including:

- **Web Development:** Designing and building robust, scalable web applications tailored to the needs of various sectors, ensuring performance and reliability.

- **Service Aggregation:** Developing platforms that connect service providers with clients, such as Maison Architecture, facilitating seamless interactions and service exchanges.
- **Enterprise Solutions:** Providing software solutions that help businesses streamline operations, manage workflows, and foster better collaboration across teams.
- **Restaurant SAAS:** Creating custom software to help restaurants easily manage reservations, build customer loyalty programs, handle marketing, and streamline online ordering. These solutions are designed to improve efficiency and create a better, more personalized experience for customers in today's digital world.

These domains reflect Hyteno's expertise in transforming traditional processes into modern, tech-driven solutions.

2.4 Description of Intern Department/Unit

As an intern, I was part of the frontend development unit within the broader development team. This unit is responsible for designing and implementing the user interfaces of Hyteno's projects, ensuring they are responsive, accessible, and aligned with user needs.

During my time in this department, I collaborated closely with:

- **Frontend Developers:** Who built and refined the platform's interfaces using technologies like Next.js.
- **Backend Developers:** Who manage data and server-side logic using Nest.js and GraphQL.
- **UI/UX Designers:** Who provided design frameworks and ensured the interfaces were visually consistent and user-friendly.

This collaborative environment allowed me to contribute to the Maison & Architecture project while learning from experienced professionals in the field.

Chapter 3: Background Study and Literature Review

3.1 Background Study

The Maison Architecture project is rooted in modern web development technologies and service aggregation principles, specifically tailored to meet the demands of the architectural and construction sectors in France. This section explores the key theories, concepts, and terminologies that shape the foundation of the project.

Web Development Technologies

The platform's frontend is powered by Next.js, a React-based framework known for its support of server-side rendering and static site generation. These features enhance performance by reducing page load times and improving search engine optimization (SEO), making it ideal for a dynamic platform like Maison Architecture. Next.js enables real-time interactivity for users, particularly in features such as project listings and professional profiles (Vercel, 2023).

On the backend, Nest.js—a progressive Node.js framework—ensures the platform is scalable, maintainable, and modular. It integrates seamlessly with GraphQL, which provides an efficient data-fetching solution. GraphQL allows users to query specific pieces of data, reducing unnecessary data transfer. This is particularly valuable for Maison Architecture, where different user roles, including clients, professionals, and admins, require access to tailored data.

Service Aggregation Platforms

Service aggregation platforms are intermediaries that connect service providers with clients via a centralized digital marketplace. These platforms facilitate discovery, communication, and transactions within specific industries. In the context of architecture and construction,

examples such as Houzz and Thumbtack serve as inspiration. They help clients find qualified professionals for home renovations and new constructions. Maison Architecture emulates this model, providing a directory for French clients to explore vetted architects and builders, simplifying the process of hiring the right professional for their projects (Smith, 2020).

User Interface and Experience (UI/UX)

The success of a platform like Maison Architecture heavily depends on its user interface and experience (UI/UX). For the platform to be successful, it must meet several key principles of design:

- **Responsiveness:** The platform must be fully functional across various devices, ensuring it is accessible on desktop, tablet, and mobile devices.
- **Accessibility:** To ensure inclusivity, Maison Architecture adheres to accessibility standards such as WCAG (Web Content Accessibility Guidelines), ensuring that users of varying abilities can use the platform.
- **Clear Navigation:** Logical and easy-to-follow menus are vital for users to browse services, post projects, and track progress without confusion.
- **Feedback Mechanisms:** The platform should offer clear and timely feedback, such as confirmation messages after user actions, to maintain engagement and transparency.

These principles are essential in creating a user-friendly experience, particularly for users from both technical and non-technical backgrounds in the French architecture and construction market (Nielsen, 2018).

3.2 Literature Review

The literature review explores similar platforms, theories, and research findings relevant to Maison Architecture, providing insights into its potential impact as well as identifying challenges it may face. This section synthesizes academic studies, industry reports, and

real-world examples to contextualize Maison Architecture within the broader digital transformation of the construction and architecture sectors.

3.2.1 Similar Projects

Several platforms offer comparable services to Maison Architecture, providing valuable lessons for its development.

Architizer

Architizer is a platform that connects architects with clients globally, allowing architects to showcase their portfolios and find new projects. Research by Johnson (Johnson, 2021) indicates that platforms like Architizer significantly increase architects' visibility by enabling clients to browse project galleries and read reviews from other users. This mirrors Maison Architecture's goal of providing an easy-to-use platform for clients to discover professionals and gain inspiration from their work.

Builder Trend

Builder Trend is a project management tool that aids construction companies in improving communication and collaboration among stakeholders. Lee and Kim (Lee & Kim, 2022) found that tools like Builder Trend can greatly enhance project efficiency, reduce delays, and improve collaboration. Maison Architecture integrates similar real-time tracking and communication features to ensure smooth coordination among all parties involved in construction projects.

Research on Service Aggregation

A study by Patel (Patel, 2019) explores the economic benefits of online service platforms in the construction industry. These platforms foster competition and offer transparent pricing models that are particularly beneficial for clients seeking affordable architectural services in France.

Research by Chen and Liu (Chen & Liu, 2020) emphasizes the importance of trust and reputation systems in online platforms. Their findings suggest that ratings, reviews, and user feedback are critical to user decision-making. Incorporating such systems in Maison Architecture will likely increase its credibility and attractiveness in a market where trust is a cornerstone of successful professional engagements.

Digital Transformation in Construction

The construction industry is undergoing a digital transformation, with platforms like Maison Architecture playing a key role in this evolution. McKinsey (McKinsey & Company, 2021) reports that digital tools can lead to significant improvements in productivity, quality, and sustainability within construction projects. However, challenges such as resistance to change, low digital literacy, and data security concerns remain prevalent (World Economic Forum, 2020).

Synthesis and Implications

This literature review demonstrates that Maison Architecture is part of a growing trend of digitalization in the architectural and construction sectors, particularly in France. By drawing insights from platforms like Architizer and Builder Trend and addressing the challenges identified in current research, Maison Architecture can enhance its effectiveness and appeal. Incorporating trust and reputation systems as suggested by Chen and Liu (Chen & Liu, 2020) and focusing on productivity improvements (McKinsey & Company, 2021) will ensure that the platform meets its goal of providing seamless, efficient service for both clients and professionals.

Overall, this review lays a solid foundation for understanding the Maison Architecture project by integrating theoretical frameworks with practical insights—a crucial step in guiding its development and evaluation.

Chapter 4: Internship Activities

An overview of the challenges faced and the solutions implemented during the internship.

4.1 Roles and Responsibilities

During my internship at Hyteno from December 24, 2024, to February 24, 2025, I worked as a frontend developer on the Maison Architecture project. My primary goal was to enhance the platform's usability and features for both clients and professionals in the French architectural and construction sector. My key responsibilities included:

- Frontend Development: Building and enhancing components using Next.js for improved user interfaces.
- Feature Development: Adding features like ad tracking, service ordering, project bidding, chat functionality, and the Leo assistant for project estimation and service booking.
- Collaboration: Coordinating with the backend and other teams to integrate my work with Nest.js and GraphQL for smooth data interaction.
- Usability and Responsiveness: Ensuring the platform was responsive and user-friendly for French clients, with special attention to features like the Leo assistant for guided project estimations and service bookings.

Throughout my internship, I collaborated with a talented team to make the platform more intuitive and user-focused, especially for users in France.

4.2 Weekly Log (Technical Details of Activities)

Below is a summary of my weekly activities during the internship:

Week	Tasks Performed	Date	Signature
1	Onboarded, explored Next.js codebase, and learned backend interactions.	2024-12-30	
2	Implemented ad tracking using JavaScript event listeners and GraphQL integration for tracking clicks and impressions.	2025-01-06	
3	Developed and tested ad tracking data visualization in the admin dashboard using Next.js, including tables and charts.	2025-01-13	
4	Developed service ordering flow, integrated backend with GraphQL, ensuring smooth user experience.	2025-01-20	
5	Improved partner dashboard bidding feature, fixed bugs, and refined bidding form.	2025-01-27	
6	Added real-time chat with Socket.IO, developed messaging interface, and tested communication between customers and partners.	2025-02-03	
7	Developed Leo Assistant for guiding users through estimations and bookings, integrating step-by-step logic.	2025-02-10	
8	Finalized platform optimizations, resolved bugs, and ensured smooth integration of Leo Assistant, followed by testing.	2025-02-24	

Table 4.1: Summary of Weekly Activities

Weekly Internship Log

Name: Prem Gautam **Date:** 2024-12-30

Project: Maison & Architecture

Mentor: Niraj Pradhan

Week No: 1

Responsibilities:

- Familiarize with the Maison Architecture project.
- Understand the overall project structure and technical stack.

Activities:

- Explored the Next.js codebase and examined component hierarchy.
- Studied backend interactions and GraphQL integration patterns.

Observations:

- The codebase is modular and follows a clear folder structure.
- Backend logic is cleanly separated using GraphQL APIs.

Plan for Next Week:

- Begin implementing ad tracking mechanisms for customer interactions.
- Learn about tracking frameworks and client-side event handling.

Performance Appraisal by Mentor:

Signature:

Date: 2024-12-30

Weekly Internship Log

Name: Prem Gautam **Date:** 2025-01-06

Project: Maison & Architecture

Mentor: Niraj Pradhan

Week No: 2

Responsibilities:

- Implement ad tracking functionality on the platform.
- Ensure proper event handling for interaction analytics.

Activities:

- Added JavaScript event listeners to capture ad clicks and impressions.
- Integrated tracking data submission via GraphQL APIs.

Observations:

- Real-time ad tracking adds measurable value for clients and admins.
- GraphQL makes data transmission efficient and structured.

Plan for Next Week:

- Visualize ad tracking data on the admin dashboard.
- Build interactive tables and charts to display insights.

Performance Appraisal by Mentor:

Signature:

Date: 2024-01-06

Weekly Internship Log

Name: Prem Gautam **Date:** 2025-01-13

Project: Maison & Architecture

Mentor: Niraj Pradhan

Week No: 3

Responsibilities:

- Visualize ad tracking data on the admin dashboard.
- Enhance usability with visual insights.

Activities:

- Created tables and charts using Next.js components.
- Fetched and rendered dummy ad data for testing and layout validation.

Observations:

- Visual tools help admins analyze platform performance more effectively.
- Data display needs to remain responsive across devices.

Plan for Next Week:

- Start building service ordering flows for clients.
- Design seamless UI for service selection and confirmation.

Performance Appraisal by Mentor:

Signature:

Date: 2025-01-13

Weekly Internship Log

Name: Prem Gautam **Date:** 2025-01-20

Project: Maison & Architecture

Mentor: Niraj Pradhan

Week No: 4

Responsibilities:

- Develop and integrate service ordering flow for clients.
- Ensure backend communication via GraphQL for service-related actions.

Activities:

- Designed user-friendly service selection and booking interface.
- Connected frontend forms to GraphQL mutations for service requests.

Observations:

- Smooth UI flow is crucial for user engagement.
- GraphQL made backend communication more structured and predictable.

Plan for Next Week:

- Improve the bidding system for partners.
- Add validations and UX refinements to bidding forms.

Performance Appraisal by Mentor:

Signature:

Date: 2025-01-20

Weekly Internship Log

Name: Prem Gautam **Date:** 2025-01-27

Project: Maison & Architecture

Mentor: Niraj Pradhan

Week No: 5

Responsibilities:

- Enhance the bidding system on the partner dashboard.
- Fix bugs related to the bidding process and improve form clarity.

Activities:

- Refined the bidding form for better clarity and usability.
- Implemented fixes for saving project data to the backend.

Observations:

- The improved bidding interface is more intuitive for partners.
- Ensuring form validation and error handling is crucial for a seamless experience.

Plan for Next Week:

- Integrate real-time chat features for communication between customers and partners.
- Focus on implementing Socket.IO for chat functionality.

Performance Appraisal by Mentor:

Signature:

Date: 2025-01-27

Weekly Internship Log

Name: Prem Gautam **Date:** 2025-02-03

Project: Maison & Architecture

Mentor: Niraj Pradhan

Week No: 6

Responsibilities:

- Implement real-time chat functionality using Socket.IO.
- Build a messaging interface for customers and partners.

Activities:

- Developed a real-time messaging interface and integrated Socket.IO
- Tested the system to ensure messages were delivered instantly between entities.

Observations:

- Real-time messaging significantly improves user interaction.
- Successful communication between customers, partner and admin using Socket.IO.

Plan for Next Week:

- Begin development of Leo Assistant for project estimations and service bookings.
- Work on integrating the assistant's conversation flow and logic.

Performance Appraisal by Mentor:

Signature:

Date: 2025-02-03

Weekly Internship Log

Name: Prem Gautam **Date:** 2025-02-10

Project: Maison & Architecture

Mentor: Niraj Pradhan

Week No: 7

Responsibilities:

- Develop and integrate Leo Assistant for guiding users through project estimations.
- Implement step-by-step data collection for accurate cost summaries.

Activities:

- Developed Leo Assistant to gather project details and ensure accurate cost summaries.
- Implemented a step-by-step conversational flow for seamless user interaction.

Observations:

- The assistant's flow is intuitive, helping users provide necessary project details.
- No estimate or booking is made without gathering all essential information.

Plan for Next Week:

- Conduct testing to ensure Leo Assistant works well in real-world scenarios.
- Implement improvements based on user feedback and testing results.

Performance Appraisal by Mentor:

Signature:

Date: 2025-02-10

Weekly Internship Log

Name: Prem Gautam **Date:** 2025-02-24

Project: Maison & Architecture

Mentor: Niraj Pradhan

Week No: 8

Responsibilities:

- Finalize Leo Assistant integration and optimize platform performance.
- Test and fix bugs to enhance the user experience.

Activities:

- Fixed issues with slow page loads and optimized performance across the platform.
- Extended testing for Leo Assistant to ensure proper flow.

Observations:

- Leo Assistant's flow is now fully functional, gathering all required data before proceeding to project estimates or bookings.

Plan for Next Week:

- Final deployment of the platform with all improvements.
- Monitor user feedback and address any further issues or enhancements.

Performance Appraisal by Mentor:

Signature:

Date: 2025-02-24

4.3 Description of the Project(s) Involved During Internship

The **Maison Architecture** project is an advanced platform designed to connect French clients with trusted architects and builders for their renovation and construction needs. The platform is organized into distinct sections to provide a tailored experience for each type of user:

4.3.1 Customer Dashboard

- Clients can track their **orders and inquiries**, manage **billing information**, and use a variety of other essential features.
- **Hiring Partners:** Customers can search for and hire professionals by reviewing profiles, portfolios, and client feedback.
- **Messaging System:** A built-in messaging system allows seamless communication between customers and partners, ensuring clear and effective exchanges.

4.3.2 Partner Dashboard

- **Profile and Portfolio Management:** Architects and builders can create detailed profiles and portfolios, showcasing their work, certifications, and services.
- **Document Submission & Visibility Status:** Partners can submit necessary documents and track the visibility status of their profiles, ensuring they are visible to potential clients.
- **Project Bidding & Customer Contact:** Partners can bid on posted projects, contact customers, and offer proposals to meet client needs.

4.3.3 Admin Dashboard

- **Enterprise and Project Management:** Admin users have full control over managing the platform's **enterprises**, **project 360**, and **service offerings**.
- **Service Creation & Blog Management:** Admins can create new services, post blog

articles, and manage content.

- **Performance Tracking:** Admin users can track platform performance, monitor orders and inquiries, and oversee project metrics.
- **Partner Verification & Messaging:** Admins have the ability to verify partner profiles and facilitate communication between customers and professionals.

4.3.4 Maison Architecture Website

- The website hosts a large directory of **7,000+ enterprises** in the architecture and construction sector, offering clients a wide range of options.
- Users can apply for bookings, create orders, and explore various services such as **AI Assistant (Leo)**, **blog articles**, **professional portfolios**, and much more.
- **Leo Assistant**: An AI-powered assistant that guides clients through their project estimations, collects detailed information, generates cost estimates, and assists in making bookings once the requirements are clear. Leo ensures that all necessary data is gathered before proceeding with the project, creating a seamless experience for users.
- **Services and Expert Selection:** Clients can explore a broad list of services, read expert articles, and even select top-rated professionals for their projects.
- The website serves as an all-in-one hub for managing architectural services and projects, catering to both clients and professionals, making it easy to connect, plan, and execute renovation and construction projects.

The platform is designed to be user-friendly and efficient, helping clients and professionals manage their projects effectively while fostering a community of experts and service providers.

4.4 Tasks / Activities Performed

Throughout my internship, I undertook a variety of tasks that were crucial to the project's success. These tasks included:

- **Requirement Analysis:** Collaborated with the team to gather and analyze system requirements, translating business needs into technical specifications.
- **Development:** Wrote, tested, and debugged code for both frontend interfaces and backend services, contributing to modules like user authentication and data management.
- **Integration:** Integrated third-party tools and services to enhance functionality and ensure seamless connectivity within the system.
- **Testing and Quality Assurance:** Conducted unit testing and participated in system-wide testing to verify the reliability and performance of the application.
- **Documentation:** Assisted in preparing technical documentation, including user manuals and developer guides, to support ongoing maintenance and future enhancements.
- **Team Collaboration:** Actively engaged in daily meetings, code reviews, and brainstorming sessions, which improved both the design and functionality of the final product.

Chapter 5: Conclusion

5.1 Conclusion

The Maison Architecture project, developed by Hyteno, successfully bridges the gap between French clients and architects/construction professionals. During my internship from December 24, 2024, to February 24, 2025, I contributed significantly to enhancing the frontend by working on features like ad tracking, service ordering, project bidding, real-time chat, and the Leo assistant for guided project estimations and bookings.

I worked on various dashboards—customer, partner, and admin—using Next.js and collaborating with the Nest.js/ GraphQL backend team. My contributions, such as integrating tracking features, enhancing galleries, and implementing the chat system, improved user interaction and communication within the platform. Additionally, the Leo assistant brought a valuable interactive tool that helped users estimate project costs and book services based on gathered project details.

This project meets its goal of simplifying the connection between clients and professionals in France, and my contributions provided practical value to this effort. It's rewarding to see how these features support real people in their renovation or construction projects, making the platform more user-centric and accessible.

5.2 Learning Outcomes

This internship provided invaluable lessons in both technical development and professional growth. The key takeaways include:

- **Frontend Development with Next.js:** I honed my skills in building fast, responsive interfaces with Next.js. I learned how to organize components, implement dynamic features like chat, and optimize performance for better user experience.

- **Real-Time Communication with Socket.IO:** Building the chat feature using Socket.IO allowed me to understand how real-time data works. The instant messaging feature taught me the importance of real-time communication in web applications.
- **Leo Assistant Implementation:** Developing Leo, the smart assistant, gave me hands-on experience in building interactive workflows for users. I learned how to create guided conversations that lead to actionable outcomes, like project estimation and service booking, based on the user's input.
- **Team Collaboration:** Working closely with backend developers and other team members helped me improve my communication and collaboration skills. I learned to align my work with the backend team's efforts and solve integration issues efficiently.
- **Problem-Solving and Debugging:** Throughout the internship, I encountered various bugs and performance issues—whether related to slow pages, broken forms, or chat message delays. This experience strengthened my problem-solving skills and taught me how to approach challenges systematically.
- **User-Centered Design:** Enhancing the dashboards and user flows deepened my understanding of designing with the user in mind. This is particularly crucial for platforms like Maison Architecture, which cater to a specific audience (French clients and professionals). I realized how important it is to simplify complex processes and ensure accessibility.

References

Chen, L., & Liu, Y. (2020). The role of reputation systems in online service marketplaces. *Journal of Management Information Systems*, *37*(3), 845–867. doi: 10.1080/07421222.2020.1774568

Johnson, M. (2021). The impact of online platforms on architectural practice. *Architectural Science Review*, *64*(5), 389–401. doi: 10.1080/00038628.2021.1932565

Lee, S., & Kim, H. (2022). The effect of project management tools on construction project performance. *Journal of Construction Engineering and Management*, *148*(4), 04022015. doi: 10.1061/(ASCE)CO.1943-7862.0002245

McKinsey & Company. (2021). *Digital transformation in construction: Putting the strategy into practice* (Tech. Rep.). McKinsey & Company. Retrieved from https://www.mckinsey.com/business-functions/operations/our-insights/digital-transformation-in-construction-putting-the-strategy-into-practice

Nielsen, J. (2018). *Usability 101: Introduction to usability.* Retrieved from https://www.nngroup.com/articles/usability-101-introduction-to-usability/

Patel, R. (2019). The economics of online service platforms in the construction industry. *Construction Management and Economics*, *37*(10), 567–582. doi: 10.1080/01446193.2019.1624568

Smith, A. (2020). The rise of service aggregation platforms: A comparative analysis. *Journal of Business Research*, *112*, 456–465. doi: 10.1016/j.jbusres.2020.03.045

Vercel. (2023). *Next.js documentation.* Retrieved from https://nextjs.org/docs

World Economic Forum. (2020). *Shaping the future of construction: Digital transformation in construction* (Tech. Rep.). World Economic Forum. Retrieved from https://www.weforum.org/reports/shaping-the-future-of-construction-digital-transformation-in-construction

Bibliography

- Nielsen, J. (2018). Usability 101: Introduction to usability.

  URL: www.nngroup.com/articles/usability-101-introduction-to-usability/

- Socket.IO. (2024). Socket.IO documentation.

  URL: socket.io/docs/v4/

- Tailwind CSS. (2024). Tailwind CSS documentation.

  URL: tailwindcss.com/docs

- OpenAI. (2024). GPT-4 API Documentation.

  URL: platform.openai.com/docs

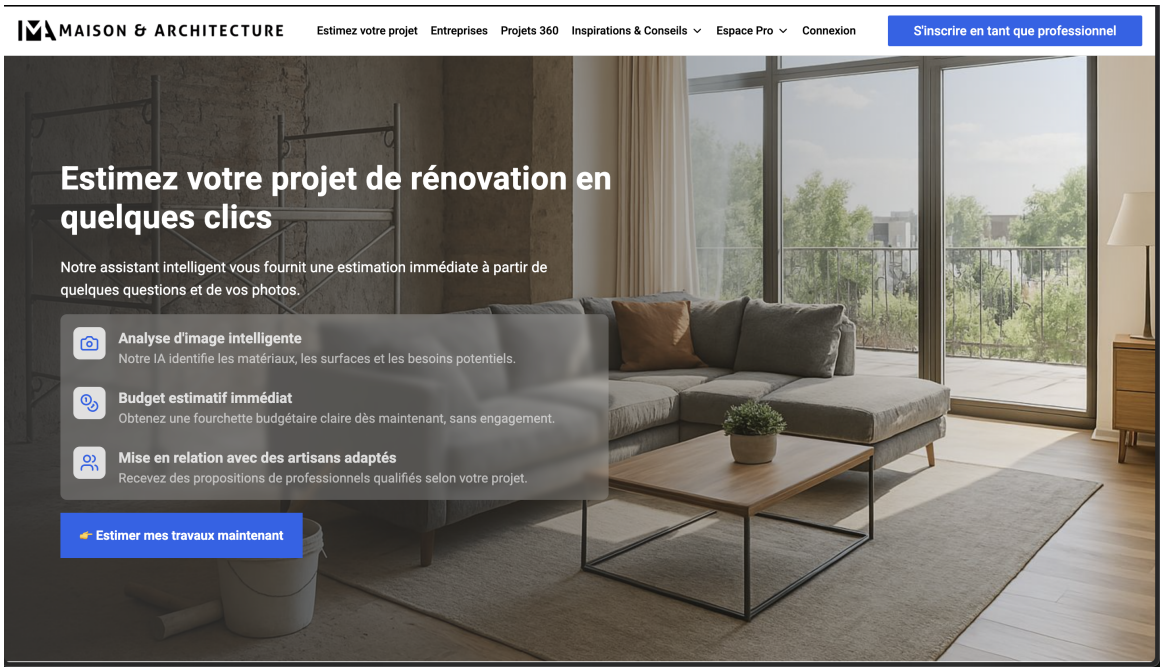
- Eleven Labs. (2024). Eleven Labs API Documentation.

  URL: elevenlabs.io/docs

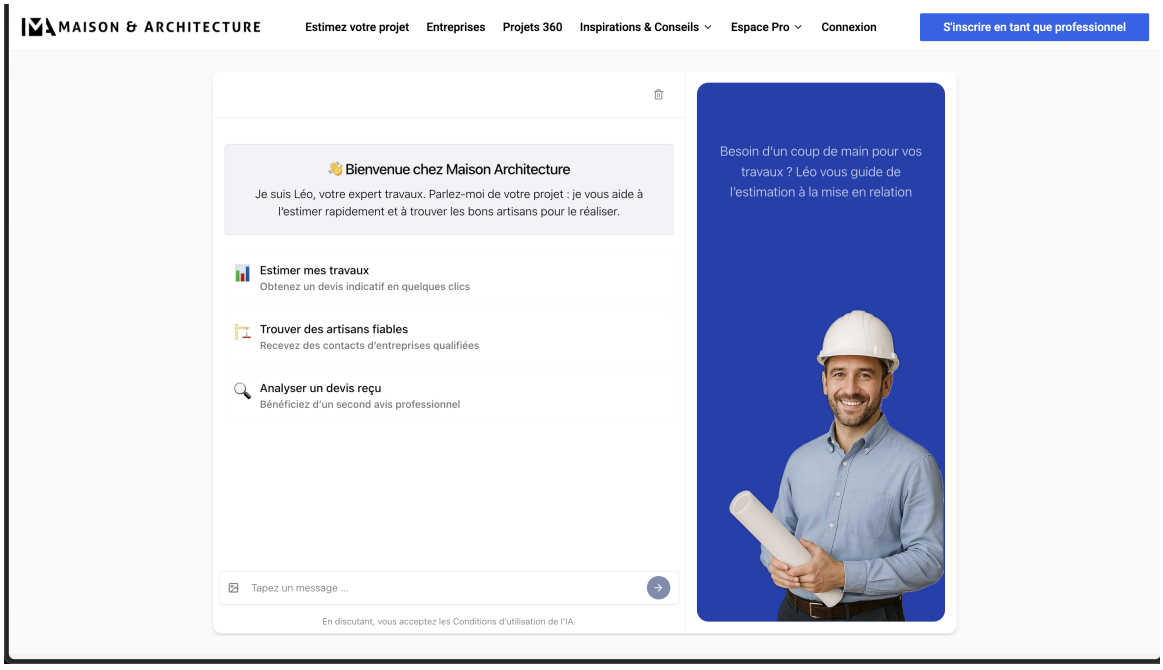
- Bolt. (2024). Bolt API Documentation.

  URL: bolt.com/docs

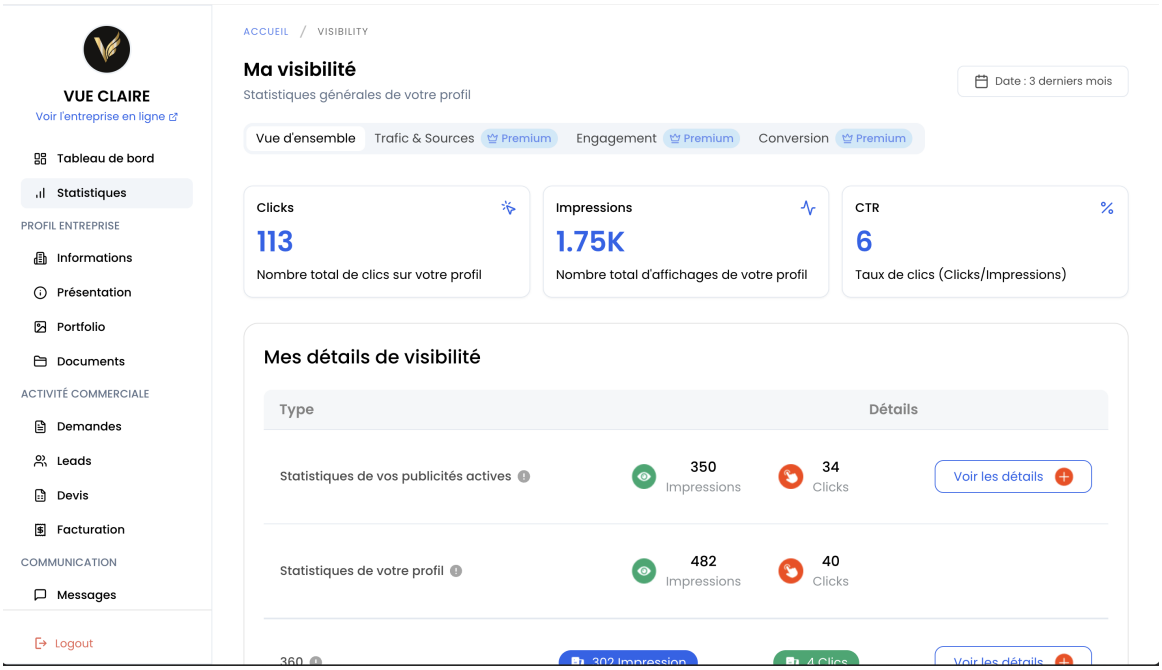
Appendix



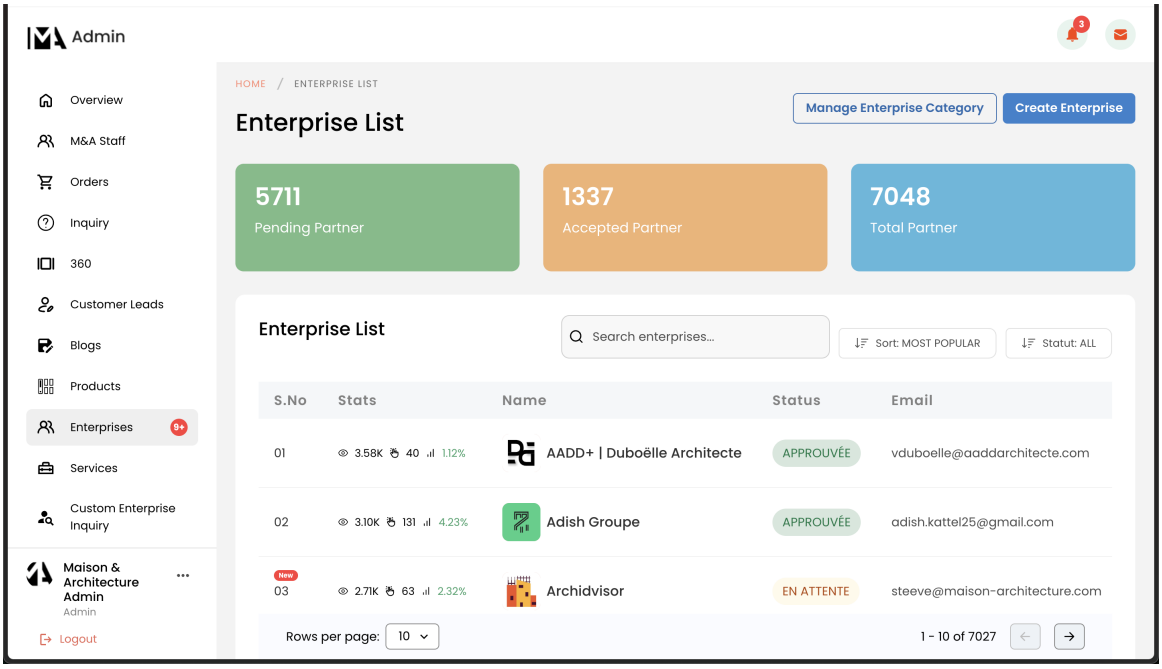
Homepage of Maison & Architecture



Leo Assistant : AI Powered



Partner Dashboard of Maison & Architecture



Admin Dashboard of Maison & Architecture