



DEPARTEMENT INFORMATIQUE

***RAPPORT DE PROJET DE FIN D'ETUDES***

*En vue de l'obtention du:*  
***Diplôme National d'Ingénieur Informatique***  
*Option: Génie Logiciel-Architecture Logicielle*

**Conception et développement d'une Lightning  
application de gestion des utilisateurs**

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TECHLEAD

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## **Résumé**

Ce travail a été développé dans le cadre d'un projet de stage de fin d'études qui a été réalisé au sein de la Société TECHLEAD. Ce projet consiste à concevoir et développer une lightning application dynamique pour le CRM Salesforce pour permettre aux administrateurs et aux directeurs de communautés de gérer leur communauté et ses utilisateurs.

Notre application donne également la possibilité de consulter l'historique de connexion des utilisateurs et un tableau de bord synthétique visualisant les KPI ainsi que la mise à disposition d'un Chatbot intelligent à l'administrateur.

## **Mots clés**

Application Lightning, Gestionnaire de communauté, Chatbot, LWC, JS, CSS, Apex, Aura, SLDS, SOQL, SOSL, Architecture MVC

## **Summary**

This work was developed as part of an end-of-study internship project which was achieved within the TECHLEAD company. This project involves designing and developing a dynamic lightning application for the Salesforce CRM to enable administrators and community managers to manage their community and its users.

Our application also gives the possibility of consulting users' connection history and a synthetic dashboard visualizing the KPIs as well as providing a smart Chatbot to the administrator.

## **Keywords**

Lightning application, Community Management, Chatbot, LWC, JS, CSS, Apex, Aura, SLDS, SOQL, SOSL, MVC Architecture



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# General Introduction

In today's digital world, where businesses are increasingly relying on cloud-based services and software, such as the Salesforce Platform, efficient management of user accounts has become crucial. This area demonstrates multiple important investments thanks to the increasing number of interested developers in this platform who offer an infinity of useful applications.

These applications are accessible everywhere and through multiple devices as long as that device is connected to Salesforce, such availability is provided thanks to the robust web and mobile infrastructure of the Salesforce platform.

That's why we wanted to create a lightning solution for individuals and enterprises who want to manage and monitor their user's activity within Salesforce and we took community users as a base point. Our application will provide multiple information and statistics about each user as well as enable modifications to such information, it will also provide useful KPI charts and a smart chatbot solution for administrators and community managers.

Our end-of-study project entitled "Salesforce Community Management Lightning Application" concludes our summer training as a computer engineer.

The project was carried out over six months, within the company TECHLEAD. This report summarizes the stages of realization of this project. Its purpose is to situate the context of the project, to describe the resulting application, the methods, and tools used as well as the results obtained.

This report follows the following organization:

The first chapter is entitled "General Framework of the Project", which is an introductory

chapter presenting the host company, the problem, the solution proposed, and the objectives of the project, a study of the existing and the process of development of our application.

The second chapter, "Specification of needs", is used to identify the actors of our application and then to specify the functional and non-functional needs. functionalities to which our application must respond, making it possible to identify its main features.

The third chapter, "Conception", serves to describe the conceptual diagrams and the architecture applied to our proposed solution.

The fourth and final chapter, "Realization", illustrates the realization of our project through the presentation of the environment and the development tools as well as the visualization of the results of our work through the main application interfaces.

Finally, we end the report with a general conclusion in which we recapitulate the work carried out and we present the prospects.



Chapter

**1**

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# **General framework of the project**

## ***Introduction***

We begin this chapter with a general presentation of the organization of the reception. We will then detail the context and the problem of our project and the proposed solution, which will attempt to resolve the inconveniences that already exist. We will finish this chapter by describing the schedule of our internship through the Gantt chart as well as the development process.

### ***1.1 Presentation of the host organization***

TechLead is a Tunisian IT engineering company whose mission is to design and implement Salesforce solutions for companies to improve their productivity, profitability, and market adaptability.

The company supports its clients throughout the life cycle of their projects, from consulting to the complete implementation of the solution and up to the transfer of skills. The company's young, dynamic, and versatile team assists clients in all stages of implementing their Salesforce solution to better interact with customers, partners, and prospects. The company offers many services such as:

- **Accompaniment:** The company's Salesforce advisors help clients implement and develop your Salesforce solution. They can intervene in the audit and analysis of needs, the design, the integration of data, and the configuration of clients' projects quickly and efficiently.
- **Support:** The company's experienced developers can provide assistance and maintenance to clients' projects in the various administration or development needs with good availability and responsiveness.
- **Salesforce Training:** The company provides training tailored to client's needs and helps them use and leverage the capabilities of Salesforce.



**Figure 1.** *Host organization TECHLEAD*

## 1.2 *Project presentation*

In this part, we put our work in its general context. first, we present the context. Second, we present the problem and the reasons that led us to suggest this topic. Third, we present the solution proposed to solve the problem. Finally, we will describe the objectives of this project.

### 1.2.1 Context

Salesforce is a highly customizable advanced CRM, it stores customer data, gives processes to nurture prospective customers, and provides ways to collaborate with other workers. [1]

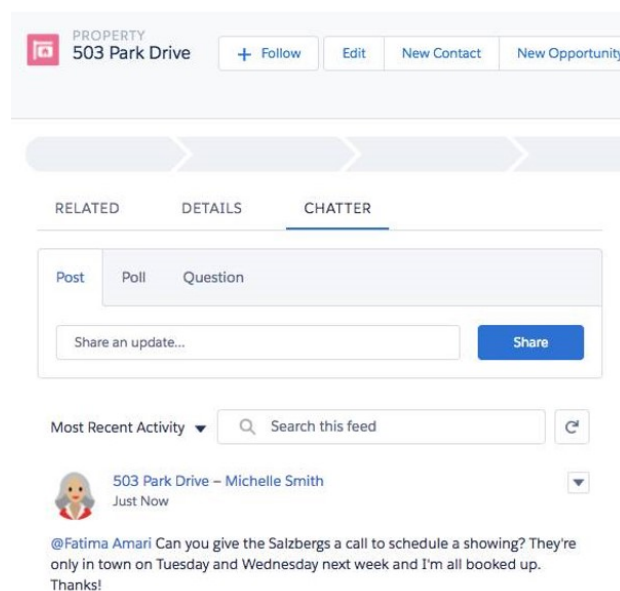
Salesforce comes with a lot of standard functionality, or out-of-the-box products and features

that clients can use to run their business. Here are some common things businesses want to do with Salesforce and the features Salesforce gives that support those activities:[1]

You need to:	So we give you:
Sell to prospects and customers	Leads and Opportunities to manage sales
Help customers after the sale	Cases and Communities for customer engagement
Work on the go	The customizable Salesforce mobile app
Collaborate with coworkers, partners, and customers	Slack, Chatter, and Communities to connect your company
Market to your audience	Marketing Cloud to manage your customer journeys

**Figure 2.** *Salesforce features, Source: [1]*

The platform also helps clients move fast. Part of that speed comes from replacing tasks that clients are used to doing by hand with more streamlined processes.[2] The platform's goal is to make big changes with minimal effort and to solve mistakes that impact the buyer using dynamic expandable interfaces using additional extensions.



**Figure 3.** *Chatter extension in Salesforce, Source: [2]*

Here are a few use cases for different departments:

For employees who work in...	Customize the platform for...
Finance	<ul style="list-style-type: none"><li>• Budget management</li><li>• Contract management</li><li>• Pricing</li></ul>
Product	<ul style="list-style-type: none"><li>• Warranty management</li><li>• Preproduction testing</li><li>• Product ideas and innovation</li></ul>
Supply Chain	<ul style="list-style-type: none"><li>• Procurement</li><li>• Vendor management</li><li>• Logistics</li></ul>
Ops	<ul style="list-style-type: none"><li>• Asset and facilities management</li><li>• Merger and acquisition enablement</li><li>• Business agility</li></ul>

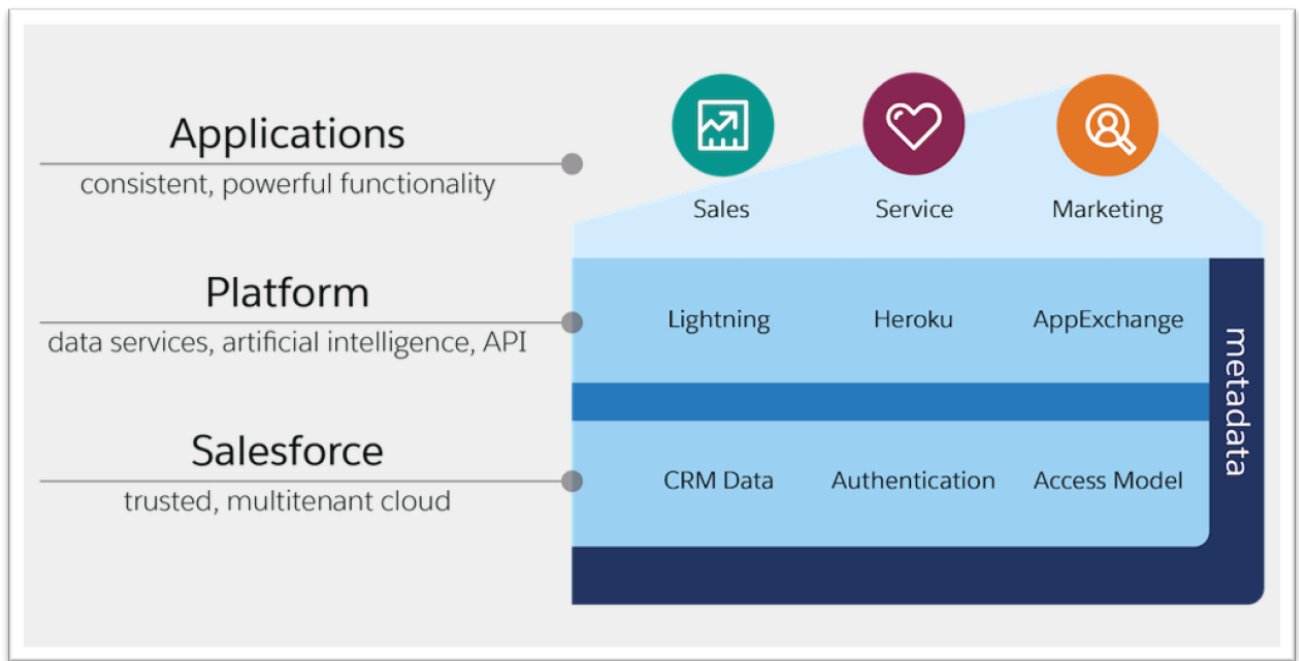
**Figure 4.** *Usecases for Salesforce, Source: [2]*

Salesforce is a cloud company. Everything to offer resides in the trusted, multitenant cloud.[3]

The Salesforce platform is the foundation of the services. It's powered by metadata and made up of different parts, like data services, artificial intelligence, and robust APIs for development. [3]

All the apps sit on top of the platform. The prebuilt offerings like Sales Cloud and Marketing Cloud, along with apps built using the platform, have consistent, powerful functionality.[3]

Everything is integrated. The platform technologies like predictive analytics and the development framework are built into everything to offer and everything to build.[3]



**Figure 5.** *Salesforce's architecture, Source: [3]*

### 1.2.2 Problem

In Salesforce, each user is identified by a unique username and profile. Along with other settings, the profile determines what tasks a user can perform, what data they can view, and how they can use the data.

As a Salesforce admin, you manage users in your organization. In addition to creating and assigning users, user management includes managing permissions and licenses, delegating users, and more

Users are managed in the community through a Salesforce interface and over several stages which makes it difficult and time-consuming.

### 1.2.3 Proposed solution

The main objective of our work is to design and develop a powerful tool to facilitate the task of managing the users of the community.

This application is intended to offer any organization a simple and effective means to manage the

”administration” part, then the connection history part, and finally provide a synthetic dashboard visualizing the KPIs as well as a smart Chatbot solution for the administrators and community managers.

### 1.2.4 Objectives

Ensure user satisfaction by ensuring:

#### **Functional objectives:**

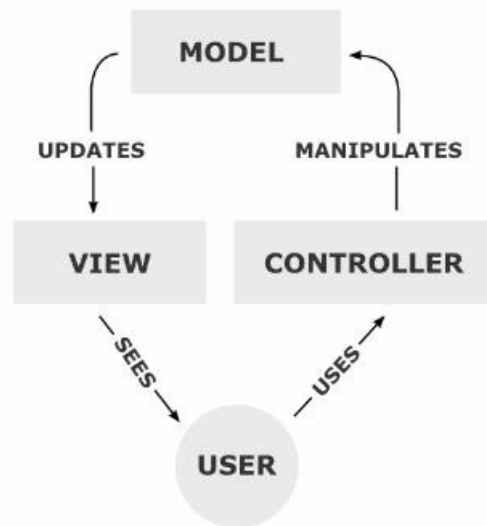
1. **Choice of the community:** Select the community to which we will manage the users
2. **Manage users:** The system must allow users to be managed with the functionalities of activation, deactivation, modification, and consultation of the list of users via a data table.  
Creation of different filters that allow us to facilitate the navigation of the list of users.
3. **Manage connection history:** Create a chart that shows the number of user connections per day, week, year, or according to a well-determined date. This allows the administrator to modify the user’s license
4. **Offer a synthetic dashboard**
5. **Offer a smart Chatbot solution**

#### **Non-functional objectives:**

1. **Security:** Access to information is only possible after verification of privileges and access rights, for example Authentication, Redirections.
2. **Ergonomics and user-friendliness:** The application will provide a user-friendly and easy-to-use interface that does not require any prerequisites, so it can be used by all types of users (even non-computer specialists).
3. **Extensibility and maintainability:** The architecture of the application will allow the evolution and maintenance (addition or deletion or update) at the level of its various modules in a flexible manner.
4. **Performance:** The application must be efficient, i.e. the system must react within a period that does not exceed 5 seconds, whatever the action of the application.
5. **Availability:** The application will be available on 24/24, and 7/7 except during the maintenance period.

### Technical objectives:

1. Organization of the application according to the MVC architecture: a software architecture model that separates the representation of information from the user's interaction with it.



**Figure 6.** *MVC Architecture*

2. Using the Framework "LWC".
3. Using the programming language "Apex".
4. Using the library "SLDS".
5. Using the Salesforce Object Query Language "SOQL/SOSL".

### 1.3 *Study of the existing*

In this part, we analyze and criticize the existing applications currently, through the following table propose a solution that solves their drawbacks.

Application	Pros	Cons
HubSpot	<ul style="list-style-type: none"> <li>- User-Friendly Interface</li> <li>- Ability to create custom roles and assign specific permissions to users based on their roles.</li> <li>- Ability tracks user activity, allowing businesses to monitor user behavior.</li> </ul>	<ul style="list-style-type: none"> <li>- Interface can be complex, particularly for businesses with a large number of users.</li> <li>- Pricing structure is based on the number of contacts in a business's database, which can make it more expensive for businesses with larger teams.</li> <li>- There may be a learning curve when it comes to managing users and configuring access control.</li> </ul>
ZenDesk	<ul style="list-style-type: none"> <li>- Provides user analytics, allowing businesses to monitor user behavior.</li> <li>- Allows businesses to set up custom notifications for user actions, such as ticket creation or update.</li> <li>- Provides tools for user collaboration, such as shared views and comments.</li> </ul>	<ul style="list-style-type: none"> <li>- May not offer as much granularity as some businesses require.</li> <li>- Interface may not offer as much customization as some businesses require.</li> <li>- Pricing structure is based on the number of agents, which can make it more expensive for businesses with larger teams.</li> </ul>
Conga	<ul style="list-style-type: none"> <li>- Offers customizable workflows.</li> <li>- Offers Centralized user management system.</li> <li>- Provides tools for user collaboration, such as document sharing and commenting</li> </ul>	<ul style="list-style-type: none"> <li>- Limited third-party integrations</li> <li>- Pricing structure can be more expensive for businesses with larger teams.</li> <li>- User management interface can be complex.</li> </ul>

**Table 1.** *Study of the existing*



### **1.4 *Development process***

A software development process is a set of related activities followed by a team led to the production of the software within the organization. It consists of a detailed plan describing how to develop, design, test, deploy, and maintain the product. [4]

#### **1.4.1 Incremental development**

In this context, we adopt the process of incremental development as an approach to the realization of our project. According to this process, the customer's needs are specialized, the software is globally designed, then the realization is done by an increment of functionalities.[4] Each increment is considered an executable part of the final system. These increments are successively integrated into the final product and at each stage, the software is tested, operated, and maintained as a whole.[4]

Implementing the software by increment makes it possible to take into account the risk analysis to facilitate the detection of errors at the earliest according to customer feedback and to reduce time and cost of production, which helps in the realization of software quality. [4]

#### **1.4.2 Provisional schedule of tasks**

A Gantt chart is a graphical tool that represents the management of the project over time, which facilitates its implementation.

Indeed, the internship within TECHLEAD will run for a period of 4 months. The following timeline illustrates a provisional schedule set early in development, representing the main stages leading to a functional solution that meets the criteria defined by previously mentioned specifications.

<u>Month</u>	<u>February</u>				<u>March</u>				<u>April</u>				<u>May</u>			
Week	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<u>Training</u> (LWC)																
Documentation and familiarization with work tools																
General design and determination of mockups																
Realization (development)																
<u>Writing</u> of the report																

**Figure 7.** *Gantt diagram*

## Conclusion

In this chapter, we have introduced the context of our project by representing the host organization in the first place. Secondly, we have introduced the sales platform and its features. Thirdly, we have cleared up the problem. Then, we described the proposed solution and the objectives to be achieved. After that, we analyzed the existing applications. Lastly, we have depicted the advancement of activities throughout the project according to the adopted development process. In the next chapter, we will specify the functional requirements and the non-functional needs.



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