

**University Of La Manouba
National School Of Computer Sciences**



Report Of Company Immersion Internship

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Carried Out By :
Chayma MOUSSA



Organism :Talan Tunisia

Supervised By : Mr. Wassim SAADALLAH

Adress : 10 Rue de l'énergie solaire – Impasse N1 Charguia 1 Tunis 2035

Phone : +216 7001 5010 FAX :+216 7001 5007

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General introduction

Over the last years, Artificial intelligence and robotics have become the focus of much attention. The scope of their applications is impacting the future of every industry and every human being. With their convergences, the management of staff change paradigm. Indeed, human resources (HR) are trying to be at the forefront of innovation by entering the era of robotics complex tasks based on the relationship between man and machine.

After their dazzling success in electronic commerce, communication robots are gradually entering the HR field. So we're talking about conversational agents known as Chatbots. They have become a much more efficient tool and a key lever of the employer brand. Indeed, the Chatbots have overturned the recruit experience, offering new opportunities to companies.

While hiring new employees, companies work to make them emotionally and professionally integrated into their culture and operations. This process, known as Onboarding, makes the new candidates understand how things are done and how their role contributes to the overall success of the organization. The latter takes a lot of time and it is pretty much the same for each new employee.

As chatbots are fully automated, they allow immediate and personalized response. Also, they can answer frequently asked questions. Moreover, they alert recruits to meetings. Furthermore, they answer about company policies, roles, responsibilities, and all the necessary information. This gives an innovative, digital, and mobile image to the company, adding to bringing a positive onboarding experience.

In this context comes our summer internship which consists in the realization of a complete solution of a company-specific conversational agent in Talan to automate and simplify the process of onboarding within of the company. This conversational agent will be integrated into a platform dedicated to new recruits.

This report presents the various stages of our work. It is structured around four chapters. In a first chapter, we begin with the presentation of the host organization and then the presentation of the subject, the methodology adopted, some basic concepts, the existing solutions on the market, and the proposed solution. The second chapter first sets out the planning phase in which the Product backlog was presented, the players were identified and the sprints were cut and planned. The third and fourth chapters detail the features to be implemented and delivered at the end of each sprint and present the results obtained. We end with a general conclusion that summarizes the work and by proposing new developments and perspectives for the project.

Chapitre 1

Preliminary Study

Nowadays, chatbots are at the centre of the attention of new computer technologies and have become an increasingly important lever for the employer brand while in their early stages they are used only for the customer relationship.

1.1 Host company

The 'Chatbot Onboarding' project was developed as part of the summer internship presented in order to obtain the diploma of Engineer in Computer Science at the National School of Computer Science for the academic year 2020/2021. This project was carried out within Talan Tunisia Consulting. We introduce in the following the host organization and its various activities.

1.1.1 Presentation of the host company

Talan Tunisia Consulting[N1], founded in 2008, is the Nearshore Development Center of the Talan Group. This company is a recognized leader in digital transformation in Tunisia. It has proven its expertise in the implementation of projects and in the field of consulting.

1.2 Presentation of the subject

In this part, we present the problem as well as the work required.

1.2.1 Problematic

There is a significant number of new hires seeking for another work within six months or leaving their employment within one year. One of the main reasons is the failure of the onboarding process. In this regard, Talan has always offered a pleasant and fluid experience to its recruits during their integration. However, informing about the company's policies and conditions, planning and alerting meetings and introducing the recruit to team members requires significant time and energy for HR employees and new hires and it is repeated for each recruit. In addition, recruits spend their time seeking information from their reporting manager or an HR employee. To avoid this risk of disengagement and this waste of time, it will be interesting to automate the task of onboarding. In this context comes our project which aims to facilitate this process at Talan.

1.2.2 the main objective

The objective of this project is the development and implementation of an integrated chatbot in a web application that aims to guide a new recruit through the onboarding process and to diminish the role of the Human Resources (HR) team in this process. The chatbot can answer the new recruit's questions about the company and its policies and its conditions. The candidate can navigate to the Byblos platform. Also, the platform alerts the new recruit to meetings and displays the meeting schedule.

1.3 Methodological choice

Each project follows a development process that starts with a decision to develop a product and leads to the production of a deliverable final product.

In our case, we adopt the SCRUM method for managing our project. SCRUM is an agile framework that manages work by breaking it down into tasks that must be completed within a predetermined time interval. It puts team spirit between developer/developer as well as between client/developer.

- **Planning the sprint :** takes place before the start of the sprint. In the meeting, the objective of the iteration will be defined and the plan to be followed will be detailed.
- **Sprint review :** is conducted to verify compliance of what has been completed during the sprint.
- **Sprint retrospective :** takes place after the review of the sprint to make adjustments regarding working conditions as well as for the improvement of the quality, efficiency and productivity.
- **Daily Scrum :** This is a daily 15 minute meeting that identifies new addictions, meets team needs and adjusts work.

Figure 1.1 summarizes the process of this methodology :



FIGURE 1.1 – Scrum methodology life cycle [?].

1.4 Key concepts

In this section, we explain the basic concepts related to our project.

1.4.1 Definition of chatbot

Before we begin, a key question arises : What is a chatbot? Indeed, according to [N3], the chatbot is the combination of two words of English origin «chat» for dialogue and «bot» for robot. It is defined as a computer program stimulating human conversation through textual conversations and/or vocal.

1.4.2 Types of chatbots

There are essentially two families of sculpins[N4] :

- **Programmed chatbots** :that lead the user to the right answer by getting based on pre-defined scenarios. An automatic search in a database knowledge is launched as soon as the client's request is analyzed. These chatbots are limited by a specific number of interactions so the chatbot is lost at case where the user request is not defined in one of the scenarios. This family is divided into two types of chatbots :
- **Chatbots based on menus/ buttons** : it is the most basic type of chatbots. This type based on menus/buttons is the slowest to lead the user to the desired answer. Indeed, the tree structure adapted by this type of conversations is the set of decision tree hierarchies which are presented to users in the form of buttons. To get specific responses to a given request, the user is obliged to make several selections.
- **Chatbots based on knowledge of keywords** : this type of chatbot is based on listening to what the user is typing and responding appropriately. The key words as well as customizable artificial intelligence that is used to provide the user with an appropriate response.
- **Contextual chatbots** : This type of chatbots is more advanced compared to chatbots discussed earlier. Learning (Machine Learning) and Intelligence Artificial are the engines of this type of chatbots. In fact, pop-up chatbots memorize the conversations of specific users in order to learn and improve over time.

1.5 Study of the existing

Chatbots have long proven their effectiveness and ease of use in all areas, especially in the onboarding process. In this section, we list some examples of existing HR chatbots in the world.

1.5.1 Presentation of existing solutions on the market

In this section we highlight examples of conversational agents most used in the field of onboarding.

The MooN chatbot

MooN is an onboarding chatbot from the ApplicateAI Group. Moon focuses on five features : pre-Boarding, on-Boarding, training, engagement, HR Queries FAQ.

Moon can induct a new hire, feed her/him with basic business and functional knowledge. It can also coaches, trains, and make administrative support. Furthermore, it interacts simultaneously with new team members through roles and functions and helps them with business terminology, performance metrics, holder contact, and all the organization transform.

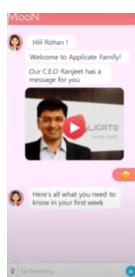


FIGURE 1.2 – The chatbot MooN [N5].

The chatbot Sarah

It is an onboarding bot designed by Miracle Software System company in 2018.

Sarah helps new employees get through the onboarding process when starting a new job. It guides them through filling out documents, and schedules meetings with managers. Also, it allows users to get relevant information, and hierarchy details.

Sarah has the ability to transfer conversations to an HR bot, Laurel, to get any specific questions answered and give additional information.

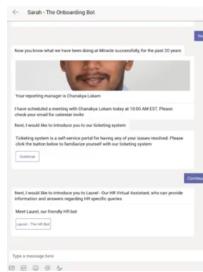


FIGURE 1.3 – The chatbot Sarah [N6].

The chatbot HRwiz

HRwiz is an HR chatbot made in 2019 by Microsoft Teams having the mission "Onboard. Train. Engage". It aims to help new recruits by providing information, collecting data, and simplifying communication.

It welcomes the new hires to the team with an interactive chat experience. It uses a list of onboarding processes to boost the first days of labor.

It helps them with answering common questions on company culture, compliance, internal procedures, and systems. It permits self-paced training. Furthermore, it gets employee feedback through usual meetings. It also offers analytics about employee engagement to managers.

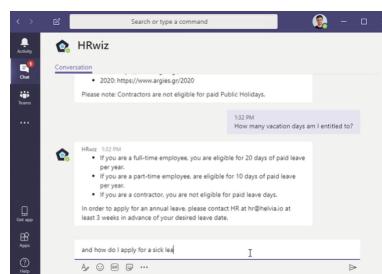


FIGURE 1.4 – The chatbot HRwiz [N7].

1.5.2 Criticism of the existing

The above-mentioned chatbots have many advantages but we can not deny that they present in counterpart some disadvantages. The following table shows a comparison between the different conversational agents mentioned above.

	Natural language understanding	Ease of integration	Confidentiality	User Experience Support	Breadth of use cases
MooN	X	X	X		
Sarah	X	X	X		
HRwiz	X		X	X	X

FIGURE 1.5 – Comparative table of the different existing solutions.

On the one hand, the previously mentioned conversational agents have several functionalities but also they present gaps that sometimes do not satisfy the user and even the company they use it for.

The above-mentioned agents provide natural language understanding and confidentiality. Only two are characterized by ease of integration and good user experience. HRwiz is characterized by having the breadth of use cases thanks to training with quizzes, getting regular feedback via swift “pulse” meetings, and scheduling and sending notifications to selected teams in the company. So none of them have a combination of all these options.

It is for this purpose that we have raised this topic to implement an application that will be functional, durable, and has the majority of missing features in other solutions already mentioned.

1.5.3 Proposed solution

After this study of the existing, we propose the design and development of an onboarding chatbot that will be integrated into a dedicated web application to the new hires of Talan. The new hire can consult the culture of Talan. He can ask all his questions to the chatbot. He can consult a calendar having all his meetings, also he will be notified when he has a close one. The application allows new recruits to get access to the Byblos platform.

1.6 Conclusion

At the beginning of this chapter, we presented the definitions of some terminologies related to the realization of our solution. In the second section, we have listed the various existing solutions by making a deep criticism of these solutions and exposing our solution.

Chapitre 2

Sprint 0 : Before start

This chapter shows, first of all, the planning of our work in exposing the product backlog by cutting out the sprints as well as the identification players and the global needs of our platform. Then, we move to in value the primary part of the project which is the overall design setting at the end our technological choices.

2.1 Planning

Good work planning certainly leads to project success. In this section highlights three main components ; the first where we will present the PRODUCT BACKLOG, the second where we identify the actors of our platform. The third part concerns the specification of requirements through diagrams of use cases.

2.1.1 Product Backlog

The Scrum method is essentially based on the so-called Product Backlog. It is just a list of everything that might be needed in the product in other words all of the customer's requirements that must be met by the project team. The following table below illustrates our needs (User Stories).

ID Feature	Feature	ID User Story	User Story	Priority
1	agent construction	1.1	As a developer, I want to extract the questions and their answers.	strong
1	agent construction	1.2	As a developer, I want to define the intents.	strong
1	agent construction	1.3	As a developer, I want to define the entities.	strong
1	agent construction	1.4	As a developer, I want to define the training for each intent.	strong

2	authentification	2.1	As a new hire,I want to connect to my account.	medium
2	authentification	2.2	As a new hire,I want to connect to log out of my account.	medium
3	onboarding processes	3.1	As a new hire,I want to ask my questions.	strong
3	onboarding processes	3.2	As a new hire,I want to view meetings and be notified of close ones.	low
3	onboarding processes	3.2	As a new hire,I want to access to the Byblos platform.	low

TABLE 2.1 – Product Backlog Table

With the “Product Backlog”, presented above, we have been able to define our actors. Indeed, to guarantee the obtaining of a product that respects the preferences of these actors it is essential to point out that the features offered by our application must comply with a set of constraints. In the following, we present these different constraints.

- **Usability** : The application must ensure ease of use.
- **Availability** : Our system must be always available for a user.
- **Data security** : The platform must ensure privileged access. Indeed, the accounts must be protected by a login and password.
- **Ergonomics** : The application provides a simple interface to understand and use.
- **Portability** : the application must be adapted to work in different runtime environments.

2.1.2 Identification of actors

In this section, we focus on the different actors who are in direct interaction with our application by representing their roles as well as their requirements.

We identified the following key players :

- **The developer** :the agent is in direct interaction with the developer. Indeed,it is considered to be a major player that directly interferes with the agent that after its integration into our application will be used by other users.
- **The new hire** :a key player who will be in direct interaction with our application via his space to ask his different questions and to access to the Byblos platform.

2.1.3 Sprints planning

As mentioned above, the sprint represents a period of time during which a definite task must be accomplished. Figure 3.1 focuses on planning our sprints based on the backlog of the previously mentioned product.

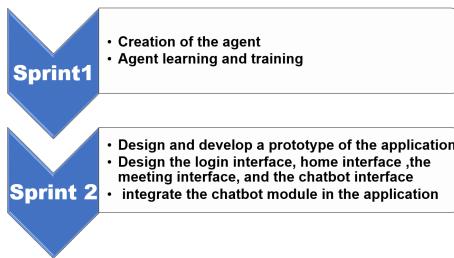


FIGURE 2.1 – planning of sprints

We start with the presentation of the first sprint entitled "Construction of the agent" which brings together all the high-priority features and development of the prototype of the application. We then proceed with the second sprint entitled "Development of the application" that consists in developing the login, chatbot, home pages, adding to integrating the chatbot in the application .

2.2 Global design

Before starting the implementation, we start by choosing the architecture appropriate. In this section we introduce the physical and logical architecture of our platform.

2.2.1 Physical Architecture

The 3-tier architecture[], also called three-layer architecture, is the most consistent physical style for the back-end part. It is a shared architecture between the following three elements :

- **Light client** : This is the presentation layer. It does not perform any processing functions contrary to the model client/server or 2-third parties. In our case, the presentation tier is a web browser that guarantees the user access to the application via the internet.
- **Web server** :This represents the functional layer of the application that implements the business logic. It allows interaction between different stakeholders platform and communication between them.
- **Data Server** : This is the third tier of our architecture which is the third party of the data and which ensures the insertion, the updating of the data as well as access to data. In our case, we opt for mongoDB as as the base for data.

From the above we assume that the client is the one that requests the resources via a set of requests sent to the known application server also under the name of Middleware. This server calls a second server which is the server database that stores, recovers data for the processing part in order to provide the requested resources. Figure .. summarizes the principle of this type of architecture.

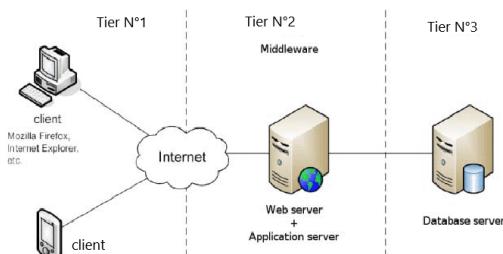


FIGURE 2.2 – The 3-tiers architecture.

Deployment diagram

To illustrate the physical architecture chosen for the back-end part of our application, we used the deployment diagram. Figure 3.2 illustrates the the physical arrangement of the different nodes and the distribution of the within nodes. This deployment diagram consists of three main nodes :

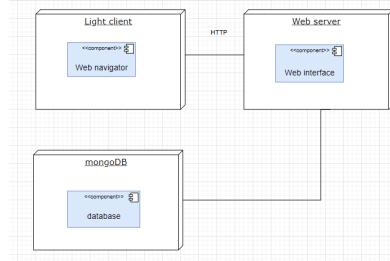


FIGURE 2.3 – Deployment diagram.

- The thin client represents the web browser and guarantees communication between users of our platform and other nodes. Users request resources as HTTP requests and receive responses HTTP in return.
- The web server consists of two components :
 - The web interface represents the presentation layer and illustrates all forms and interfaces to communicate to the browser via HTTP suite at a request of the user.
 - The database interface is the interface between our application and the database.
- MongoDB is a document-oriented database that stores data in flexible JSON documents.

2.3 Logical architecture

The software architecture is concerned with the logical division of the application and the grouping of components according to the type of function and processing they perform. For our solution we opted for a multi-layer architecture [N13] illustrated by the following figure which shows a separation between the business process, the interfaces and data storage, which allows the grouping of components that share the same features.

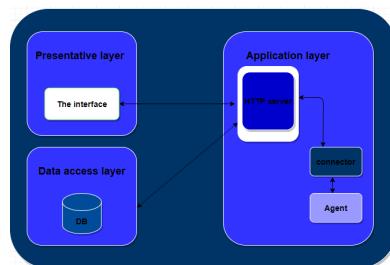


FIGURE 2.4 – Logical architecture of the application.

- **Presentation layer (Frontend)** : It is the visible and interactive part of the application. It displays the data it retrieved from the application layer as a first task. It receives as a second task all user actions (mouse click, select an entry, buttons. . .).
- **The application layer** :It contains all the business processes of the application. Indeed, it encompasses the various modules of the application that exchange the data with other layers and components via an HTTP server. The agent we built communicates via a connector with the http server.

- **Data Access Layer** : It allows the storage and recovery of data processed by the application layer.

2.4 Environnement de travail

During the realization of our platform, we used materials and special software.

2.4.1 Hardware environnement

A PC with the following characteristics has been used as a hardware environment to achieve a successful implementation :

- Operating System : Windows 10
- Hard drive : 5.00 GB
- Processor : Intel Core i3

2.4.2 Software environment

We will present the various technological tools, languages and libraries that may meet our needs. For the chatbot, we will study and choose the platforms to use in the sprint correspondent.

Node.js is an open source development platform to run server-side JavaScript code. it is used for developing applications requiring a permanent connection from the browser to the server. It is used for real-time applications.

Express is a limited and adaptable Node.js web application framework. It offers a powerful set of features to develop mobile and web applications.

CSS [N10] “is a computer language utilized to construct HTML or XML files. Thus, it includes code that enable to manage the design of a page in HTML.”

Javascript [N11] “is a programming language that creates content dynamically updated, to control multimedia content, to animate images, and everything you can think of. Well, maybe not all, but you can do a lot of things with a few lines of JavaScript.”

JSON JavaScript Object Notation [N12] “is a data exchange format in readable text. It is used to represent structures and objects simple in a code that relies on a web browser.”

HTML [N13] “is a computer language used on the Internet. This language is used to create web pages. The acronym stands for HyperText Markup Language. This meaning carries well its name since indeed this language makes it possible to perform hypertext based a marking structure.”

mongoDB[N14] “ is a document database, which means it stores data in JSON-like documents. We believe this is the most natural way to think about data, and is much more expressive and powerful than the traditional row/column model.”

firebase is a cloud-hosted NoSQL database that stores and syncs data between users in real time.

Conclusion

In this chapter, we showed the work planning by presenting the «Product Backlog» as well as the sprints. We then went on to identify the actors and present the architecture of the proposed solution by exposing the Logical and physical architectures. At the end, we focused on our hardware and software working environment.

Chapitre 3

Sprint 1 : Construction of the chatbot

After presenting the theoretical concepts needed to understand our solution, we present the first step of our project which is construction of the conversational agent. This sprint is then essential to highlight functional and non-functional requirements, the design part and the achievement.

3.1 Analysis and specification of requirements

We begin, in this section, by identifying the actors who are interaction with our system as well as an analysis of the requirements to better understand the goals of this sprint.

3.1.1 Sprint Backlog

We begin, in this section, by identifying the actors who are interaction with our system as well as an analysis of the requirements to better understand the goals of this sprint.

N	Spots
1.1	Collect questions and their answers.
1.2	Define intentions
1.3	Define entities
1.4	Ensure continuity of conversation

TABLE 3.1 – Sprint 1 Backlog Table

The agent is in direct interaction with its developer. Indeed, this one is considered as a primary actor who interferes directly with the agent who follows his integration into our application will be used by other users. The onboarding chatbot to be carried out must meet the following needs :

- The conversational agent must answer the questions of the new hires about the company.
- The conversational agent must be fluent when communicating with users.
- The conversational agent must be integratable in other applications.

3.1.2 Analysis of non-functional needs

The additional considerations and constraints to be taken into account during the performance of the agent are :

- **Availability :** The chatbot must be available 99 % of the time to chat and respond to queries in real time.

- **Robustness** : if the user sends an incomprehensible message through the chatbot, the latter responds with an error message to inform him that he has not understood what he meant.
- **Comprehensibility** : The chatbot must speak plain language.
- **Usability** : The chatbot is simple to use. The user can understand its operation in 3 min.
- **Interactivity** : The agent must be interactive with the user to ensure a harmonious and fluid conversation like one with a human being.
- **Reliability** : The answers given to the candidate by the agent must be concise and correct, guaranteeing a coefficient

3.1.3 Requirements specification

Previously, we determined the needs of our agent. Using this diagram of use cases presented in Figure 4.1, we present these needs. The developer starts by training the agent by collecting different questions and the answers to these questions. These questions are about the company's policies and conditions.

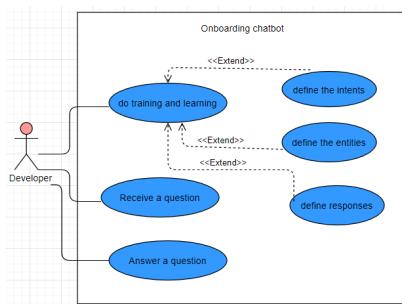


FIGURE 3.1 – Use case diagram

3.2 Design

To facilitate and structure the implementation stage, we present in this section the overall design as well as the detailed design of our agent for a better understanding.

3.2.1 Architecture of a chatbot

The chatbot consists mainly of three main components[N8] such as shows Figure 4.2 :

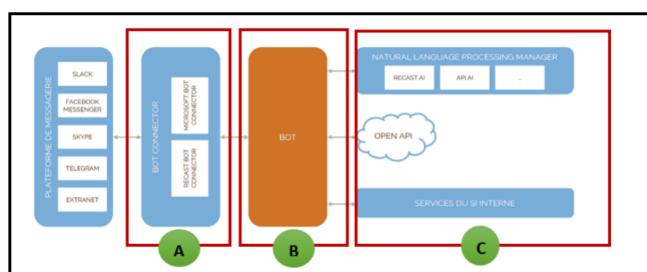


FIGURE 3.2 – Chatbot architecture

- **A-Front side** : the exchange with the user is done via this component which constitutes the interaction interface between the user and the chatbot. It makes the bot independent of all kinds of connections with a specific messaging platform.

- **B-In the center :** It constitutes the brain of a chatbot which provides the appropriate responses to user requests based on a tree of preconfigured interactive decision.
- **C-Côté Back :** It consists essentially of two components :
 - **The NLP Language Analyzer :** With this analyzer, user requests are interpreted and intentions are deduced. It learns as it goes with the requests received and improves its understanding and accuracy.
 - **IS Service :** It answers complex questions that require access to the information system to use personal data.

3.2.2 Design of our agent

Our main goal is to create a conversational agent that is able to ensure a conversation with users. In order to achieve this goal, three phases are essential.

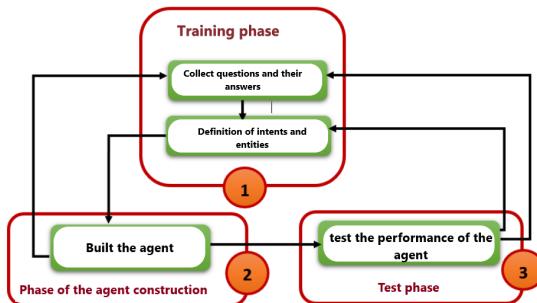


FIGURE 3.3 – Conversational Agent Construction Process

Phase 1 : corresponds to the officer's learning using a list of intents and a list of entities after the collection of different questions that will be asked as well as their answers.

Phase 2 : A Phase of Dialogue Construction of the flow of conversation.

Phase 3 : A test phase that will indicate whether the agent is well trained or not.

3.3 Achievement

In this section, we present the principle of realization of our agent after a comparative study of chatbot creation platforms in the market.

3.3.1 Comparative study of chatbots solutions

By comparing existing solutions[N30] according to well-defined criteria, we can analyse the characteristics and functioning of the chatbots solutions to use a platform that ensures ease and efficiency in the same time.

3.3.1.1 The selected criteria

In order to achieve a dedicated solution, we define in this section the criteria the most relevant in order to have an accurate and complete study.

These criteria are then :

NLU/NLP : this is the ability to understand the user's requests (speech or text).

Machine Learning : It's the product's ability to train and improve automatically with experience.

Intent engine : the ability to detect the user's intention based on the interactions between the user and the data extracted from the back-end.

Dialogue Management : it is the possibility to develop and manage the dialogue with the customer and bring it all together.

Integration : The ability to integrate the chatbot on different messaging platforms.

3.3.1.2 the solutions to compare

- **Dialogflow** : is a platform offered by Google that is based on understanding natural language (NLP).
- **Luis.ai** : is a Microsoft product that allows the integration of natural language in IoT robots and devices by taking advantage of a large amount of data to train their bots.
- **Watson Assistant** : a robust platform for easy solution creation AI conversational.
- **Wit.ai** : a platform purchased by Facebook used by more than 200,000 developers worldwide. It is well known



FIGURE 3.4 – comparison of chatbots solutions

3.3.1.3 Choice of solution : Dialogflow

Based on this study, we decided to adopt the Dialogflow[solution. Indeed, this platform allows to build a conversation agent based on a engine including understanding and generation of natural language, a tree of predefined decision (operation by rules) and machine learning .

3.3.2 Realization

We have created a total of 40 intentions as shown in Figure 4.12 to ensure a consistent conversation with the user.

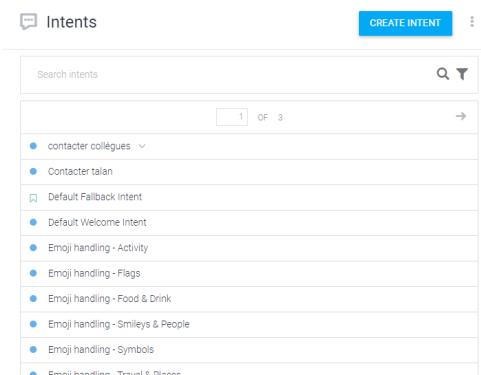


FIGURE 3.5 – Extract of the list of intentions defined for the conversational agent.

Conclusion

Throughout this chapter we have highlighted the sprint Backlog and we have illustrated our needs as well as the operating principle of the conversational agent by detailing the different stages of its realization. In what follows we will exhibit the integration of our agent in the application.

Chapitre 4

Sprint 2 : Development of the application

After building, training and testing our conversational agent, it must be integrated in an application that will interact directly with the candidates. In this sprint we present the different stages of realization of our application.

4.1 Sprint Backlog

Throughout this sprint, we must carry out the following tasks :

N	Spots
1.1	Create an identification form.
1.2	Ensure authentication of candidates.
1.3	Implement the home page.
1.4	Implement the chatbot page.
1.5	Integrate the agent into the application.
1.6	Implement the meeting page.
1.7	Implement an alert one hour before the meeting, one before five minutes and one per hour.
1.8	Implement an alert one hour before the meeting, one before five minutes and one per hour.
1.9	Implement the Byblos page.

TABLE 4.1 – Sprint 2 Backlog Table

4.2 Analysis and specification of requirements

First, we will list the functional requirements. Second, we will explain with sequence diagrams.

4.2.1 Analysis of requirements

We start by identifying the actors that are interacting with our application as well as all functional and non-functional requirements.

4.2.1.1 Analysis of functional requirements

The developed application offers the following features :

- The recruit can authenticate and access to their account.
 - The recruit may consult the culture of Talan in the home page.
 - The recruit refer to the chatbot to ask his questions.
 - The recruit may consult the meeting calendar.
 - The recruit may access to the Byblos platform.

4.2.2 Specification of requirements

In this part, we specify the requirements mentioned above using use case diagram.

4.2.2.1 Use Case Diagrams

The Use Case Diagram below summarizes the system requirements mentioned in the previous section.

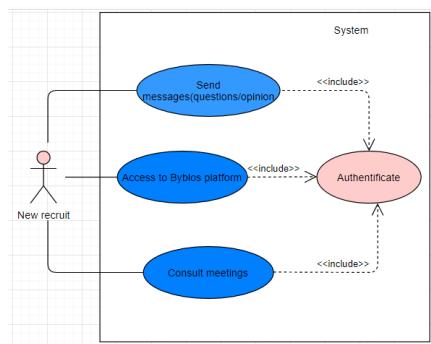


FIGURE 4.1 – Use case diagram

4.2.2.2 Sequence Diagrams

The sequence diagram facilitates the understanding of each interaction with the system. So, we will present some scenarios to better understand the operation of this application.

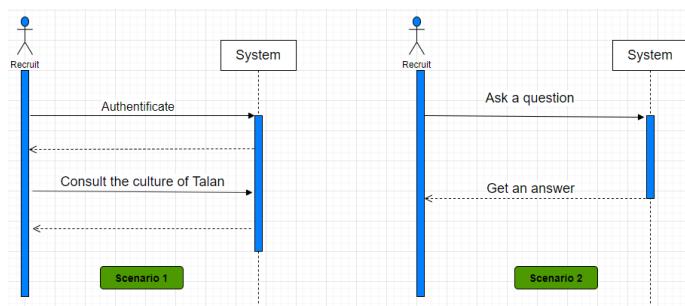


FIGURE 4.2 – Sequence diagram

Scenario 1 :By entering his username and password, the recruit will access to its application and can consult the culture of the company.

Scenario 2 :The new recruit can ask all his questions to the chatbot.

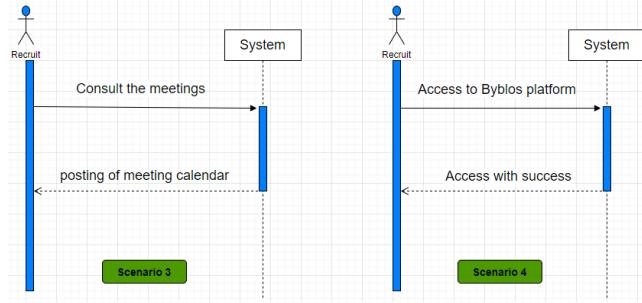


FIGURE 4.3 – Sequence diagram

Scenario 3 : The new recruit can consult his meetings in a calendar.

Scenario 4 : The new recruit can access to Byblos platform.

4.2.3 Design

In order to meet the requirements listed in the previous section, we must adopt a design methodology that facilitates and structures the realisation stage. In this section we go on to further detail this design by using the diagram of activity.

4.2.3.1 Activity diagram

Figure 5.6 presents an activity diagram that describes the behaviour of cases of use relating to the actor "recruit". In fact, the candidate must first authenticate, at each wrong attempt (password or username not valid) the authentication interface appears again. After login, the recruit consult the home page. Then, the recruit can consult the chatbot to ask his questions or consult the meetings calendar or access to the Byblos platform.

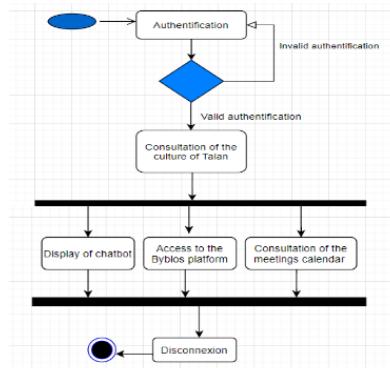


FIGURE 4.4 – Activity diagram

4.3 Realisation

In this section will then illustrate the application interface set up for illustrate the proposed solution.

Login interface : The recruit must authenticate to access to his account.

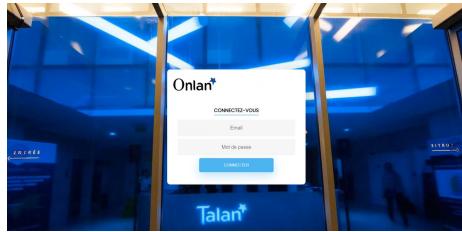


FIGURE 4.5 – Registration interface



FIGURE 4.6 – Home page

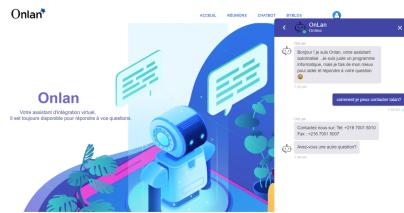


FIGURE 4.7 – Chatbot interface

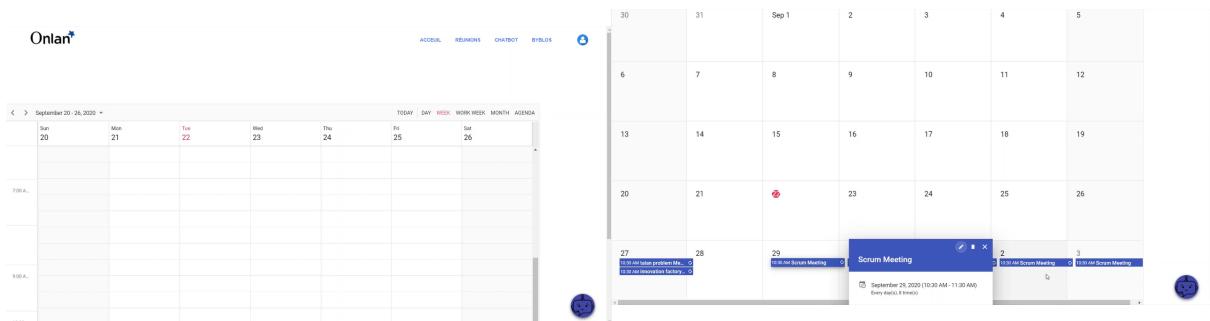


FIGURE 4.8 – Meeting interface

Conclusion

In this sprint we have detailed the different parts of analysis, design and of realization of the application adding to integrating our agent.

Conclusion

To automate and improve the onboarding process within companies, it is interesting to use conversational chatbots. In this context, our internship had as objective the design and implementation of a solution complete with an intelligent conversational agent specific to the company Talan.

To achieve this result, we have established a study of existing through which we proposed our solution and chose SCRUM as a methodology for managing our project. In the pre-start section, we planned our sprints after presenting the product Backlog, identified our actors and subsequently we developed the architecture to be adopted for the implementation of our solution.

In each sprint, we started with the analysis part in which we have detailed the functionalities to be delivered, the design part and the realization part.

Finally, we developed, our solution, integrating a conversational agent specific smart for onboarding in Talan, going from the construction of the agent until its integration and the realization of the application.

To conclude, we would like to propose some interesting extensions of our project. As prospects for this project, the agent may be able to get the feedback of the recruits and make analysis to understanding the efficiency of the chatbot.

In addition, with new technologies, it is possible to create an agent that understands the new hire's emotions and analyzes them which will give the impression of really communicating with a human being.

Netography

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