Integration and development
Project Report

Title

Development of a Customer relationship management system (CRM)

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General introduction

In recent years, information technologies and the activities of organizations have been strongly interconnected with each other. Over the years, information technologies, and more specifically the web, have evolved in a growing and remarkable way. Today, the web is a sector in perpetual expansion facing the appearance of web 2.0 and new technologies including HTML5, jQuery, etc.

It is in this context that many institutions try to make the most of these technologies in order to improve their productivity and to face some problems that can constitute an obstacle of progression.

Many business starts out with a foundation of great customer relationships. As the company grows, these businesses connections grow more sophisticated. It's not just a transaction between the buyer and seller, they start to manage a myriad of connections. across time, they need to share information across various teams within their own organization who are making contact with the same customers. A CRM system can serve as a vital nerve center to manage the many connections that happen in a growing business.

C-R-M stands for Customer Relationship Management. A CRM system allows businesses to manage business relationships and the data and information associated with them. With CRM, you can store customer and prospect contact information, accounts, leads, and sales opportunities in one central location, ideally in the cloud so the information is accessible by many, in real time.

Project context

As part of our fourth year development project at the Private Higher School of Engineering and Technology " ESPRIT ", we are to develop a web application that integrates the different functionalities and modules of a CRM system with well adapted interfaces and new technologies.

Project motivation

Having solid relationships with your clients is important if you want to build a stable and successful business. However, the process of honing these relationships can be quite complex. This is where CRM systems come in. These software solutions serve as centralized databases where you can easily get information on your leads and existing customers such as previous interactions, recent purchases, and current transactions. By having these tools at your disposal, you can streamline and optimize your workflow when it comes to interacting with your clients.

Organization of the report

This report details our different contributions and achievements. It is structured around a general introduction and four chapters that will be described below.

- First chapter named "State of the art", this chapter aims to describe and analyze the current CRM systems. The goal is to identify strengths and weaknesses to reduce gaps in our solution proposal.

- Second chapter named "Analysis and requirement specifications", in this chapter we present the main requirements of our application (functional and non-functional needs). For this we will use use case, system sequence and analysis class diagrams. Finally, a graphical representation.

- Third chapter entitled "Design", in this chapter we will present a full technical design of our system.

- Fourth chapter entitled "Implementation" will be used to describe the work environment and the tools used and an overview of the interfaces implemented.
- Conclusion that summarizes the work done in which we will present our impressions and perspectives.

Conclusion

This part was devoted to the presentation of the general framework of our project which consists of designing and developing a CRM system. We have presented our project's context and motivation then we detailed the structure of this report.

Chapter I

State of the art

Introduction

in this chapter we will present some platforms that provide similar functions to our application then we will give some criticism and we will propose better solutions more adapted to our need.

I.1 Study of the existing

I.1.1 Study of the platform "Orange Tunisia"

Introduction

Orange Tunisia is the second private telecommunications operator to obtain a mobile phone license in Tunisia, awarded in July 2009 for 257.3 million dinars. It is also the first in terms of license to operate a 3G network and fixed telephony, breaking on the latter plan the monopoly of Tunisia Telecom..[1]
Orange Tunisia has a dedicated CRM platform for their clients available on orange.tn. this platform provides services like online stores, offers and discount and forum.

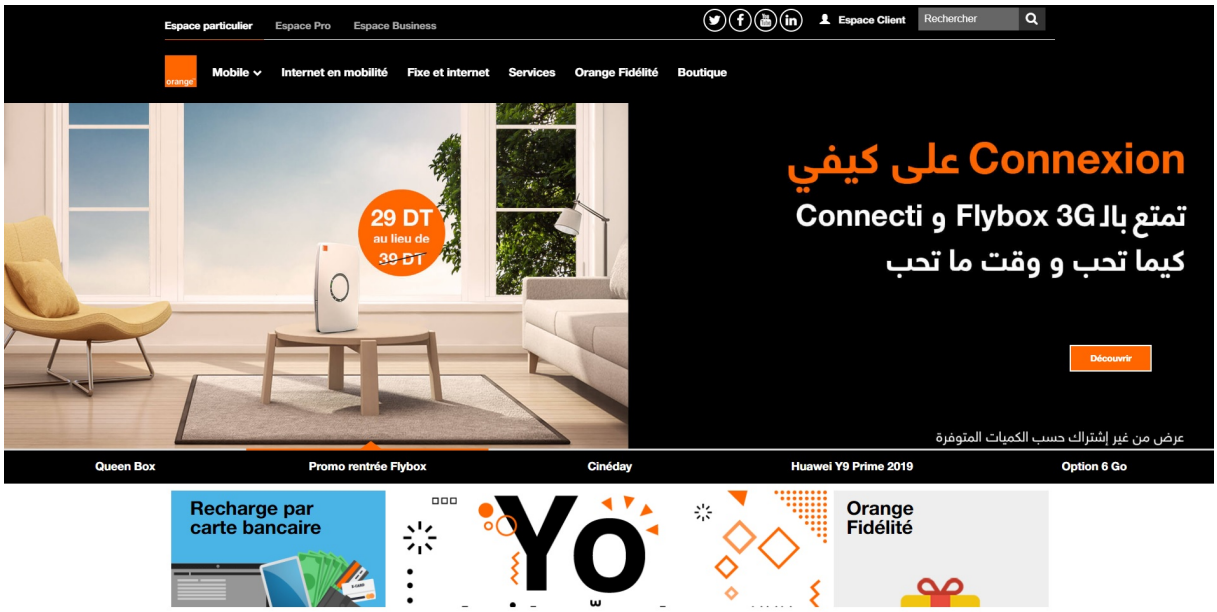

Figure I.1: Interface of the platform "orange.tn"

Criticism

- While using the platform, we cannot access the pro account section.
- Geolocalisation doesn't work (Google Maps Implementation).
- The interface is heavy on information and poorly organized.

I.1.2 Study of the platform "Telecom Tunisia"

Introduction

Telecom Tunisia offers services in the field of fixed and mobile telecommunications. In June 2006, it has 1,259,000 fixed-line subscribers (RTCP), of which it has a monopoly, and 3,265,000 subscribers to the GSM network, the first line having been inaugurated on March 20, 19983. With a share of market of 35.4 percent in December 2014) in the mobile telephony market23,Telecom Tunisia is the second largest mobile operator in the country, behind Ooredoo, leader with 45.7 percent of market share. In 2014, the incumbent operator posted an average monthly growth rate of 4.2 percent, which enabled it to surpass five million subscriptions. [2]

Telecom Tunisia has a dedicated CRM platform for their clients available on tunisietelecom.tn

Figure I.2: Interface of the platform "tunisietelecom.tn"

Criticism

- People are complaining about the late interaction of the client service.
- Although the interface is slightly better then orange.tn, this platform is also poorly organized and heavy with ads.

I.2 Proposed solution

Following the drawbacks mentioned in the previously, we propose the development of a CRM system that will allow marketers and salespeople to manage and analyze relationships with the company's actual and potential customers. It enables tracking every interaction with the company and collects information about the customer.

Our system will include functionalities which allow

1. Lead management: tracks the company's leads, allowing marketing teams to enter new leads into the system (automatically or manually) and to track and analyze data about them.

2. Marketing management: automatically send customers marketing emails at times set by the marketer, or publish social media posts according to a schedule. The goal of marketing automation is to keep sales leads engaged and to help turn them into paying customers.

3. Analytics: offer insights and help boost customer satisfaction rates. A marketer can analyze the data and create targeted campaigns accordingly.

Conclusion

In this chapter we have presented, a study of the existing with a criticism mentioning the weak points of the other existing platforms and the solution envisaged. In the following we will present an analysis and requirement specifications.

Chapter II

Analysis and requirement specifications

Introduction

Having understood the context of our project in the previous chapter, we will present the requirements specification which consists of the qualification of the functional and non-functional needs expected of the system to better understand the project and we will specify clearly and precisely these features using a modeling language such as UML.

II.1 Functional requirements specification

In order to meet the needs detailed in the specifications, we will identify the needs of the actors then we will produce a use case diagram followed by system sequence diagrams.

II.1.1 Actors Identification

We distinguish three main actors present in our application and who act within the platform following the role of each.

- Client : has access to the client privileges.
- Prospect : is a potential client, has fewer privileges than the client.
- Admin : maintains the application and has access to all the management modules.

II.1.2 Functional specification

Functional specification is the description of the functions of a software for its realization. Functional specification describes in detail how the requirements will be taken into account.

This description allows the user to better understand the operation of the system and have a deeper idea of its implementation.

This system offers :

- User management (add, update, delete, consult).
- Working management : manage workers, teams and stores (add, update, delete, consult).
- Product management (add, update, delete, consult).
- Shop management (add, update, delete, consult).
- Bills and Quotes management : the admin can send back a document to the client via mail or to the application dedicated interface. The customer or the prospect can add, update or cancel a quote's request. Only the customer can check his own bills and quotes lists, pay his bills, track his bills states and download.
- Offers, discounts and pack management (add, update, delete, consult).
- Claim management (add, update, delete, consult).
- Forum Management (add, update, delete, consult).

II.2 Use case diagram

To give a global vision of the functional behavior of a software system, use case diagrams are used.

The use case is a description of the interactions that will enable the actor to achieve his goal using the system. A detailed study of the system makes it possible to identify the

needs that define these main functionalities. These needs are modeled as use cases. First, we will present our use case diagram in general by this figure:

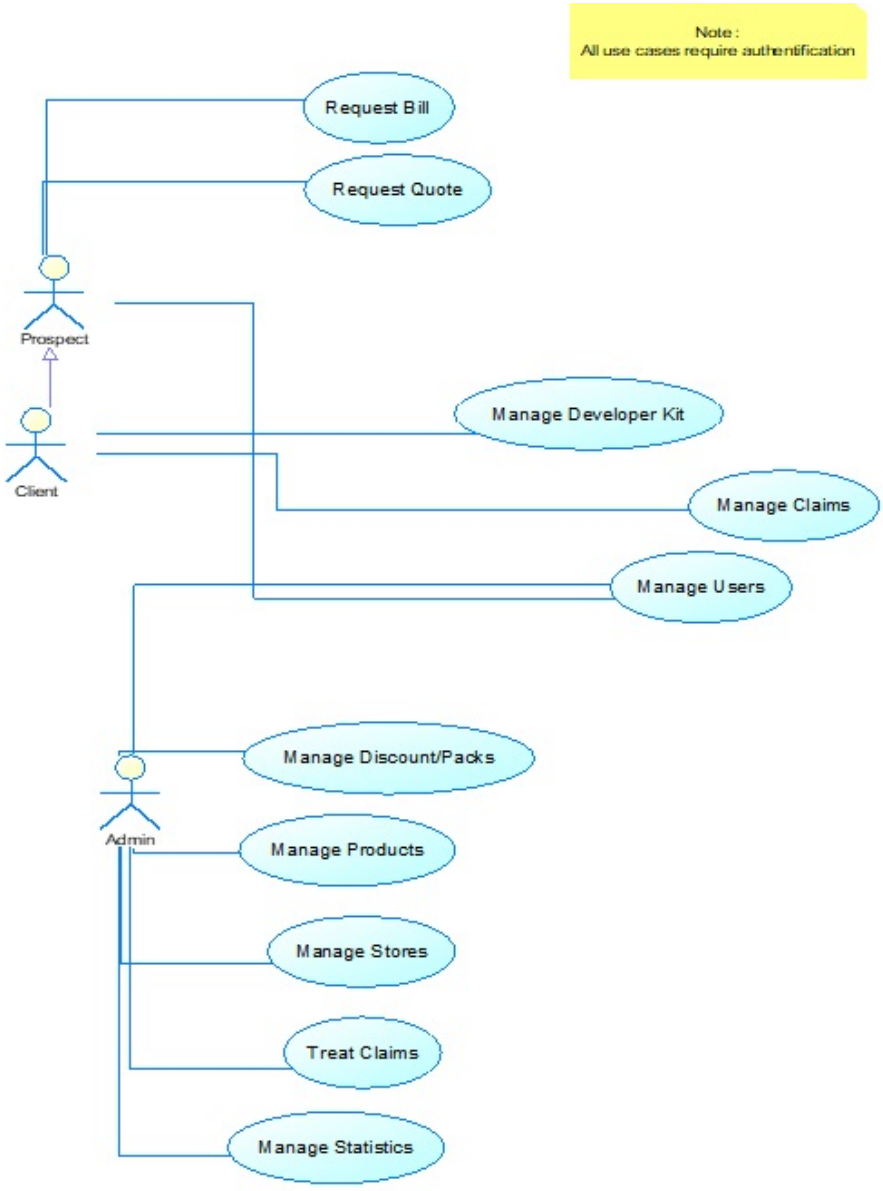

Figure II.1: General Use Case Diagram

II.3 System sequence diagram

II.3.1 System sequence diagram corresponding to the use case "Delete product"

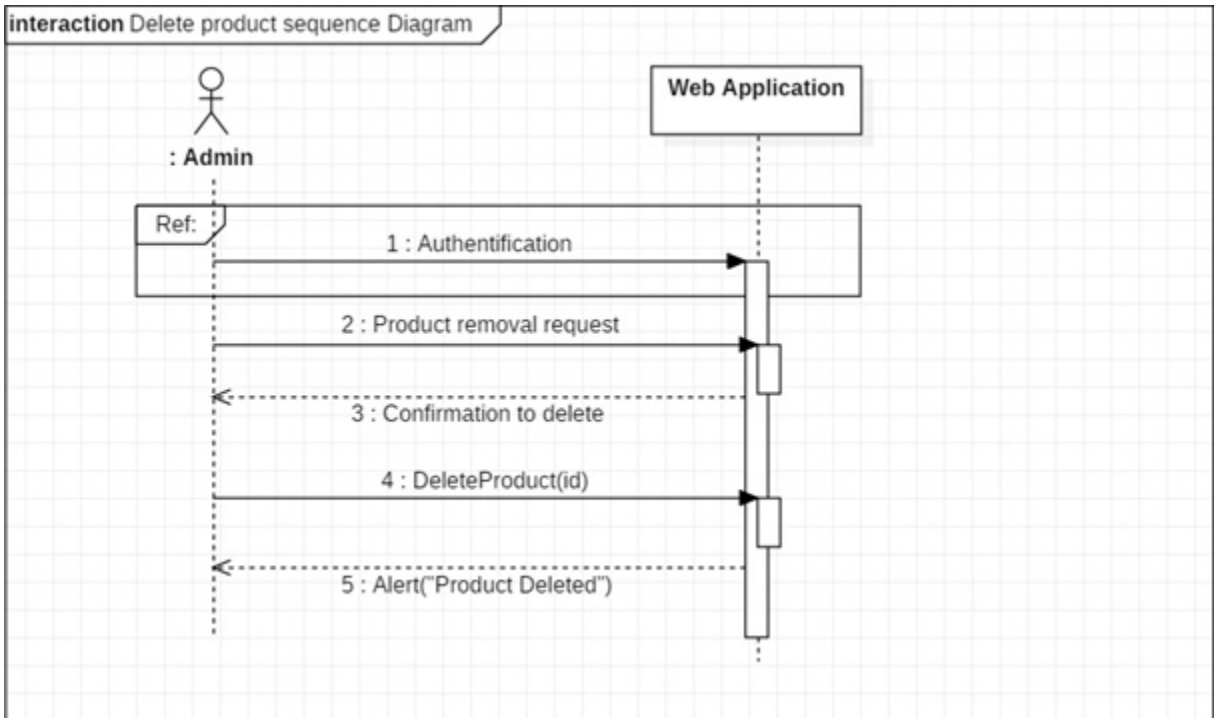

Figure II.2: System sequence diagram corresponding to the use case "Delete product"

II.3.2 System sequence diagram corresponding to the use case "Delete promotion"

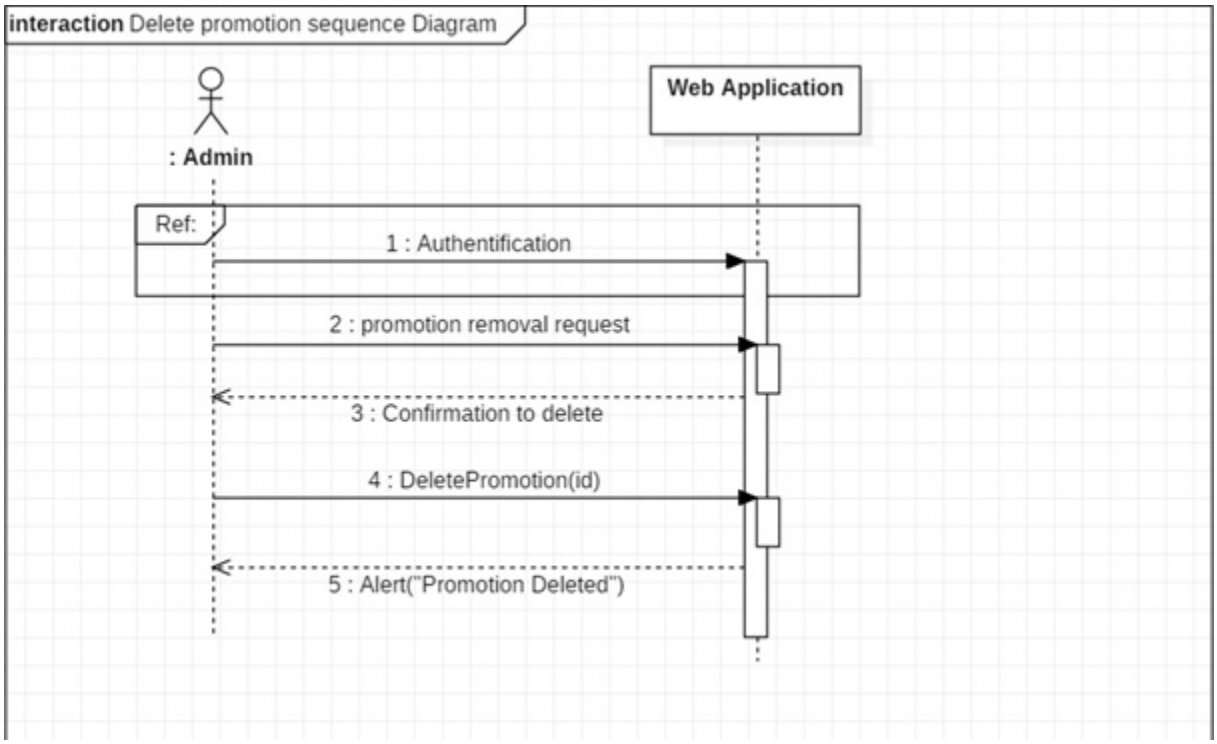

Figure II.3: System sequence diagram corresponding to the use case "Delete promotion"

II.4 Analysis class diagram

The figure below represents the static view of our application illustrated by the following class diagram:

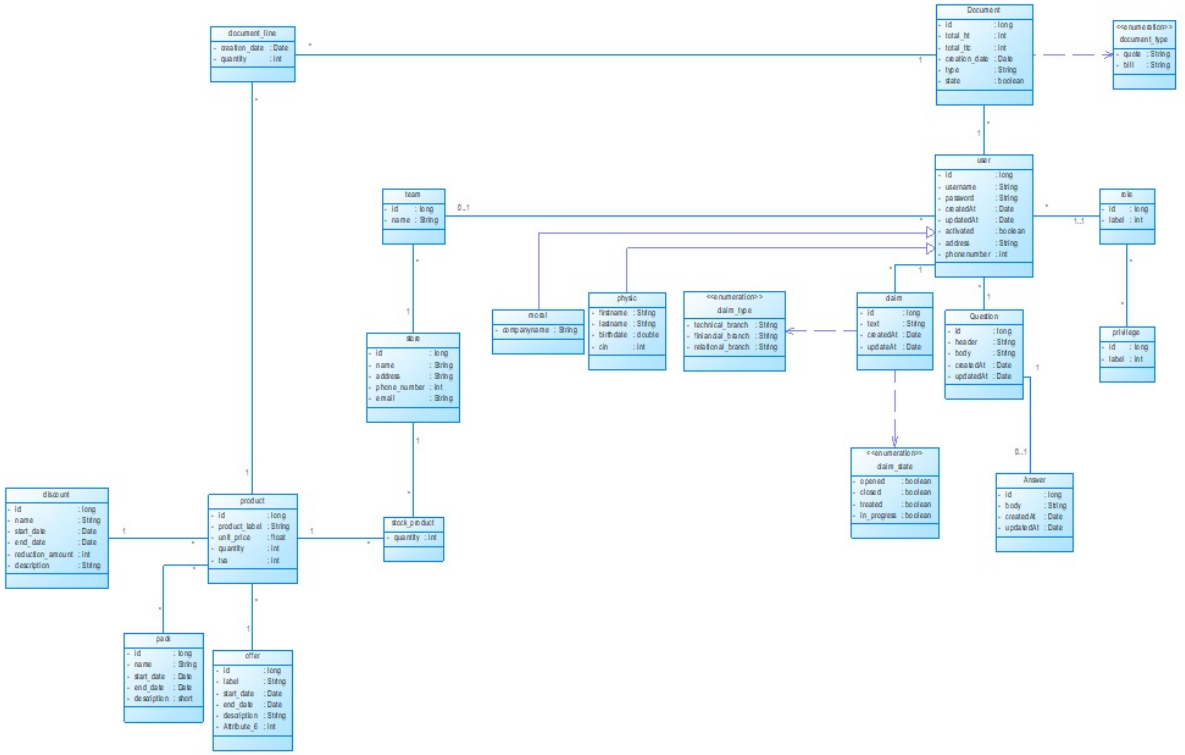

Figure II.4: Analysis class diagram

II.5 Graphical representation

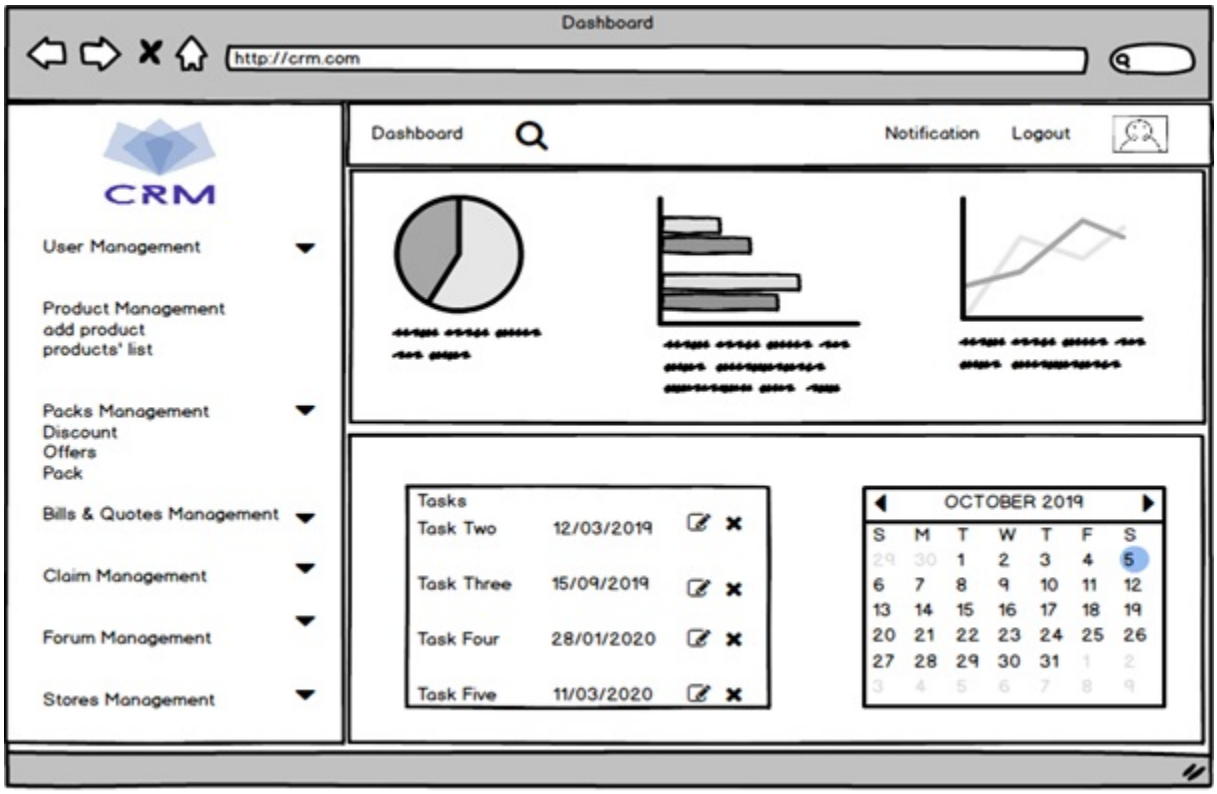

Figure II.5: Mock up for admin dashboard

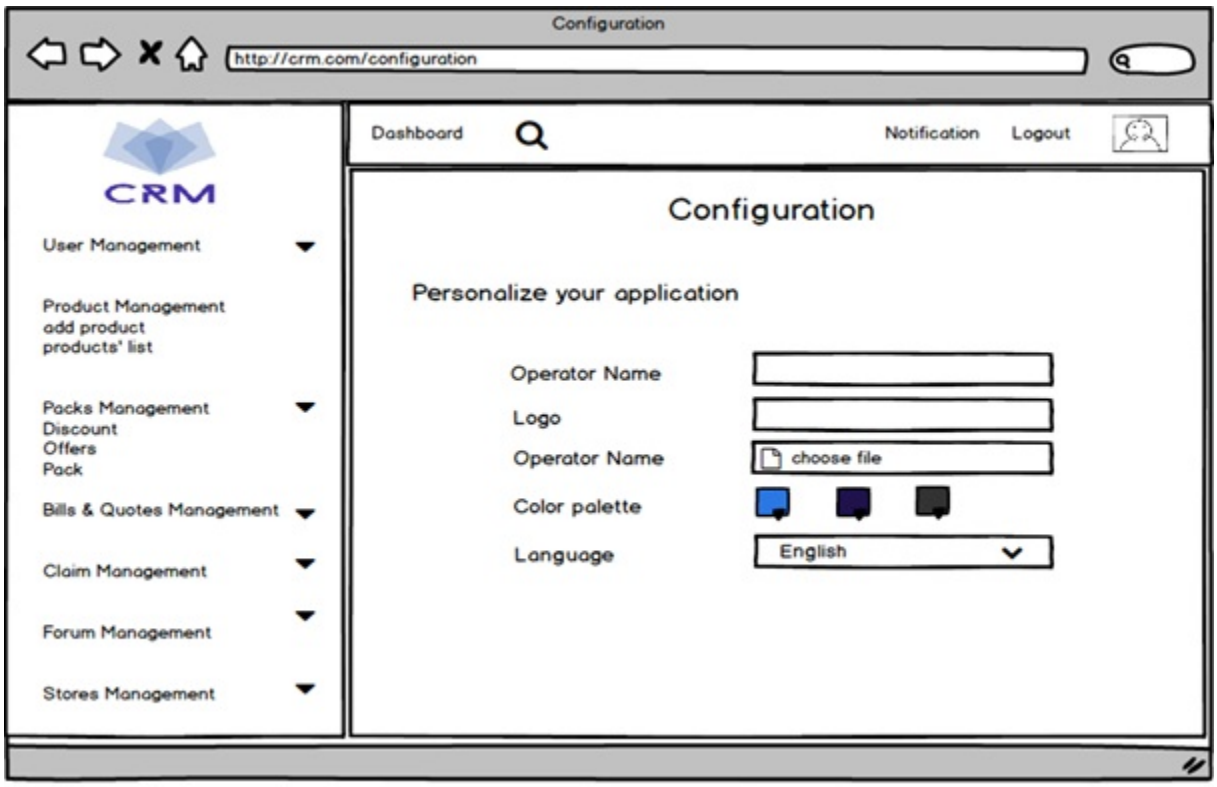

Figure II.6: Mock up for application's personalization

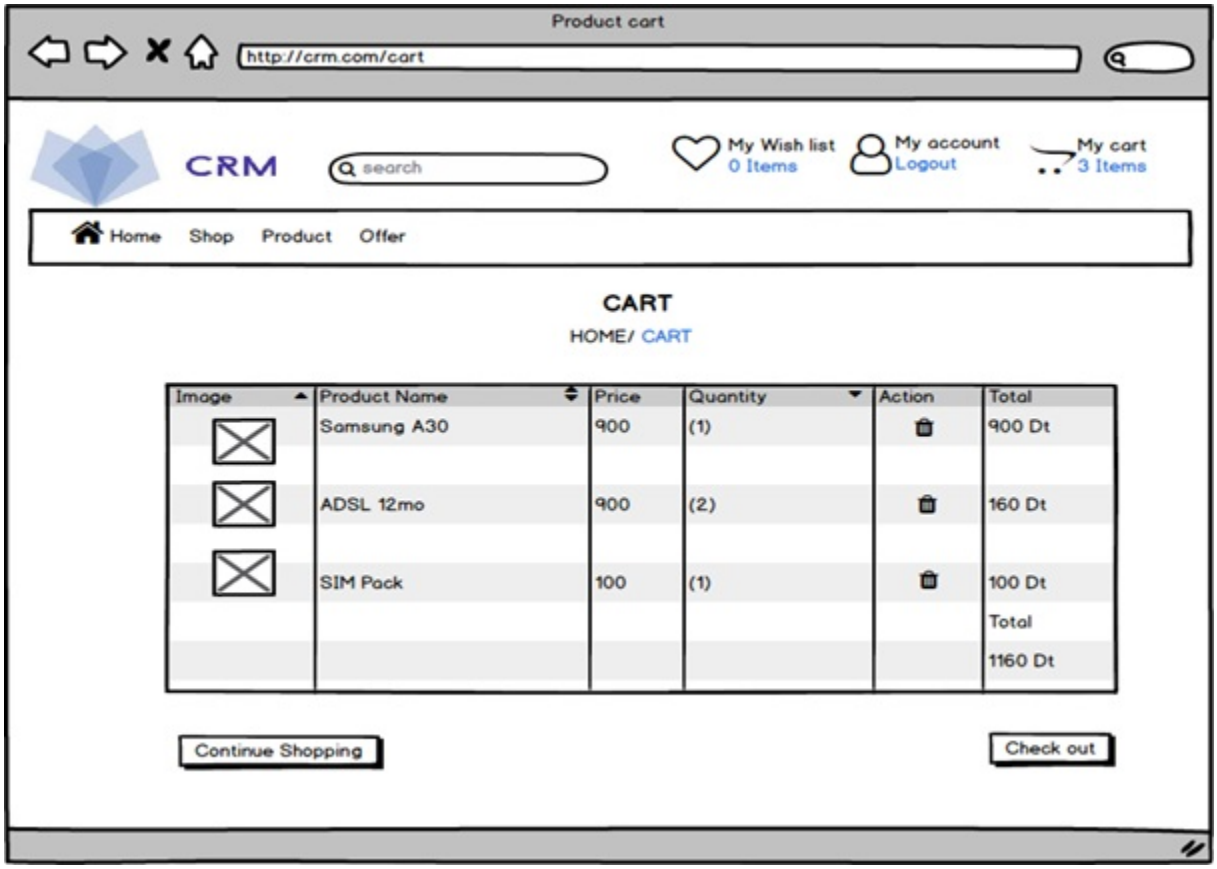

Figure II.7: Mock up for client cart

II.6 Deployment diagram

Deployment diagrams are used to visualize the topology of the physical components of a system, where the software components are deployed. They describe the static deployment view of a system and consist of nodes and their relationships.
The figure below represents the physical components of our system :

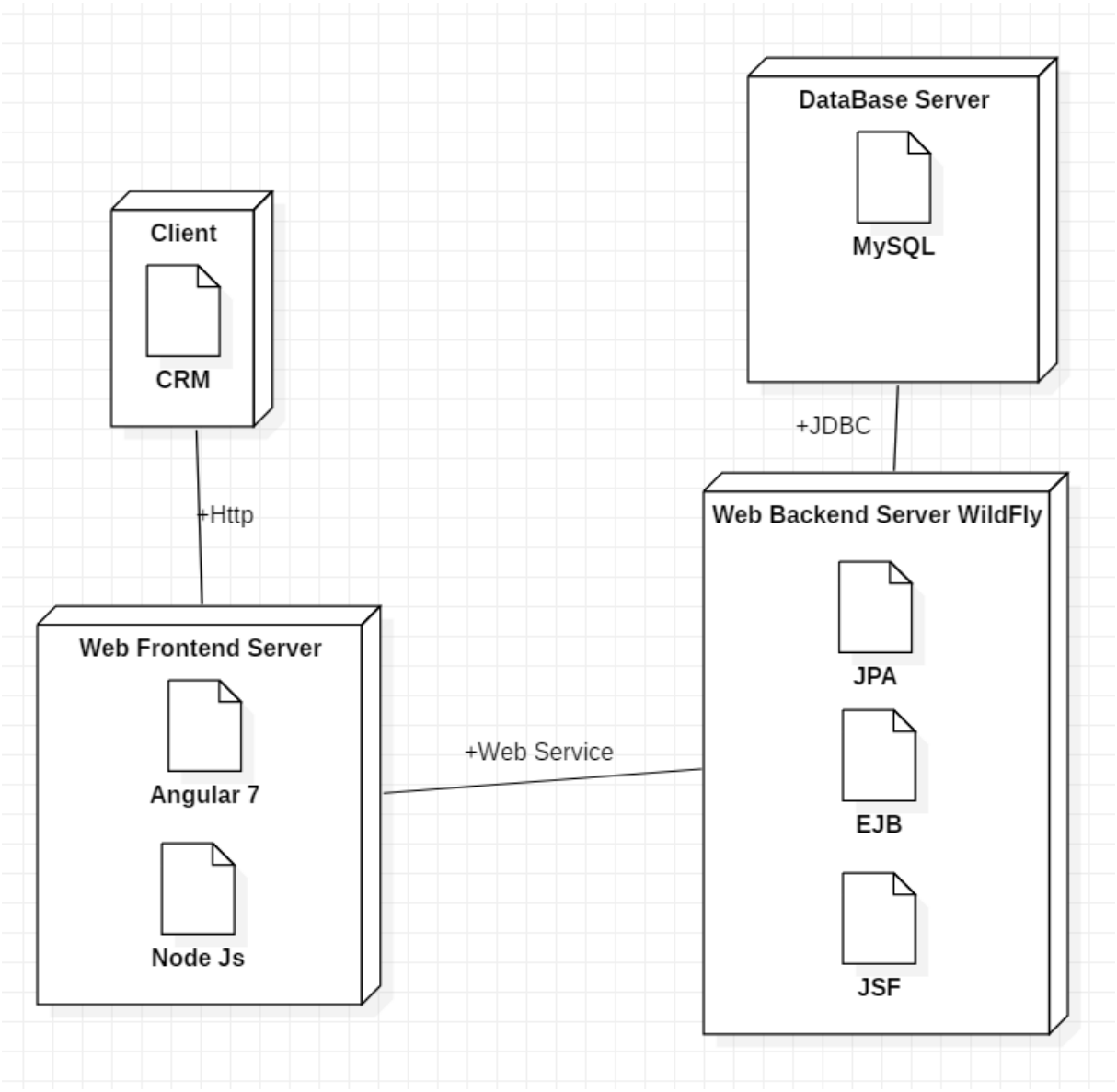

Figure II.8: Deployment diagram

II.7 Package diagram

Package diagram is a structural diagram. It shows the arrangement and organization of model elements in middle to large scale project. Package diagram can show both structure and dependencies between sub-systems or modules

The figure below represents the logical components of our system :

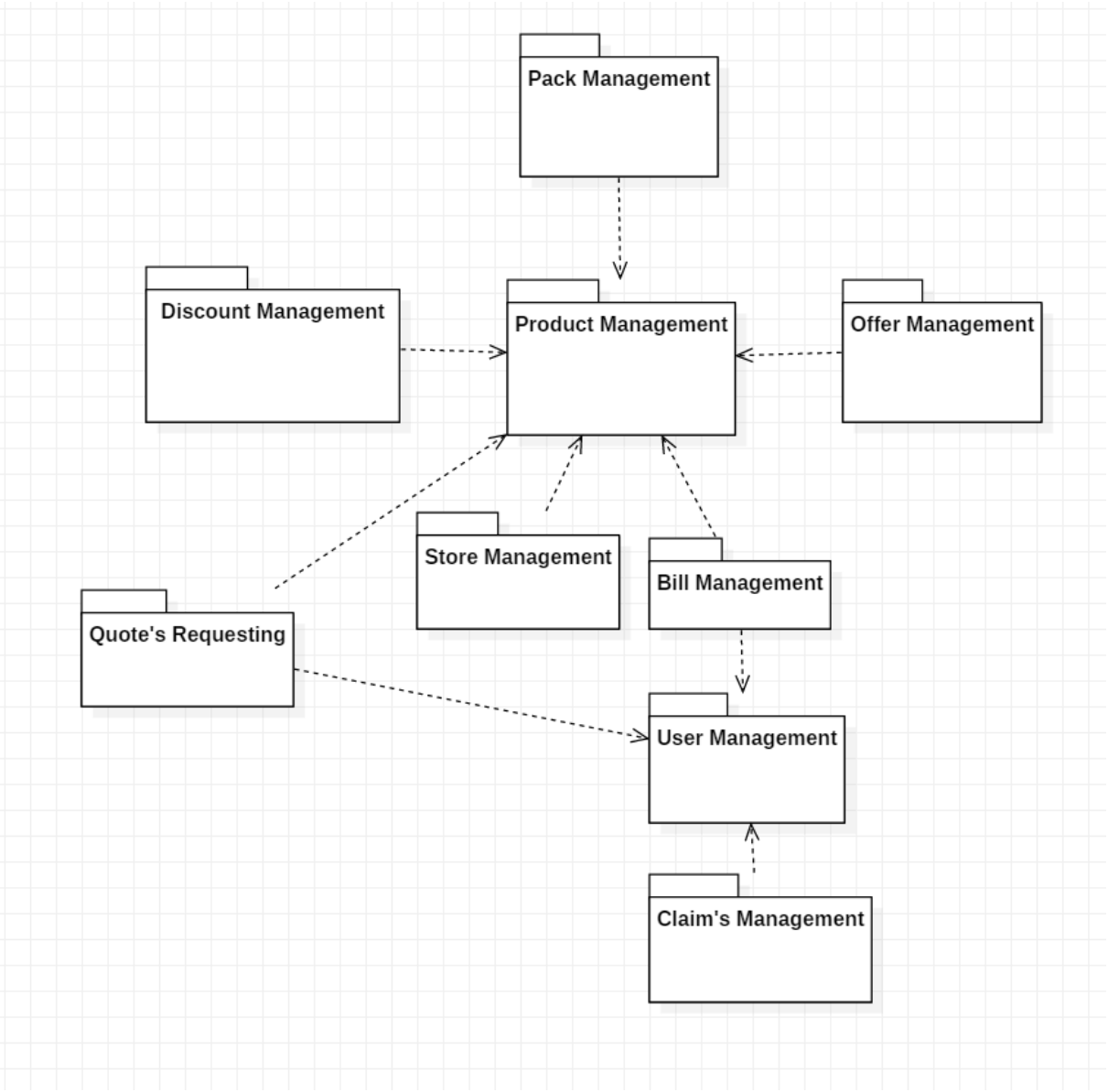

Figure II.9: Package diagram

II.8 Non-functional requirements specification

The non-functional requirements allow the improvement of the quality of our application, for this we rely on the ISO 25010 standard to define all the rules to apply.

- **Functional aptitude** : The extent to which a software product or computer system provides functions that meet the stated and assumed requirements, when used under specified conditions.
- **Performance efficiency** : The performance in relation to the quantity of resources used in these conditions.
- **Compatibility** : The extent to which a product, system, or component can exchange information with other products, systems, or components and / or perform the desired functions while sharing the same hardware or software environment.
- **Usability** : The extent to which a product or system can be used by specific users to achieve objectives that are effective, efficient, and satisfactorily specified in a specified usage context.
- **Reliability** : The extent to which a product or system maintains its level of service under specified conditions and for a specified period of time.
- **Security** The extent to which a product or system protects information and data so that people, other products or systems have the right level of access to data, adapted to their type and level of authorization.

Conclusion

In this chapter, we identified the actors in the system and presented the functional requirements. Then we presented the general use case diagram followed by the analysis class diagrams, and the different non-functional requirements that we selected according to the ISO 25010 standard. In what follows we will go to the design phase.

Bibliography

[1] https://www.orange.tn. consusted on 10/10/2019.

[2] https://www.tunisietelecom.tn. consulted on 10/10/2019.