

# TECHNICAL UNIVERSITY OF NORTH



FACULTY OF APPLIED SCIENCE

ENGINEERING

ENGINEERING DEGREE IN COMPUTER

SYSTEMS

## EXECUTIVE SUMMARY

### TOPIC:

“CONSULTATION COMPUTER SYSTEM AND LOCATION OF DRUGS IN PHARMACIES FARMAENLACE CIA. LTDA. COMPANY USING MOBILE MULTIPLATFORM”.

### AUTHOR:

Willian Vladimir Collaguazo Zambrano

### HEAD TEACHER:

Ing. Miguel Orquera

Ibarra – Ecuador

2015



# CONSULTATION COMPUTER SYSTEM AND LOCATION OF DRUGS IN PHARMACIES FARMAENLACE CIA. LTDA. COMPANY USING MOBILE MULTIPLATFORM

*Willian Vladimir Collaguazo Zambrano*

Universidad Técnica del Norte  
Avenida 17 de Julio 5-21 Barrio el Olivo

williancollaguazo@gmail.com

**Summary.** *FARMAENLACE CÍA. LTDA., It is a pharmaceutical company that runs today over 300 pharmacies nationwide, which daily struggle for reaching better to their customers with quality service, plus countless promotions that are built with the aim of meet the needs of its customers.*

*With technological advancement, and considering the new generations need to improve our services for that reason certain shortcomings of the company to the client were analyzed, one of the most fundamental problems the lack of information.*

*With the growth of the company is increasingly difficult for our customers to locate the nearest pharmacy and also our link to available drugs priority for each of them, causing loss of time and therefore loss of customers and sales our organization, why is resolved to make use of modern technology and implement a mobile application for searching and location of drugs in pharmacies, available for each of our clients.*

*The software will aim to search and disclose the location of the drug, as well as pharmacies Farmaenlace Cia. Ltda., Located nationwide, applying a technology that will revolutionize the market for mobile software development.*

## 1. Introduction

Farmaenlace Cia. Ltda., It is a business organization dedicated to the distribution and marketing of pharmaceutical necessities such as: medicines, medical items, toiletries and personal hygiene, pharmaceuticals, hospital products and all kinds of useful products for the welfare of human.

The company works with honesty and efficiency, looking for that service excellence is the fundamental pillar of growth, promoting development and new jobs in Ecuador.

Currently it owns brands:

**Economic Pharmacies:** They correspond to a grouping of several major pharmacies, market and family welfare pharmaceutical products, currently in almost all provinces nationwide.

**Medicitys Pharmacies:** They marketed from natural products, specialty medicines, hospital products, cosmetics, perfumes, among others. They are located in Quito, Guayaquil and Cayambe.

**Discounts Farma:** It is the association of independent pharmacies with their own names who market pharmaceuticals.

**Difarmes:** It is aimed at retailers, independent customers who need supplies directly.

Each brand is active as:

- Serve customers with a distinct culture of customer.
- Maintain high standards of service and quality with personalized attention.
- Addressing the needs delos customers.
- Provide security and support through a trained and qualified team.

Farmaenlace Cía. Ltda., It is one of the leading companies in the country with offices in cities such as; Guayaquil Quito, Ambato, Riobamba, Ibarra, Otavalo, Cotacachi, among others. Being a company recognized nationally for its prestige, excellent service and attention to citizens.

For 5 years, he has grown as a pharmaceutical company and taking advantage of new information technologies before us today, the company saw the need to create an area of Software Development with the objective of not depending on a company external software development and automate and implement various own computer systems that meet our requirements, in order to create tools that solve user problems and facilitate the administration and management of different areas of the company, moving from manual processes automated processes.

## 1.1 General objective

Develop a mobile application for searching and location of drugs in pharmacies of the company Farmaenlace Cía. Ltda.

## 1.2 Specific objectives

- \* Analyze the requirements of mobile application according to user needs.
- \* Prepare the preliminary and final project design according to the functional requirements.
- \* Build the mobile application with the requirements established.
- \* Validate the correct operation of the mobile application with end users.

## 1.3 Scope

A search and location of drugs to customers arises in pharmacies of the company Farmaenlace Cía. Ltda.

By using the system, the customer is easier to find the drug, and also know the address and location of the pharmacy you have available.

The search for drugs or would take place with the name of the product also can search the barcode. Once the drug from a list selected, this image is displayed, formulary if it had.

Search selected product will be made in the nearest pharmacies that have this, thanks to search a list of all the nearest pharmacies that have the product, the customer selects the pharmacy and the information on it is displayed as displayed: address, phone, also the location using a map for visual ease of the place.

It will also be very easy to generate a list of pharmacies in the city where the customer is, selecting a pharmacy client displays information such as address, phone number, location on a map.

Currently customers who consume drugs handled frequently, these are called "Medication Frequent" customers can view a catalog of drugs as its current promotion.

To disclose information to the company's current promotions are displayed chains, this is to announce promotions.

También se visualizará la revista (Promociones, artículos, informativos, entre otros.) vigente en la cadena seleccionada.

## 1.4 Justification

Currently there is no notify customers as the address and location of pharmacies of the company, also they do not know what medicine pharmacy there needs.

For this reason it is designed and a mobile application, which will announce the exact location of the pharmacy, and so you can locate the drug you are looking for, plus you can view existing developments in the company develops and thus achieve more benefits customer.

The mobile application is developed in java script language ALLOY MVC<sup>1</sup> Framework, as the only IDE that supports ALLOY MVC is "Appcelerator Titanium Studio" will be used as development IDE.

The web application is developed in C # language with Silverlight 5, using as development IDE Visual Studio 2012.

It is used as database SQL Server 2012, the application server is running on Internet Information Server.

The methodology used is RUP.

## 2.Theory

### 2.1 Mobile apps

A mobile application is a software application or program that is executed on a smartphone or similar device, currently in the mobile market is being covered by a number of smart phones of different brands and operating systems.

Currently there are 3 types of mobile applications are:

**Native applications:** Such applications are made to run on a specific operating system and device are also created with different languages and platforms.

**Webs applications:** Son aplicaciones que son ejecutadas dentro de un explorador web, como también pueden ser ejecutados dentro de una aplicación nativa que llame o invoque a un visualizador web.

**Hybrid applications:** It is the combination of the native application and the Web application. With this combination you can use web technologies like HTML, Javascript and CSS.

---

<sup>1</sup> **MVC:** Model – View - Controller

For a smartphone can use 100% of its value, you must have an embedded platform, according to their capacity and functionality, there are now multiple platforms or operating systems are:

- Android
- IOS.
- BlackBerry OS
- Windows Phone

## 2.2 Geographic information system (SIG)

The sign is no more than a platform that unites hardware, software and geographic data designed to capture, store, manipulate, analyze and display all information and attributes in order to satisfy multiple purposes.

Components of SIG:

- **Hardware:** The physical locations where they provide illustrations in this.
- **Software:** GIS programs provide tools and functionality needed to store, analyze and display geographic information.
- **Information:** It requires adequate supporting data for the GIS to solve problems and answer questions as successful as possible.
- **Personal:** No expert staff development, information becomes outdated and wrongly handled.
- **Methods:** For a successful implementation SIM has to be based on good design and defined business rules, which are the models and operating practices unique to each organization 2[2].

## 2.3 Google Maps

It is a Google service that offers satellite images of the entire planet, combined, in some countries, with maps of their cities, which together with its possibilities open programming has led to various utilities offered from numerous websites<sup>3[3]</sup>.

Several aspects of Google Maps are responsible for its ease of use by anyone: the sliding system image, coupled with dynamic loading of new images; map adaptation to the size of the browser window; the minimalist interface; the possibility of changing map type in a click.

---

[2] Osorio, M. (27 de Junio de 2014). *¿Qué es un SIG?* Obtenido de *¿Qué es un SIG?*

Recuperado de: <https://prezi.com/3iyes9kfa4lp/que-es-un-sig/>

[3] Arcila, J. (1 de Octubre de 2013). *Google*. Obtenido de Google

Recuperado de: <http://es.slideshare.net/jessicaarcila/google-26763678>

All this need, therefore, a perfect synchronization between what you can ask the JavaScript, and what is actually available on the server. The program of initial cut of the entire image is therefore extremely important because it is responsible for the accuracy of cut and the rigor of their labeling, the proper conduct of the events triggered by user actions.

**Exploring the Google Maps APIs:** A Api<sup>4</sup> it is merely an application programming interface (Application Programming Interface), is hosted here a set of methods, functions, which can be consumed or used by one or more programs.

This type of service is free by google long as they do not pass on the rules that are set by the api.

## 2.4 Alloy MVC

It is a framework designed for cross-platform mobile application development such as iPhone and Android, where development is easy, fast and scalable.

Use the MVC architecture, framework divided into 3 types of files:

- **XML:** containing all the controls to be displayed in the application and are considered as the Vista.
- **TSS:** It contains positions, styles, how to present XML controls, this would be more like a style sheet in html and would be the Model.
- **JS:** containing functionality, events, calls to internal and external methods (Web Services), the device features, among others. and would Controller.

## 3. Project Phases

### 3.1 Software Development Plan

This Software Development Plan is a preliminary version to be included in the proposal made in response to the project.

The project is based on the RUP. Detail for phases of Home, Development, Construction and Transition to give an overview of the whole process will be included.

**Scope:** The Software Development Plan describes the overall plan used for the development of the Information System Consultation and Location of medicines in pharmacies Business Farmaenlace Cia Ltda. The details of the individual iterations described in each iteration plans, documents separately provide.

---

<sup>4</sup> **API:** Interfaz de programación de aplicaciones

### 3.2 Project Overview

Farmaenlace Being a pioneer in the sales of drugs through "ECONOMIC" brand "MEDICITYS" and "PAF's" is to offer a service of benefit to customers through mobile technology.

The benefits that the mobile application will be the following:

**Drug Search:** The search will be by name or by bar code.

**Search Pharmacy:** Pharmacies nearby is presented to the device's location.

**MF<sup>5</sup> Drug Search:** This search is similar to the search of Medicines, the difference is that only seeks common medication.

**Ongoing promotions:** All promotions are valid in the Brand selected unfold.

**Magazine:** Magazine that are currently displayed in the Mark.

**Web:** Access to the website of the brand will.

### 3.3 Start phase

At this stage all user requirements, these will be reflected in a requirements document, it must be approved by the user, also by the Head of Projects, once approved document is collected will be the final phase.

### 3.4 Processing Step

**Processing Step.** Use Cases are a description of the steps or activities that should be made to carry out any process. The characters or entities participating in a use case called actors, at this stage all possible use cases planned in the detailed software developed.

### 3.5 Construction phase

In this phase all system logic and flow diagrams both data and logic for each use and interface developed as well as detailed documentation of these. The logical flow of the system for each of its functions and interaction of its components is also described.

### 3.6 Transition phase

Describes and documents all test cases for each interface and function used by the end user on the system developed within a controlled environment, well documented and describe the results obtained by each process.

## 4. Conclusions

- Following completion of the implementation of this mobile application, Farmaenlace Cia. Ltda., Has been able to visualize the advantages obtained, as our customers can access personalized information necessary resulting in increased profitability.
- The implementation of a mobile application for Farmaenlace Cia. Ltda., Brings more advantages and opportunities to reach their customers, achieving better manage product information from pharmacies and location of each of these.
- The RUP methodology is an indispensable documentation tool a thesis project, because it acts as a guide through its structure and organization provided in creating documentation of a project.
- The Framework being Alloy platform facilitates the creation of mobile applications for both Android and IOS, this is also easily generated and coupled to modules for a more agile development.
- Google Map's gives us many geolocation services through their own maps, thanks to this the user can more easily locate a particular location.
- It's a great experience to develop a mobile application that provides information to users and thanks to its portability can be accessed from anywhere through your smartphone.

## Recommendations

- Farmaenlace Cia. Ltda is recommended. The mobile application to promote all your customers have free access to information either product as well as their pharmacies.
- With regard to the RUP, we recommend applying as an organization would provide documentation and project development, achieving a quality project and easy development.
- With regard to the Framework Alloy, it is not recommended for robust applications, since being

---

<sup>5</sup> MF: Common medication

platform controls and functions exist that cannot also run between the different operating system.

- Google Map's, you should apply to any type of application or mobile web have geolocation, as it provides easy access to your information whether these maps and locations.
- When creating an application for IOS in the Framework Alloy, we recommend using a MacBook, in this you can get all the advantages offered by this Framework.

## Acknowledgements

I wish to express my sincere thanks:

I thank God for protecting me all the way and give me strength to overcome obstacles and difficulties along my life.

To my Dad, for your unconditional support, both at the beginning and end of my career; to be aware of me all the time. Thanks Papi as an example of hard work and tenacious struggle in life.

My Mom, you have something of God by the immensity of your love, and much of my guardian angel for being and for your tireless care.

My brothers, for all the help they gave me in the path of this project.

My Heads Dennis Criollo and Patricia Mina, they have always supported me in good times and bad times.

My colleagues, who are always encouraging me to grow professionally and staff.

Herramientas de cartografía digital aplicadas a los estudios históricos.

Recuperado de:

<http://historiapolitica.com/redhistoria/2014/08/cartografia-digital/>

Lopez Mariscal, V. M. (19 de Septiembre de 2013). SISTEMAS OPERATIVOS. Obtenido de SISTEMAS OPERATIVOS

Recuperado de:

[http://viictoorloopeez.blogspot.com/2013\\_09\\_01\\_archive.html](http://viictoorloopeez.blogspot.com/2013_09_01_archive.html)

Osorio, M. (27 de Junio de 2014). ¿Qué es un SIG? Obtenido de ¿Qué es un SIG?

Recuperado de: <https://prezi.com/3iyes9kfa4lp/que-es-un-sig/>

Roca, L. (22 de Junio de 2014). www.ipadizate.es. Obtenido de La historia de la sorprendente evolución de Android

Recuperado de: <http://www.ipadizate.es/2014/06/22/repasamos-historia-android-imagenes-93603/>

SAAVEDRA, Y. (24 de Septiembre de 2013). www.alt1040.com. Obtenido de La evolución de BlackBerry a través del tiempo

Recuperado de: <http://alt1040.com/2013/09/evolucion-blackberry>

Salvado, F. (29 de Marzo de 2014). Windows ce y windows mobile. Obtenido de Windows ce y windows mobile

Recuperado de: <https://prezi.com/adbuvsbya-uik/windows-ce-y-windows-mobile/>

zagoya. (28 de Octubre de 2011). Glosario de terminos Android para novatos. Obtenido de Glosario de términos Android para novatos

Recuperado de:

<http://www.htcmania.com/showthread.php?t=282241>

**Autor-Willian COLLAGUAZO** He began his primary education at school “Fe y Alegría” its location, its secondary studies were conducted at the Higher Technical Institute “17 de Julio”, in order to continue with his studies at the school of engineering in computer systems “NORTH TECHNICAL COLLEGE”.

## Bibliographic references

Arcila, J. (1 de Octubre de 2013). Google. Obtenido de Google

Recuperado de: <http://es.slideshare.net/jessicaarcila/google-26763678>

Bahrenburg, B. (2013). Appcelerator Titanium Business Application Development Cookbook. Birmingham: Packt Publishing Ltd.

Brousseau, C. (2013). Creating Mobile Apps with Appcelerator Titanium. Birmingham: Packt Publishing Ltd.

Campoverde, C. (3 de Julio de 2012). Historia IOS. Obtenido de Recuperado de: <https://sites.google.com/site/aviguerra/historia>

Cope, D. (2013). Appcelerator Titanium Application Development by Example. Birmingham: Packt Publishing Ltd.

GoogleMaps. (2004). ¿Qué es Google Maps?

Recuperado de: [http://www.googlemaps.es/?page\\_id=3](http://www.googlemaps.es/?page_id=3)

LONGHI, F. (5 de Agosto de 2014). Herramientas de cartografía digital aplicadas a los estudios históricos. Obtenido de