

# DEVELOPMENT OF A COMPUTER APPLICATION TO DISSEMINATE THE BENEFITS AND USES OF MEDICINAL PLANTS THROUGH MOBILE DEVICES

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## Abstract.

The present grade work consists of the development of a computer application to spread the benefits and uses of the medicinal plants by means of mobile devices, offering to all the persons the pertinent information of 100 medicinal plants classified by type of illness.

In the first chapter he speaks on the current situation, and the most viable solution for the project.

In the second chapter it presents to itself the computer topics related to the development of the work of grade, in addition to information belonging to the medicinal plants classified by type of illness.

In the third chapter it is where there is executed the methodology of development of software XP and each of its phases is applied.

In the fourth chapter there are written the conclusions and recommendations of the developed application, and the impact analysis is realized inside several areas.

**Keywords:** Development of Applications.

**Resumen.** El presente trabajo de grado consiste en el desarrollo de un aplicativo informático para difundir los beneficios y usos de las plantas medicinales mediante dispositivos móviles, brindando a todas las personas la información pertinente de 100 plantas medicinales clasificadas por tipo de enfermedad.

En el primer capítulo habla sobre la situación actual, y la solución más viable para el desarrollo del proyecto.

En el segundo capítulo se presenta los temas informáticos relacionados con el desarrollo del trabajo de grado, además de información perteneciente a las plantas medicinales clasificadas por tipo de enfermedad.

En el tercer capítulo es donde se ejecuta la metodología de desarrollo de software XP y se aplica cada una de sus fases.

En el cuarto capítulo se redactan las conclusiones y recomendaciones del aplicativo desarrollado, y también se realiza el análisis de impacto dentro de varias áreas.

Palabras Claves: Desarrollo de Aplicaciones Informáticas.

**Palabras Claves:** Development of Applications.

## 1. Introduction

The Medicinal plants, according to the World Health Organization (WHO), are all those that in one or more parties contain active substances, which are used by humans for therapeutic purposes, given that they have a biological activity by altering or modifying the functioning of organs and systems of the human body.

Medicinal plants as alternative medicine involves the use of leaves, bark, roots, pollen, flower petals, seeds, fruits, and stems of trees, shrubs, algae, mushrooms, herbs and other types of representatives of the plant kingdom as a broader dimension that requires study and understand all the possible applications, when used correctly, the medicinal plants provide alternatives to prevent and treat many health conditions of effective and safe way. Even more, there are medicinal plants and substances derived from these that can help to optimize and improve various functions of the human organism.

Today, the medicinal plants, as part of the alternative therapies, are widely accepted throughout the world, their use for therapeutic purposes is becoming more and more frequent, and the interest in alternative or complementary medicine will continue to increase, its many properties, the use of medicinal plants and their active principles provide significant environmental benefits, economic and social, in addition to being a wide field of application of the food industries, pharmaceutical, and cosmetics bottles are handpainted.

## 2. Objectives

### 2.1 General Objective

Develop a computer application to disseminate the benefits and uses of medicinal plants through mobile devices.

### 2.2 Specific Objectives

- Recognize the Current Situation
- establish the framework for the Development of the Software.
- Understand the classification and use of medicinal plants.
- Develop the application using the XP methodology the study.

## 3. Scope

The development of this research through a mobile application using the free hybrid XP methodology will consist of 100 medicinal plant classified by type of

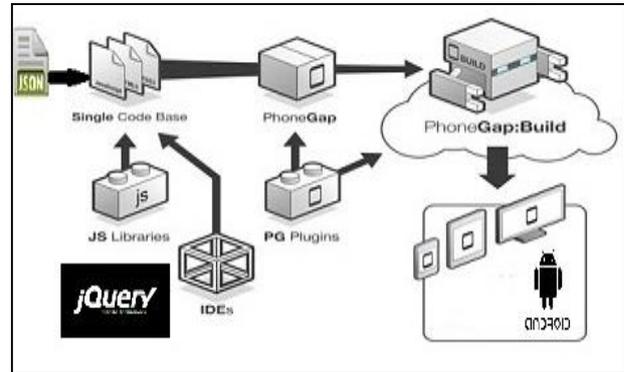
disease. In addition the application will enter the information of the properties and uses of each one of the medicinal plants for the benefit of the health of the people.

The development of this mobile application will be only for Android devices and published in the shops of Google Android as Play.

- Development Tools: Phonegap, PhoneGap: Build, JQuery Mobile, Json.
- In the development of hybrid application is used:
  - a) native: enables us to access the native capabilities of mobile devices using JavaScript. As well, we can develop all of the logic of our application in JavaScript and use the API of PhoneGap for access to the native capabilities of the device;
  - b) Web: For the interface, that is to say to display the information through the use JQuery Mobile;
  - c)

System Administrator: shall be responsible for managing users and privileges of each one of them, in addition the data management system. The system administrator will be developed in eclipse IDE Moon, PostgreSQL Database, JPA, and Primefaces and will be published in openshift in this way the mobile app will connect with the database and will interact with the data.

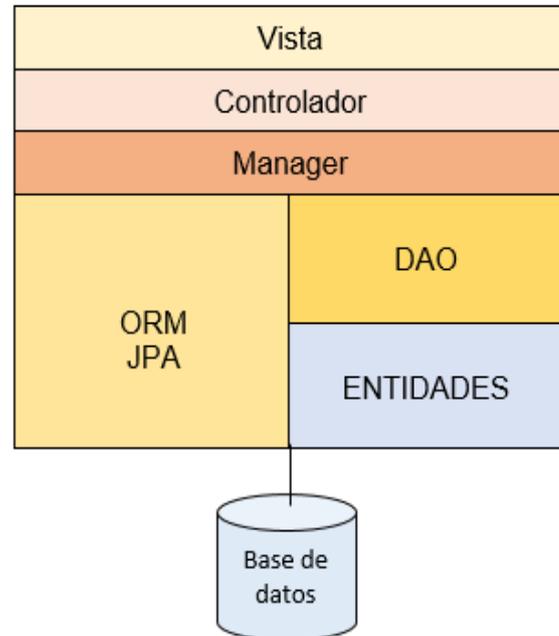
### 3.1 Functional architecture of the mobile application hybrid



The client application of PhoneGap communicates with a server-side application, communication with the server is generally based on standard HTTP requests for HTML content, such as JSON.

The architecture of the client application is often use a single-page model where all the application logic in a single HTML page This page remains loaded in memory and manages everything. The data is displayed by updating the HTML DOM, the data is saved from the application on the server through AJAX techniques and the variables are maintained in memory through JavaScript.

### 3.2 Architecture of the system administrator



| Name               | DESCRIPTION  |
|--------------------|--|
| <b>ORM<br/>JPA</b> | Programming technique for converting data between an OO programming language and used in a relational database.  |
| <b>DAO</b>         | Is a software component that provides a common interface between the application and one or more data storage devices, such as a database or a file.   |
| <b>ENTITIES</b>    | Basic Unit of persistence in JPA   |
| <b>MANAGER</b>     | Is used to create entities, delete entities, create queries to return a set of entities, among others.   |
| <b>CONTROLLER</b>  | A Bean is a software component that has the particularity of being reusable and so avoid the tedious task of coding the various components one by one. |
| <b>VIEW</b>        | Unfolds the pages .xhtml   |

### 3.3 Functionality of the application

The application consists of a web system administrator and a mobile application. The web system will generate all the information of the medicinal plants that will be consumed by the mobile application using a REST service. To make use of the system administrator must be connected to the internet and have a user with their respective password.

The use of the mobile application is only for devices with Android operating system and the obtains free play in Google.



### 4. Analysis of Impacts

The study was complemented by an analysis of the impacts on the general areas in which the mobile application influences positively or negatively both in the development of the mobile application of medicinal plants as well as the use by the users.

From this it was determined the following areas: productive, organizational, economic, innovation, human.

In the following table determines the levels of positive and negative range.

| Range | Impact                 |
|-------|------------------------|
| -3    | high negative impact.  |
| -2    | Means negative impact. |
| -1    | Under negative impact. |
| 0     | There is no impact.    |
| 1     | Low Impact positive.   |

|   |                               |
|---|-------------------------------|
| 2 | <b>Impact positive means.</b> |
| 3 | <b>High Impact positive.</b>  |

#### 4.1 Impact Total productive

productive impact: Action Items 11/5

Total productive impact: 2.2

productive level of impact: positive means.

#### 4.2 Impact organizational

impact Total productive: 10/4

Total productive impact: 2.5

productive impact level: high positive.

#### 4.3 Economic Impact

of impact productive: 4/4

Total productive impact: 1

Level of productive impact: under positive.

#### 4.4 Impact Innovation

Total productive impact: with 12/4

Total productive impact: 3 Level of

productive impact: high positive.

### Conclusion

- The framework for the development of mobile applications multiplatform PhoneGap is a good alternative for the development of hybrid applications because it gives us the possibility of reuse of code that is to say that the same source code will help us to compile for the different existing mobile operating systems.
- The framework JQuery Mobile is a good alternative for the design of our mobile applications, thus transforming to our dynamic and iterative applications for the end user.
- The XP methodology is a good alternative for the development of software, because it gives the

possibility to defining requirements more as you go along the project, in this manner allows scalable.

- The user stories is a good strategy to clearly define what you want to perform in our applications.

### Recomendations

- For the development of mobile applications cross-platform, it is recommended that you use the framework PhoneGap already that with a single code allows us to compile the different existing mobile platforms.
- For the development of agile applications it is recommended to use the XP development methodology, which gives higher value to the individual, collaboration with the client and the incremental development of the software with very short iterations.
- For the design of hybrid mobile applications it is recommended that you use the framework JQuery Mobile already that optimizes the native functions to improve its performance in mobile equipment.
- To store our applications in the cloud it is recommended to use Openshift since it is a free tool and is compatible with different programming languages, as well as providing the possibility to upload 3 applications for free.

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