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| Designer drug database |
| Feasibility Study and Project Plan |
| Senior Project, CIS 4911- U01 |
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| **Team Member: Carlos Dominguez** |
| **2/2/2015** |

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# Abstract

The Designer Drug Database project is designed to provide a way to manage electronically information gathered by researchers at the Forensic Research Institute of FIU as well as allow them to share important information with the world of Academia and the Professionals Community. The system is sophisticated and highly user friendly in this aspect.

This document contains information about the feasibility study and project plan for the Designer Drug Database project. The main chapters on this document are the Introduction, Feasibility Study, and Project Plan. The introduction presents the problem definition, background, terminology to be used in this document, and Overview of the document. The Feasibility Study presents the Description of the current system, purpose of the new system, high level user definition of user requirements, alternative solutions, and recommendations. The Project Plan shows how the project is organized, how the work is broken down, as well as the cost estimate for the project.

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# Introduction

The Designer Drug Database System is a system designed to easily add new compounds and manage the information through a centralized user friendly web application. This application was done with a responsive web design to be friendly in phones, tablets and any other device that you access the web application from.

This section divides as follows:

* 1. Problem definition
  2. Background
  3. Definitions, Acronyms, and Abbreviations
  4. Overview of document

## 1.1 Problem definition

Dr. Arroyo and the team at the Forensic Research Institute produce several reports and useful information from research they perform at the Institute. One of the challenges they have face is sharing the results that yields from their research. The purpose of this project will be to provide the Institute with a software solution that allows them to share the research result with the world of Academia and the Professionals Community

## 1.2 Background

The Forensic Research institute at FIU is a prestigious research facility that among all the things they research and do, they are developing a drug database from where any compound listed in it can be easily identified. They have wanted to have a medium to share this information with the rest of Academia and professional community.

## Definitions, Acronyms, and Abbreviations

Following we will have the definitions. Acronyms and abbreviations that are used in this document.

### 1.3.1 Definitions

**Single-page application (SPA):** is a web application or web site that fits on a single web page with the goal of providing a more fluid user experience akin to a desktop application.

**Platform independent framework:** is a framework that allows programmers to create one application that can be seen over different platforms.

**Native system:** is a system that can only be seen in its own target devices, such as apple devices or android devices.

**Administrator:** Registered user with credentials. User has elevated privileges and can give access to other users.

**User:** Any general person who uses the system

### 1.3.2 Acronims and abreviations

**Admin:** Administrator

**CSS :** Cascading CIS Style Sheets

**DB:** Database

**FIU:** Florida International University

**GUI:** Graphical User Interface

**HTML:** Hypertext Markup Language

**JS:** JavaScript

**MVC:** Model View Controller

**PHP:** PHP: Hypertext Preprocessor

## Overview of document

Throughout this document we will explore the requirements for this project. Moreover, we will be discussing the technology we will be using to implement certain features. This document will act as the guide that talks about the technologies used for future maintenance and expansion of the system. Over the next chapter we will begin to explore the current system and the current system constraints that we are looking to provide solutions to.

# Feasibility Study

This section will go in depth on the feasibility study that is to be done to create the new software solution to the introduced problem. In this case, because the system starts from scratch I have no current system to describe, thus will only be taking about the future system that will be implemented.

This section divides as follows:

* 1. Description of Current System (Limitations and Constraints)
  2. Purpose of New System
  3. High-level Definition of User Requirements (must include security/privacy requirements)
  4. Alternative Solutions
  5. Recommendations

## 2.1 Description of Current System (Limitations and Constraints)

In this case there is no current system; the system is to be created from the beginning.

## 2.2 Purpose of New System

The purpose of this system is to share research knowledge with other institutions and researches in the biological studies field. The system, administrated by FIU research staff, is going to share numbers that will help other doctors identify compounds because the combinations of numbers compose a digital fingerprint of different compounds.

## 2.3 High-level Definition of User Requirements (must include security/privacy requirements)

The objective is to create a Designer Drugs Database App for native Apple systems. The user has also required this application to use the following technologies: PHP, JavaScript, C#, Css, Html, SQL, Ios, and Objective-c .

**Security:** the system must be secure to administrate. However, the information is free to be seen by other researchers and thus no authentication is required .

## 2.4 Alternative Solutions

The current options are platform independent framework, hybrid apps crators, and responsive web design application.

### 2.4.1 Description of Alternatives

For platform independent framework there are several different frameworks that can be used. Some of these are:

**Sencha Touch 2**

**Knowledge required:** HTML, CSS, JavaScript, general web development

**Platform support:** iOS, Android, Blackberry

**Cost:** Free [under commercial and open source licenses](http://www.sencha.com/products/touch/license/) (paid OEM license available)

**Documentation:** [Examples, screencasts, and tutorials](http://docs.sencha.com/touch/2-0/#!/guide/getting_started)

**jQuery Mobile Summary**

**Knowledge required:** HTML, CSS, jQuery

**Platform support:** Most mobile browsers

**Cost:** Free (license: [MIT and GPL](http://jquery.org/license/))

**Documentation:** There are [many demos on the site](http://jquerymobile.com/demos/1.1.0/) and [books on jQuery Mobile](http://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Daps&field-keywords=jquery+mobile)

The other option is hybrid app creators (HTML/JAVASCRIPT AND HTML/RUBY BASED). The best choices based on support for hybrids are:

[**Appcelerator**](http://www.appcelerator.com/):  This is a solution that allows you to develop native apps with HTML/Javascript (run through a UIWebView on iPhone) . (Free)

[**Phonegap**](http://phonegap.com/): Similar to Appcelerator, I mentioned these two as they seem to have the most vibrant communities, and most extensive support. (Free)

[**Rhomobile**](http://rhomobile.com/) : This is a solution that uses Ruby, especially loved by Ruby on Rails developers. (Free only for noncommercial applications, prices vary)

The last option to create an app like this is to use a responsive web design. Some responsive web design frameworks are:

**Bootstrap:** Sleek, intuitive, and powerful front-end framework for faster and easier web development.   
**Webpage**: getboostrap.com

**Foundation 3:** An advanced responsive front-end framework. Foundation 3 is built with Sass, a powerful CSS preprocessor, which allows us to much more quickly develop Foundation itself — and gives you new tools to quickly customize and build on top of Foundation.  
**WebPage**: foundation.zurb.com

### 2.4.2 Selection Criteria

The selection criteria for the recommendation at the end are:

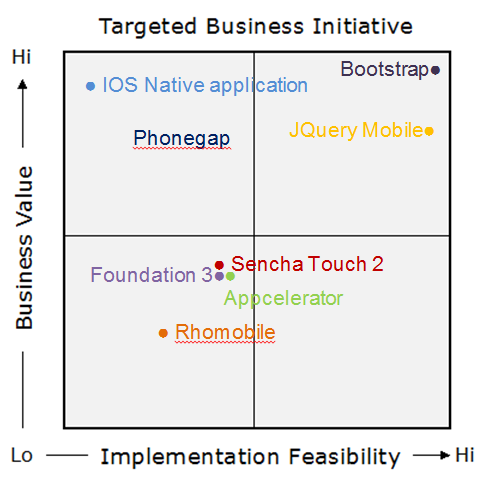
1. Support of the frameworks

2. Documentation availability

3. Overall quality of the solution

### 2.4.2 Analysis of Alternatives

The following matrix will show the first letter of each option



All this choices have pros and cons but every choice that is not platform dependent and uses the web as their main platform has more less the same vision and goal. However, between them the responsive web design is the more appealing choice given it responsiveness, where a web app will look good in any device and adjust to the resolution.

## 2.5 Recommendations

Given that it have been established that a responsive web design is the best choice, now we are going to analyze the different choices. It is important to say that if we compare bootstrap with Foundation 3 we find that bootstrap has a lot more documentation and example on the web. Moreover, there is support because it is in large use nowadays. Looking deeper, If we look at the applications and framework that integrate with the listed responsive web design frameworks, it is important to say that bootstrap integrates very well with another framework call angularjs, which is developed and maintained by google. Thus it is my recommendation to implement the system using the bootstrap responsive web design framework.

# Project Plan

In order to ensure a successful project I have created this initial plan with deadlines which we intend to stick by throughout the semester. This will allow us to see whether or not we are on track with our requirements.

This section divides as follows:

* 1. Project Organization
     1. Project Personnel Organization
     2. Hardware and Software Resources
  2. Identification of Tasks, Milestones and Deliverables (work breakdown)

## 3.1 Project Organization

### 3.1.1 Project Personnel Organization

In this project there is only one team member, me (**Carlos Dominguez)**, and I am the Developer, Tester, System Designer, GUI Designer, Database Manager. On the other hand, the mentor is the product owner that is contacted when question about the product itself are needed.

Moreover, every week on Friday at 1:30pm there is a meeting in person, for the developer to report what was done over the course of that week.

Lastly, every weekday the developer will upload and update the project and its status.

### 3.1.2 Hardware and Software Resources

The resources for this project are:

* GitHub repository, for code development.
* Virtual machine, to host the final product
* My computer, to develop test and upload changes
* PHP, mysql, javascript, angular, bootstrap, and html

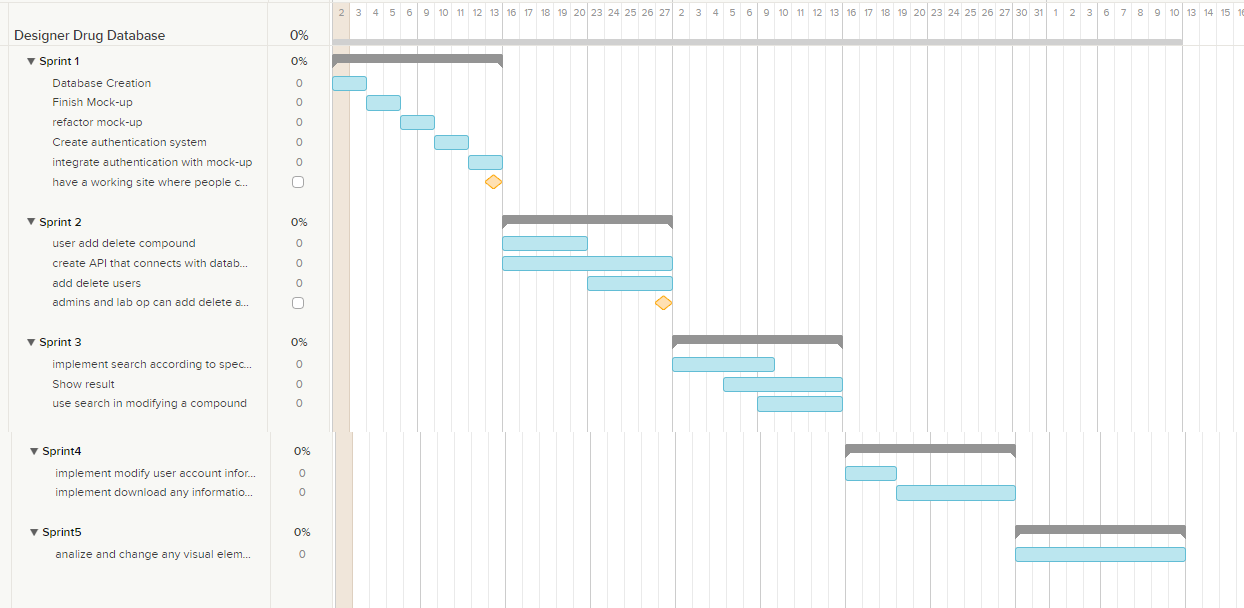
## 3.2 Identification of Tasks, Milestones and Deliverables (work breakdown)

The following table easily shoes the work breakdown and each other dependencies.

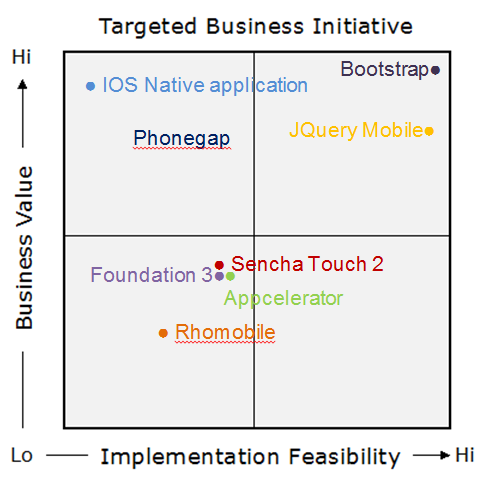
|  |  |  |
| --- | --- | --- |
|  | Tasks | Task Dependencies |
| **1** | Problem Definition |  |
| **2** | Obtain High Level User Requirements | 1 |
| **3** | Identify Alternatives Solutions | 2 |
| **4** | Determine Solutions | 3 |
| **5** | Requirement Analysis and Elicitation | 1 |
|  | **Milestone: System Analysis and Implementation** |  |
| **6** | Implement Database Structural Changes | 5 |
| **7** | Populate Database with Data | 5, 6 |
| **8** | Modify System Architecture | 5 |
| **9** | Begin UI Design Modification for Forms | 7, 8 |
| **10** | Begin UI Design for Flowchart | 7, 8 |
| **11** | Implement Functions | 7, 9, 10 |
| **12** | Initial Testing | 7, 11 |
|  | **Milestone: Implemented System Functionality** |  |
| **13** | Finalize System Implementation | 12 |
| **14** | Functional Testing | 12 |
| **15** | Evaluate Test Results | 13, 14 |
| **16** | Complete Final Documentation and Presentation | 15 |
|  | **Milestone: System Complete** | 16 |

# Appendix

## Appendix A - Project schedule (Gantt chart or PERT Chart)



## Appendix B – Feasibility Matrix



## Appendix C – Cost Matrix

|  |  |  |
| --- | --- | --- |
| Item | Description | Cost |
| Human Resources | Team member working on the project during the entire development process. | $0.00 |
| Hardware Tools | Laptops | $0.00 |
| FIU Computers | $0.00 |
| Software Tools | PHPAdmin | $0.00 |
| FIU virtual matchine | $0.00 |
| Notepad++ | $0.00 |
| Total cost | | $0.00 |

## Appendix D - Diary of Meetings

### Sprint 1

|  |  |
| --- | --- |
| Diary Entry 1 | |
| Date | Monday, February 2rd, 2015 |
| Location | OE building |
| Start | 1:00 PM |
| End | 2:00 PM |
| Attendees | * Carlos Dominguez * Dr. Luis Arroyo |
| Agenda | * Talk about the system that needs to be done. * Create system user stories. |
| Summary | * Explanation of the current system. * Brief definition of the functionalities to be implemented. * Created some user stories based on the explanation |
| Assigned Tasks | * Get familiar with the tools to be used. * Create a mock up for acceptance. |

|  |  |
| --- | --- |
| Diary Entry 2 | |
| Date | Friday, February 6th, 2015 |
| Location | OE building |
| Start | 1:00 PM |
| End | 2:00 PM |
| Attendees | * Carlos Dominguez * Dr. Luis Arroyo |
| Agenda | * Show the mock up to where it was. * Show authentication system. |
| Summary | * Showed the mocked up to where it was done. * Talked about authentication system and showed what I had done. |
| Assigned Tasks | * Continue working on first Sprint |

|  |  |
| --- | --- |
| Diary Entry 3 | |
| Date | Friday, February 13th, 2015 |
| Location | OE building |
| Start | 1:00 PM |
| End | 2:00 PM |
| Attendees | * Carlos Dominguez * Dr. Luis Arroyo |
| Agenda | * Show what was done on Sprint 1 * Assigned for User Stories for Sprint 2 |
| Summary | * Showed the mocked up. * Show all that was done during Sprint 1. * New user story were assigned |
| Assigned Tasks | * Get ready to start spring 2 next Monday |

### Sprint 2

|  |  |
| --- | --- |
| Diary Entry 4 | |
| Date | Friday, February 27th, 2015 |
| Location | OE building |
| Start | 1:00 PM |
| End | 2:00 PM |
| Attendees | * Carlos Dominguez * Dr. Luis Arroyo |
| Agenda | * Show what was done in Sprint 2. * Assign User Stories to Sprint 3 |
| Summary | * Showed what was done in sprint 2. * Dr. Arroyo assigned user stories for sprint 3 |
| Assigned Tasks | * Get ready to start spring 3 next Monday |

### Sprint 3

|  |  |
| --- | --- |
| Diary Entry 5 | |
| Date | Friday, March 20th, 2015 |
| Location | OE building |
| Start | 1:00 PM |
| End | 2:00 PM |
| Attendees | * Carlos Dominguez * Dr. Luis Arroyo |
| Agenda | * Show what was done on Sprint 3 * Assigned for User Stories for Sprint 4 |
| Summary | * Show all that was done during Sprint 3. * New user story were assigned for Sprint 4 * Dr. Arroyo pointed out that different compounds could have the same formula, yet provide different information. |
| Assigned Tasks | * Get ready to start spring 4 next Monday * Fix what needed to be fixed on Sprint 4 regathing the new clarification on compounds formulas. |

### Sprint 4

|  |  |
| --- | --- |
| Diary Entry 5 | |
| Date | Friday, April 3rd, 2015 |
| Location | OE building |
| Start | 1:00 PM |
| End | 2:00 PM |
| Attendees | * Carlos Dominguez * Dr. Luis Arroyo |
| Agenda | * Show what was done on Sprint 4 * Assigned for User Stories for Sprint 5 |
| Summary | * Show all that was done during Sprint 4. * New user story were assigned for Sprint 5 * Dr. Arroyo said he wanted to change some of the information the institute is going to be sharing. |
| Assigned Tasks | * Get ready to start spring 5 next Monday * Fix the information that is to be shared on Sprint 5. |

### Sprint 5

|  |  |
| --- | --- |
| Diary Entry 5 | |
| Date | Friday, April 17th, 2015 |
| Location | OE building |
| Start | 1:00 PM |
| End | 2:00 PM |
| Attendees | * Carlos Dominguez * Dr. Luis Arroyo |
| Agenda | * Show what was done on Sprint 4 * Assigned for User Stories for Sprint 5 |
| Summary |  |
| Assigned Tasks |  |

# References

awwwards-team. (2014, February 20). Retrieved February 02, 2015, from awwwards-team.com: http://www.awwwards.com/what-are-frameworks-22-best-responsive-css-frameworks-for-web-design.html

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