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| Designer drug database |
| Requirement Document |
| Senior Project, CIS 4911- U01 |
| **Professor: Seyedmasoud Sadjadi Mentor: Dr. Luis Arroyo** |
| **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 required documentation and project plan for the Designer Drug Database project. The main chapters on this document are the Introduction, Current System (none in this case), Project Plan, and Proposed System Requirements. The introduction presents the problem definition, background, terminology to be used in this document, and Overview of the document. The Current System should talk about the current system, but since this is an application that is being developed from the beginning there is no information about the current system. The Project Plan shows how the project is organized, how the work is broken down, as well as the cost estimate for the project. Finally the Proposed system requirements will contain the necessary UML diagrams to understand the flow and how the system has been implemented.

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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 will be divided in the following sections:

* 1. Problem Definition.
  2. Scope of system.
  3. Terminology - Definitions, acronyms, and abbreviations.
  4. Overview of document – brief explanation of what to expect in chapters 2 through 6.

## 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 Scope of system.

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.

## 1.3 Terminology - 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 Acronyms and abbreviations

**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

## 1.4 Overview of document

Throughout this document information about the required documentation and project plan for the Designer Drug Database project will be provided. The following chapters, from two to six, on are the Current System (none in this case), Project Plan, and Proposed System Requirements. The Current System should talk about the current system, but since this is an application that is being developed from the beginning there is no information about the current system. The Project Plan shows how the project is organized, how the work is broken down, as well as the cost estimate for the project. Finally the Proposed system requirements will contain the necessary UML diagrams to understand the flow and how the system has been implemented.

# **C**urrent System

In my case there is no current system. The system will be implemented for the first time during this semester

# Project Plan (This deliverable only)

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)

## 3.3 Cost Estimate – cost to develop the software system.

## 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)

|  |  |  |
| --- | --- | --- |
|  | 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 |

## 3.3 Cost Estimate – cost to develop the software system.

The cost of this system will be $0.00.

|  |  |  |
| --- | --- | --- |
| 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 |

# Proposed System Requirements

This chapter defines the functional requirement to be implemented in version 1 of the Designer Drug Database project. These requirements are described in terms of functional requirements and their respective nonfunctional requirements.

The section will be divided as follows:

* 1. Functional Requirements – describes high-level functionality
  2. Analysis of System Requirements
  3. Scenarios
  4. Static model e.g., object diagrams, class diagram
  5. 4.5 Dynamic model e.g., sequence diagrams or state machines

## 4.1 Functional Requirements – describes high-level functionality

Below are the functional requirements for Designer Drug Database System.

The system shall allow…

**Admins and lab operator must be able to login with their credentials**

* **Usability**: The form to be filled must be easy to follow when filling up.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be saved with the time according to the size of file being imported.
* **Supportability**: This functionality must work for any browser.

**Admins and lab Operator must be able to add new compounds**

* **Usability**: The form to be filled must be easy to follow when filling up.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins and lab Operator must be able to edit compounds**

* **Usability**: The form to be modified must be easy to follow when changing the data.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins and lab Operator must be able to delete compounds**

* **Usability**: The compound needs to be deleted from all places
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins must be able to import compounds**

* **Usability**: The compound needs to be imported from a csv file and jpg pictures.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be saved with the time according to the size of file being imported.
* **Supportability**: This functionality must work for any browser.

**Admins and Lab Operators must be able to modify their name in the system**

* **Usability**: The form to be filled must be easy to follow when filling up.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins and Lab Operators must be able to modify their password in the system**

* **Usability**: The form to be filled must be easy to follow when filling up.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins must be able to create new users in the system**

* **Usability**: The form to be filled must be easy to follow when filling up.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins must be able to delete users of the system**

* **Usability**: The form to be filled must be easy to follow when filling up.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins must be able to modify user roles of the system**

* **Usability**: The form to be filled must be easy to follow when filling up.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins and Lab Operators must be able to see summary of the system in a dashboard.**

* **Usability**: The information needs to be clear
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins and Lab Operators must be able to create new compound classes in the system**

* **Usability**: The form to be filled must be easy to follow when filling up.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins and Lab Operators must be able to modify compound classes in the system**

* **Usability**: The form to be filled must be easy to follow when filling up.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins and Lab Operators must be able to delete empty compound classes (no compounds inside).**

* **Usability**: The steps must be easy to follow.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins and Lab Operators must be able to read contact emails sent to system**

* **Usability**: The form to be filled must be easy to follow when filling up.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins and Lab Operators must be able to delete contact emails sent to system**

* **Usability**: The form to be filled must be easy to follow when filling up.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Admins and Lab Operators must be able to reply contact emails sent to system**

* **Usability**: The form to be filled must be easy to follow when filling up.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Any user of the system must be able to download the information of an entire compound class.**

* **Usability**: The steps must be easy.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

**Any user of the system must be able to search and visualize the information of a compound.**

* **Usability**: The steps must be easy.
* **Reliability**: System must work flawlessly 99% of the time.
* **Performance**: Data must be save within 3s seconds.
* **Supportability**: This functionality must work for any browser.

## 4.2 Analysis of System Requirements

This section contains scenarios for some system requirements as well as the different models related to the requirements such as use case model, static model, and dynamic model.

### 4.2.1 Scenarios

What?

### 4.2.2 Use case model

Appendix B contains the Use Case diagrams with all use cases pertaining to the Designer Drug Database System. This diagram clearly shows the different actors that will be interacting with the system. These are admin, lab Operator, and the guest of the system. Each of these actors is linked with his/her respective capabilities within the system.

### 4.2.3 Static model e.g., object diagrams, class diagram

Appendix C shows some of the different class diagrams for the Designer Drug Database System. These diagrams show the relationship between classes. The class diagrams provided in Appendix C are minimal due to space. On top of each class diagram, the name of diagram can be seen.

### 4.2.4 Dynamic model e.g., sequence diagrams or state machines

Appendix D shows the different sequence diagrams for the Designer Drug Database System. These diagrams show the interaction among the objects as they are planned to occur when the system is in execution. On top of each sequence diagrams, its use case id is displayed as well as its name.

# Glossary - define terms used in document, especially domain specific terms.

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

### 5.1 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

### 5.2 Acronyms and abbreviations

**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

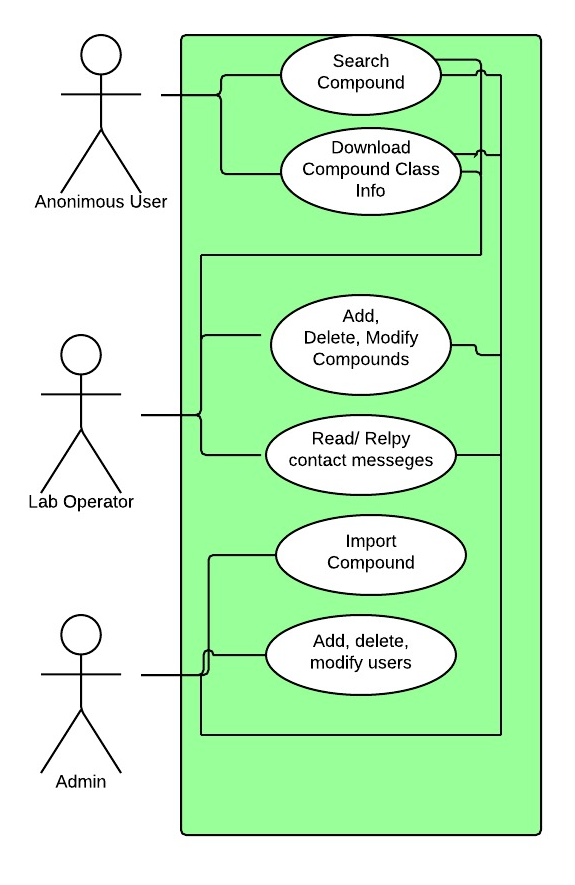
**PHP**: Hypertext Preprocessor

# Appendix

## 6.1 Appendix A - Complete use cases

What?

## 6.2 Appendix B - Use case diagram using UML



## 6.3 Appendix C - Static UML diagram

What?

## 6.4 Appendix D - Dynamic UML diagrams

What?

## 6.5 Appendix E - User Interface designs.

What?

## 6.6 Appendix F - Diary of meeting and tasks.

### 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