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The Alpha Software Development Team

Preliminary Design

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# Data Design

The Section aims to describe the database and it’s containing data. The database is currently stored on a MySQL server and will continue to be on said server. Our modifications to the database will affect the in orange with a red border. We will be adding fields to give increase the amount of information available to administrators and users, the tables that will have fields added are: Drug Stamp, Drug Description, Drug Type, Drug Colour, Drug, Drug Alias, Entry Side Effect, Drug Side Effect, Entry Effect and Drug Effect. We will also be adding a new table called About, this table will contain information about the DTMS system and contain information on its developers and creator.



Figure : Database

# Architectural Design

This section will briefly describe the current architectural design of the system in place. The application is a web application accessed through a web browser. The system has been built to be deployed on a windows server using the asp.net framework. The core architecture of the system will not be changed in this version. However, this section may still serve as a reference to the current architecture, and how this architecture is being used to improve the overall system functionality. The core architecture of the system is divided into six separate modules: the entries module, the reporting module, the contributor’s module, the admin module, the zone and the message module.



Figure Architecture

Each separate module in the system will work together with a back-end MySql database that holds relevant module information such as account information, drug information, messages, zones, and contributor information. The user will be able to interact with each separate module through a web interface built using ASP.NET to control exactly how the user interacts with the system. Essential system logic will be executed using Microsoft’s .NET framework, which makes interaction between the back-end database and the front end web forms a flexible and time-effective approach.



Figure Context Diagram

The system allows contributors and administrators to create entries and request reports, as well as message users. The system will send messages to the appropriate user or administrator. The administrators can edit the drug information and contributor information. Administrators also function as regular contributors. Users and administrators will login to the system using their login credentials, and will in turn be granted a session on the server, allowing them to interact with the system.

# Component Level Design and Design Considerations



Figure : Class Diagram

This section aims to provide an understanding of the detailed components of the system, the changes being made, and how these changes are going to benefit the system users. In this iteration of system development, the primary focus is on providing a clean, simple, and usable user interface. The overall system architecture will remain in place, and all enhancements to both functionality and presentation will exist on top of this architecture.

This section will be divided into the separate system modules that are currently in place, discussing the changes in presentation. If any business rules, requirements, or constraints are to be added or changed, then the change will be discussed within its respective module. The overall interface will change to reflect a simplistic and modular way of accessing the underlying functionality, limiting irrelevant information to avoid clutter. Each module will be contained under the main banner, and will be accessible from anywhere in the system, allowing for easy navigation. When upgrading the original system, it is crucial that all system functionality that currently exists must still exist after all user interface changes have been made, and all system expansion has been completed.

## About Section

The addition of the about section of the system allows for the user to get a quick overview of what the system does, as well as information on the development team(s). This section is an important fallback point for new users, and users who may have questions or need help, and as such, is of critical importance to the system.

## Administration

The administration section of the system offers a way for an administrator to modify drug specific information that will be used when adding entries to the system. This module will build on the existing administration module, allowing the administrator to create detailed information linked to the drug information that can already be modified, also enabling the users of the system to see this information in detail. In order to accommodate this, the administration page will have a new layout that allows for easy navigation between different types of drug information. In addition, multiple pages will be added to allow for creation and viewing of this new content. Since the drug information lists have the capacity to grow huge in size, the separate pages for each piece of drug information will also allow for searching, making administration simple and easy.

## Contributors

The contributors section allows for a user to easily find out who else is contributing to the system, and gives them a way to view contact information and send messages. Contributor information is stored in the database, and can only be changed by administrators and owners. Any user of the system may view other contributor information.

## Entries

Contributors (users of the system) create, edit, and view drug entries that define and describe various drug related activities and substances, as well as the location the activity occurs. The user has the capacity to search through various entries and filter the entries based on specified criteria that exists in the entries themselves. After being created, an entry may be edited as new information is gathered, or if mistakes are made. One major addition to the entry creation and editing process is the ability to pick zones from a graphical map. This allows for a much more simplistic and easy to use interface that isn’t just a wall of text. The layout of entry information will also follow the same mentality, making creating entries more fluid as well as simple.

## Message Centre

The message center is a central hub for managing contact with other contributors. The message centre is a means of staying in touch, and knowing what is going on. Because of this, the system has to present a simple interface for the contributor to interact with. Core messaging functionality will not change, but the addition of a “reply” button will make communication a more enjoyable experience. As a user sends messages, they are simply stored in the database with a sender and a recipient id. When viewing the message inbox, a user will get a list of all messages that belong to him/her. When pressing the reply button when viewing message details, the user is simply redirected to the message sending screen with a prefilled recipient.

## Reporting

As contributors add entries to the system, this data begins to add up and become quite cumbersome. The reporting mechanism is used to consolidate this data into a graphical form that people can easily understand. Reports can be generated from a preset list containing commonly requested information, or they can be customized to visualize targeted data. This data can be presented in a variety of forms such as a line chart, bar chart, pie chart, and heat map. Entry data from the database is compiled and passed into a graphical mapping tool, rendering a final graphic that the user can analyze. As with the other sections, this information needs to be easier to work with. Grouping and location of buttons and selection will be optimized for a simplistic approach to report generation.

## Zones

Zoning is a way of dividing drug activity based on geographical location, and allows a user to examine different zone activity. An addition to the zoning capabilities will be the ability to generate a report on zone drug activity directly from the zones page. The reason this is done is to make it as easy as possible for the user to get the information needed both quickly and accurately. Zone activity is potentially the most useful data to a user, and so it makes sense to limit the amount of navigation they have to do. While viewing zones, the user can also see what sorts of entries have recently been added in a specified zone. This functionality will be stripped down to a more primitive and basic state. This is because entry data can be searched and filtered in the entries section. It is best to limit the number of links that redirect to the same place.

# Procedural and Object-Oriented Analysis – Physical Data Dictionary

This section is an organized listing of all physical data elements cross-referenced to their analysis origins.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Physical Data Table, Data Flow or Entity** | **Logical Data Store, Data Flow or Entity** | **Functional Requirement Number** | **Type** | **Allow Null (ERDs)** | **Notational Description** | **Example** |
| DrugType | Contains the types of drugs. |  | Table | NO | DrugType = drugType + drugTypeDescription |  |
| drugType | The type of the drug. |  | String | NO | drugType =\*A type of drug\* | Narcotic |
| drugTypeDescription | The description of the drug type. |  | Text | NO | drugTypeDescription = \*A description of a drug type\* | Narcotics are a dangerous drug type. |
| Drug | Contains the name of the drug being entered. |  | Table | NO | Drug = drug + URL + image + drugDescription |  |
| drug | The name of the drug being entered. |  | String | NO | drug = \*Name of the inputted drug\* | Ecstasy |
| URL | Contains a link to external resources related to the drug. |  | Text | NO | URL = \*A url link\* | http://Ecstasy.com |
| image | Contains a picture file of the drug. |  | Image | NO | image = \*A picture file\* | Ecstasy.jpg |
| drugDescription | The description of the drug. |  | Text | NO | drugDescription = \*A description of a drug\* | Ecstasy is a drug |
| DrugStreetName | Contains the alternative names of a drug. |  | Table | NO | DrugStreetName = drugStreetName + drug + drugStreetNameDescription |  |
| drugStreetName | The alternative name of the drug. |  | String | NO | drugStreetName =\*The alternative name for a drug\* | Blue Dolphin |
| drugStreetNameDescription | The description of the drug’s Street Name. |  | Text | NO | drugStreetNameDescription = \*A description of a drug’s Street Name\* | Blue Dolphin is another name for Ecstasy. |
| DrugForm | Contains the forms of drugs. |  | Table | NO | DrugForm = drugForm + drugFormDescription |  |
| drugForm | The name of the drug’s form. |  | String | NO | drugForm = \*The name of a drug’s form\* | Pill |
| drugFormDescription | The description of a drug’s form. |  | Text | NO | drugFormDescription = \*The description of a drug’s form\* | Drugs can come in the form of pills. |
| DrugColour | Contains the colours of drugs. |  | Table | NO | DrugColour = drugColour + drugColourDescription |  |
| drugColour | The name of the colour of a drug. |  | String | NO | drugColour =\*The name of a drug’s colour\* | Purple |
| drugColourDescription | The description of a drug’s colour. |  | Text | NO | drugColourDescription = \*The description of a drug’s colour\* | Some drugs are coloured purple. |
| PillStamp | Contains the information of the stamps on pills. |  | Table | NO | PillStamp = pillStamp + pillStampDescription |  |
| pillStamp | The name of the stamp on a pill. |  | String | NO | pillStamp =\*name of the stamp on a pill\* | Dolphin |
| pillStampDescription | The description of a pill’s stamp. |  | Text | NO | pillStampDescription = \*The description of a stamp\* | The Dolphin is a common stamp. |
| PillShape | Contains the information of the pill’s shape. |  | Table | NO | PillShape = pillShape + pillShapeDescription |  |
| pillShape | The name of the pill’s shape. |  | String | NO | pillShape =\*name of the stamp on a pill\* | Square |
| pillShapeDescription | The description of a pill’s shape. |  | Text | NO | pillShapeDescription = \*The description of a stamp\* | A square is a common shape. |
| SideEffect | Contains the side effects of a drug. |  | Table | NO | SideEffect= sideEffect + sideEffectDescription |  |
| sideEffect | The name of the drug’s side effect. |  | String | NO | sideEffect =\*Name of the drug’s side effect\* | Headache |
| sideEffectDescription | The description of the drug’s side effect. |  | Text | NO | sideEffectDescription = \*Description of the drug’s side effect\* | Throbbing pain around the forehead |
| Organization | Contains the names of the organizations. |  | Table | NO | Organization=organization + website + address + organizationDescription |  |
| organization | The organization’s name. |  | String | NO | organization =\*A name\* | Shepherds of Good Hope |
| website | The organization’s home page. |  | Text | NO | website =\*A site url\* | https://Shepherds.com |
| address | The organization’s physical address. |  | Text | NO | organization =\*A street address\* | 555 Shepherd Cres. |
| organizationDescription | A description of the organization. |  | Text | NO | organizationDescription =\*A description\* | Shepherds that foster hope. |

# Appendix B: List of Abbreviations

No abbreviations.