

Requirements Specifications

Your Dream, Our Solution

Produced By: Troy Valle, Kerrie Daley, Grady McBride, Frank Schroder, Matthew Mainello

For: Dr. Timothy Lederman

October 25, 2013



1. Table of Contents

1. Table of Contents	1
2. Product Overview and Summary	2
3. Development and Operating Environment	2
4. User Case Narratives	4
5. Use Case Diagram	5
6. Data Flow Diagrams	7
6.1 YDOS Context Diagram	
6.2 YDOS Level 0 Diagram	
6.3 YDOS Level 1 Diagram: Load Truck Library	
6.4 YDOS Level 1 Diagram: Select Truck	
6.5 YDOS Level 1 Diagram: Change Color	
6.6 YDOS Level 1 Diagram: Select View	
6.7 YDOS Level 1 Diagram: Save Truck	
7. Functional Requirements Inventory	15
8. Non-functional Requirements	16
9. Exception Handling	16
10. Implementation Priorities	16
11. Foreseeable Modifications and Enhancements ..	16
12. Testing Requirements	17
13. Acceptance Criteria	17



2. Product Overview and Summary

Chevrolet Advance-Design Series Paint Visualizer (CADS Paint Visualizer) will be a web application to customize or restore 1947-1955 Chevrolet Advance-Design Series trucks. When the user first enters the web application, the user will be asked if they wish to restore or customize a truck, or view already existing trucks.

If the user chooses to restore a truck, the user will have access to the original factory colors. If the user chooses to customize a truck, the user will have access to a variety of custom colors. Next, the user will select a year which will change the body style the user wishes to customize/restore. After the user is satisfied with the customized/restored truck, the user is asked to select a unique code name. This code name is used upon return to the site so the user can find the truck at a later date.

If the user chooses to view already existing trucks, the user may either search for the associating code word, or look through thumbnail images of all customized/restored trucks on the web application. At any point, any user can customize/restore any trucks on the site. Editing a previously existing truck, however, does not erase the pre-existing truck image. Rather, a new image is saved with a new unique code word every time an image is edited.

3. Development and Production Environments

Development Environment

Software Engineering Lab's Window's Computer:

Model: Dell OptiPlex 760

Operating System: Windows Vista Enterprise

Processor: Intel Core 2 Duo 2.93 GHz

RAM: 4GB

HDD: 300GB

Software Engineering Lab's Macintosh Computer



Model: iMac 5.1

Operating System: Mac OS X

Processor: Intel Core i5 2.5 GHz

RAM: 4GB (1333 MHz DDR3)

Graphics: AMD Radeon HD 6750M 512MB

HDD: 500GB

Software

Adobe Dreamweaver, Google Chrome, Internet Explorer, Mozilla Firefox, MySQL, Notepad ++

YDOS will also be using personal laptops throughout the development of CADS Paint Visualizer.

Production Environment

CADS Paint Visualizer is a web application that will run on an Apache web server hosted by Webhosting Pad, or any other server requested by the client, Dr. Timothy Lederman.



4. Use Case Narratives

GM Truck Restorer

A GM Truck Restorer is a user that will want the factory colors that were available for a particular year. The GM Truck Restorer has a selection of factory colors that were available for the selected truck from the years 1947-1955. The GM Truck Restorer is able to see a side and a head on view of the truck. The GM Truck Restorer has the options to customize the colors of the fender, upper body, lower body, rims and bumper from a 2-D side view. The GM Truck Restorer is able to select from two different window styles and cab styles for the selected year. The GM Truck Restorer is able to change the color of the pin stripe around the body and wheels to a factory color. When looking at the head-on view of the truck, the GM Truck Restorer is able to change the color of the grill to a factory color. The GM Truck Restorer has the option of making the grill chrome for selected years.

GM Truck Customizer

A GM Truck Customizer is a user that will want a color wheel so they can pick any color they want. The GM Truck Customizer is able to select any color and see them on trucks from the years 1947-1955. The GM Truck Customizer is able to see a side and a head on view of the truck. The GM Truck Customizer has the options to customize the colors of the fender, upper body, lower body, rims and bumper from a 2-D side view. The GM Truck Customizer is also be able to select form two different window styles and cab styles for the selected year. The GM Truck Customizer is able to change the color of the pin stripe around the body and wheels to any color. When looking at the head-on view of the truck the GM Truck Customizer is able to change the color of the grill. The GM Truck Customizer has the option of making the grill chrome.

5. Use Case Diagram

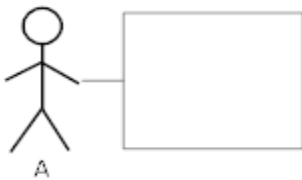
UML Use Case Diagram Legend



Actor: An entity that interacts with the system externally. This can be either a human or non-human user.



System Boundary: A boundary between internal and external components.



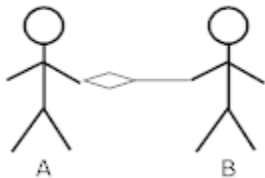
Actor A interacts with all of the systems Use Cases



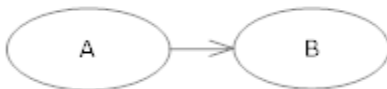
Use Case: A component within the system that actors may interact with.



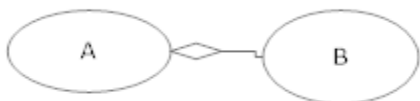
Actor A interacts with Use Case B



Actor B interacts with all Use Cases that Actor A is able to interact with.



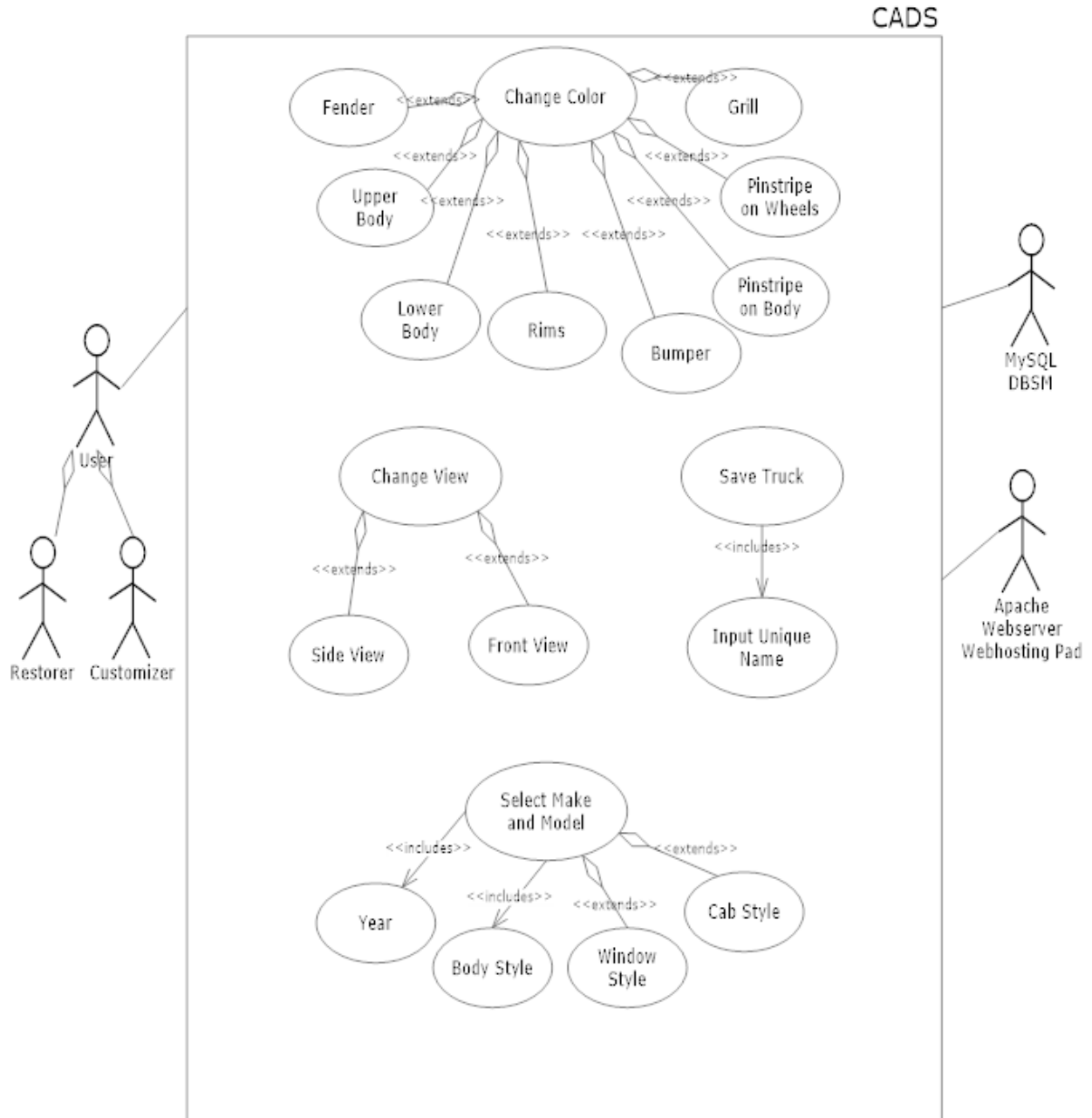
Use Case A includes Use Case B



Use Case B is a more specific type of Use Case A



CADS UML Use Case Diagram





6. Data Flow Diagrams

This section will contain the context diagram, level 0 diagram and multiple level 1 diagrams for the system. The diagrams visually represent the movement of data within the system and its external entities. The symbols that will be used in the diagrams are defined below in the legend.

Data Flow Diagram Legend



Process - System functions that can receive data, modify data, and output data.



Entity - Either a destination or source of data for the system.



Data Store - A storage location for reusable data in the system.



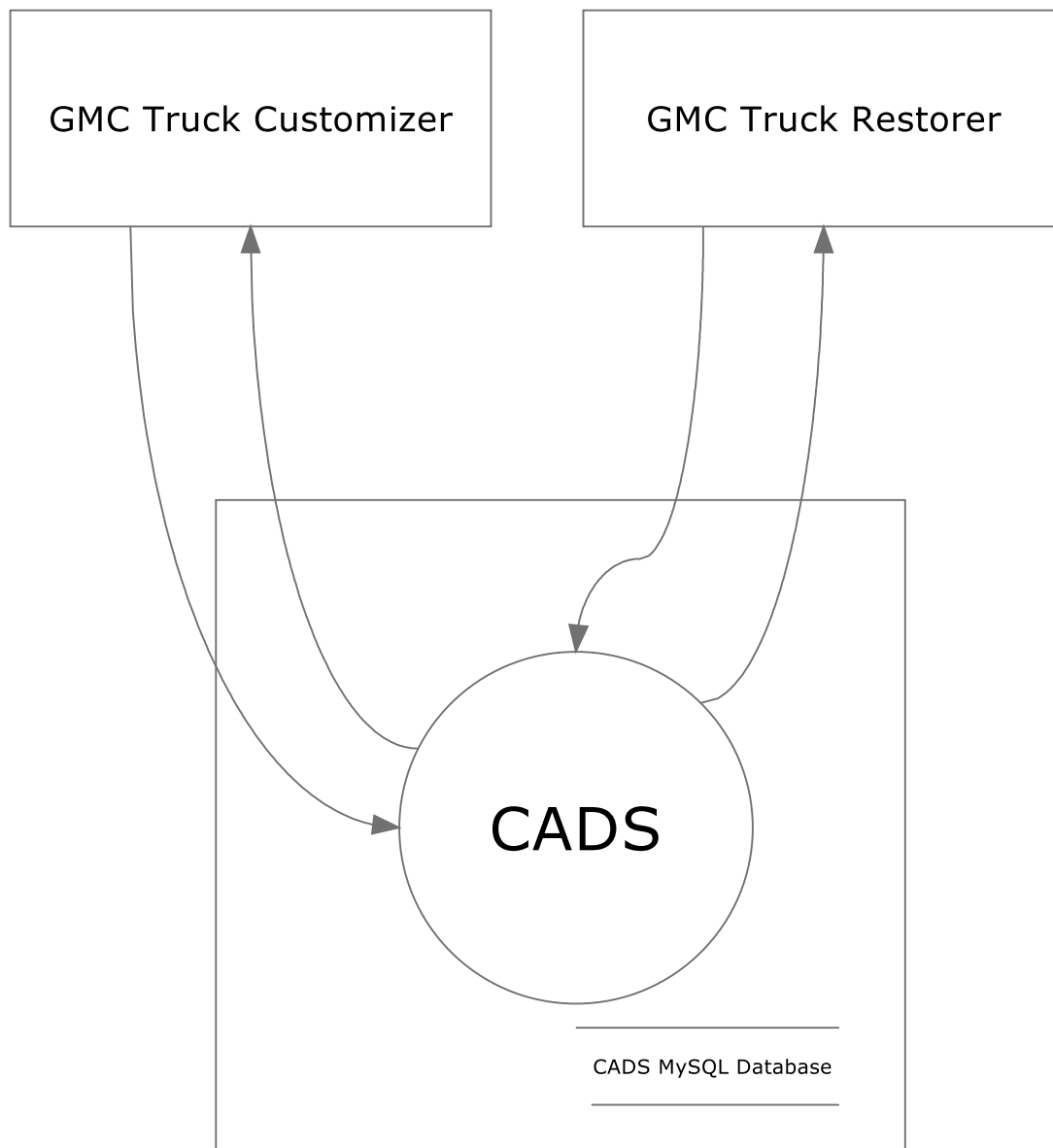
Data Flow - Movement of a data entity.



System Boundary - The separation between the internal system and external entities.

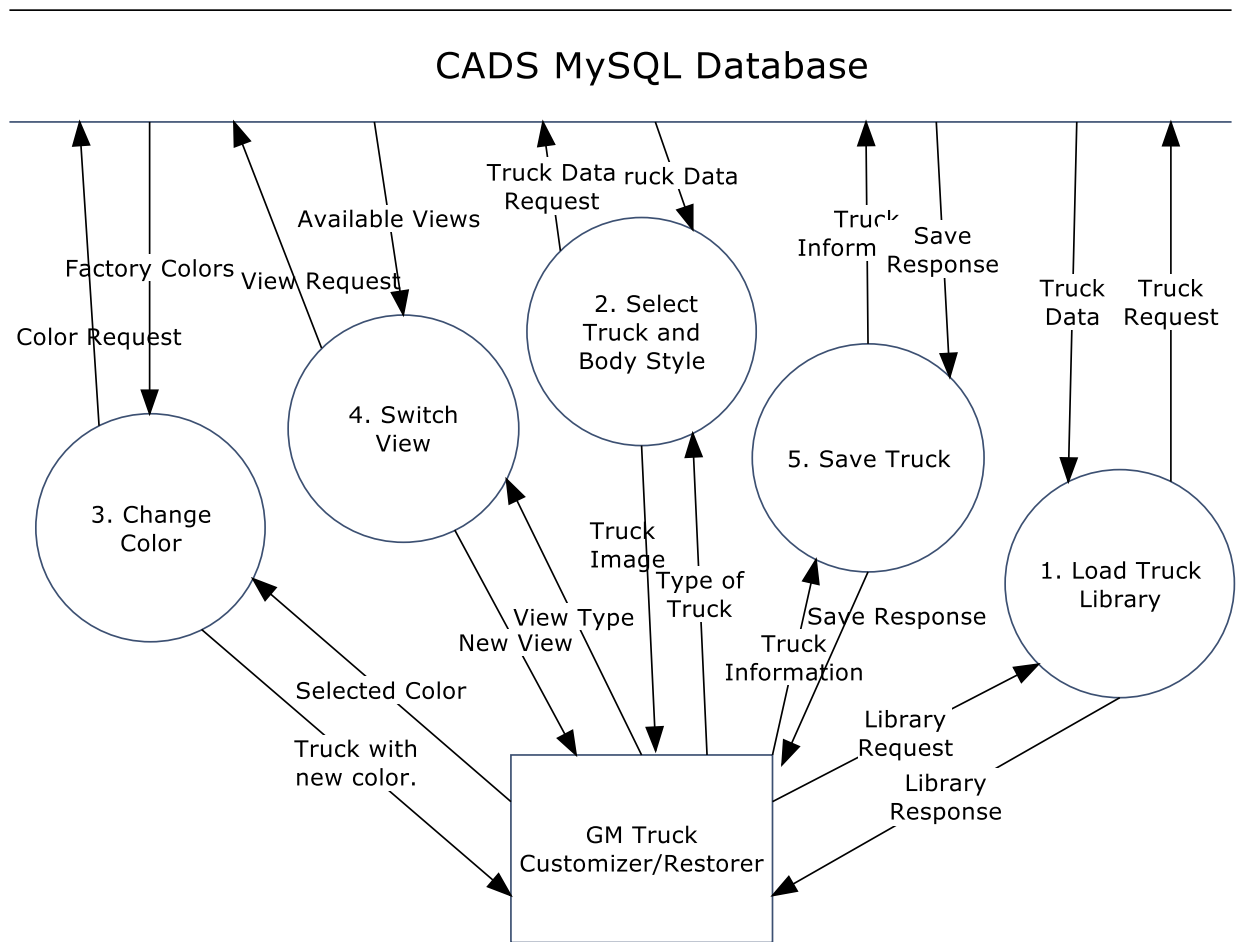
6.1

Context Diagram



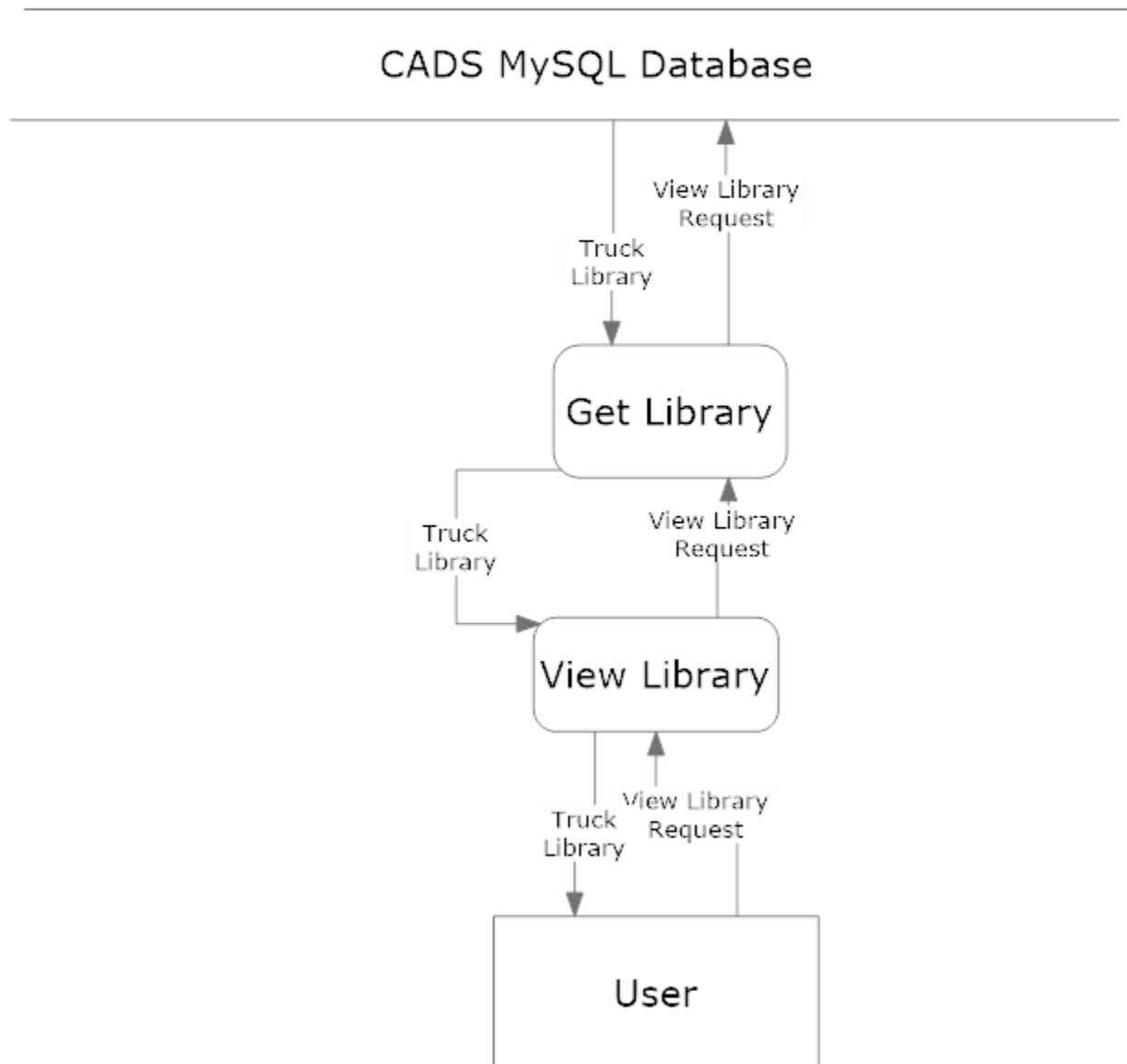
6.2

CADS Level 0 Diagram



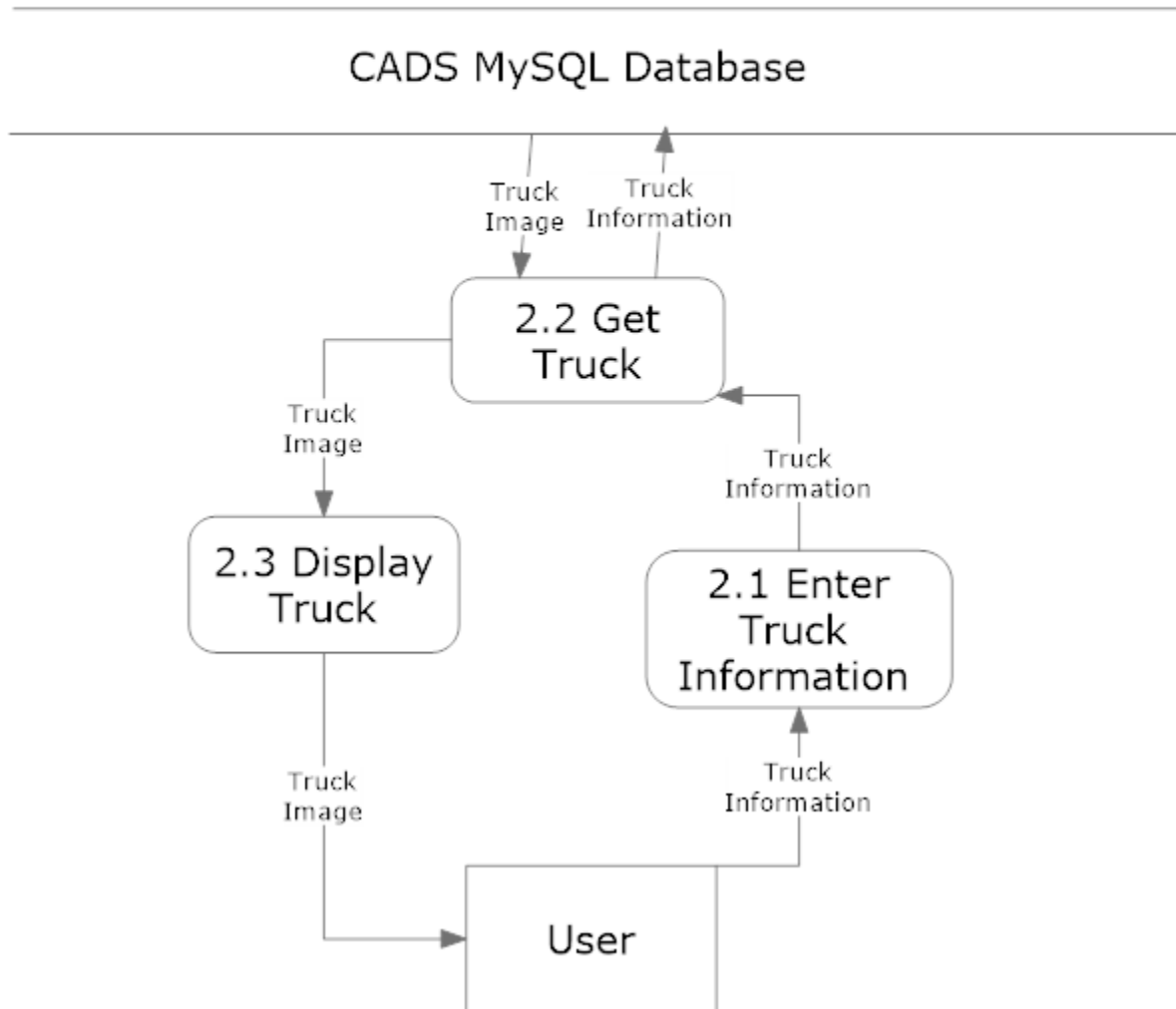
6.3

Process 1: Load Truck Library Level 1 Diagram



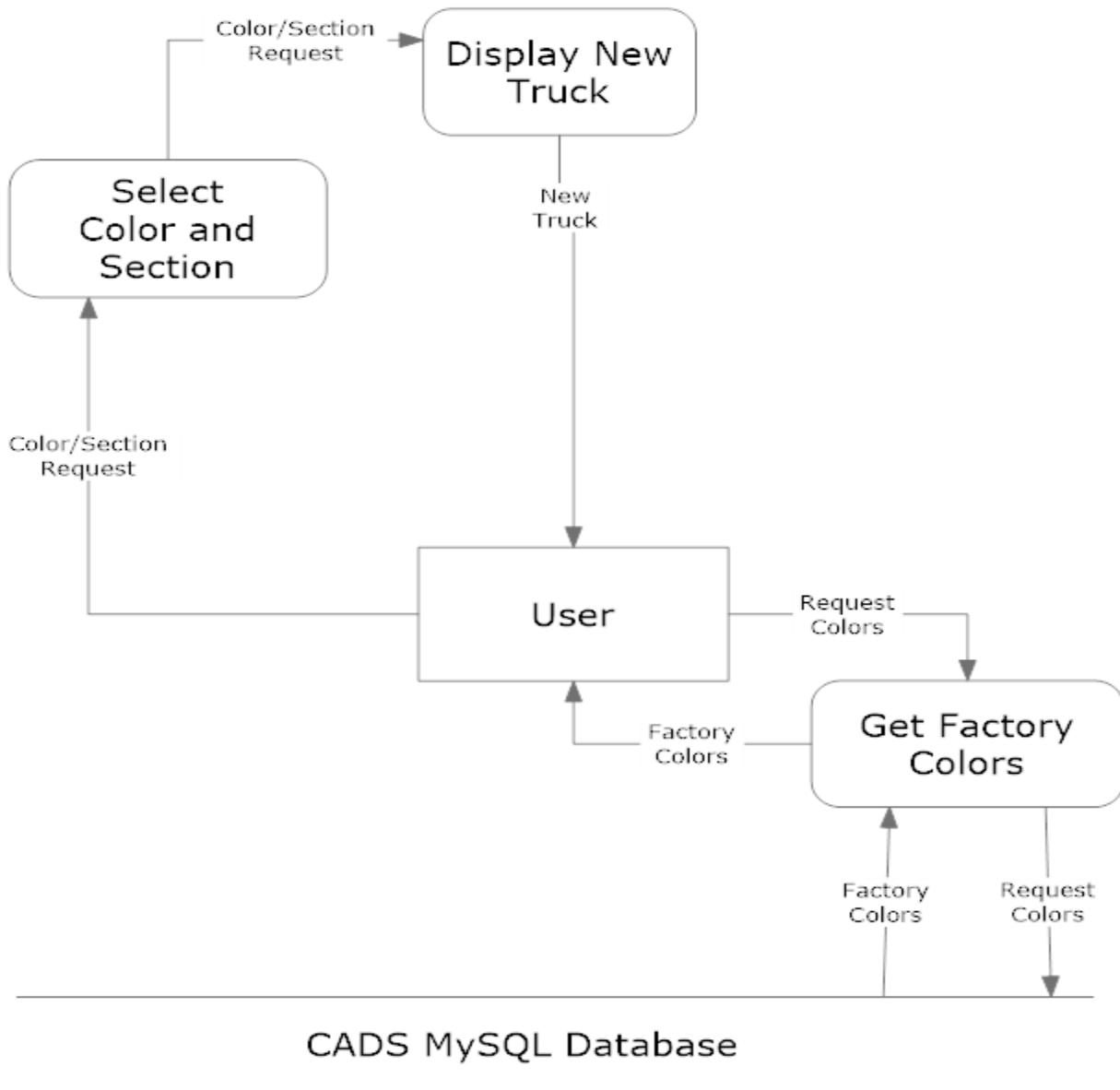
6.4

Process 2: Select Truck and Body Style Level 1 Diagram



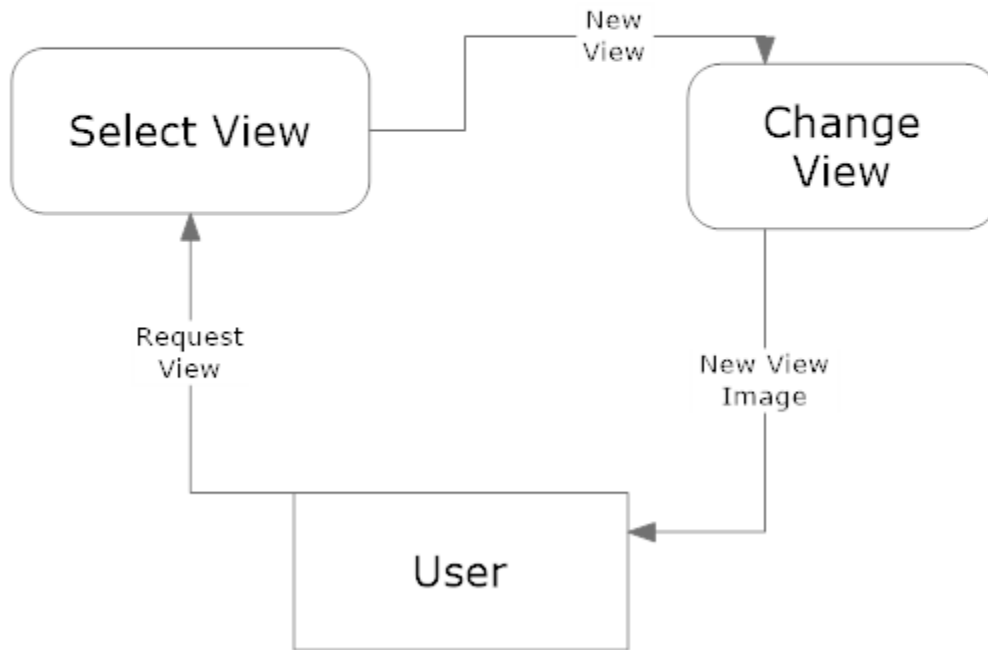
6.5

Process 3: Change Color Level 1 Diagram



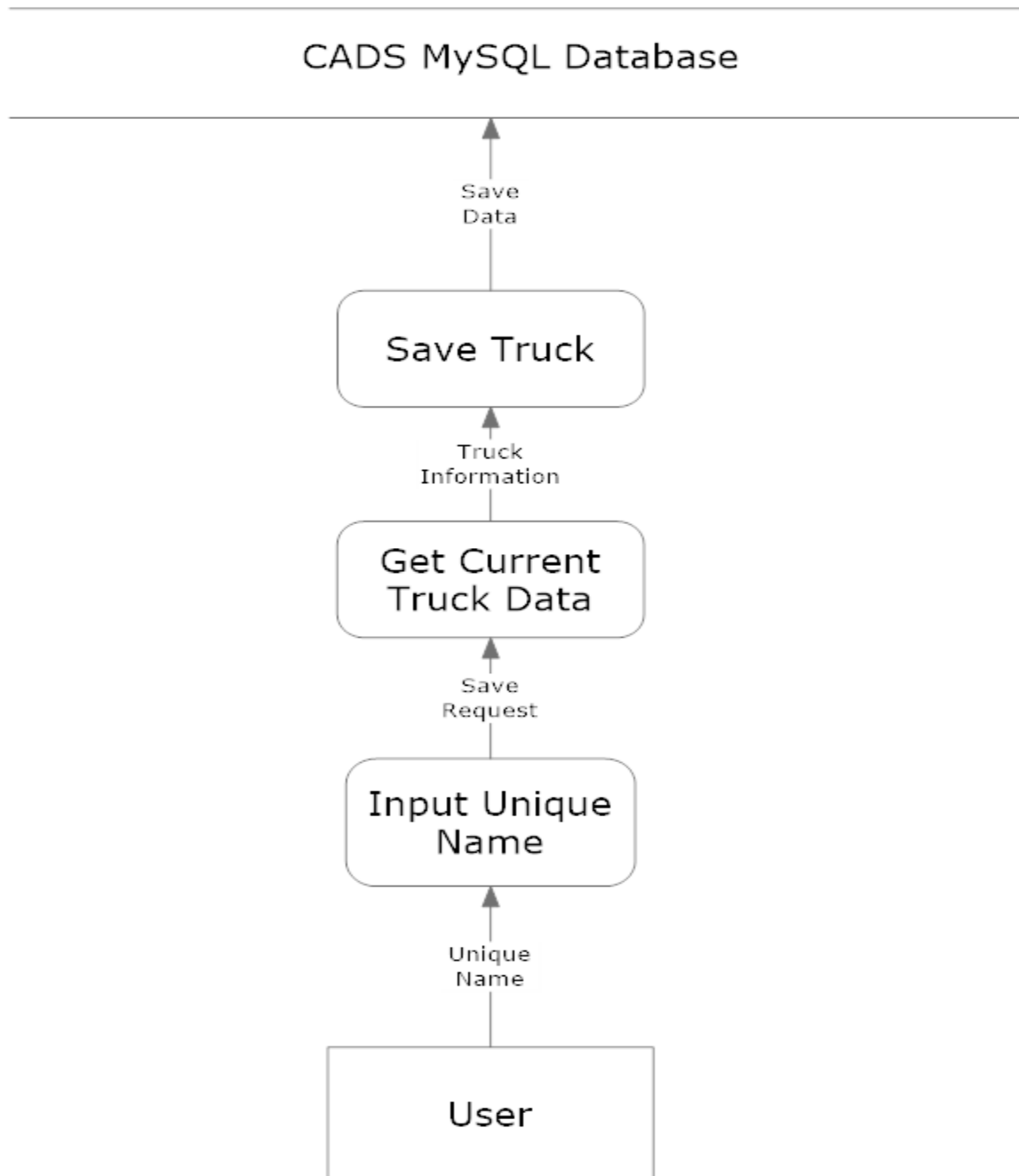
6.6

Process 4: Switch View Level 1 Diagram



6.7

Process 5: Save Truck Level 1 Diagram





7. Functional Requirements Inventory

The functional requirements inventory is the list of functions required of CADS Paint Visualizer that define the behavior of the system.. The two types of users are *restorers* and *customizers*. Both restorers and customizers share many functions so we will first define what functions are required for the user and then go into the additional functions required from each type of user.

User

- Will be able to choose a year and model.
- Will be able to change the colors on various parts of the trucks.
 - These include:
 - o Fender
 - o Upper body
 - o Lower body
 - o Rims
 - o Bumper
 - o Grill
- Will be able to change the view of the truck from either a side or front view.
- Will be able to save their work under a unique name so that they or someone else can view it or edit it later.

Restorer

- Will be able to choose from the original factory colors of the selected truck that will be stored in a database created by YDOS.

Customizer

- Will be able to choose any color that the user wants using a color wheel.



8. Non-Functional Requirements Inventory

The non-functional requirements inventory describes not only what the CADS Paint Visualizer will do, but how the web application will run.

The non-functional requirements are as follows:

- External Interface Requirements
 - Access to the database
- Software Design Constraints
 - No third party plug-ins

9. Exception Handling

YDOS will handle system and software expectations in an appropriate manner once we know what system level software we will be using. These may include an Apache webserver, MySQL database and PHP.

10. Implementation Handling

The main implementation priorities for the CADS Paint Visualizer will be: selection of the model year, selection of paint color (factory or custom), selection of wheels, grille, and emblems as well. These features are the most critical for providing great paint visualizer for our client and GM truck enthusiasts. These features will ensure that the application is pleasing and realistic for a customization or restoration.

11. Foreseeable Modification and Enhancement

CADS Paint Visualizer currently allows users to select the truck model when the web application first opens. In the future, the client, Dr. Timothy Lederman, would like to see a pickup truck default body style, and a default cab-over-engine.

CADS Paint Visualizer currently allows users to view side-shots and front-view-shots of the selected trucks. In the future, Dr. Lederman would like to see a rear-view-shot of the trucks.



12. Testing Requirements

CADS Paint Visualizer will be tested throughout the development process to ensure proper functionality and user interaction. The user interface will be tested for consistency, functionality, and usability throughout the development process.

13. Acceptance Criteria

In order for CADS Paint Visualizer to be accepted, the web application must meet all the requirements specified in every section of this document. If the final web application does not meet all of the specified requirements, there must be a reasonable explanation as to why these requirements were not met.



Appendix A: Glossary of Terms

Apache – Web server software

CADS – Chevrolet Advance Design Series Paint Visualizer

MySQL – a database management system

PHP – PHP: Hypertext Preprocessor, A server side scripting language.

UML - Unified modeling language

YDOS – Your Dream, Our Solution



Appendix B: Project Timeline

