

# Detailed Design

*Requested By:*

Dr. Darren Lim

Associate Professor

Siena College

Department of Computer Science

## Hobby Information Tracker Hobb-IT



By

**Illumination Technologies**

*Prepared By:*

Karl Appel

Connor Blakely

Jackie Hausmann

Bryan Leicht

Katie Sitaro

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# Detailed Design

## 1.1 Product Overview and Summary

As online shopping becomes an ever expanding market, consumers are continually faced with a variety of new vendors offering the same merchandise. More than ever, hobby enthusiasts are employing the internet to buy and sell their goods. Illumination Technologies will develop a program which can provide updates on changes in prices of *Magic: The Gathering* playing cards. Illumination Technologies will scrape data from a list of online websites given to Illumination Technologies by Dr. Lim. The system to be able to store and track the prices of the *Magic: The Gathering* cards from day to day. The system, the Hobby Information Tracker (Hobb-IT), will also be able to compare how the price of one card varies between retailers. Hobb-IT will be able to keep track of what cards each user has already purchased, searched for, or hopes to track.

## 1.2 User Case Narratives

### 1.2.1 Administrator Use Case Narrative

An *Administrator* account is a built-in user in the *Hobby Information Tracker* (Hobb-IT). There is only one *Administrator* account for this system. The *Administrator* will be able to monitor and update the system. The *Administrator* will determine how to parse a website's content. The *Administrator* will be able to access the search history of all users. The *Administrator* will be able to access the database to see and to change the login credentials of all users. The *Administrator* will be able access all of the stored data.

### 1.2.2 Advanced User Use Case Narrative

An *Advanced User* is someone who has been assigned a username and password by the *Administrator*. The *Advanced User's* account will be used to login into the system. Once logged into the system, an *Advanced User* will be able to search for the real-time price of a *Magic: the Gathering* (MTG) card from any tracked website. The *Advanced User* will have saved lists of previously tracked MTG cards, already bought MTG cards, and MTG cards the *Advanced User* wishes to track in the future. The *Advanced User* will have the option to modify what MTG cards are on each list. The *Advanced User* will have the ability to access any previous searches requested from the system associated with the *Advanced User's* account. The *Advanced User's* will be able to view a visual representation of the fluctuations in prices of a MTG card.

### 1.2.3 Guest User Use Case Narrative

A *Guest User* is defined as any person who is not an *Advanced User* or *Administrator*. The *Guest User* will be able to access some features of Hobb-IT without logging in to the system. The *Guest User* will be able to lookup the real-time price and condition of a MTG card. The *Guest User* is limited to viewing the price and condition of a MTG card to one tracked website at a time.



## 1.3 Functional Requirements Inventory

### General

- Hobb-IT will be compatible with current versions of Chrome, Firefox, Internet Explorer, and Safari.

### Administrator

- Will be able to access all stored data on the database.
- Will be able to access the search history of all users.
- Will be able to approve usernames and passwords of new Advanced User accounts.
- Will be able to change how a website's data is parsed into the database.
- Will be able to view and change login credentials of all users.
- Will be able to clear the database history of past searches

### Advanced User

- Will be able to login to Hobb-IT using a username and password approved by the Administrator.
- Will be able to search for the real-time price of a *Magic: The Gathering* card from any tracked website.
- Will be able to save a list of tracked *Magic: The Gathering* cards.
- Will be able to save a list of purchased *Magic: The Gathering* cards.
- Will be able to save a list of *Magic: The Gathering* cards the user wishes to track in the future.
- Will be able to edit the *Magic: The Gathering* cards that appear on any list.
- Will be able to access the search history associated with the Advanced User's account.
- Will be able to view a visual representation of the fluctuations in prices of a tracked *Magic: The Gathering* card.

### Guest User

- Will be able to access Hobb-IT without login credentials.
- Will be able to view the real-time price and condition of a *Magic: The Gathering* card from one website at a time.

### Non-functional Requirements

- Hobb-IT will be easy to maintain.
- Hobb-IT will be efficient.
- Hobb-IT will be stable.
- Hobb-IT will be user friendly.
- Hobb-IT will follow the legal processes on all websites tracked.

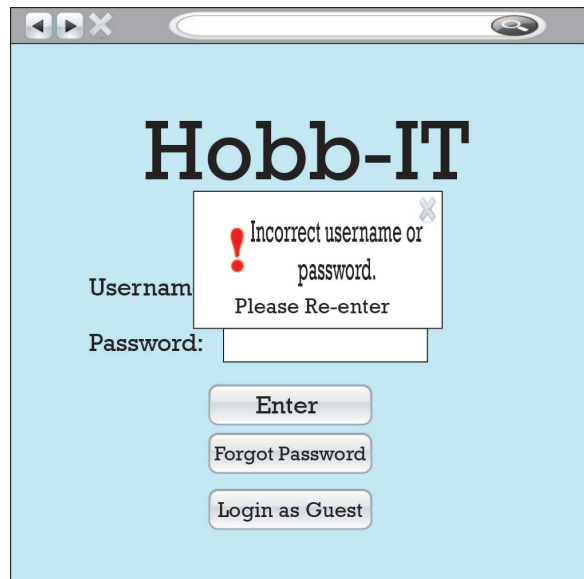
## 1.4 Prototype Screens

### 1.4.1 Generic Screens

#### Home Screen



A screenshot of a web browser window displaying the Hobb-IT Home Screen. The browser window has a title bar with back, forward, and close buttons, and a search bar. The page has a light blue background. At the top, the text "Hobb-IT" is displayed in a large, bold, black serif font. Below the title, there are two input fields: "Username:" followed by a white text box, and "Password:" followed by a white text box. Below the password field, there are three buttons: "Enter", "Forgot Password", and "Login as Guest". All buttons have a light blue gradient and rounded corners.

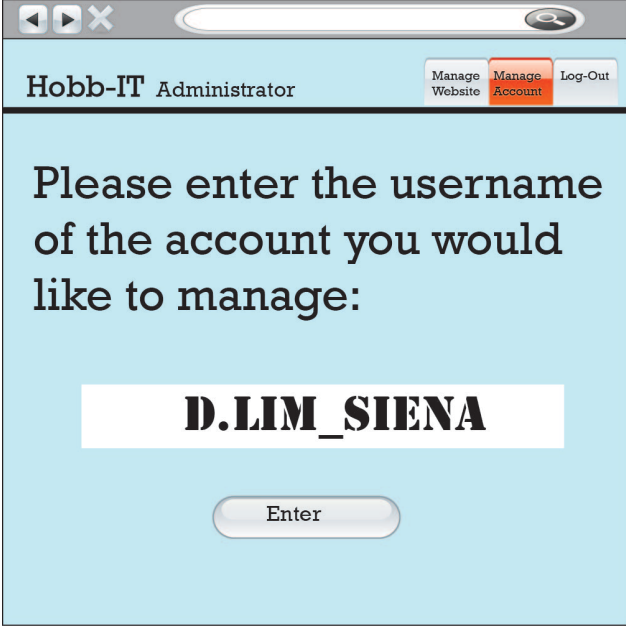


A screenshot of the same Hobb-IT Home Screen, but with an error message displayed. The error message is a white box with a red exclamation mark icon and the text "Incorrect username or password. Please Re-enter". The box has a small 'x' icon in the top right corner. The "Username:" and "Password:" labels are partially visible behind the error box. The "Enter", "Forgot Password", and "Login as Guest" buttons are still visible below the error box.

### 1.4.2 Admin Welcome



## Manage Account

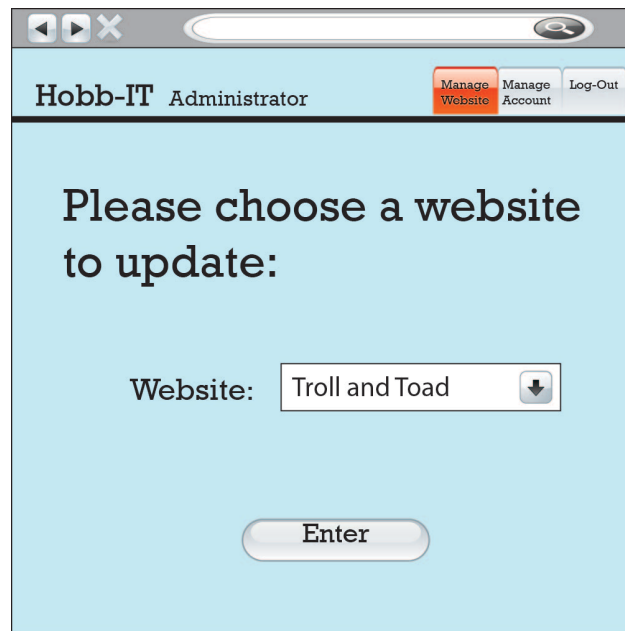


A screenshot of a web browser window titled "Hobb-IT Administrator". The browser's address bar is empty. The page has a light blue background. At the top right, there are three buttons: "Manage Website", "Manage Account" (highlighted in orange), and "Log-Out". The main content area displays the text "Please enter the username of the account you would like to manage:" in a large, black, serif font. Below this text is a white rectangular input field containing the text "D.LIM\_SIENA" in a bold, black, sans-serif font. At the bottom of the input field is a rounded button labeled "Enter".



A screenshot of the same web browser window as above, but with an error message. The text "Please enter the username of the account you would like to" is visible, followed by a white rectangular input field. A small error dialog box is overlaid on the input field, containing a red exclamation mark icon, the text "Invalid username", and "Please Re-enter". Below the input field is a rounded button labeled "Enter".

## Manage Website



The screenshot shows a web browser window with a title bar containing back, forward, and close buttons, and a search icon. The page header is light blue and contains the text "Hobb-IT Administrator" on the left. On the right, there are three buttons: "Manage Website" (highlighted in orange), "Manage Account", and "Log-Out". The main content area has a light blue background and displays the text "Please choose a website to update:". Below this text is a form labeled "Website:" with a dropdown menu showing "Troll and Toad" and a downward arrow button. At the bottom of the form is a large, rounded "Enter" button.

Hobb-IT Administrator

Manage Website Manage Account Log-Out

Please choose a website to update:

Website: Troll and Toad

Enter



### 1.4.3 Advanced User Welcome Screen

A web browser window titled "Username" with a search bar and navigation tabs: Home, Tracked Cards, Past Searches, Wish List, Graphs, Manage Account, and Log-Out. The main content area has a light blue background and displays "Welcome 'username'". Below this, there are three input fields: "Magic Card:" with the value "Cloud Crusader", "Edition:" with a dropdown menu showing "M11", and "Website:" with a dropdown menu showing "TrollAndToad". An "Enter" button is positioned below these fields.

The same web browser window as above, but with an error message displayed in a white box with a red exclamation mark icon. The message reads: "Magic Card does not match Edition". The input fields for "Magic Card", "Edition", and "Website" are now empty, and the "Enter" button remains at the bottom.

The same web browser window as above, but with a different error message displayed in a white box with a red exclamation mark icon. The message reads: "Invalid Magic Card Please Re-enter". The input fields for "Magic Card", "Edition", and "Website" are now empty, and the "Enter" button remains at the bottom.

## Tracked Cards



**"Username"**  
**Hobb-IT**

[Home](#) [Tracked Cards](#) [Past Searches](#) [Wish List](#) [Graphs](#) [Manage Account](#) [Log-Out](#)

F	Card Name	Ed.	Date	Lowest Value	Average Value
<input type="checkbox"/>	Cloud Crusader	M11	11/24/13	\$0.18	\$0.22
				TrollAndToad	
<input type="checkbox"/>					
<input type="checkbox"/>					
<input type="checkbox"/>					
<input type="checkbox"/>					

[Update](#) [Add Card](#) [Remove Card](#)






## Wish List

◀ ▶ ✕

🔍

“Username”  
Hobb-IT

HomeTracked CardsPast SearchesWish ListGraphsManage AccountLog-Out




Foil	Card Name	Edition	Push to tracked cards list
<input type="checkbox"/>	Cloud Crusader	M11	
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			

Add Card

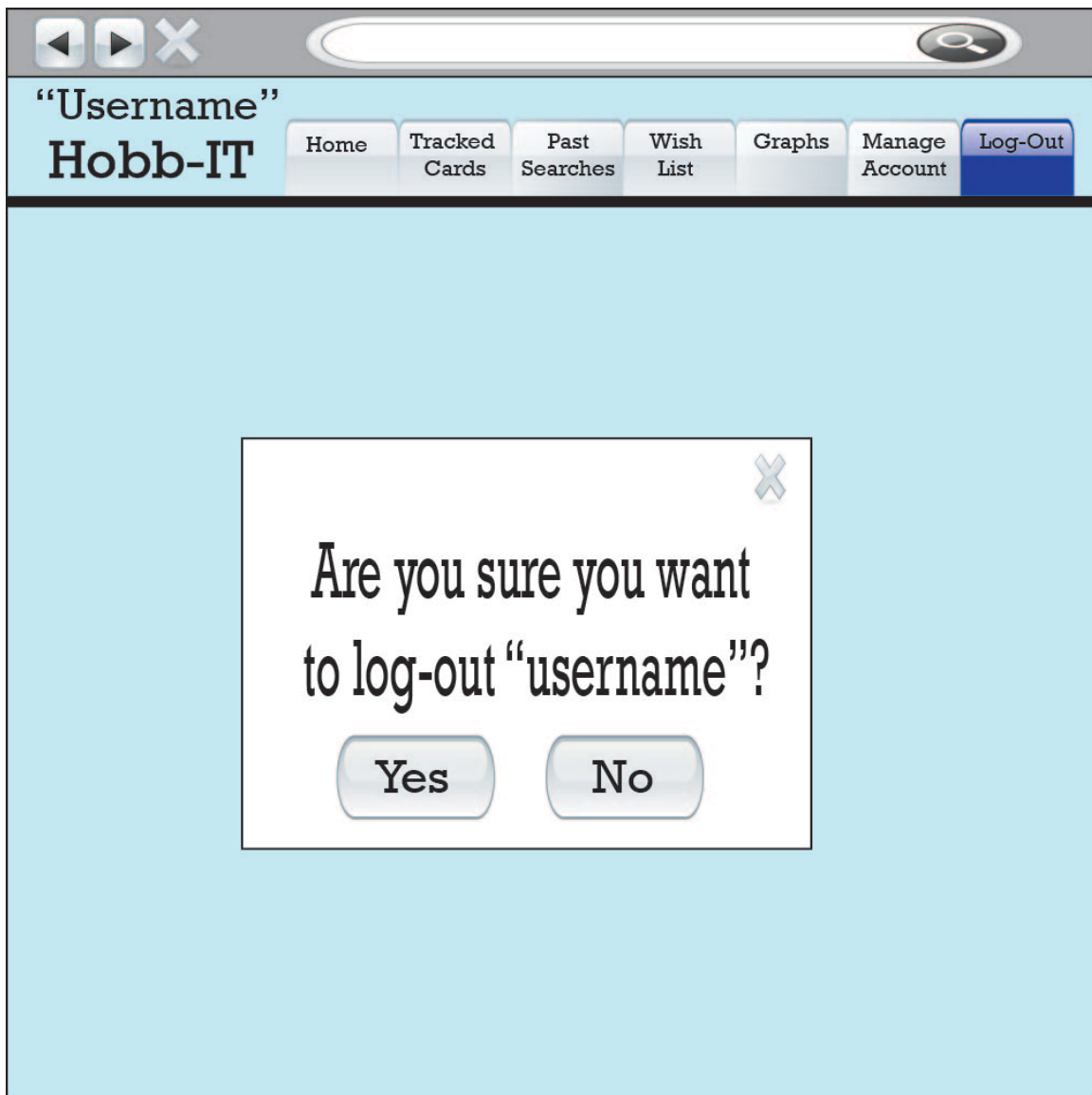
Remove Card



## Past Searches

									
<b>"Username"</b> <b>Hobb-IT</b>					<a href="#">Home</a> <a href="#">Tracked Cards</a> <a href="#">Past Searches</a> <a href="#">Wish List</a> <a href="#">Graphs</a> <a href="#">Manage Account</a> <a href="#">Log-Out</a>				
F	Card Name	Ed.	Date	Lowest Found Value					
<input type="checkbox"/>	Cloud Crusader	M11	11/24/13	\$0.18					
				TrollAndToad					
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									

## Log-out



#### 1.4.4 Guest User

##### Welcome Screen



A screenshot of a web browser window with a light blue background. The browser's address bar is empty. The page content includes a large heading, a prompt, three input fields, and a button.

**Welcome Guest!**

Please enter a Magic: The Gathering card you would like to price:

Magic Card:

Website:

Edition:  

### 1.4.5 Prototypes for Web Scraping

Illumination Technologies looked at a variety of tools in order to determine the feasibility of scraping the websites provided to Illumination Technologies by Dr. Lim for tracking *Magic: The Gathering* cards. For Illumination Technologies' prototype Illumination Technologies used a Java library called Jsoup to parse the HTML and retrieve the information necessary for Hobb-IT. Jsoup provides an easy API for extracting and manipulating data using Cascading Style Sheets and the Document Object Model.

For the websites provided to Illumination Technologies by the client, Illumination Technologies was required to determine if five needed MTG card attributes could be found. Illumination Technologies and this document will refer to these attributes as the *five attributes* which are listed below:

1. Card Name
2. Edition
3. Condition
4. Price
5. Quantity

Illumination Technologies used two different sites provided by the client called *TrollandToad.com* and *CardKingdom.com* to test the whether the Jsoup library would be able to successfully scrape websites for the *five attributes*.

## Example 1: Troll and Toad


The yellow boxes indicate where on the webpage the *five attributes* are located.

:rollandtoad.com/p83556.html

AD.COM All Search [Log in](#)

YUGIOH POKEMON CFV, WOW & OTHER CCGS MINIATURES BOARD GAMES D&D & RPGS GAME SUPPLIES SPECIALS & LOTS NOVELTIES & APPAREL VIDEO GAMES

legends



Rarity:  
Rare

Color:  
Black

Casting Cost:  
2

Card Type:  
Sorcery

Card Text:  
All non-black creatures are destroyed. Hellfire does X + 3 damage to you, X is the number of creatures placed in the graveyard.  
"High on a throne of royal state... incantate to pursue your war with heart'n." —John Milton, Paradise Lost

Like 0 Send

Pin It Tweet 0

Hellfire (Legends)			
English Near Mint	1 in stock	<a href="#">ADD TO CART</a> <a href="#">ADD TO WISH LIST</a>	<a href="#">SELL US YOURS</a> for <b>\$7.00</b>
	\$16.99 1		
English Played	1 in stock	<a href="#">ADD TO CART</a> <a href="#">ADD TO WISH LIST</a>	
	\$11.89 1		

Shipping weight: 0.004 pounds (Size: 3.50" H x 2.50" W x 0.01" D)

The following code below shows that the *five attributes* can be parsed and retrieved from the website *TrollandToad.com*

```
import java.io.IOException;
import org.jsoup.*;
import org.jsoup.nodes.Document;
import org.jsoup.select.Elements;

public class TrollAndToad {

    public static void main(String args[]){
        try {
            Document doc =
                Jsoup.connect("http://www.trollandtoad.com/p83556.html").get();
            Elements conditions =
                doc.getElementsByClass("productquantity");
            Elements prices =
                doc.getElementsByAttributeValue("class" , "productprice");
            Elements cardNames =
                doc.getElementsByAttributeValue("class" , "pname1");
            String cardName =
                cardNames.get(0).text();

            System.out.println("Card name = " + cardName.substring(0
                ,cardName.indexOf("(")));
            System.out.println("Edition = " +
                cardName.substring(cardName.indexOf("(") +1 ,
                cardName.indexOf(")")));
            System.out.println("Condition = " + conditions.get(0).text());
            System.out.println("Price = " + prices.get(1).text());
            System.out.println("Quantity = " + prices.get(0).text());

        }
        catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```


### The Result (11/22/13):

Card name = Hellfire  
 Edition = Legends  
 Condition = English Near Mint  
 Price = \$16.99  
 Quantity = 1 in stock

## Example 2: Card Kingdom


The yellow boxes indicate where on the webpage the *five attributes* are located.

w.cardkingdom.com/catalog/item/21120


Shopping

Search:   (advanced search)

[Home](#) > [Magic: The Gathering](#) > [Legends](#) > [Hellfire](#)



**Legends: Hellfire**  
Oracle Text:  
Destroy all nonblack creatures. Hellfire deals X plus 3 damage to you, where X is the number of creatures put into all graveyards this way.

**Edition: Legends**  
Type: Sorcery  
Cast: ② ③ ④ ⑤  
Rarity: R  
Pow/Tuf:

Style	Price	Stock	Qty
NM	14.99	6	<input type="text"/>
EX	11.99	3	<input type="text"/>
VG	10.49	1	<input type="text"/>
G	7.50	-	-

Don't see what you need?  
Try our [Restock Notice Feature](#)

The following code below shows that the *five attributes* can be parsed and retrieved from the website *CardKingdom.com*

```
import org.jsoup.Jsoup;
import org.jsoup.nodes.Document;
import org.jsoup.select.Elements;

public class CardKingdom {
    public static void main(String args[]){
        try{
            String website =
                "http://www.cardkingdom.com/catalog/item/21120";
            Document doc =
                Jsoup.connect(website).get();
            Elements conditions =
                doc.select(".grid tbody tr");
            Elements names =
                doc.select("td b");
            String name =
                names.get(1).text().substring(names.get(1).text().indexOf(":") + 1);

            System.out.println("Card name = " + name);
            String edition =
                conditions.get(1).text().split(" ")[1];
            System.out.println("Edition = " + edition);

            String breakdown[] =
                conditions.get(7).text().split(" ");

            System.out.println("Condition = " + breakdown[0]);
            System.out.println("Price = " + breakdown[1]);
            System.out.println("Quantity = " + breakdown[2]);

        }
        catch(Exception e){
            e.printStackTrace();
        }
    }
}
```

The Result (11/22/13):

Card name = Hellfire  
Edition = Legends  
Condition = NM  
Price = 14.99  
Quantity = 6



## 1.5 Database

### 1.5.1 Logical Data Dictionary

*\*See attached Appendix C for full dictionary\**

*Definition:* a collection of data entities such that the name, definition, type, size, description, and acceptability of each data entity is defined

#### **Key**

*Data Name:* The name of the data entity stored within the system

*Applicable to:* The screens for which this data entity will be used

*Data Type:* The type of data for each data entity

*Data Size:* The length or size for the data entity's type

*Description:* A explanation of how and what this data entity will store

*Acceptable Input:* This explains the limits of appropriate input in order for data to be accepted

*Good Example of Input:* An example accepted and stored by the system

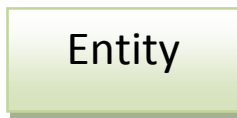
*Bad Example of Input:* An example of data not stored and rejected by the system

*Notes:* Other information pertaining to the data in the system

### 1.5.2 ER Diagram

An E-R diagram is a visual representation of a database. This diagram consists of several items: entities, relationships and attributes. An entity is anything in the database that can be uniquely identified and can exist on its own. A relationship is a connection between two entities that describes how the two entities interact. An attribute is any data item that is connected to an entity or a relationship. A primary key attribute(s) is the attribute(s) that uniquely identify the entity.

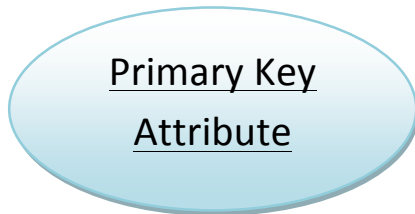
## Legend



Entity: An entity is something within the database that can exist on its own and that can be uniquely identified.



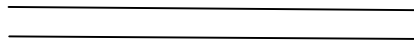
Relationship: A relationship is something that connects two entities and describes how they are related.



Primary Key Attribute: This is an attribute of an entity that uniquely identifies the entity along with any other primary key attributes.



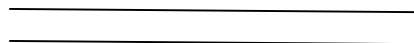
Attribute: Any data item that is associated with the connected entity.



1

## Connections-

Double Line 1: Exactly 1 in the relationship



M/N

Double Line M/N: At least 1 in the relationship



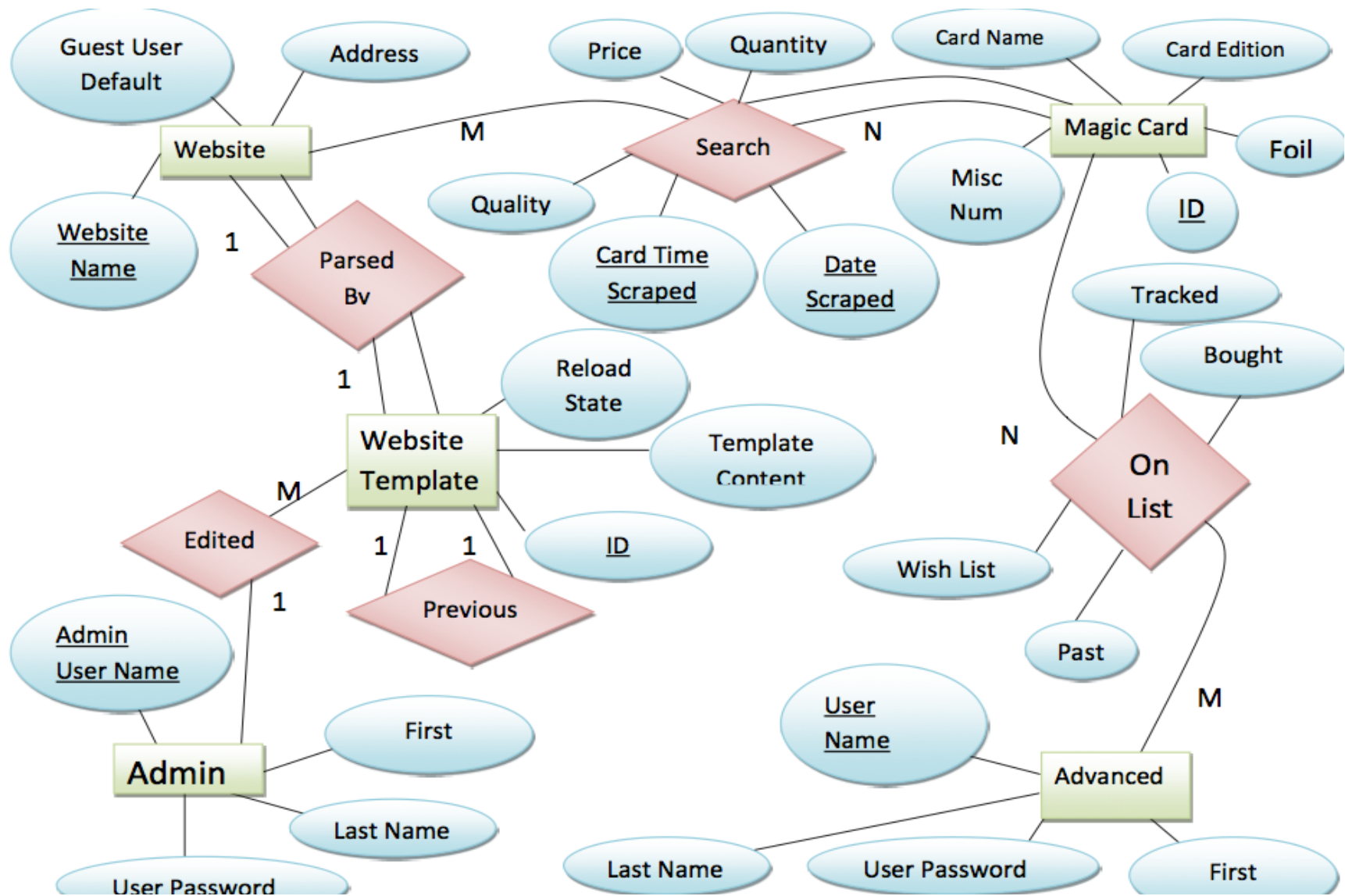
1

Single Line 1: 0 or 1 in the database



M/N

Single Line M/N: Any number



### 1.5.3 Database Tables

#### Website:

Website Name	Primary Key, varChar
Address	varChar
Template ID	Foreign Key, Unique, Not Null, int
Guest User Default	boolean

#### Template:

Template ID	Primary Key, int
Previous Template Id	Foreign Key, Unique, int
Template Content	varChar
Reload State	boolean

#### Admin:

Admin User Name	Primary Key, varChar
User Password	varChar
First Name	varChar
Last Name	varChar

#### Magic Card:

ID	Primary Key, int
Card Name	varChar
Card Edition	varChar
Foil	boolean
Misc Description	varChar

#### Advanced:

User Name	Primary Key, varChar
User Password	varChar
First Name	varChar
Last Name	varChar

## Search:

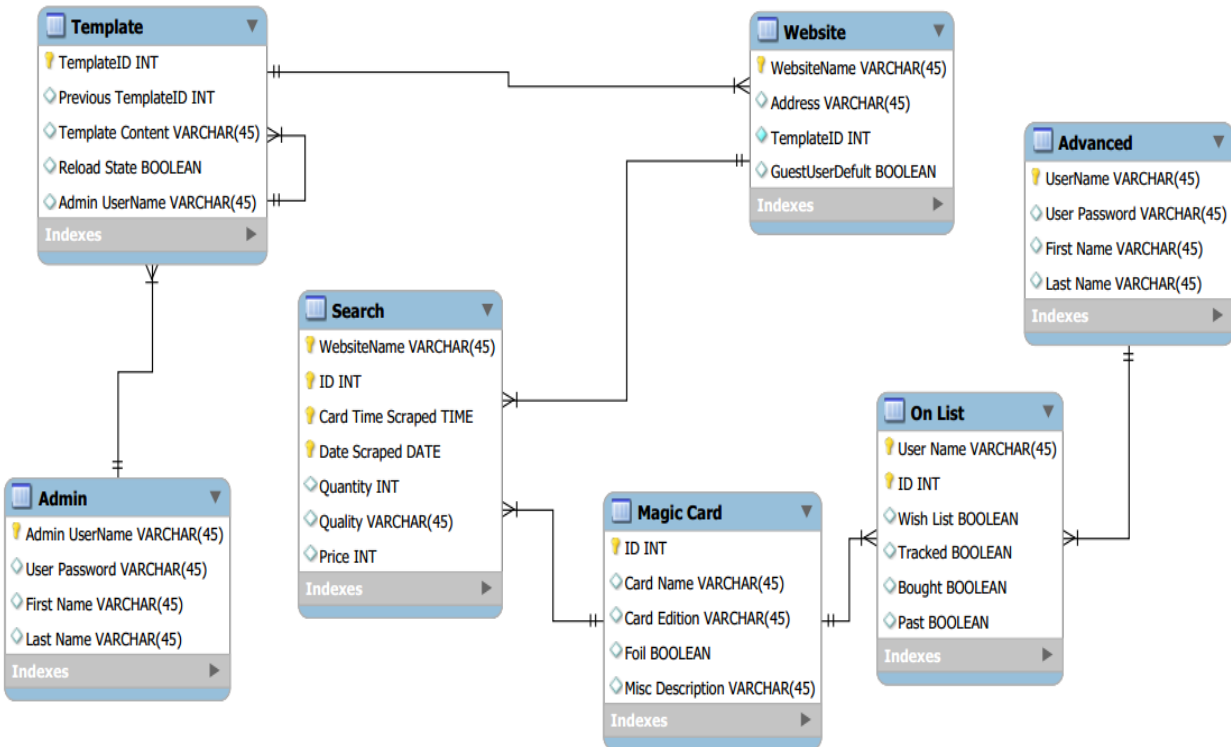
Website Name	Primary Key, Foreign Key, varChar
ID	Primary Key, Foreign Key, int
Card Time Scraped	Primary Key, Time
Date Scraped	Primary, Date
Quantity	Int
Quality	varChar
Price	Int

## On List:

User Name	Primary Key, Foreign Key, varChar
ID	Primary Key, Foreign Key, int
Wish List	boolean
Tracked	boolean
Bought	boolean
Past	boolean

### 1.5.4 Relational Schema

A relational schema is another visual representation of a database, but in a much more detailed way and it describes how the database is going to be built. It shows boxes that represent the tables within the database and uses the language of the database management system for the attributes of each table. It also shows arrows between tables that depict the relationships between tables.



## 1.6 Development and Production Environments

The development environment of Hobb-IT is the environment which Illumination Technologies will develop the software and test the software. The production environment is the environment where Hobb-IT will be tested and will be put into production. The Development Environment includes a Macintosh Computer, a Windows Computer running Vista, and a Windows Computer running Windows 8. The Production Environment includes the server on Oraserv which will run Apache, PHP, and MySQL.

### 1.6.1 Development Environment

Macintosh Computer:

Operating System: OSX Version 10.7.4

Model: Mac

Processor: Intel Core i5 @ 2.5Ghz

Memory: 4GB 1333 MHz DDR3

HD Size: 500GB

Windows Computer:

Operating System: Windows Vista

Model: Dell

Processor: Intel Core 2 Duo E7500 @ 2.93GHz

Memory: 4.00 GB

HD Size: 297GB1

Windows Computer:

Operating System: Windows 8

Model: ASUS

Processor: Intel Core i5 2.4Ghz

Memory: 4GB 133MHz DDR3

HD Size: 450GB

### 1.6.2 Production Environment

Operating System: CentOS 5.2, Kernal 2.6.18-92e15

Server Name: oraserv.cs.siena.edu

CPU Type: Intel Xeon 2.66 GHz

Memory: 8GB Memory



## 1.7 Website Map/Structure Chart

A Website Map is a hierarchy chart that shows the different pages within Hobb-IT that users can access. The Website Map shows how the pages of Hobb-IT are linked.

### 1.7.1 Legend



Home of Hobb-IT



Home page



Form

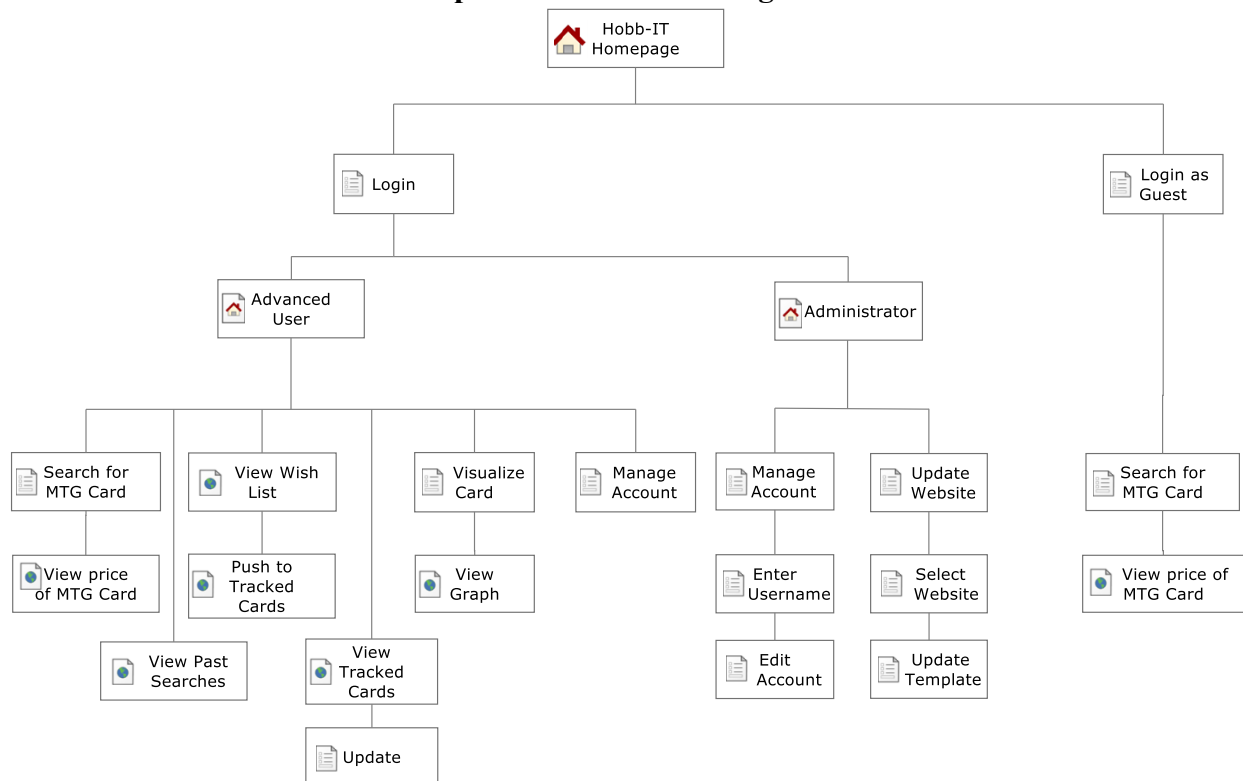


Web Page



Link

### 1.7.2 Website Map/Structure Chart Diagram



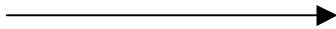
## 1.8 Data Flow Diagrams

The following diagrams are the data flow diagrams for Hobb-IT. Within these diagrams one can see the movement of data between processes in the system and the external entities of the system. There are various levels to these diagrams which will be explained in the content below, which explains the symbols which will be used in these data flow diagrams.

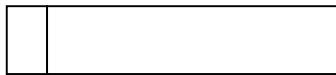
### 1.8.1 Diagram Legend



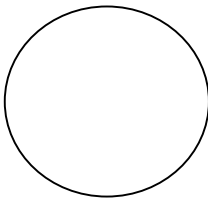
**External Entity**: Represents outside sources of data to and from the system



**Data Flow**: Represents the movement of data



**Data Store**: Represents data that is not moving or at rest

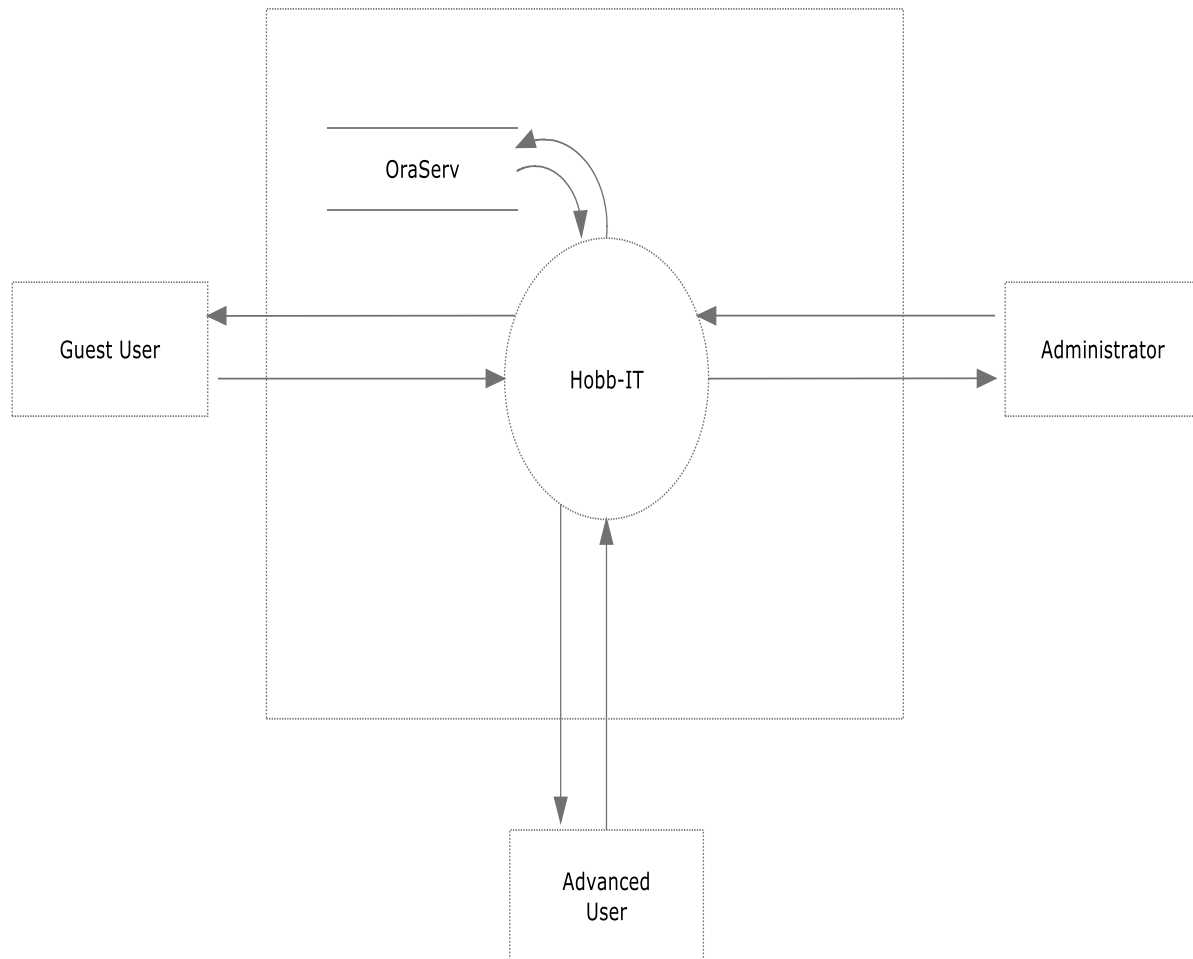


**Process**: Represents an activity that manipulates the data

### 1.8.2 Context Diagram

The Context Diagram is a diagram that shows the system described as a single entity and the boundary of the system. In this diagram the interaction of the system between external or internal sources of information are defined as separate entities.

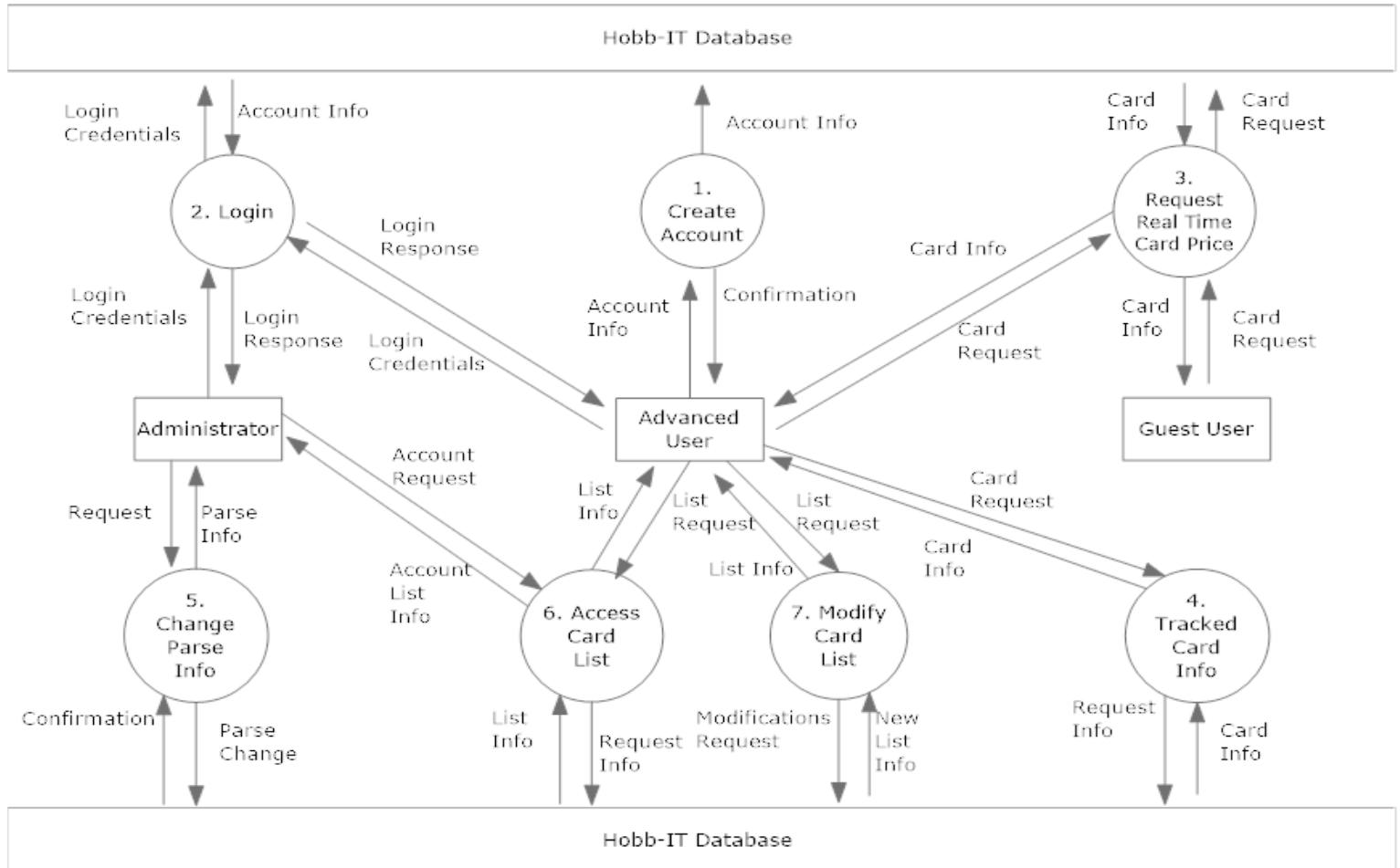
#### Data Flow Diagram - Context Diagram



### 1.8.3 Level 0 Diagram

The Level 0 diagram shows a simplified overview of the major players and processes that occur for the system and the interaction of these processes among each other. This is an expansion upon the Context Diagram.

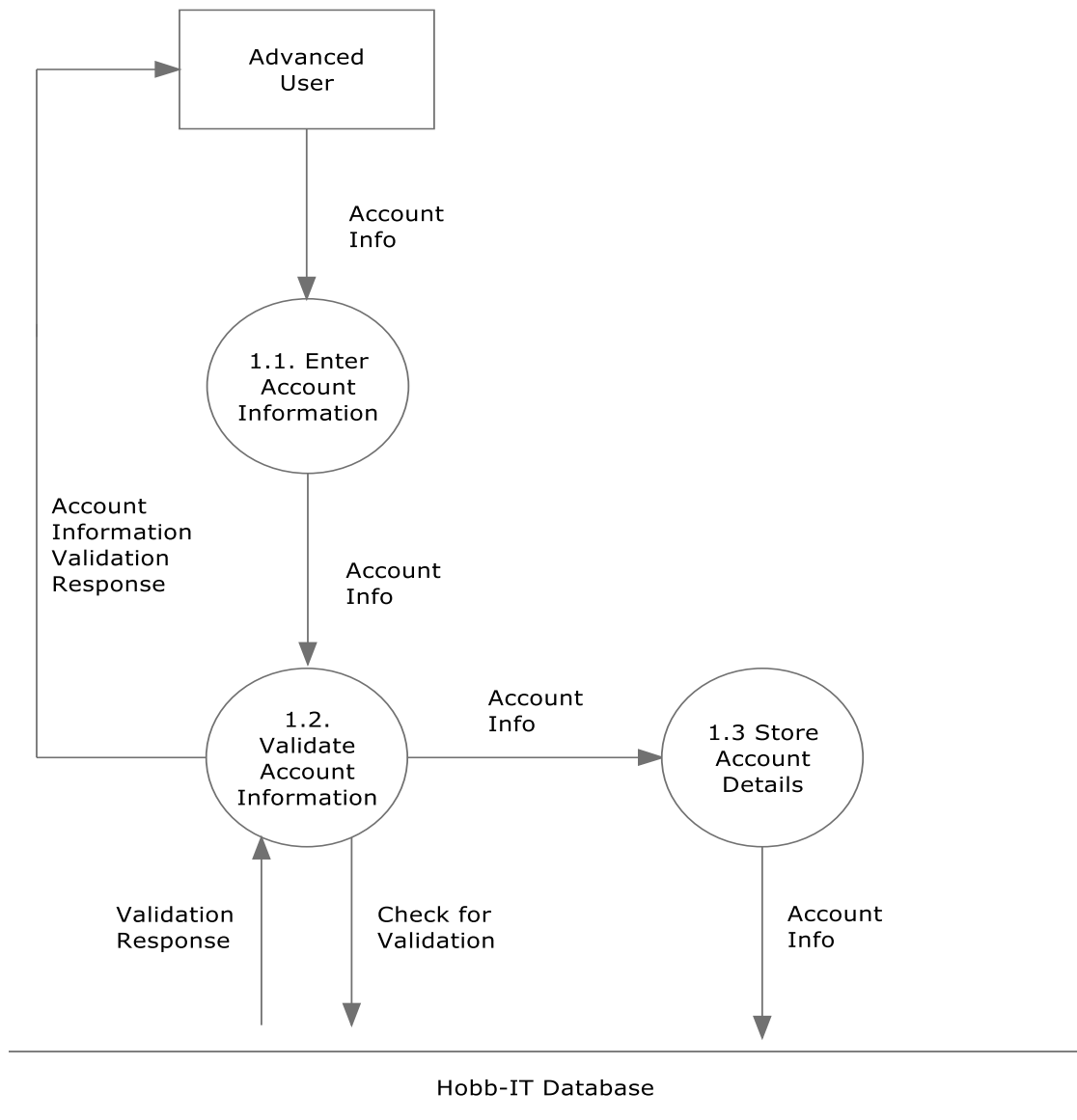
#### Data Flow Diagram - Level 0



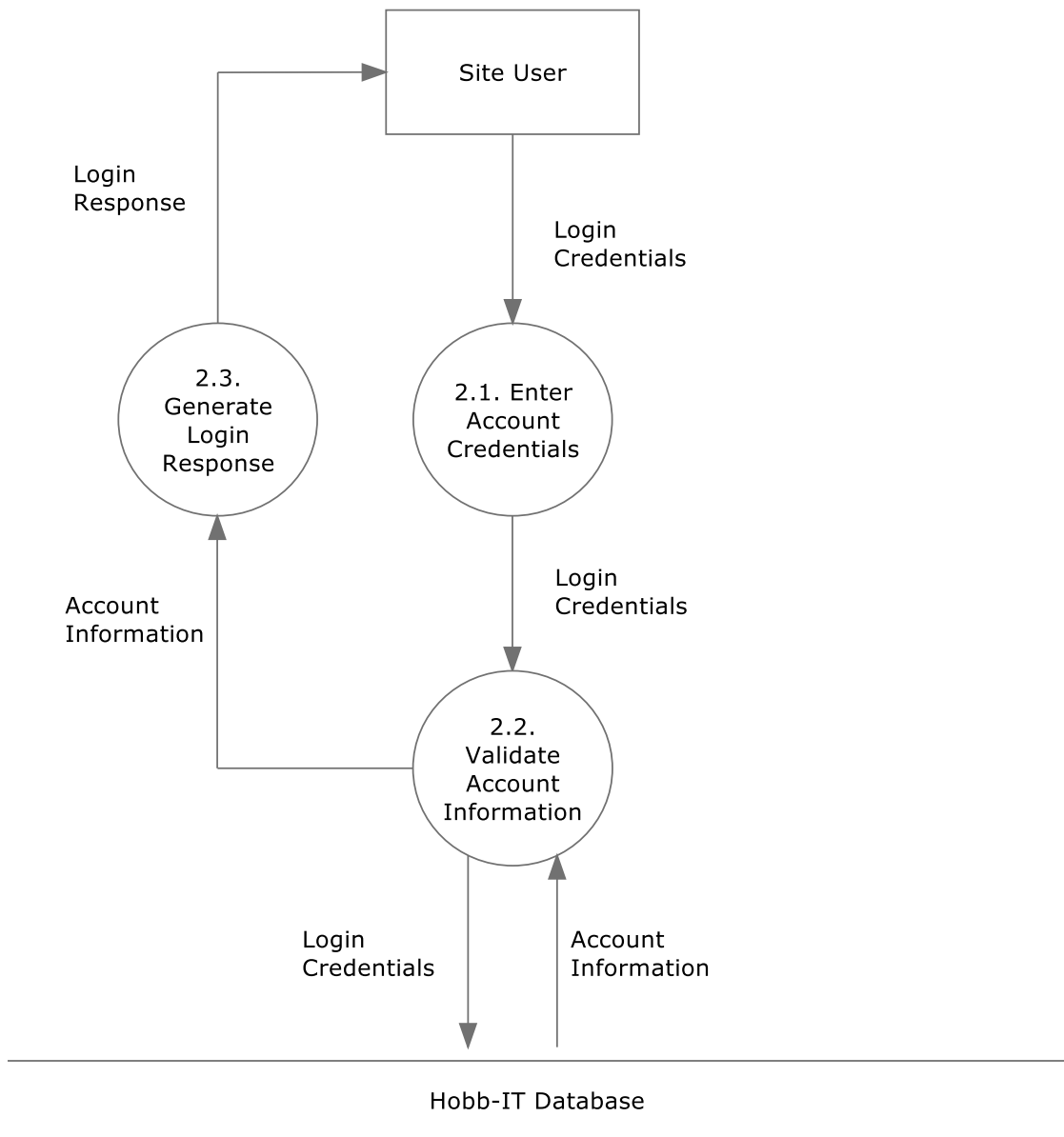
### 1.8.4 Level 1 Diagrams

The level 1 diagrams expands upon a particular process within a level 0 diagram and shows the major players and processes associated with this break down of this level 0 process.

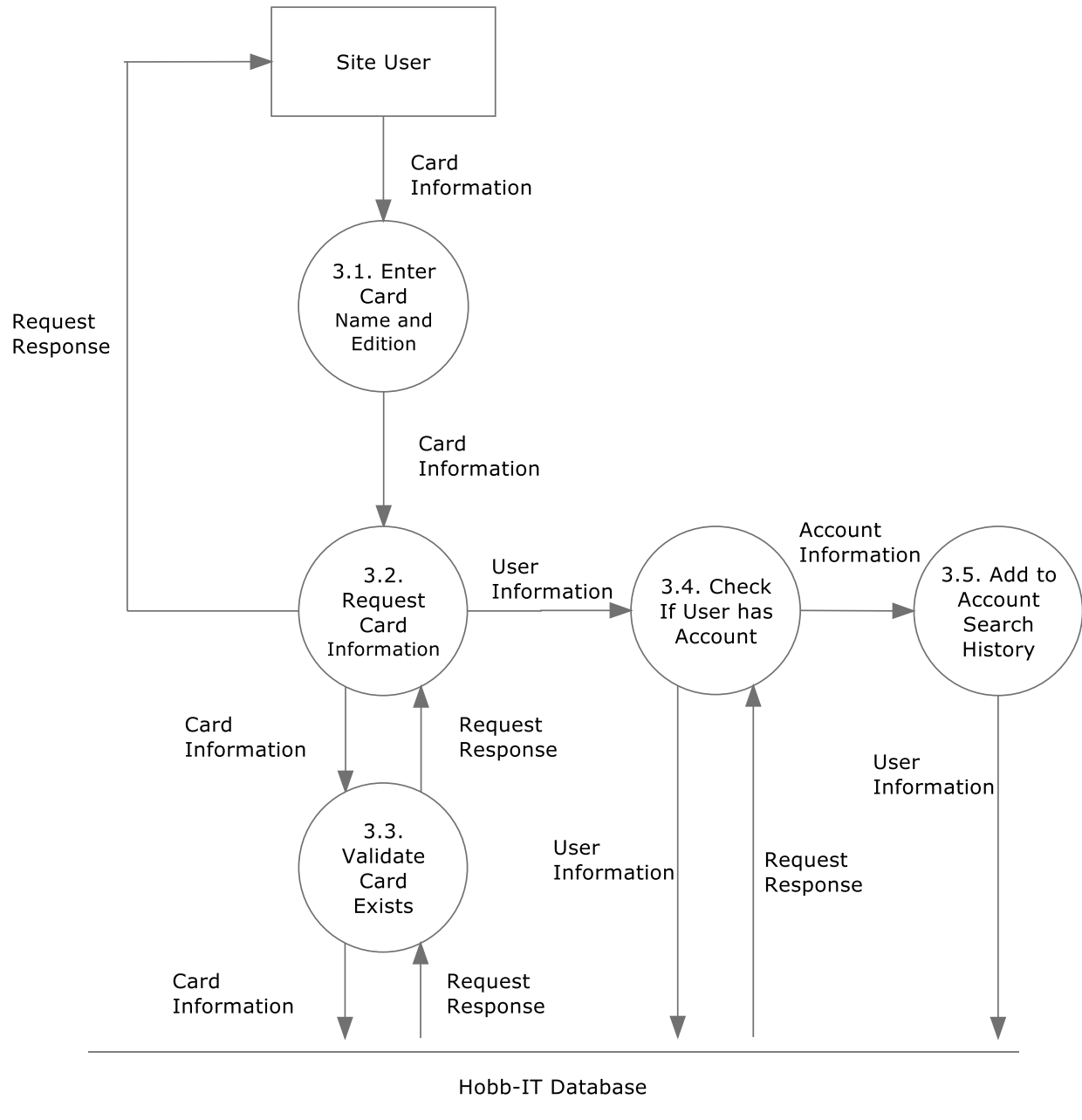
#### Data Flow Diagram - Level 1: 1. Create Account



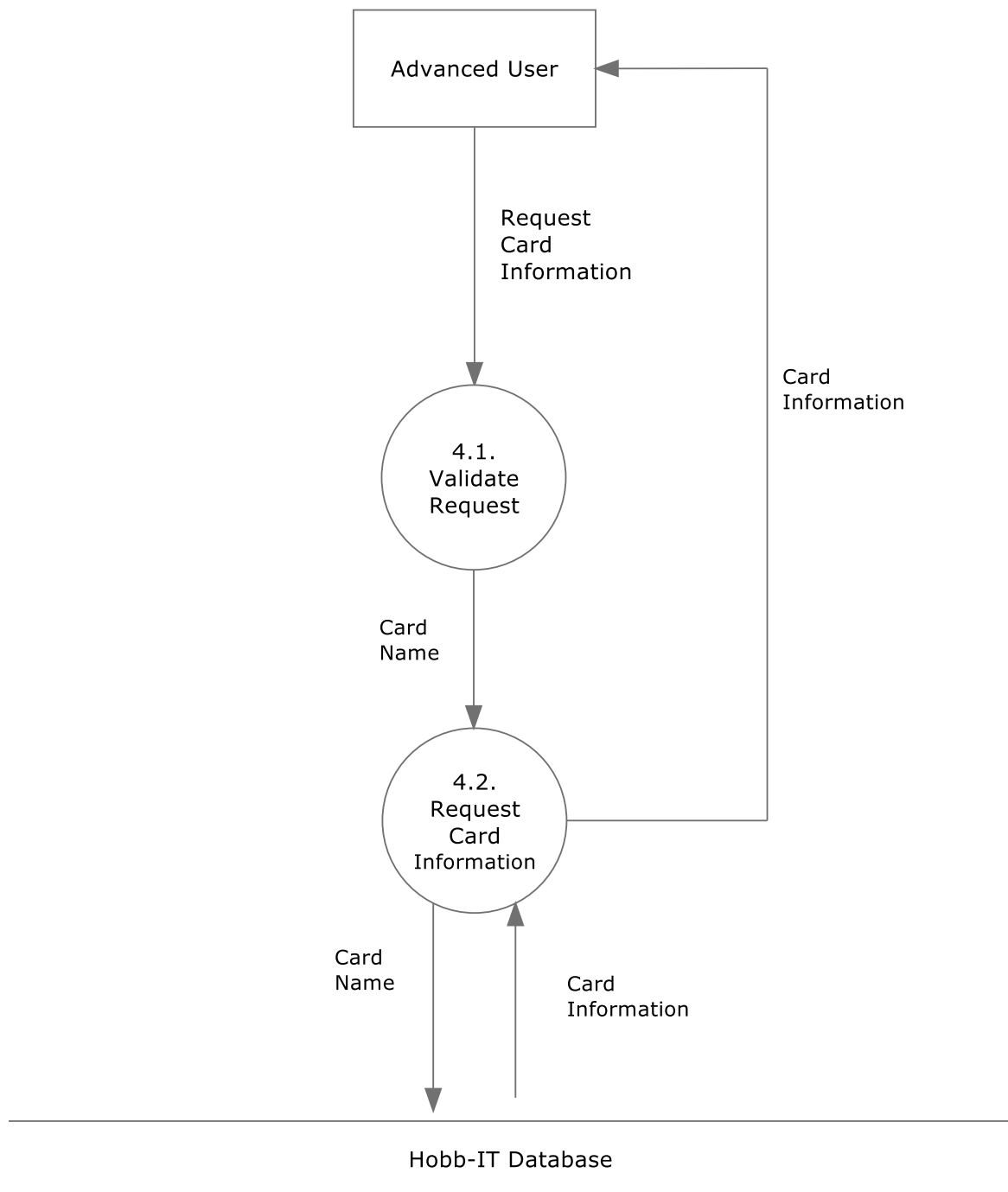
## Data Flow Diagram - Level 1: 2. Login



## Data Flow Diagram - Level 1: 3. Request Real Time Card Price

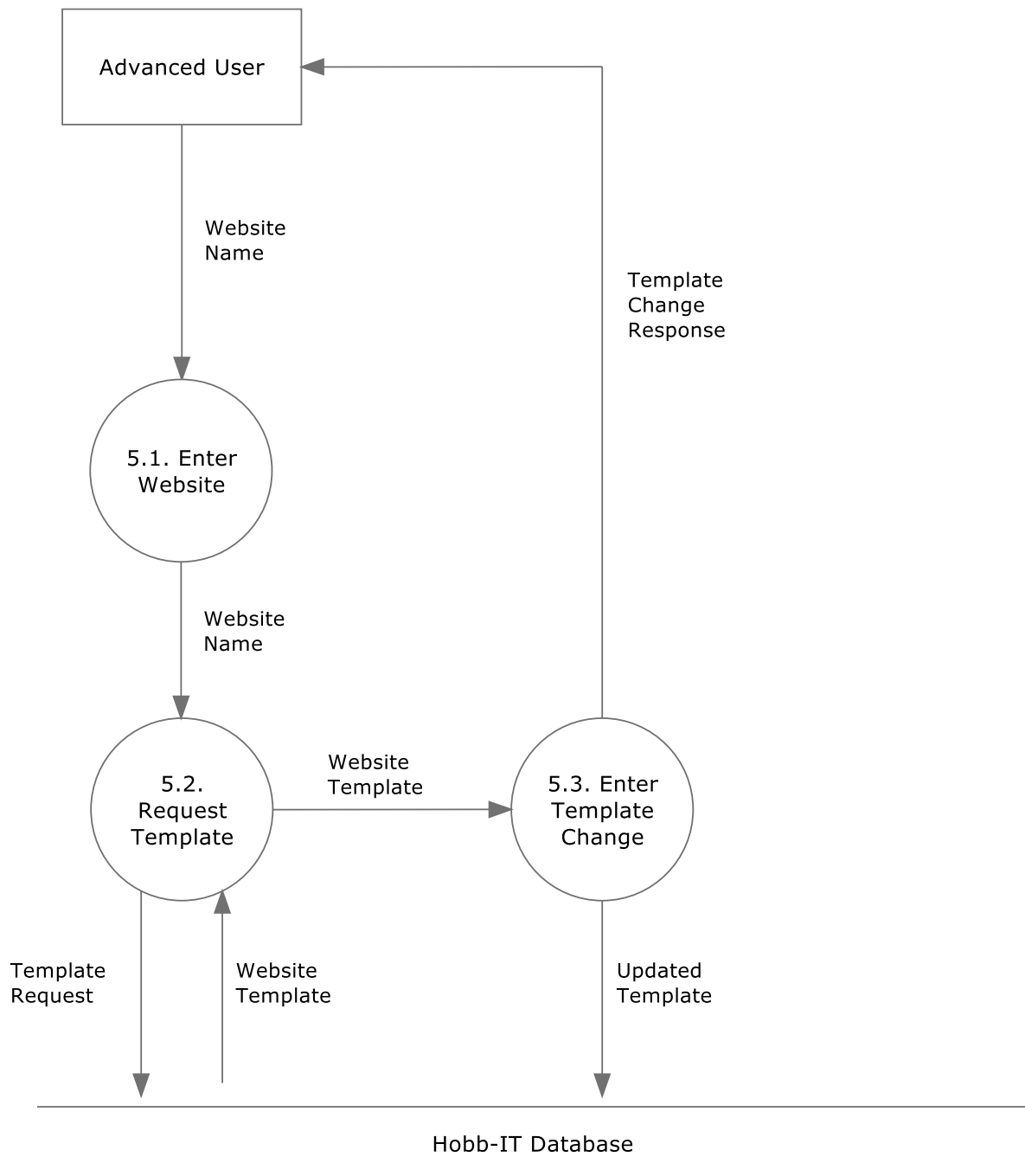


## Data Flow Diagram - Level 1: 4. Tracked Card Information

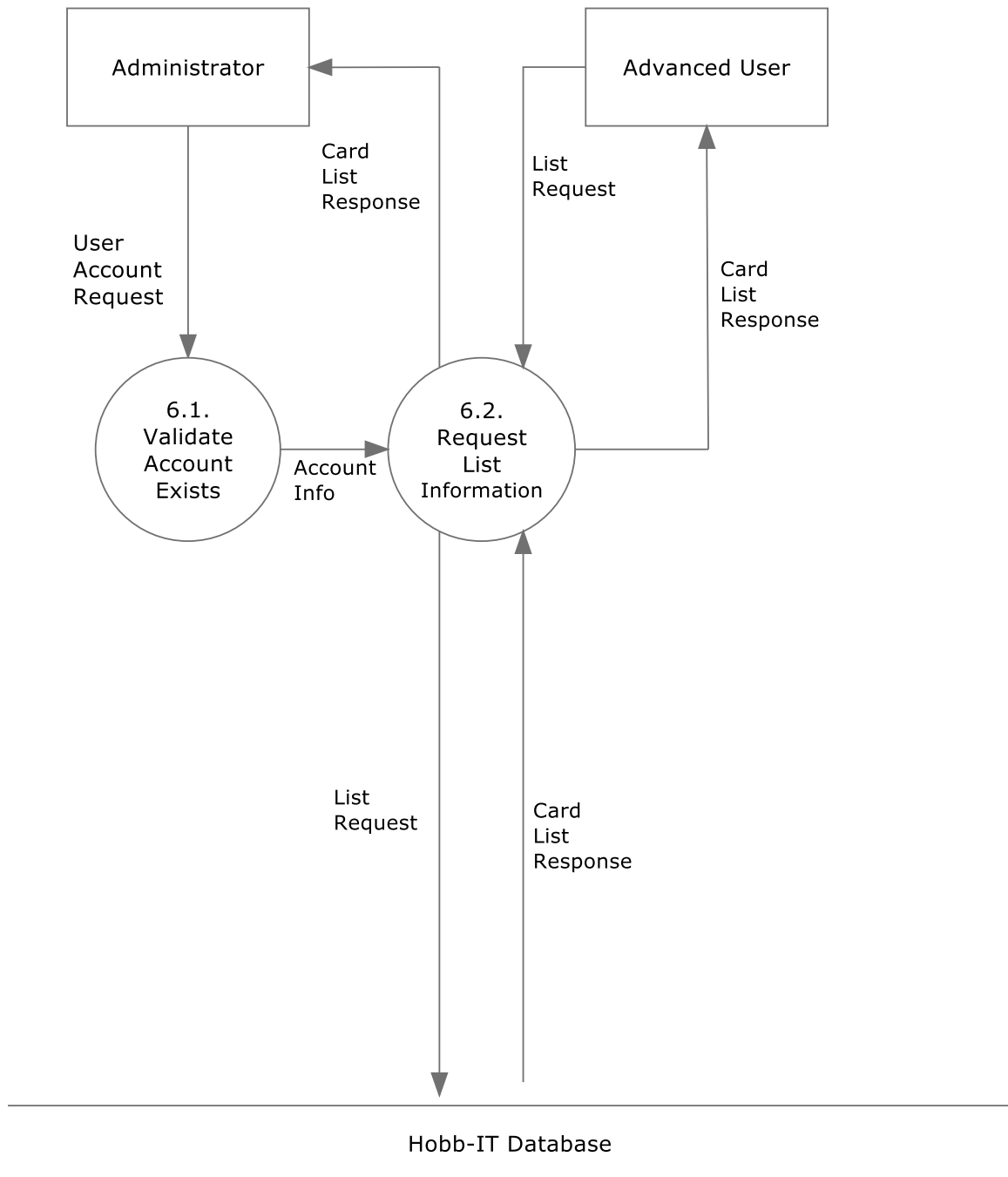




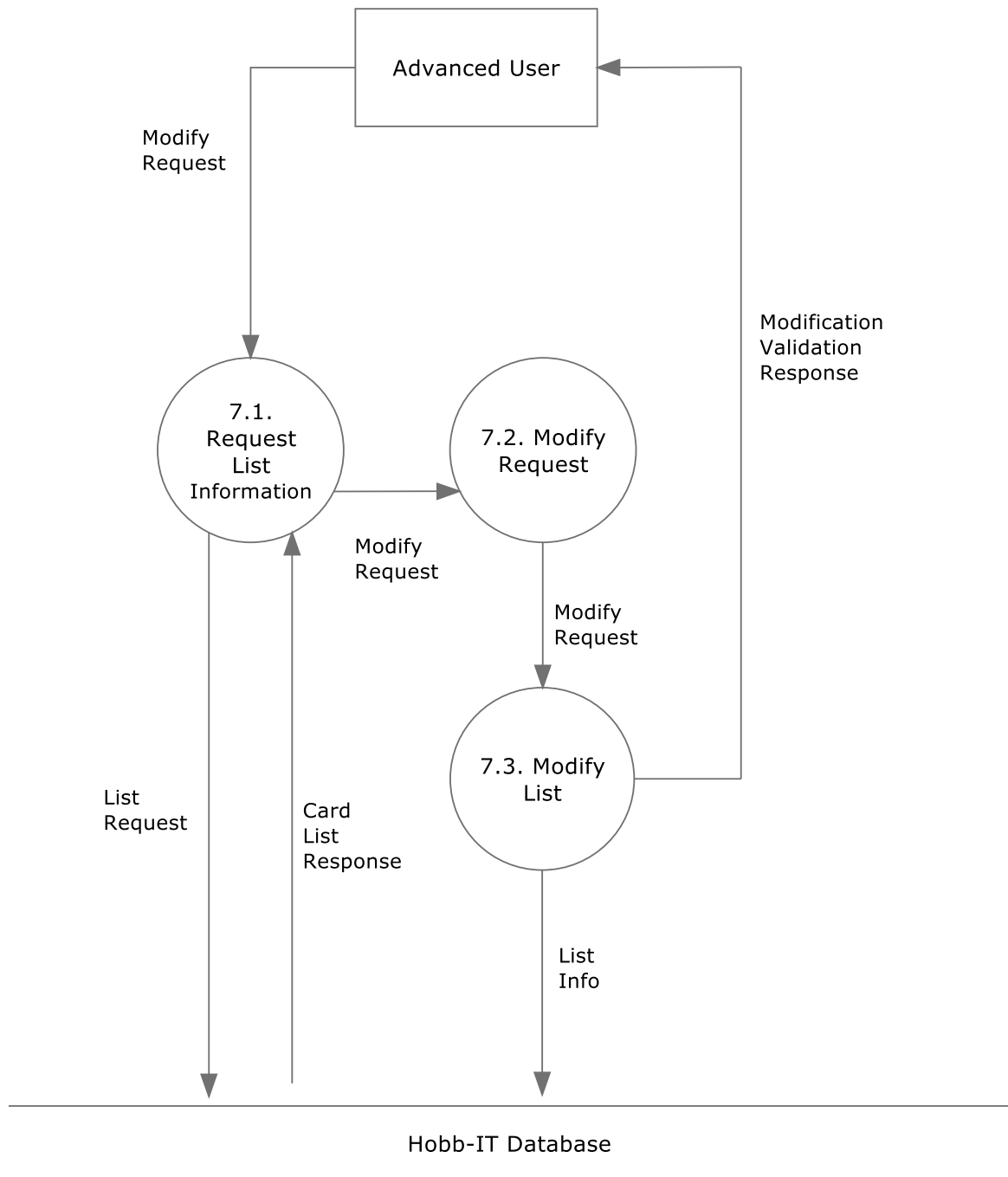
## Data Flow Diagram - Level 1: 5. Change Parse Information



## Data Flow Diagram - Level 1: 6. Access Card List



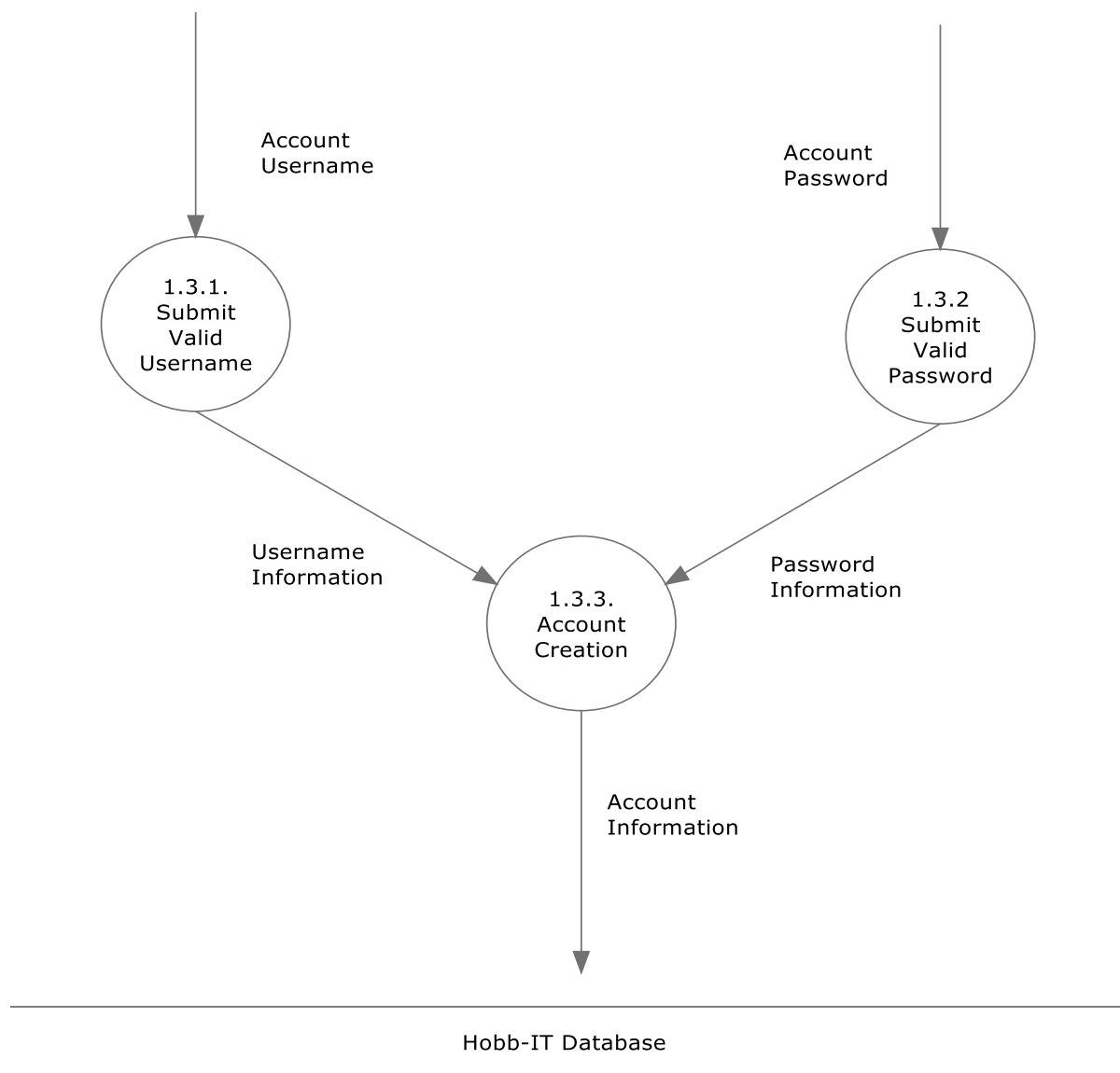
## Data Flow Diagram - Level 1: 7. Modify Card List



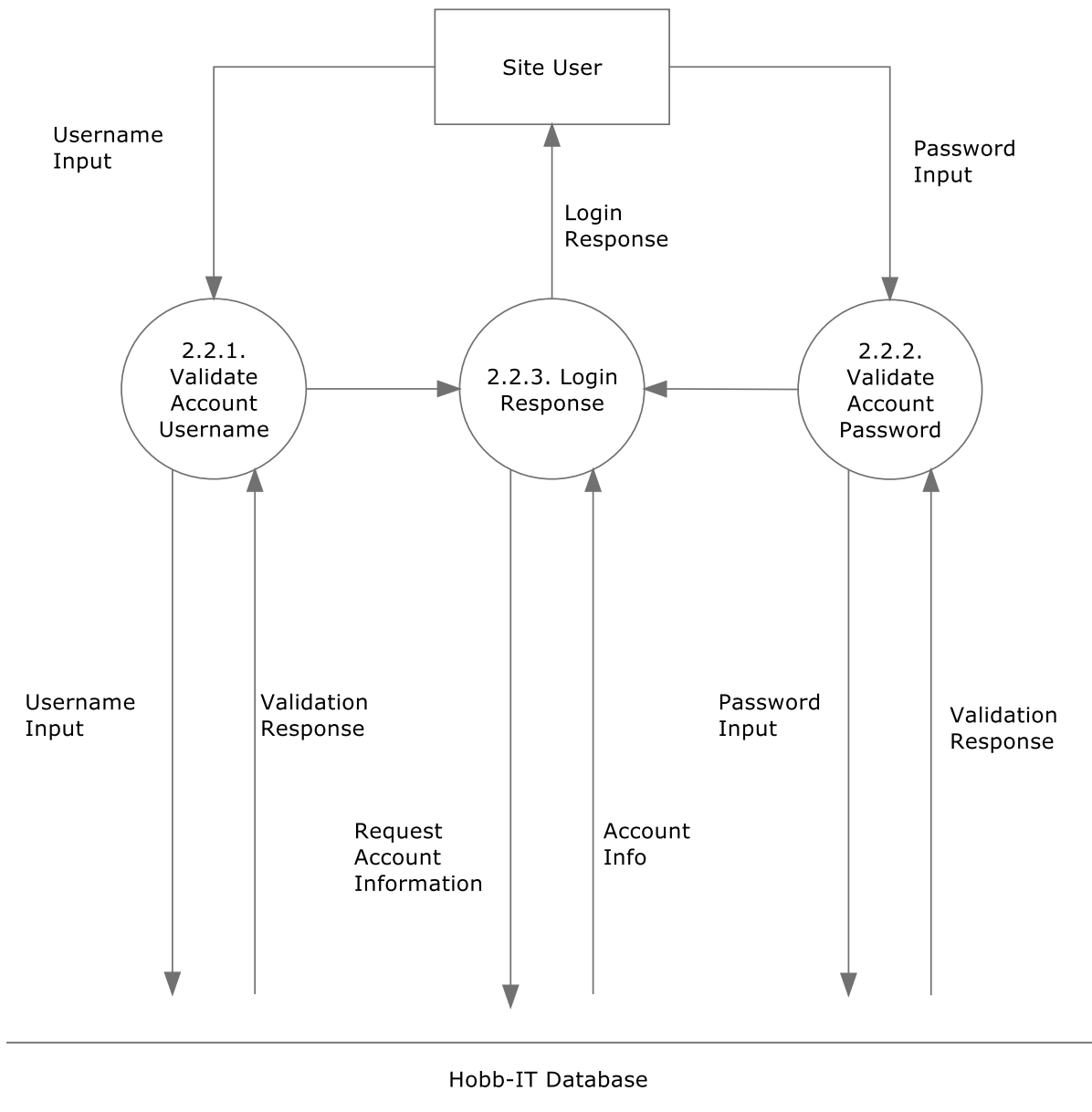
### 1.8.5 Level 2 Diagrams

The level 2 diagrams expands upon a particular process within a level 1 diagram and shows the major players and processes associated with the breakdown of this level 1 process.

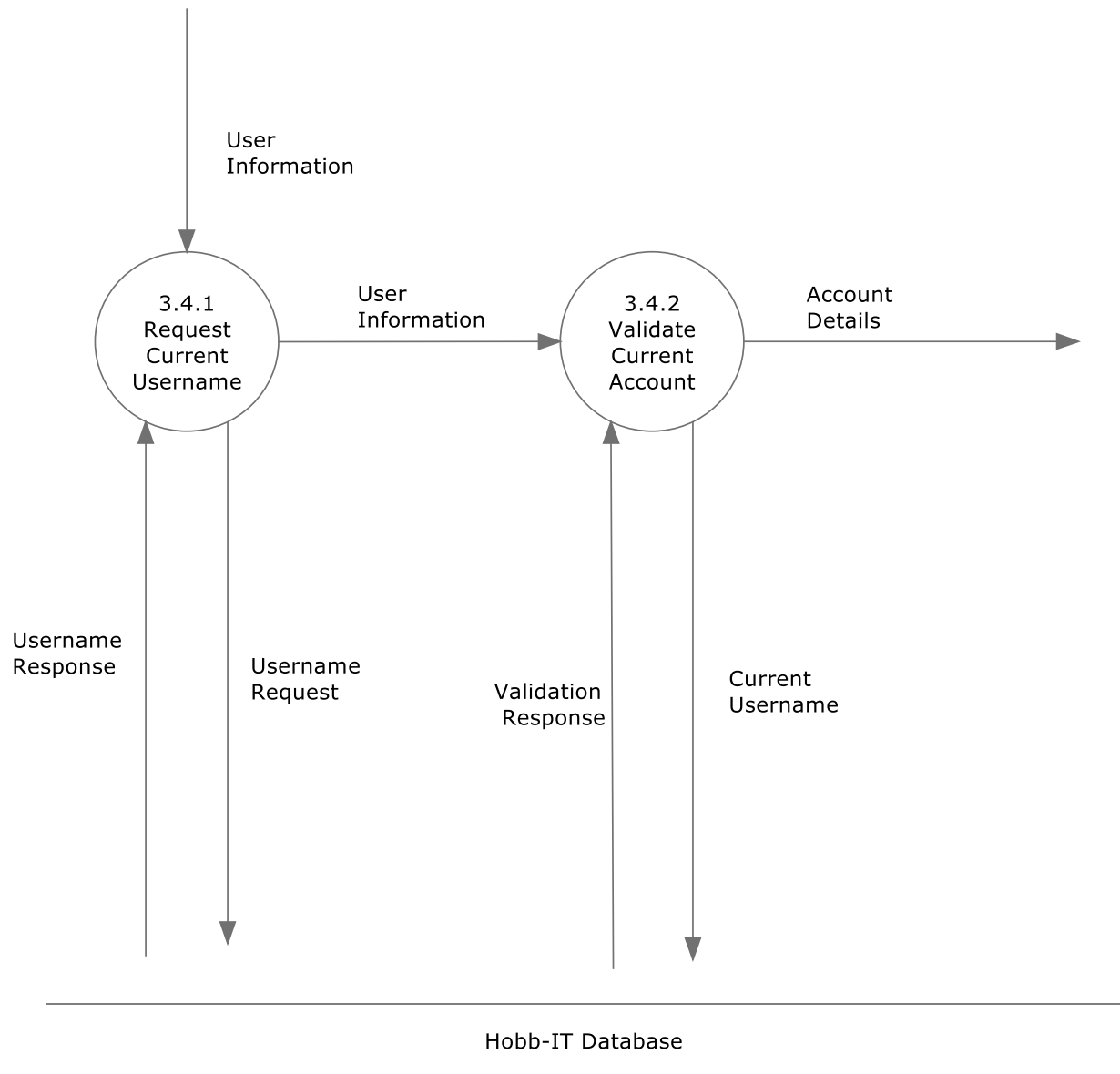
#### Data Flow Diagram - Level 2: 1.3 Create Account - Store Account Details



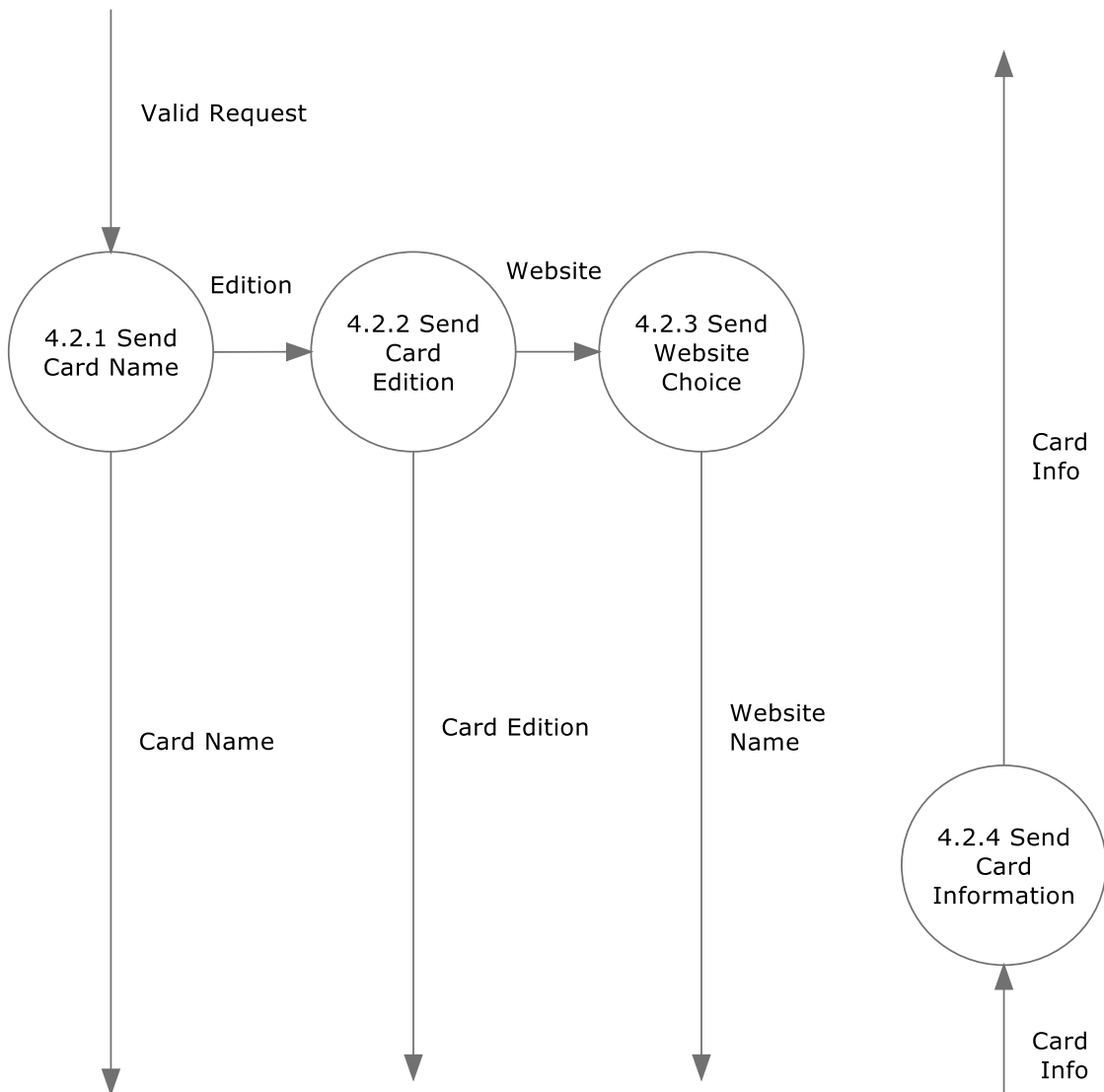
## Data Flow Diagram - Level 2: 2.2 Login - Validate Account Information



## Data Flow Diagram - Level 2: 3.4 Request Real Time Card Price Check If User Has Account



## Data Flow Diagram - Level 2: 4.2 Tracked Card Information Request Card Information

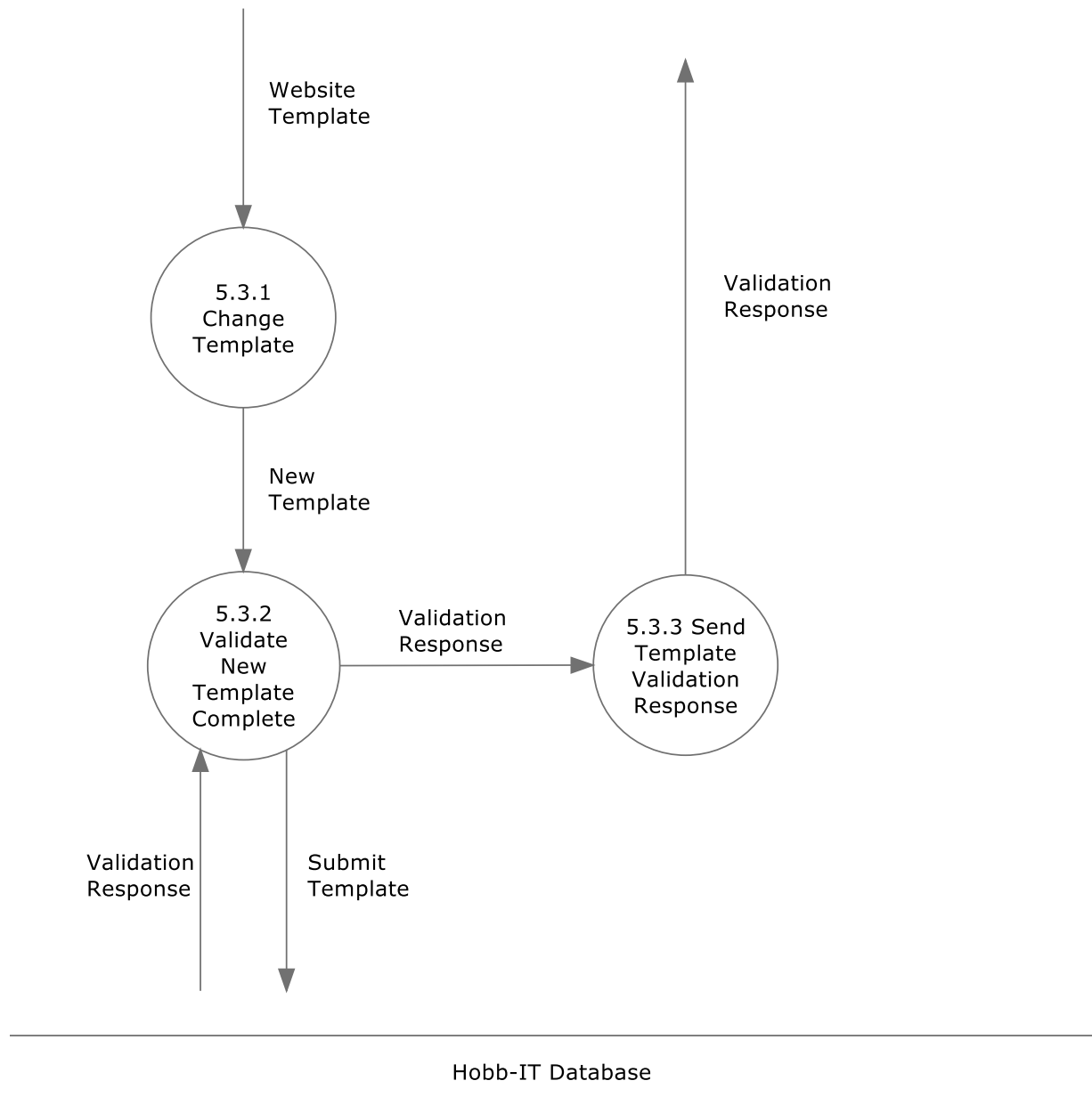


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Hobb-IT Database

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## Data Flow Diagram - Level 2: 5.3 Change Parse Information Enter Template Change

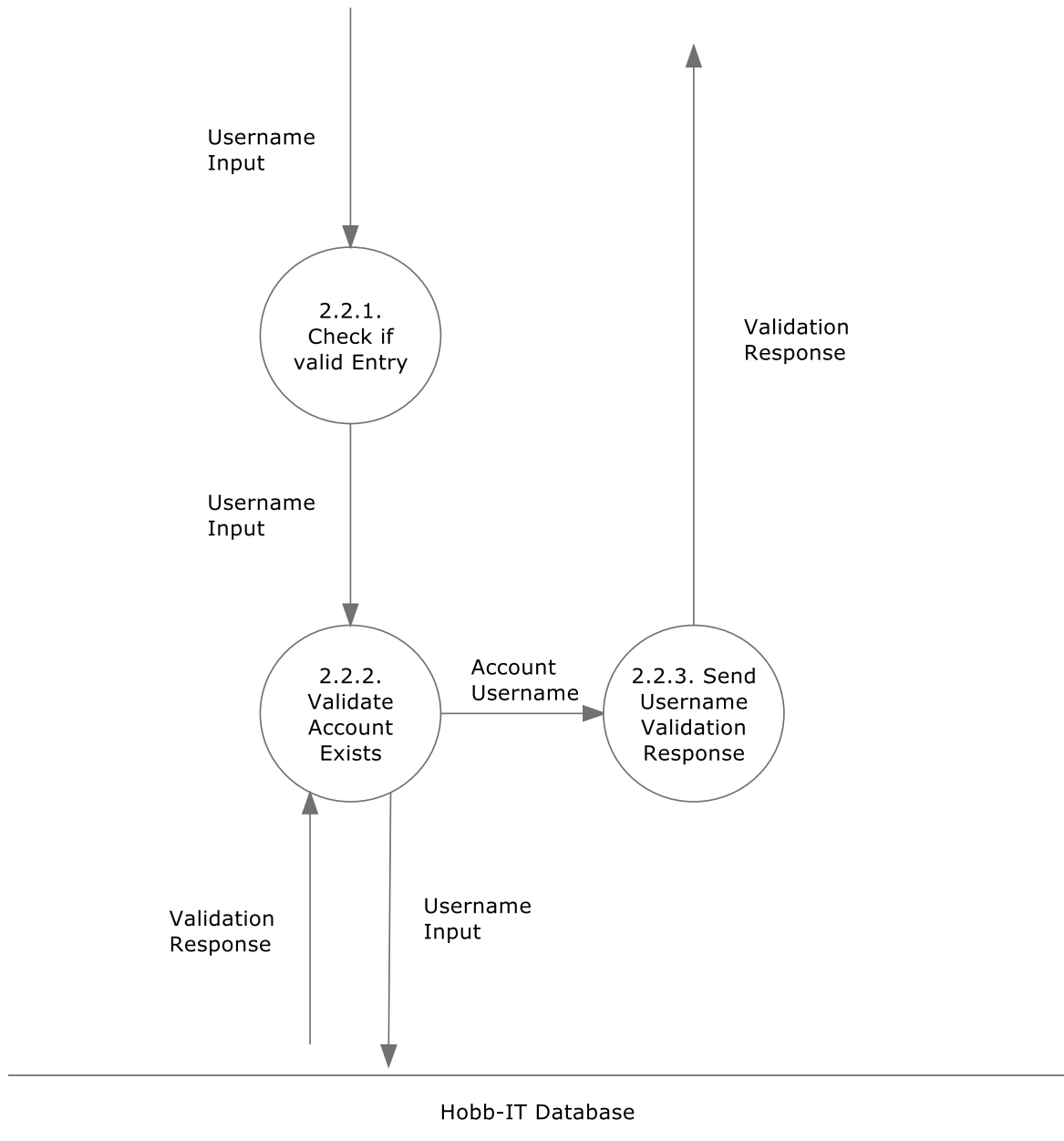




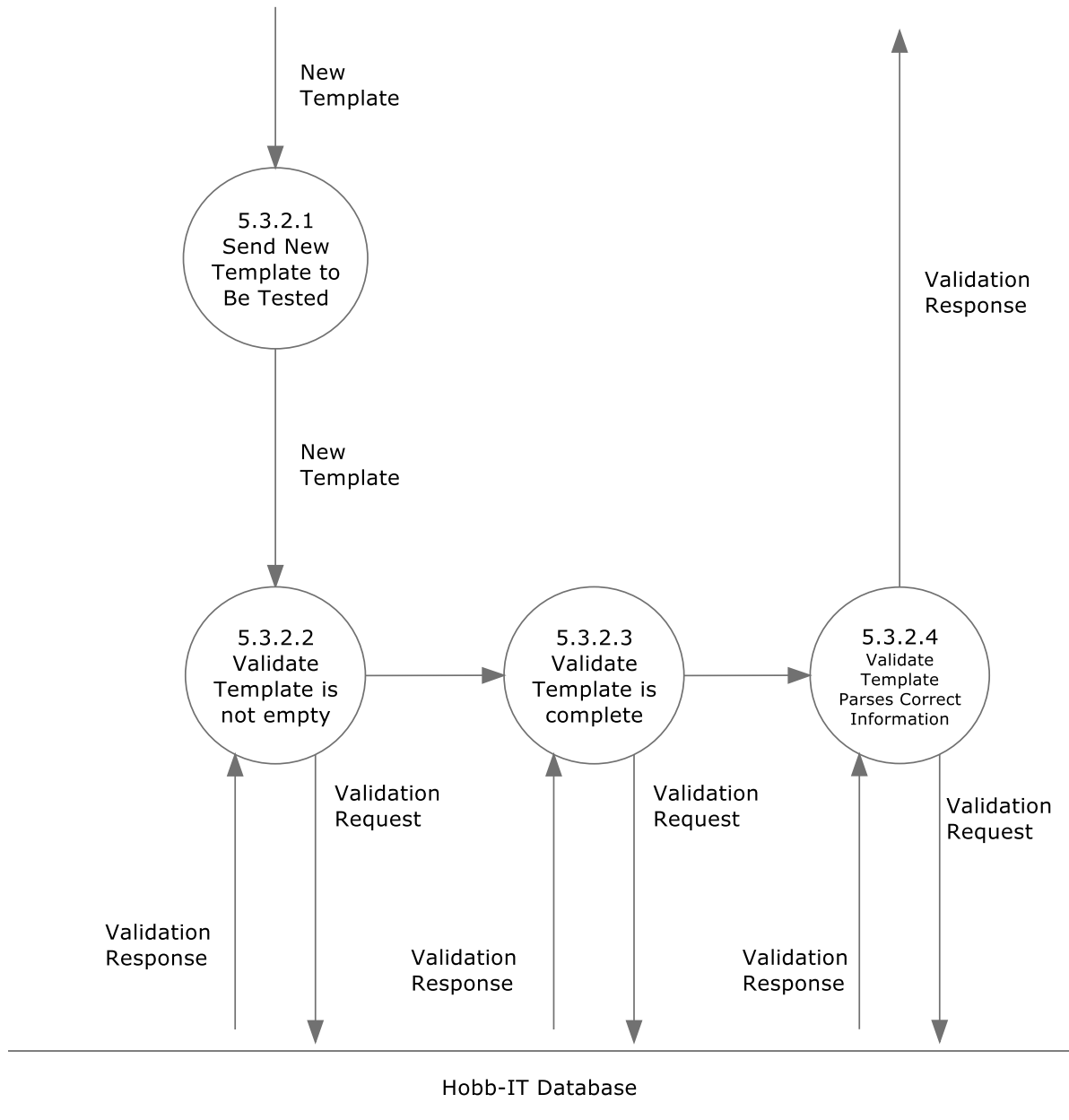
### 1.8.6 Level 3 Diagrams

The level 3 diagrams expand upon a particular process within a level 2 diagram and shows the major players and processes associated with the breakdown of this level 2 process.

#### Data Flow Diagram - Level 3: 2.2.1 Login - Validate Account Information Validate Account Username



## Data Flow Diagram - Level 3: 5.3.2 Change Parse Information Enter Template Change Validate New Template Change



## **1.9 Testing Plan**

### **1.9.1 Overview & Strategy**

Hobb-IT will be tested to ensure that all the functional requirements have been met. Hobb-IT will be compatible with current versions of Chrome, Firefox, Internet Explorer, Safari, and Mobile Safari. Testing will be limited to these browsers as requested by the client. Each functional requirement will be split into an individual unit and will be tested for success. Once this process is complete, all functional requirements will be tested together.

In addition, Hobb-IT will also test all non-functional requirements needed for Hobb-IT. Hobb-IT will have website templates that are easy to maintain. Hobb-IT will also be efficient, stable, user friendly, and will follow the legal processes on all websites tracked.

### **1.9.2 Acceptance Test**

The System will be tested to ensure that all of the Functional and Non-Functional Requirements listed in the Requirements Specification have been met. These requirements are subject to change during the development of the system.

### **1.9.3 Unit Tests**

Each unit test case in the system will be tested separately. Once each test passes their respective requirements the system will be tested as a whole. Please see the excel spread sheet for the parse information, request real time search, and login unit tests.

### **1.9.4 Test Cases**

A test case is a set of conditions or variables under which a tester will determine whether a system under test satisfies requirements or works correctly. In the case of Hobb-IT, Team Illumination will outline Unit Tests for the system to determine whether the system meets the requirements of our client, Dr. Darren Lim, and the criteria of good software engineering practices.

# Appendices

## A. Glossary of Terms

Administrator: A singular user of Hobb-IT defined in the User Case Narrative

Advanced User: A user of Hobb-IT defined in the User Case Narrative

Boolean: A true or false value for a data type

Chrome: A web browser created by Google Inc.

DFD: **Data Flow Diagram**; A representation of how data will move and interact throughout a system

ER Diagram: **Entity Relation diagram**; A data model that shows the relationships between different database tables

Firefox: A web browser created by Mozilla Foundation

Foreign Key: A field in one database table that uniquely identifies a row in another database table

Guest User: A user of Hobb-IT defined in the User Case Narrative

Hobb-IT: **Hobby Information Tracker**; The name of the project

HTML: **HyperText Markup Language**; A markup language used to structure website pages

HTTP: **HyperText Transfer Protocol**; A protocol used to move hypertext request and information between browsers and servers

Int: A data type represented by a numerical value with no decimal places

Internet Explorer: A web browser created by Microsoft Inc.

Java: An object oriented programming language owned and developed by Oracle Corporation

JDBC: **Java DataBase Connectivity**; A standard API used for connecting to a database via Java

Jsoup: A Java library written to work with real word html applications such as extracting and manipulating data from web browsers.

Magic Card: A paper card from the game Magic: The Gathering

MTG: **Magic: The Gathering**; a game created by Richard Garfield published by Wizards of the Coast

Mobile Safari: A web browser used on Apple's iOS mobile devices (ex. iPhone, iPad , iPod Touch)

PHP: **PHP Hypertext Preprocessor**; A recursive acronym, it is a server side language generally used to generate HTML and CSS code.

Primary Key: A row or rows in a database table that uniquely identify that database table

## Illumination Technologies

Safari: A web browser created by Apple Inc.

SCP: **S**ecure **C**opy **P**rotocol; A protocol used for data communication

Test Case: An individual part of a Unit Test that focuses on one module of the software

Unit Test: A form of software testing in which individual parts of the software are tested for their functionality

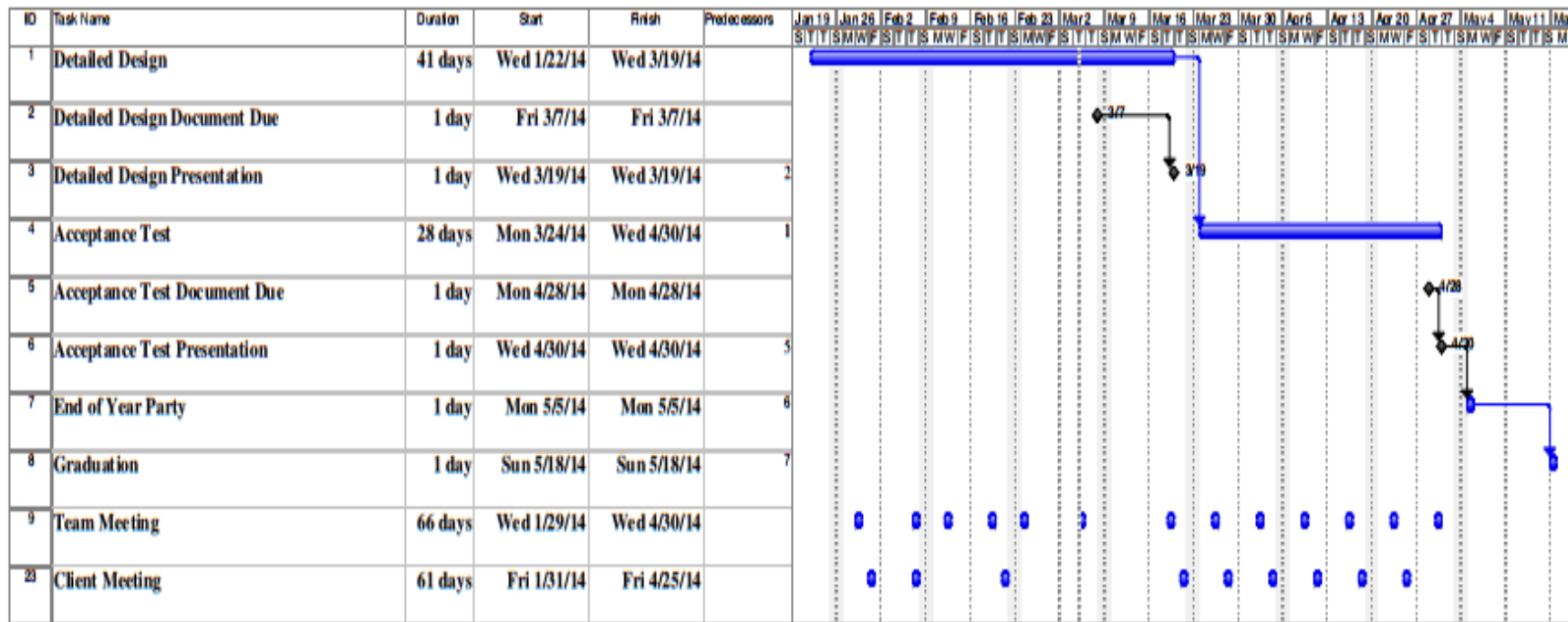
varChar: A data type represented by an undefined amount of characters, such as letters, numbers, and special symbols

Website Map: a hierarchy chart that shows the different pages within Hobb-IT that users can access

Web Parsing: The process of breaking the information on a website page into a more usable format

Web Scraping: The process of retrieving information on a website page

## B. Project Timeline



## **C. Data Dictionary and Unit Tests**

Please see the attached documents in the following pages for this information.

# Testing Plan

***Requested By:***

Dr. Darren Lim

Associate Professor

Siena College

Department of Computer Science

## **Hobby Information Tracker Hobb-IT**



**By**

**Illumination Technologies**

***Prepared By:***

Karl Appel

Connor Blakely

Jackie Hausmann

Bryan Leicht

Katie Sitaro



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## **1. Test Plan**

### **a. Overview & Strategy**

Hobb-IT will be tested to ensure that all the functional requirements have been met. Hobb-IT will be compatible with current versions of Chrome, Firefox, Internet Explorer, Safari, and Mobile Safari. Testing will be limited to these browsers as requested by the client. Each functional requirement will be split into an individual unit and will be tested for success. Once this process is complete, all functional requirements will be tested together.

In addition, Hobb-IT will also test all non-functional requirements needed for Hobb-IT. Hobb-IT will have website templates that are easy to maintain. Hobb-IT will also be efficient, stable, user friendly, and will follow the legal processes on all websites tracked.

### **b. Unit Tests**

Each unit test case in the system will be tested separately. Once each test passes their respective requirements the system will be tested as a whole. Please see the excel spread sheet for the parse information, request real time search, and login unit tests.

### **c. Test Cases**

A test case is a set of conditions or variables under which a tester will determine whether a system under test satisfies requirements or works correctly. In the case of Hobb-IT, Team Illumination will outline Unit Tests for the system to determine whether the system meets the requirements of our client, Dr. Darren Lim, and the criteria of good software engineering practices.

### **d. Approach to Testing**

Illumination Technologies will test Hobb-IT using the Unit Tests in our Detailed Design document. Once each unit is completed and has passed every step, the units will be integrated together and tested as a whole. This way, all bugs will be found and corrected in the individual units before the whole system is tested. Testing will occur on a regular basis throughout development in order to assure that Illumination Technologies is developing working software. The development and testing process, along with any bugs that are found, will be discussed on a regular basis with our client, Dr. Darren Lim.

## 2. Acceptance Criteria

The System will be tested to ensure that all of the Functional and Non-Functional Requirements listed in the Requirements Specification have been met. These requirements are subject to change during the development of the system.

### a. Functional Requirements – Pass/Fail

#### General

- Hobb-IT will be compatible with current versions of Chrome, Firefox, Internet Explorer, and Safari.

#### Administrator

- Will be able to access all stored data on the database.
- Will be able to access the search history of all users.
- Will be able to approve usernames and passwords of new Advanced User accounts.
- Will be able to change how a website's data is parsed into the database.
- Will be able to view and change login credentials of all users.
- Will be able to clear the database history of past searches

#### Advanced User

- Will be able to login to Hobb-IT using a username and password approved by the Administrator.
- Will be able to search for the real-time price of a *Magic: The Gathering* card from any tracked website.
- Will be able to save a list of tracked *Magic: The Gathering* cards.
- Will be able to save a list of purchased *Magic: The Gathering* cards.
- Will be able to save a list of *Magic: The Gathering* cards the user wishes to track in the future.
- Will be able to edit the *Magic: The Gathering* cards that appear on any list.
- Will be able to access the search history associated with the Advanced User's account.
- Will be able to view a visual representation of the fluctuations in prices of a tracked *Magic: The Gathering* card.

#### Guest User

- Will be able to access Hobb-IT without login credentials.
- Will be able to view the real-time price and condition of a *Magic: The Gathering* card from one website at a time.

#### **b. Non-functional Requirements**

- Hobb-IT will be easy to maintain.
- Hobb-IT will be efficient.
- Hobb-IT will be stable.
- Hobb-IT will be user friendly.
- Hobb-IT will follow the legal processes on all websites tracked.

### **3. Exception Handling**

Every module within Hobb-IT will be thoroughly tested to ensure that the application is working and meets all of the functional and non-functional requirements outlined in this document. All exceptions and errors will be handled with informative messages to the user and the application will either continue working in the state before the exception occurred or will close if necessary.