Design Document

CSCE 361 - Fall 2017

C  kieNap

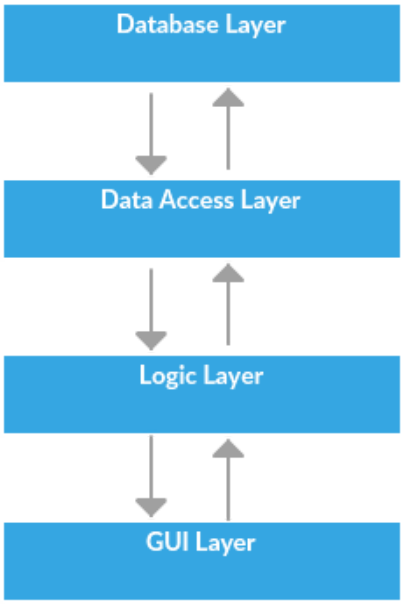
1. Introduction

The purpose of this design document is to give a high level view of the CookieNap web application. In this document, the entity relation between the various parts of the system will be discussed along with with diagrams which will give a visual representation of these entities and of the database. The audiences of this document are software engineers and system architects who will implement, maintain, and update the described project as needed.

2. Architecture

2.1. Introduction

Layer Diagram



2.2. Modules

2.2.1. Database Layer

The database layer will hold all the data for the users, books, and listings in our application and will represent the relationships between these fields. It will be implemented using MySQL. Refer to Section 3.1.1. for a diagram detailing the specifics of this database.

2.2.2. Data Access Layer

The data access layer will primarily be used to transfer data between the logic layer and database layer. The code will be written in C#, using the Ado.NET library. This will allow for clean and quick querying of the MySQL database. Before sending the data to the database, the data access layer will be required to break down the objects from the logic layer and send them to the correct tables and fields. Conversely, the data access layer will also take data from the MySQL database and turn it into C# objects. This section is where automated emails, such as account confirmation emails, will be sent from.

2.2.3. Logic Layer

The logic layer will be created with C# .Net. This will perform all logical operations required by the application and contain all objects. The objects will follow the structure of the database tables. This information will be communicated to the GUI for display. The logic layer will also send all information inputted at the GUI layer to the data access layer for storage. To delete postings last edited more than 45 days ago, there will be a script that runs everyday at midnight.

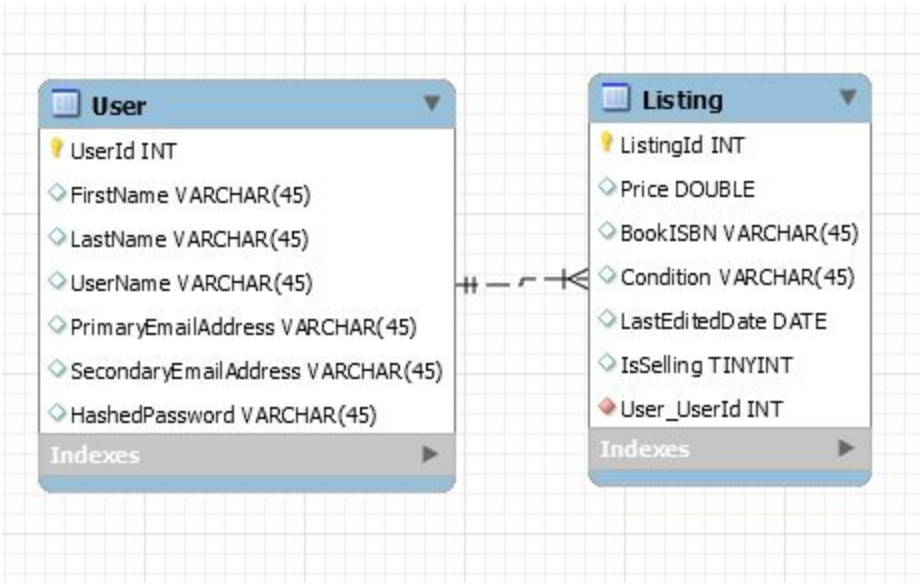
2.2.4. GUI Layer

The GUI will be the layer that the users directly interact with on our website. This layer will allow the user to log into or create their account, browse book listings, and edit their profile. It will send data to the logic layer, either for storage or logical processing. The GUI will be created with a combination of HTML5, CSS, TypeScript, and AngularJS.

3. Class Diagrams

3.1. Data Table Classes

3.1.1. Schema

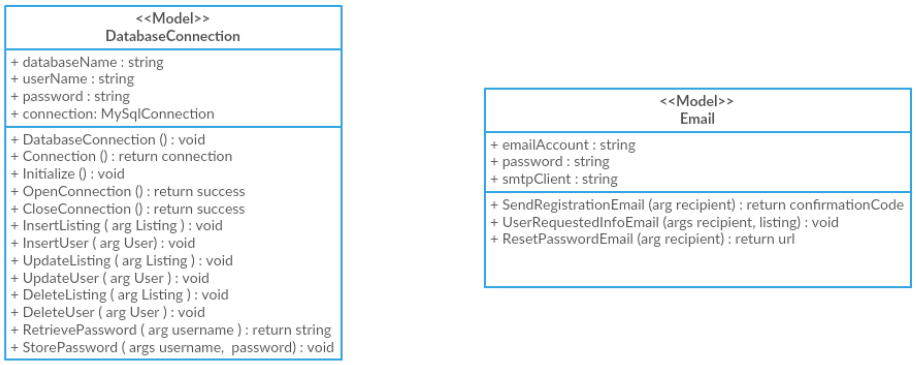


3.1.2. Schema Information

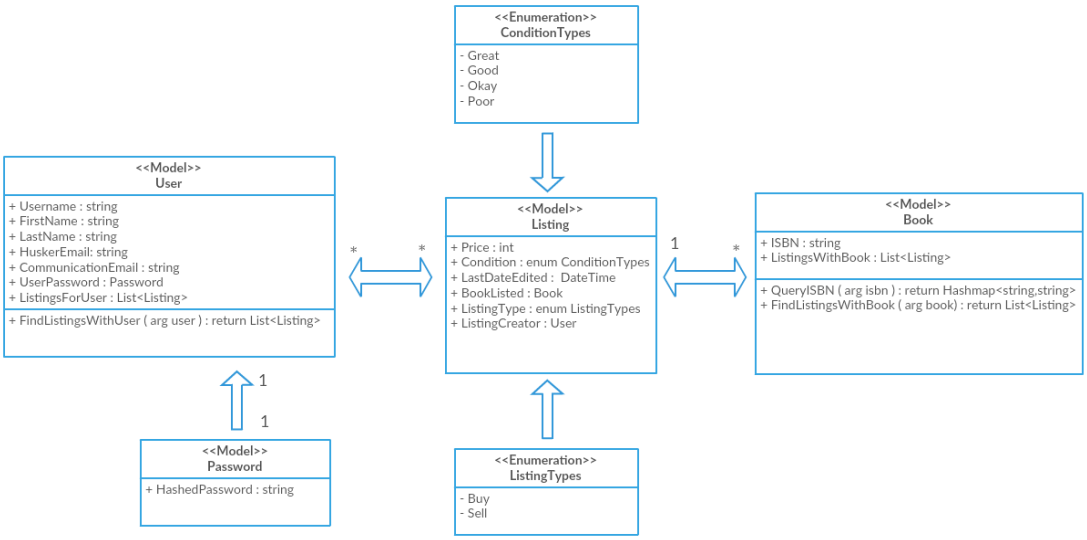
User- This is the user's profile data. It includes the user's name, UNL email address, communication email address, and a field for the user's hashed password.

Listing- This is a representation of each book being sold on our website. It includes a link to the book table, the price and condition of the book, and the last date that the listing was edited on. This will be used to track when to automatically take down the listing.

3.2. Data Access Layer



3.3. Logic Layer



3.4. Class Information

The classes of our web application will be implemented in C#. The various objects will mimic the database layout, with User, Listing, and Book being the three objects. These

objects will be filled out in the GUI layer and transferred to the database via the logic and data access layers.

3.5. GUI Layer

The GUI layer will have four main pages. One page will show the book listings, there will be pages for each user's profile, there will be a login page, and there is the page where listings can be created. When the user first navigates to CookieNap, they will see the table of book listings. This page will also include a search bar at the top, so users can search for books they desire via ISBN. If the book is available, it will appear; otherwise, it will display a message to the user saying the book is not currently listed. The book listings will display different information pertaining to the book available including: ISBN number, title, a picture of the book provided by the ISBN database, edition, and the username of the person in possession of the book. From here, the user looking to purchase the book can request access to more information about the seller, where the seller will then have the option to accept or deny this request on their profile page.

To interact with the book listings, the user must first login or register. The login and registration forms will share a page. In one section, the user will enter their Husker email and password if they have an account, which will be verified against the information in the database. If the password is incorrect or Husker email is not valid, an error message will appear asking them to try again. In the second section, accessible by checking the sign up button,will be the option sign up for CookieNap. If the user does not have an account, they will enter their Husker email, a secondary email to be used for communication, username, and password. This information will verified against the database to ensure each username is unique. If the username is taken, a message will appear asking them to use a different username.

Another page that will be available to navigate to via the menu bar at the top of the screen will be the user profile page. Every user will have their own user profile page. Their information will be shown on this page, as well as any book listings they have up. All of this information will be available to the user currently logged in at the moment.

Another important function will be the ability to approve any access requests sent by other users. To confirm the request, the user clicks the link provided in the email automatically sent. If they choose to approve the request, then the user requesting access to more information will be sent an email saying their request has been accepted and they will then be able to see the email of the user selling the book. This will allow each party to begin communication about purchasing or selling a book. There will also be an option at the bottom of the page to reset a user's password. The user must input their Husker email and press submit, and the password reset email will be sent to the user's communication (secondary) email account.

The final page is where book listings are created. Users will have the option to create a book listing showcasing the book they have available. The fields to create a booklisting include: book ISBN, the price, and condition. In Phase II, users will be able

to upload custom thumbnails for their listings; this feature will be added to the existing form. These fields will be inputted in a form-style manner.