CamelCamelCamel Clone Proposal

The objective of this project is to build a website that replicates the functionality of the CamelCamelCamel website, a price tracking and product monitoring tool that allow users to track and analyze product prices and receive notification when the price of the product drops to a desired price level.

User Actions:

- User Registration: Users can create accounts by providing their details, such as email address, and password.
- User Login: Registered users can log in to their accounts securely.
- Product Tracking:
  - Add Products: Users can add products to their tracking list by entering product URLs or searching for products by name.
  - Product Information: The system will extract product information from the URLs, such as name, image, and description.
  - Users can track products Amazon
- Price Tracking:
  - Set Price Alerts: Users can set desired price points for the products they are tracking.
  - Monitor Prices: The system will continuously monitor prices and historical data for tracked products.
  - Price History: Users can view price history charts to analyze price trends.
- User Dashboard for Price Watch:
  - Personalized Dashboard: Users have access to a dashboard displaying their tracked products, current prices, and alerts.
  - Manage Tracking: Users can edit, remove, or pause(maybe) tracking for specific products.
- Search and Browse:
  - Search Products: Users can search for products to track without adding a URL.
  - Explore Products: Users can browse products from supported e-commerce websites eg: Amazon .

Administrator Actions:

- User Management:
  - Admin Dashboard: Administrators have access to an admin dashboard for user management.
  - User Accounts: Administrators can view and manage user accounts, including account deletion.

Minimum Viable Product (MVP):

1. User Registration and Login:

    Users can create accounts with an email and password.

    Users can log in to their accounts.

2. Product Tracking:

    Users can add products to their tracking list by entering product URLs.

    The system will extract basic product information from the URLs (product name and image).

3. Price Tracking:

    Users can set desired price points for the products they are tracking.

    The system will monitor prices for the tracked products.

    System will send alerts to the price alert if the target price is reached and wil have a pop up alert on users home page.

4. Price watch Dashboard:

    Users have a personalized dashboard displaying their tracked products.

    Users can view the current price of tracked products and compare to their desired price (or historical price)

5. Product Search and Browse:

    Users can search for products by entering product name Or (future add on: a URL).

    Users can view a list of tracked products.

6. User Account Management:

    Users can edit, remove the accounts list of tracked products.

    Users can modify their account settings (disable?).

2. Domain Assumptions

2.1 Customer

- Customers are identified by unique customer accounts, which include an email and password. Customers can register using a valid email address.
- Email addresses must be unique and not null.
- Non-registered users can browse the website but need to sign up to utilize price tracking and other features.
- Customers must be logged in to add products to their tracking list and set price alerts.
- Customers(registered) can add/delete/update the items that they are price watching.

2.2 Price Watch

- Price Watch IDs are unique and auto-incremented integers.
- User should be able to have a list of price watches.
- Orders are virtual and primarily focus on tracking and monitoring product prices.

2.3 Product

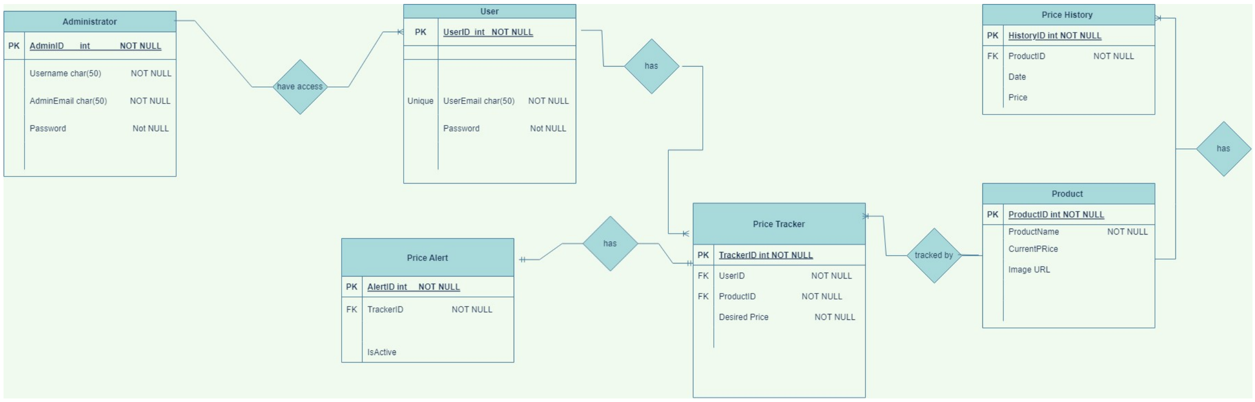
- Product Data: The system will assume access to accurate and up-to-date product data from Amazon. Product details, including name, image, description, and price, will be retrieved and displayed.

    - The system will periodically poll Amazon's product data to ensure the most current information. We will set it to every hour.
  - Product name: Users can add existing products on the site to their price watch and price alert.
- ~~Product URLs: Users will provide product URLs for tracking, and the system will automatically extract product information from these URLs.~~
- ~~Products are identified by unique, auto-incremented integers.~~
- ~~Products are associated with their respective product details, such as name, image, price and description.~~
- ~~Product identification can be based on URLs or product IDs from Amazon.~~
- ~~The website primarily focuses on tracking product prices and historical data.~~

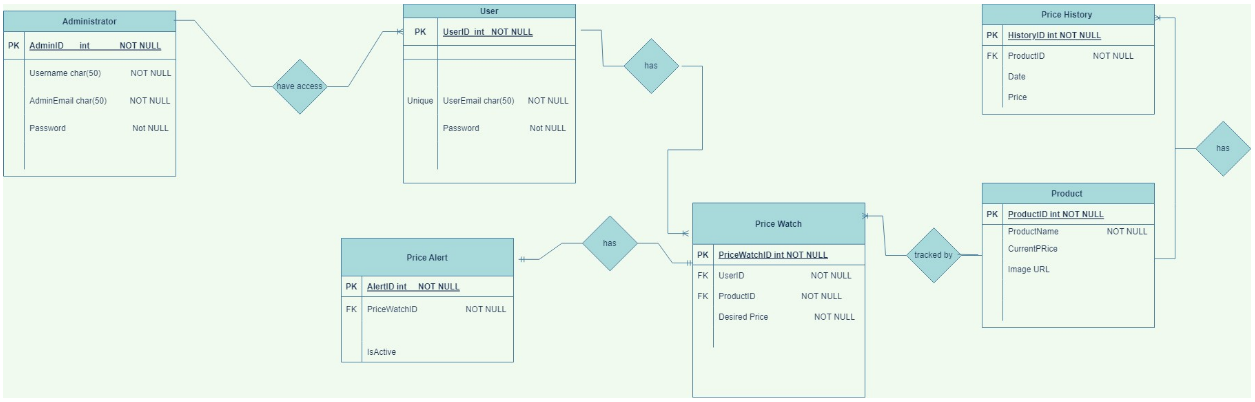
3. Entity Description

3.1 UML Diagram

Old:



New:



3.2 Entity Description

3.2.1 User

Attribute	Description
UserID (PK)	Unique auto incremented identifier for each user.
UserEmail {Unique}	USer’s email or identification
Password	User’s password for logging in.

3.2.2 Product

Attribute	Description
ProductID {PK}	Unique attribute identifying each product
ProductName	The name of the product.
CurrentPrice	Current price of the product
Image URL	The url of the image of the product

3.2.3 Price Watch

Attribute	Description
PriceWatchID {PK}	Unique attribute that identifying each Price Watch
UserID {FK}	Reference to the user tracking the product
ProductID {FK}	Reference to the product being tracked
DesiredPrice	The desired price of the product for the user

3.2.4 Price Alert

Attribute	Description
AlertID {PK}	Unique attribute that identifying each price alert.
PriceWatchID {FK}	Reference to the Price Watch associated with the alert
IsActive	Boolean if user wants to have the price

	alert active

3.2.5 Price History

Attribute	Description
HistoryID {PK}	Unique attribute that identifies the each price history
ProductID {FK}	The unique product id of the Price Watch product price
Date	The dates of the each price change
Price	The price of the product at that date and time

3.2.6 Administrator

Attribute	Description
AdminID {PK}	Unique attribute that identifying each admin
Username	Admins username
AdminEmail {Unique}	Admins email for logging in
Password	Admin’s password for logging in.

3.3 Relational Assumptions

Relationships	Assumptions
User - has - PriceWatch	- One to many - Each user can have multiple Price Watch on tracking multiple product
Product - is tracked by - Price Watch	- One to many - One product can be tracked by multiple Price Watchs meaning multiple users tracking the same product.

PriceWatch- has - Price Alert	- One to one - Each Price Watch has one associated price alert to alert user for the Price Watch they made, vice versa
Product- has- Product History	- One to many - Each product can have multiple price history records associated with it, each representing the price at different points in time
User - can be access by - Administrator	- Many to one - Multiple users can be accessed by a single administrator (me) for now.

3.4 Relational Schema: SQL DDL

```
-- User Entity
CREATE TABLE User (
   UserID INT PRIMARY KEY AUTO_INCREMENT,
   UserEmail VARCHAR(50) UNIQUE NOT NULL,
   Password VARCHAR(50) NOT NULL
);

-- Product Entity
CREATE TABLE Product (
   ProductID INT PRIMARY KEY AUTO_INCREMENT,
   ProductName VARCHAR(50) NOT NULL,
   CurrentPrice DECIMAL(10, 2) NOT NULL,
   ImageURL VARCHAR(255)
);

-- Price Watch Entity
CREATE TABLE PriceWatch (
   PriceWatchID INT PRIMARY KEY AUTO_INCREMENT,
   UserID INT,
   ProductID INT,
   DesiredPrice DECIMAL(10, 2) NOT NULL,
   FOREIGN KEY (UserID) REFERENCES User(UserID),
   FOREIGN KEY (ProductID) REFERENCES Product(ProductID)
);

-- Price Alert Entity
```

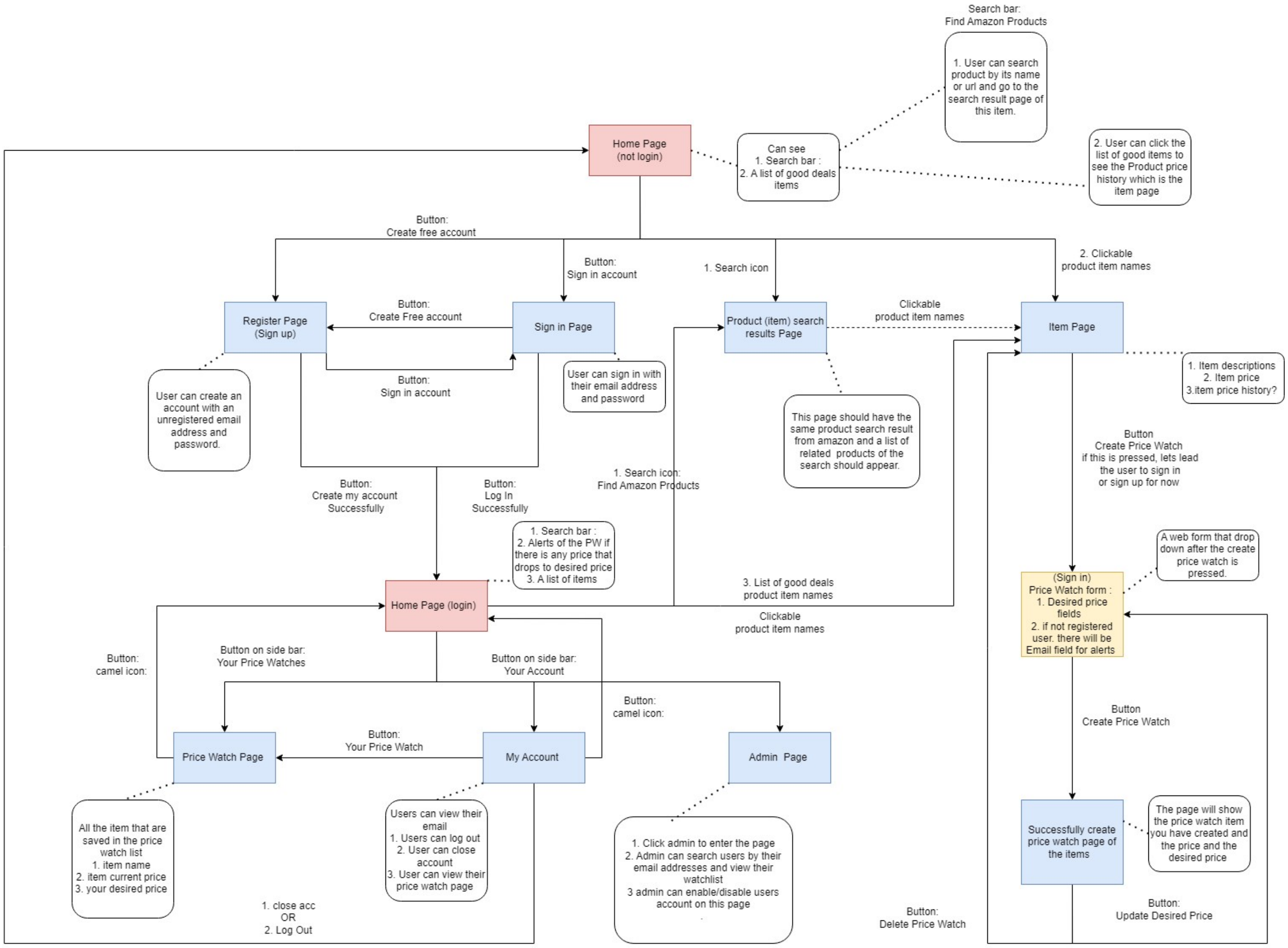
```
CREATE TABLE PriceAlert (
   AlertID INT PRIMARY KEY AUTO_INCREMENT,
   PriceWatchID INT,
   IsActive BOOLEAN NOT NULL,
   FOREIGN KEY (PriceWatchID) REFERENCES PriceWatch(PriceWatchID)
);

-- Price History Entity
CREATE TABLE PriceHistory (
   HistoryID INT PRIMARY KEY AUTO_INCREMENT,
   ProductID INT,
   Date TIMESTAMP NOT NULL,
   Price DECIMAL(10, 2) NOT NULL,
   FOREIGN KEY (ProductID) REFERENCES Product(ProductID)
);

-- Administrator Entity
CREATE TABLE Administrator (
   AdminID INT PRIMARY KEY AUTO_INCREMENT,
   Username VARCHAR(50) NOT NULL,
   AdminEmail VARCHAR(50) UNIQUE NOT NULL,
   Password VARCHAR(50) NOT NULL
);
```

4. Interface

4.1 Site Map


Search bar:
Find Amazon Products
1. User can search product by its name or url and go to the search result page of this item.
Home Page (not login)
Can see
1. Search bar :
2. A list of good deals items
2. User can click the list of good items to see the Product price history which is the item page
Button:
Create free account
Button:
Sign in account
1. Search icon
2. Clickable product item names
Register Page (Sign up)
Button:
Create Free account
Sign in Page
Product (item) search results Page
Clickable product item names
Item Page
Button:
Sign in account
User can create an account with an unregistered email address and password.
User can sign in with their email address and password
This page should have the same product search result from amazon and a list of related products of the search should appear.
1. Item descriptions
2. Item price
3.item price history?
Button
Create Price Watch
if this is pressed, lets lead the user to sign in or sign up for now
Button:
Create my account
Successfully
Button:
Log In
Successfully
1. Search icon:
Find Amazon Products
1. Search bar :
2. Alerts of the PW if there is any price that drops to desired price
3. A list of items
A web form that drop down after the create price watch is pressed.
3. List of good deals product item names
Home Page (login)
Clickable product item names
(Sign in)
Price Watch form :
1. Desired price fields
2. if not registered user. there will be Email field for alerts
Button:
camel icon:
Button on side bar:
Your Price Watches
Button on side bar:
Your Account
Button:
camel icon:
Button
Create Price Watch
Button:
Your Price Watch
Price Watch Page
My Account
Admin Page
Successfully create price watch page of the items
The page will show the price watch item you have created and the price and the desired price
All the item that are saved in the price watch list
1. item name
2. item current price
3. your desired price
Users can view their email
1. Users can log out
2. User can close account
3. User can view their price watch page
1. Click admin to enter the page
2. Admin can search users by their email addresses and view their watchlist
3 admin can enable/disable users account on this page
1. close acc
OR
2. Log Out
Button:
Delete Price Watch
Button:
Update Desired Price

4.2 Page Descriptions

1. HomePage(Not login): Displays logo and products and options to browse the website or log in as well as searching up products.
2. Register Page: Users can register an account here to store a price watch for themselves.
3. Sign in Page: Allows the registered user to sign in with their existing account
4. Product search result Page: The related results of the item you search in the search box and this would be the same results from what you search on amazon.
5. Item page : The descriptions of the product as well as the price history of this product is shown on here. Create price watch form is also on here. If the created price watch is pressed without log on, then this page will lead to the register page and then after it is logon, it will lead back to this page.
6. Successful page: If the price watch for the product is successfully created, it will tell the user that on screen on the page.
7. HomePAge(Log in) Same as the 1. Page but there will be alerts of the pw for the users if there are any price alerts for the user above the list of products

8. Price watch page: All the Price Watch for the products will be saved and listed on there and each Price Watch would include the item name, their current price and the users desired price.
9. My account page: User can view their personal info or logout/close account as well option to view user price watch page.
10. Admin Page: Admins can search users by their email as well as see their price watch. Admin can also disable/ enable users' accounts.