



camelcamelcamel

University of British Columbia
COSC 360: Web Programming

ATY Camelcamelcamel Clone

~ Make Your Life Cheaper ~

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1. Introduction

1.1 Project Description

Our project involves creating a website, Camelcamelcamel Clone, dedicated to tracking and monitoring product prices on Amazon.ca. It will serve both registered and unregistered users, offering insights into pricing trends. Key features include advanced search, real-time price insights, and personalized alerts for registered users. The platform aims to empower users with informed purchasing decisions in the Amazon marketplace.

1.2 Initial Proposal & List of Requirements

Our focus lies in providing a seamless user experience by incorporating comprehensive search, filtering, and sorting functionalities, thus aiding efficient product discovery for our users. Real-time insights into price trends, popular products, and top-price drops will be readily accessible, enhancing users' ability to make informed purchasing decisions. Additionally, registered users will have the opportunity to personalize their experience through features such as adding reviews and receiving alerts for price drops. Effective administration of user accounts will be prioritized to ensure the smooth operation and maintenance of the platform.

For Unregistered Users:

- Create an account with their username, email and image
- Search for items by keyword, categories or manufacturer
- Order search results by price (ascending/descending), relevance and average customer rating on Amazon
- Filter search results by attributes
- View general price trends of products in real-time
- Aggregate popular products and products' top-price drops

For Registered Users:

- Log in to the platform with registered credentials
- View/edit their profile
- Display product details (with comments added)
- Price drop or product availability alert via email
- Add review to the product

For Administrators:

- Search for the user by name or email
- Enable/disable the user account

2. System Features & Functionalities

2.1 System Features and Implementation

System Features / Requirements	Code / Files	Implementation / Description
Main Page		
Hand-styled layout with contextual menus	header.php, header.css	Upon user login, the header gracefully expands to include an extra navigation menu titled “Your Price Watches”, enriching the browsing experience.
2 or 3-column layout using appropriate design principles	main.php, main.css	Two-column layout adorned with highlighted “See Product Details” buttons that elegantly appear upon hovering. Used float and grid system to maintain the columns.
Asynchronous updates on category with AJAX	header.php, header.js, fetch_categories.php, check_category_updates.php	When a new category is added or deleted from the database, the category dropdown updates automatically without requiring a page refresh.
Navigation breadcrumb strategy	breadcrumb.php, breadcrumb.js	Each page dynamically generates a breadcrumb trail at the top-left corner. For instance, when accessing a product detail page, it displays “Home / Product”, and similarly for the account page, it shows “Home / Account”. This breadcrumb feature provides users with clear navigation cues, guiding them through the website’s hierarchy.
Login / Create Account / Account Setting Page		
Form validation with JavaScript	validatelogin.js, validatepassword.js, validateregister.js	JavaScript performs client-side validation, ensuring that all mandatory fields are filled by users. If any fields are left empty, the script dynamically changes their borders to a striking red hue, providing immediate visual feedback.
Server-side scripting with PHP	processlogin.php, processregister.php	Server-side validation encompasses verifying the request method and detecting empty fields. In case of invalid inputs, users are seamlessly redirected to the previous page with a clear error message. For profile pictures, file type and file size limitations are implemented using PHP. Moreover, PHP is employed to streamline code redundancy by incorporating

		header, footer, and database connection functionalities. Additionally, PHP exclusively handles all interactions with the database, ensuring efficient and organized code management.
Data storage in MySQL	processregister.php, processinquiry.php,	All the information is stored in the database for example, when users create an account, users send an inquiry through the “Contact Us” page, users add a product to their watch lists, users add a review on the products and so on.
Appropriate security measures for data	processregister.php, processlogin.php, processchangeppass.php, processaccount.php	We have implemented prepared statements for database access to ensure the safety and confidentiality of user information stored within the system. We also hashed passwords before storing them in the database. Additionally, we used the POST method to process the form.
User images and profiles stored in the database	processregister.php	When the user first creates an account, it stores the image in the database.
Upload and change profile image	processchangeimg.php	When the user changes the profile picture on the account setting page, it updates the BLOB file in the database.
Account creation with email notification	processaccount.php	When a user creates an account, an email notification will be sent.
Manage the forgot password function with email notification	processforgot.php, resetpassword.php, processchangeppass.php	If the user has an account with an actual email address, when you click the “Forgot password”, the password reset link will be sent to the email associated with the account.
Change password function with email notification	processaccount.php	In the account setting page, users will be able to change the password and once the password is updated, an email notification of password change will be sent.
Contact us function to store user inquiries	contactus.php, processinquiry.php	Users can send an inquiry through the “Contact Us” page and the information will be stored in the database.
Popular Products Page		
Popular product page	popular.php	When a user visits a popular product page, this page is displayed. It displays a list of popularly viewed products within the past 20 days in descending order of the number of

		views.
Popular products tracking	popular_item.php	When this file is invoked, it needs to have a number of items to be fetched, n in post. This page is responsible for returning the top n of popular items descendingly based on the number of views by users within the past 20 days.
Top Price Drops Page		
Top price drops page	toppricedrop.php	When a user visits a top price drop page, this page is displayed. It displays a list of products that have a huge discount within the past 20 days.
Top price drops tracking	price_drop.php	When this file is invoked, it needs to have a number of items to be fetched, n in post. This page is responsible for returning the top n of discounted items descendingly based on the amount of discount.
Price Watch List Page		
Product watch list tailored for each user	pricewatch.php	Users can store the list of products they want to track the price of each. If another user adds a review to the product that is in the price watch while the user is watching the product watch list page, it sends the notification asynchronously.
Tracking comment/review history from a user's perspective	pricewatch.php, addtopricewatch.js, checkpricewatchupdates.js, add_to_price_watch.php, check_price_watch_updates.php	When an item is added to their watch list, users can monitor its review history. Notifications are sent to users on the Your Price Watch page whenever a tracked item receives a new review.
Search Product Page		
Search and list for products by name/category	search.php	Users can list the products through the header, search function, and search products by category or name.
Product Page		
Analysis of products using visual display	product.js fetchProductHistoryData.php	Transition of the price of each product is visually displayed as a chart on each product page.

Product details and ratings, along with product reviews for each product	product.php, review.js, get_review.php	Upon reaching the page of the product of interest, product details are accurately and aesthetically presented, along with any available reviews for the product.
Activity by date	popular.php popular_item.php fetchLoginHistoryData.php dashboard.php dashboard.js	Site traffic information and product visit history data is managed as activities by date. When the same user logged in or visited the same product page multiple times on the same date, only one data is stored per date.
Review submission and asynchronous updates with AJAX	product.php, review.js, get_reviews.php, submit_review.php	Users can submit reviews for the product they are viewing, including ratings and comments. Once submitted, users can see their reviews without needing to refresh the page.
Simple comment grouping and display	product.php, review.js, get_reviews.php, filter_reviews.php	Users can filter reviews by rating. After selecting a rating from the dropdown menu, only reviews matching that rating will appear. Users can revert to viewing all reviews.
Collapsible reviews without page reloading	product.php, review.js	Up to 4 reviews are displayed upon entrance to a specific product's side. Users are able to load more reviews without refreshing the page by clicking the "Load More Review" button.
Alerts on page changes	product.php, review.js, get_reviews.php, check_review_updates.php	While viewing product details and reviews on the product page, if a new review is added or an existing review is deleted by another user or admin, the user will receive an alert message notifying them of the change. However, users won't receive a message if they delete their own reviews. Admins, on the other hand, are not notified; instead, the review section is automatically updated every few seconds to display the latest review results.
Deleting reviews and asynchronous updates with AJAX	product.php, reviews.js, get_reviews.php, delete_reviews.php	Users can delete their own reviews, while admins have the capability to delete all reviews. When a review is deleted, the review section updates automatically without requiring a page refresh.
Administration Page		
Admin view reports on usage with filtering	dashboard.php dashboard.js	Admin can view the analytics of the website. This page displays the number of active users, number of uncompleted inquiries, and transition of site traffic over the year.

Tracking of user traffic	dashboard.js fetchLoginHistoryData.php	User traffic over the year is displayed visually using charts. As it contains the future data in the preset data, it displays the transition of site traffic up to December 2024. When the admin user modifies the year, it asynchronously updates the chart.
Search and list for non-admin users by username/email	users.php	Admin can list the non-admin users through the “Users” section on the account page. Admin can search users by username or email.
Delete user function	users.php	In the “Users” page, the admin can delete the users.
Search and list for user inquiries by email and date	tickets.php	Admin can list the tickets (inquiries) through the “Tickets” section on the account page. Admin can search tickets by date or email.
Other		
Announcement bar with animation	events_bar.php	On top of the navigation bar of the main page, users can find a dynamic section showing announcements of deals, new items, and events.
Responsive design philosophy and responsive layout for mobile	For all PHP and CSS files	The page is compatible with different sizes of devices and changes responsively when the browser window size changes.
Styling flourishes	For all PHP and CSS files	Enhance the appearance with additional stylings, such as modifying the font, and border colour, and designing the product card for a more appealing look.
Accessibility	For all PHP and CSS files	Implemented alt text for each image, utilized descriptive links, and maintained a clean and straightforward layout.
Error handling	For all PHP files	When a user enters an invalid input or invalid action, an error message pops up. See details in the Testing section below.

3. Testing

3.1 Form Input Testing

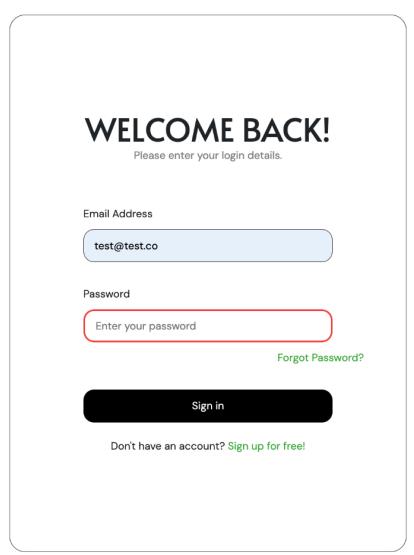
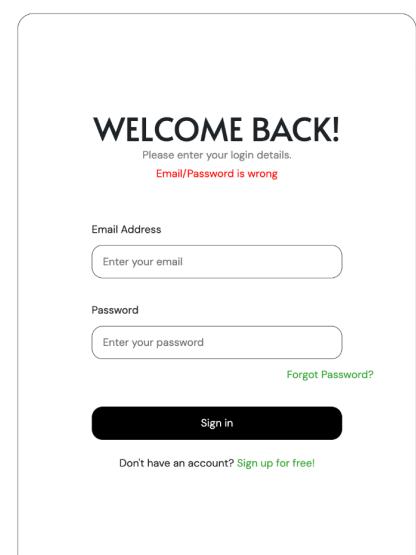
1. Sign Up

- If any fields are left empty, they'll be outlined in red.
- In case the passwords don't match, an alert will pop up.
- In case of an invalid password, an error message will show up.

<p>WELCOME!</p> <p>First create your account with a profile picture.</p>  <p>Username <input type="text" value="testuser"/></p> <p>Email Address <input type="text" value="Enter your email"/></p> <p>Password <input type="password" value="Enter your password"/></p> <p>Confirm Password <input type="password" value="Re-enter your password"/></p> <p>Sign up</p> <p>Already have an account? Login</p>	<p>WELCOME!</p> <p>First create your account with a profile picture.</p>  <p>Username <input type="text" value="testuser"/></p> <p>Email Address <input type="text" value="test@test.co"/></p> <p>Password <input type="password" value="...."/></p> <p>Confirm Password <input type="password" value="....."/></p> <p>Sign up</p> <p>The password do not match. Please verify your input. OK</p> <p>Already have an account? Login</p>	<p>WELCOME!</p> <p>First create your account with a profile picture.</p> <p>Password must be at least 8 characters long and contain at least one special character (@, !, or ?) and one digit.</p>  <p>Username <input type="text" value="Enter your username"/></p> <p>Email Address <input type="text" value="Enter your email"/></p> <p>Sign up</p> <p>Already have an account? Login</p>
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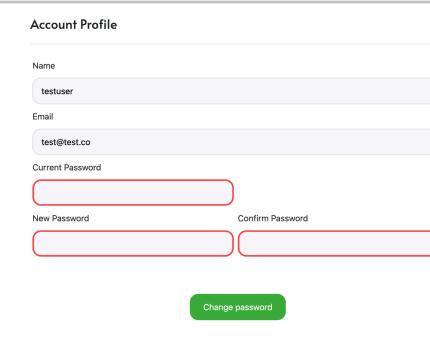
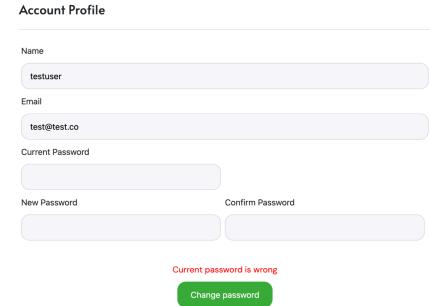
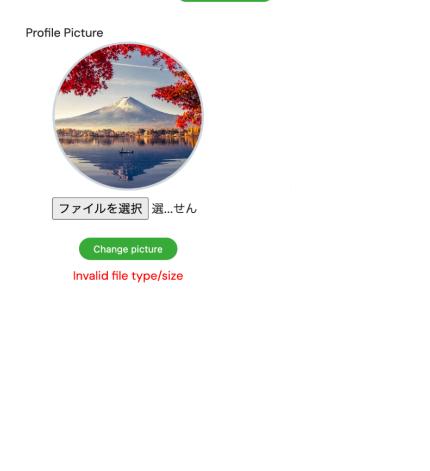
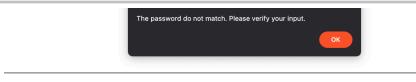
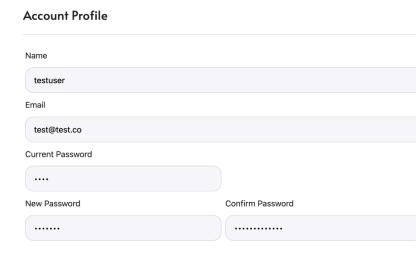
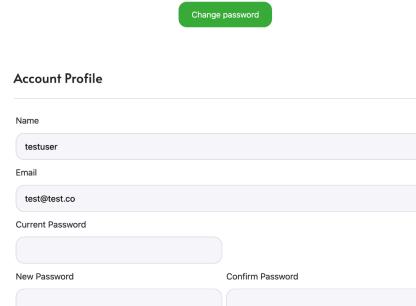
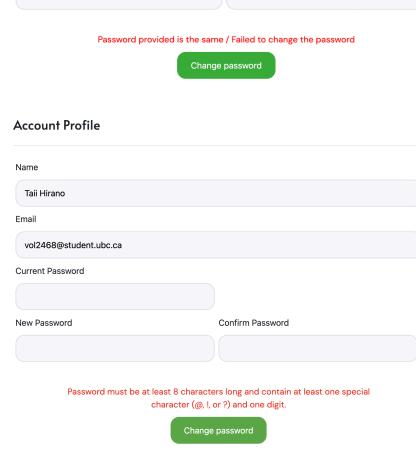
2. Sign In

- If any fields are left empty, they'll be outlined in red.
- In case the email doesn't exist in the database, an error message will show up.

 <p>The screenshot shows a sign-in form titled "WELCOME BACK! Please enter your login details." It has two input fields: "Email Address" containing "test@test.co" and "Password" which is empty and outlined in red. Below the fields are "Forgot Password?" and "Sign in" buttons. At the bottom, there's a link "Don't have an account? Sign up for free!"</p>	 <p>The screenshot shows a sign-in form titled "WELCOME BACK! Please enter your login details." The "Email Address" field is empty and outlined in red. The "Password" field contains "Enter your password" and is also outlined in red. A red error message "Email/Password is wrong" is displayed above the "Sign in" button. At the bottom, there's a link "Don't have an account? Sign up for free!"</p>
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3. Change Account Password / Change Profile Picture

- If any fields are left empty, they'll be outlined in red.
- In case the passwords don't match, an alert will pop up.
- In case the current password doesn't match in the database, an error message will show up.
- In case the new password is the same as the current password, an error message will show up.
- In case the type of the file uploaded is other than "jpg", "png", or "gif", or the file size is too big, an error message will show up.
- In case of an invalid password, an error message will show up.

 <p>The screenshot shows an "Account Profile" page with a "Change password" section. All fields ("Name", "Email", "Current Password", "New Password", "Confirm Password") are empty and outlined in red. A green "Change password" button is at the bottom.</p>  <p>The screenshot shows an "Account Profile" page with a "Change password" section. The "Current Password" field is empty and outlined in red. A red error message "Current password is wrong" is displayed above the "Change password" button.</p>  <p>The screenshot shows an "Account Profile" page with a "Change password" section. Both "New Password" and "Confirm Password" fields contain the same password and are outlined in red. A red error message "Password provided is the same / Failed to change the password" is displayed above the "Change password" button. Below the fields is a note about password requirements: "Password must be at least 8 characters long and contain at least one special character (@, !, or ?) and one digit."</p>	 <p>The screenshot shows an "Account Profile" page with a dark alert box containing the message "The password do not match. Please verify your input." with an "OK" button.</p>  <p>The screenshot shows an "Account Profile" page with a "Change password" section. All fields are filled correctly. A green "Change password" button is at the bottom.</p>  <p>The screenshot shows an "Account Profile" page with a "Change password" section. All fields are filled correctly. A green "Change password" button is at the bottom.</p>  <p>The screenshot shows an "Account Profile" page with a "Change password" section. All fields are filled correctly. A red error message "Password provided is the same / Failed to change the password" is displayed above the "Change password" button. Below the fields is a note about password requirements: "Password must be at least 8 characters long and contain at least one special character (@, !, or ?) and one digit."</p>
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4. Forgot Password

- If any fields are left empty, they'll be outlined in red.
- In case the email doesn't exist in the database, an error message will show up.

RECOVER HERE

Please provide your email address to reset your password.

Email Address

Send email

RECOVER HERE

Please provide your email address to reset your password.
We don't have an account associated with the email.

Email Address

Send email

5. Reset Password

- If any fields are left empty, they'll be outlined in red.
- In case the passwords don't match, an alert will pop up.
- In case the email doesn't exist in the database, an error message will show up.
- In case of an invalid password, an error message will show up.
- In case the new password is the same as the current password, an error message will show up.

RESET PASSWORD

Please enter your new password.

Email Address

New Password

Confirm Password

Reset password

RESET PASSWORD

Please enter your new password.

Email Address

New Password

Confirm Password

Reset password

RESET PASSWORD

Please enter your new password.
Email address is wrong.

Email Address

New Password

Confirm Password

Reset password

RESET PASSWORD

Please enter your new password.
Failed to change the password. Please try other password.

Email Address

New Password

Confirm Password

Reset password

RESET PASSWORD

Please enter your new password.
Password must be at least 8 characters long and contain at least one special character (@, !, or ?) and one digit.

Email Address

New Password

Confirm Password

4. Website Walkthrough

4.1 Login Credentials

	Email	Password
Admin 1	adamschen@student.ubc.ca	p@55w0rd
Admin 2	taiihirano@student.ubc.ca	p@55w0rd
Admin 3	yukiiso@student.ubc.ca	p@55w0rd
Non-Admin 1	a.anderson@gmail.com	360Arnold!
Non-Admin 2	emily.johnson@example.com	360Emily!
Non-Admin 3	alexander.smith@example.com	360Alexander!

Note: Create an account with an actual email address to test the email notification for account creation, changing passwords and forgetting password features.

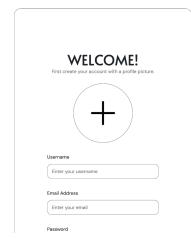
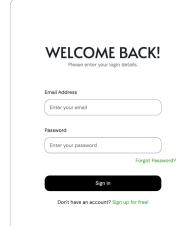
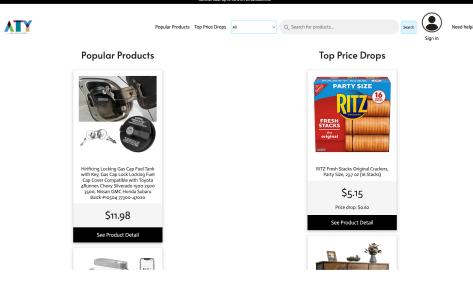
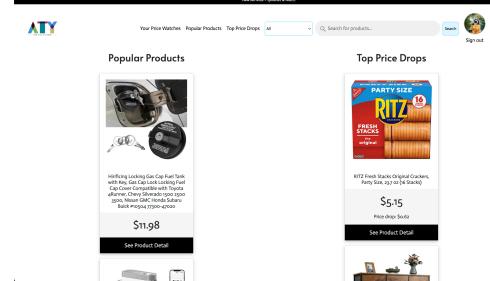
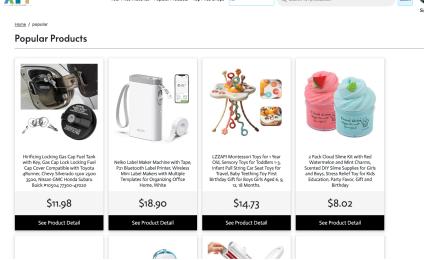
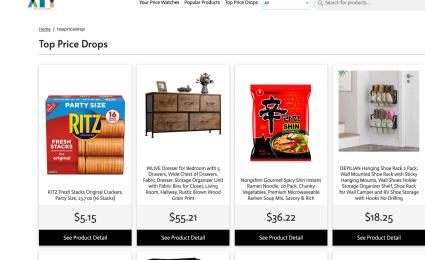
4.2 Website URL

<https://cosc360.ok.ubc.ca/yukiiso/COSC360Project/code/php/main.php>

4.3 GitHub repository

<https://github.com/vol2468/COSC360Project>

4.4. Walkthrough

<p>1. Sign Up / Sign in / Sign out</p> <p>Users will be able to create an account with a profile image. Users will get an email notification upon creating an account. Once creating an account, the users can sign in to view more features.</p>		
<p>2. Main page</p> <p>The main page consists of “Popular Products” and “Top Price Drops” products. Signed-in users have an additional navigation menu “Your Price Watches”.</p>		
<p>3. Popular Products / Top Price Drops</p> <p>The “Popular Products” page displays the popular products based on the number of views by users within the past 20 days. The “Top Price Drops” page displays a list of products that have a huge discount within the past 20 days.</p>		

4. Search Product

If no search term is entered and the category menu remains at its default value (all), the search results will include all products.

When a search term is provided, the search results will exclusively display products relevant to that term.

Upon selecting a category, the search results will exclusively show products belonging to that category.

5. Product

When clicking on a product link of interest, one will be redirected to the corresponding product page, where the product information is accurately displayed.

5.1 Amazon Link

Upon clicking the “View on Amazon” button, users are directed to the corresponding Amazon page featuring the product.

The image displays a 3x2 grid of screenshots from the ATY app interface, illustrating various search and product details features:

- Top Left (Row 1, Col 1):** Shows the ATY home screen with "Popular Products" and "Top Price Drops" sections. The "Popular Products" section includes an image of sunglasses and a Ritz cracker box. The "Top Price Drops" section includes an image of a car charger and a Ritz cracker box.
- Top Right (Row 1, Col 2):** Shows search results for "Nelko Label Maker Machine with Tape, P21 Bluetooth Label Printer, Wireless Mini Label Makers with Multiple Templates for Organizing Office Home, White". The result shows a white label printer and a price of \$18.90.
- Middle Left (Row 2, Col 1):** Shows search results for "charger". The results include a car charger and a solar-powered portable charger, both with their respective prices (\$10.15 and \$25.15).
- Middle Right (Row 2, Col 2):** Shows search results for "buldak". The results include a bag of Samyang Buldak Spicy Ramen and a bag of Samyang Buldak Spicy Ramen, both with their respective prices (\$11.25 and \$11.25).
- Bottom Left (Row 3, Col 1):** Shows a detailed product page for the Samyang Buldak Spicy Ramen. It includes the product image, name ("Samyang Buldak Spicy Ramen, Hot Chicken Ramen, Korean Stir-Fried Instant Noodle, Original, 1 Bag with 5 Pack"), price (\$11.25), and a "View on Amazon" button.
- Bottom Right (Row 3, Col 2):** Shows a detailed product page for the Nelko Label Maker Machine. It includes the product image, name ("Label Maker Machine with Tape, P21 Bluetooth Label Printer, Wireless Mini Label Makers with Multiple Templates for Organizing Office Home, White"), price (\$19.99), and a "View on Amazon" button.

5.2 Add Product to Your Price Watch

When one clicks the “Add to Price Watch” button, they’ll receive a message indicating that the product has been successfully added to their price watch list, or if it already exists, they’ll be notified accordingly. Upon visiting the “Your Price Watches” page, one can confirm that the correct product has been added.

When a review is added for a product to the user’s price watch list, a notification is dispatched to the “Your Price Watches” page, informing the user of the new review.

The image consists of six screenshots illustrating the user interface for managing price watches:

- Screenshot 1:** A product detail page for "Samyang Buldak Spicy Ramen, Hot Chicken Ramen, Korean Stir-Fried Instant Noodle, Original, 1 Bag with 5 Pack". It shows the price of \$11.25 and an "Add to Price Watch" button.
- Screenshot 2:** The same product page after adding it to the price watch, with a confirmation message: "Price watch added successfully!".
- Screenshot 3:** The "Your Price Watches" page, showing the added product alongside another item: "Hello Label Maker Machine with Tape Printer Bluetooth Label Printer Wireless Mini Label Makers with Multiple Labels for Home Office Work".
- Screenshot 4:** A review notification for the product, stating "Product with ID #7 has a new review".
- Screenshot 5:** The product detail page again, showing the review notification at the top.
- Screenshot 6:** The "Your Price Watches" page, now showing the review for the product.

5.3 Load reviews

Upon reaching the reviews section on the product page, users can initially view up to four reviews. To load more, simply click the “Load More Reviews” button, which adds another four reviews. The button disappears when there are no more reviews to load.

The first screenshot shows the initial four reviews. The second screenshot shows the same section after clicking the 'Load More Reviews' button, which has added four more reviews, totaling eight.

5.4 Filter Reviews

Users can filter reviews by rating using the “Rating” dropdown menu and revert to the default setting (“All”) by selecting it.

The first screenshot shows the reviews with the 'Rating' dropdown set to 'All'. The second screenshot shows the reviews with the 'Rating' dropdown set to '3 stars'.

5.5 Add Review

In the “Write a Review” section, users can add their reviews. Once submitted, their review will automatically appear in the product’s reviews section.

The first screenshot shows the 'Write a review' section with a blank input field. The second screenshot shows the same section after a review has been submitted, appearing in the list of reviews.

5.6 Delete Review

Deleting one's review is possible, but users will need to confirm the deletion. Once deleted, the user's review will no longer be visible for the product.

Administrators possess the capability to delete any review. Once a review has been deleted by an admin, it will no longer be visible.

5.7 Price History

Upon scrolling down to the bottom of the product page, users can observe the price changes of the product depicted in a graph, extending up to the most recent price.

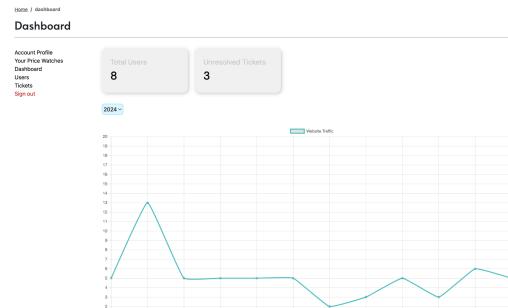


6. Account Profile

Users can change their password and change their profile picture on the "Account Profile" page. Admin users will have an added menu bar on the left.

7. Dashboard

Admin users will be able to see the summary chart of the traffic of the website as well as the total number of non-admin users and the number of tickets.



8. Users / Tickets

Admin users will be able to see and search for the non-admin users by name or email. In addition, the “Tickets” page displays the current inquiries that users submitted. It can also be searched by email or date.

The screenshot shows a table with columns for Profile Image, Username, Email, and Active. There are three entries:

- Arnold Anderson: arnoldanderson@gmail.com (Active)
- Emily Johnson: emilyjohnson@example.com (Active)
- Alexander Smith: alexander.smith@example.com (Active)

The screenshot shows a table with columns for Email, Date/time, Type, and Status. There are three entries:

- lalhenn@student.ubc.ca (2024-04-11 20:24:05, Technical Issues, Pending)
- yukilind@student.ubc.ca (2024-02-05 00:00:00, General Inquiry, Completed)
- yukilind@student.ubc.ca (2024-02-06 00:00:00, General Inquiry, Pending)

9. Contact Us

Once a user sends an inquiry, it will be added to the inquiry database and displayed on the “Tickets” page.

The screenshot shows a contact form with the following fields:

- Email Address: citycorp2024@gmail.com
- Select Subject: General Inquiry
- Message: Write your message... (with a placeholder)
- Send message button

The screenshot shows a contact form with the following fields:

- Email Address: citycorp2024@gmail.com
- Select Subject: General Inquiry
- Message: Write your message... (with a placeholder)
- Send message button

At the bottom, there is a note: "Your request is added to the queue."