

ThriftMe

MiniPrism Co., Ltd

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Introduction

Overview of the Business

ThriftMe's application and website will serve as a hub for second-hand items, gathering them in one place. Therefore, it enables digital shoppers to easily find their desired items without searching from many sites and locations. Also, to ensure the trustworthiness of the sellers as well as the correctness and condition of the purchased products, ThriftMe has a seller verification and rating system as well as a product receiving confirmation system. The latter will allow the customer to return the product within a specified time if the order is incorrect or not in a proper condition, such as having been damaged.

Services

ThriftMe's website and application are platforms for selling second-hand items, focusing on solving problems for our target customers.

For the customer's side, we have collected second-hand items and categorized them into categories that are easy to find which allows customers to meet their satisfying products. On the home page, there are advertising spaces for other companies to promote their products and services.

On the seller's side, the sellers of second-hand items can easily sell their products on ThriftMe. Having items on our platforms will guarantee that their items are seen by a large group of people using the app and website, and that their products can be easily searched. Also, sellers do not have to manage their sales much because the platforms' sales insights feature will help them with that. The platforms provide reports with several metrics on transaction, order, and day-to-day visitor comparisons to help sellers make better decisions. Additionally, sellers can talk to their customers directly and have access to their store's assessment so that sellers can improve and further build customer trust. Furthermore, if the sellers want additional assistance with advertising and promoting their products, they can apply for a premium account and use ThriftMe's advertisement services to improve and increase their product advertisements.

Features

Features of ThriftMe's application and website

1. Sells second-hand items only
2. Categorizes items using tags
3. Has sales insight for sellers
4. Has seller verification/ rating
5. Has the Product received confirmation from customers
6. Provides price comparison
7. In-app and website product ads for sellers who subscribe to a premium account
8. A community for discussion space

Target customers

1. Online shoppers who want to buy second-hand items.

Given that the target group is people who are young adults and middle-aged people, ages ranging from 18 to 55 years old, the target group is people who have the means to buy and sell online items and people in other companies that want to have advertisements on our platforms. Therefore, the target group is considered as both target customers and consumers.

2. People who want to sell second-hand items online and owners of second-hand shops who want to expand their sales channels.
3. Companies whose concepts are environmental awareness and sustainability.

Constraints

1. On a second-hand item online shopping platform, the seller side should show a credit score of the seller that will show the credibility of the seller and an incentive to guarantee that seller behavior will not violate morality on the platform.
2. The interface of ThriftMe's platform should provide more information about the product such as when it was purchased, the degree of depreciation, the condition of the purchased products, products that provide a seller verification and rating system, and a product receipt confirmation system.

3. Since ThriftMe is a second-hand item trading platform, apart from the platform pages being mainly in English, the platforms should also support other languages. One example is the feed pages shared by several users can be classified into different languages. This will allow the platforms to facilitate convenient platform access by users in different countries and avoid the risk of reducing users due to language barriers.

Requirements

Functional Requirements

No.	Functional Requirements
1	Buyers are able to sort the searched items by price, delivery fee, or seller rating.
2	Buyers are able to search for items using tags.
3	Buyers are able to select the payment methods which are cash on delivery or mobile banking.
4	Buyers are able to track the status of their orders on their profiles.
5	Buyers are able to give a rating to a seller.
6	Sellers can check the status of the verification of their products in the system.
7	Sellers can choose their subscription plan to be the regular plan or premium plan.
8	Sellers are able to add/ delete their own items from the system.
9	Sellers are able to see the sales insight in their account menu.
10	Admin can create and schedule events in the community space.
11	Customer service representatives record and handle the problems that the user reports.
12	Buyers can chat directly with the sellers in the chat window.
13	Buyers and sellers can post content to exchange ideas and share tips and tricks regarding second-hand items in the community space.
14	Buyers can save items into their <i>My Likes</i> list to view later on their profile pages
15	Admins are able to monitor the system performance and access trading information.

Non-Functional Requirements

No.	Non-Functional Requirements
1	The user's account password must be at least 6 characters long including letters, symbols, and numbers.
2	The verification e-mail must be sent within 10 seconds.
3	The security alert email will be sent to the registered email within 0.5 second if the user inputs the invalid password more than 5 times.
4	The uploaded picture must not exceed 20 MB.
5	The service maintenance must not be longer than 3 hours.
6	The search result must be returned no longer than 5 seconds.
7	The system must be available on both the application and website.
8	Loading time for each page must be less than 2 seconds.
9	The system must be able to smoothly serve 10,000 users at a time.
10	The user interface theme must be user-friendly and simple.
11	The mobile banking payment method must be completed within 1 hour after ordering otherwise the order will be canceled.
12	To complete the registration, all users must verify their account via e-mail within 2 hours after sign-up.

Work Breakdown Structure (WBS)

Scope of work

1. Planning

- a. Write down a scope of work (defining the scope)
- b. Stakeholder meeting
- c. Research on the eCommerce trends and market
- d. Analysis for eCommerce competitors and target users
- e. Plan business strategies
- f. Distribute work among each team

2. Implementation

- a. Design website and application interface
- b. Develop the system architecture
- c. Develop the system
 - i. Product database
 - ii. Search engine
 - iii. Payment system
 - iv. Registration and profile development system
 - v. Product Review system
 - vi. Chatting system
 - vii. Community space
 - viii. System and information security

3. Performance and control

- a. Perform risk management
- b. Perform quality assurance
- c. Perform issue management
- d. Performance evaluation result reporting
- e. IT maintenance

4. Deployment

- a. Perform deployment
- b. Deliver software documentation

Gantt Chart

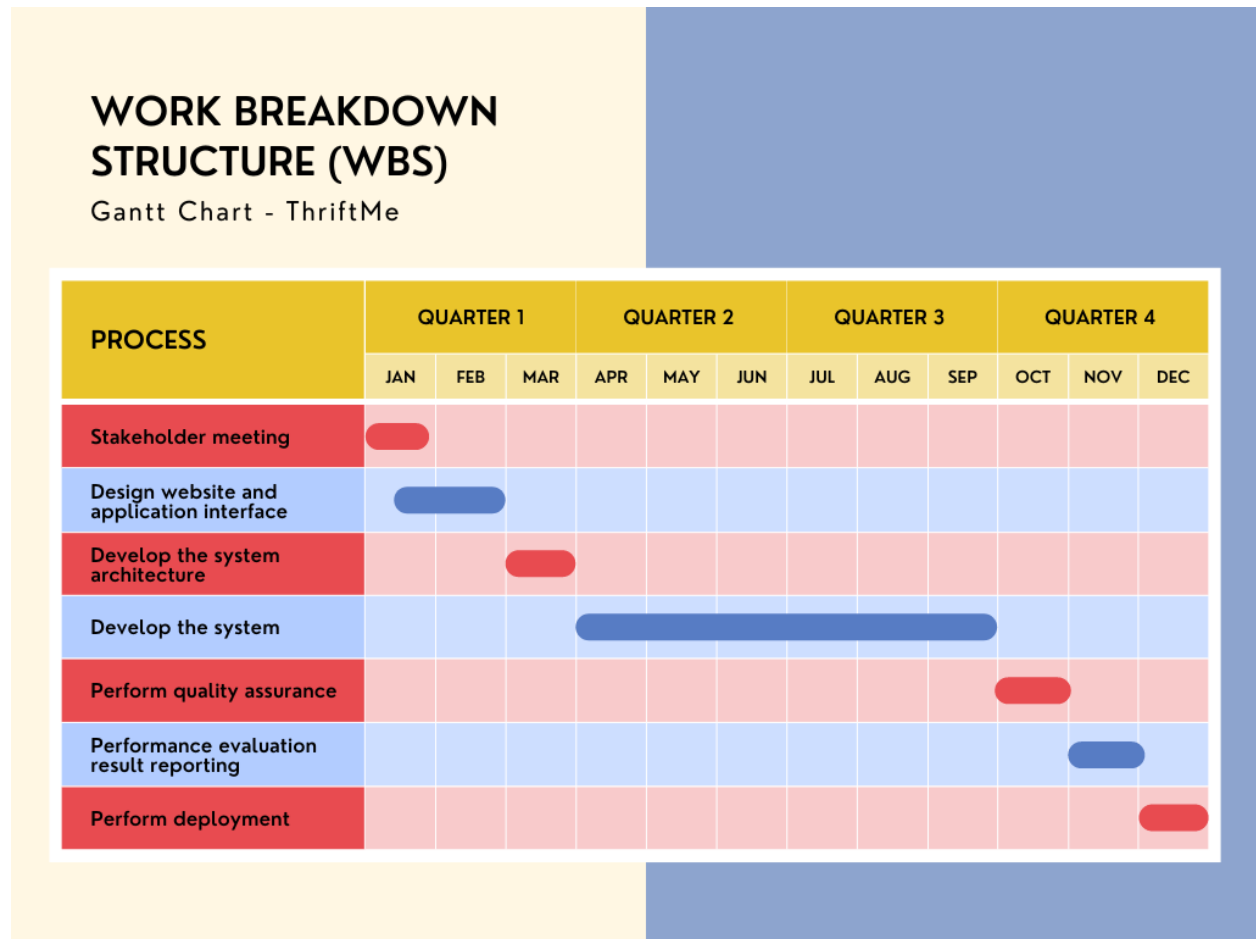


Figure 1 Work breakdown structure (WBS) of ThriftMe

Actors List

Primary actors: Buyers, Sellers (owners of second-hand shops)

Secondary actors: Admin, Customer service representatives

Actors	Role
Buyers	Buyers can access the ThriftME application/website via phone/devices to buy the product.
Sellers	Sellers can access the ThriftME application/website via phone/devices to sell and advertise their product.
Admins	Admins manage the overall operations of the platforms. They are in charge of scheduling, organizing, collecting information, and customer service on ThriftMe's platforms.
Customer service representatives	Customer service representatives directly communicate to the customers. They are the ThriftMe employees that will act as a liaison, provide product/services information, answer questions, and resolve any emerging problems that our customer accounts might face with accuracy and efficiency.

Use case

Use Case Diagram

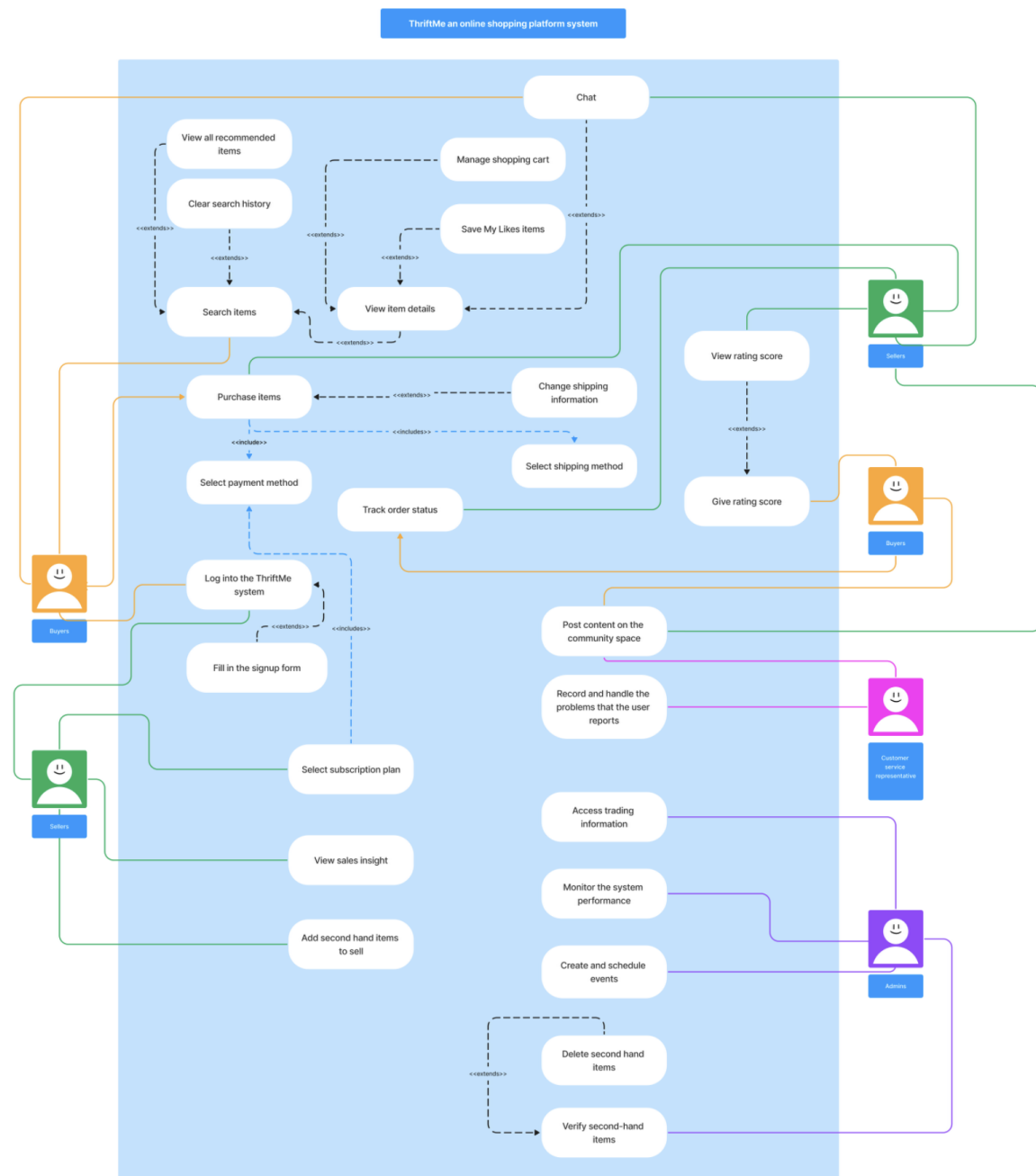


Figure 2 Use Case Diagram (UCD) of ThriftMe

Use Case Narrative

Use Case 1: Search items

Primary Actor: *Buyer*

Preconditions:

1. The buyer must have an account on ThriftMe.
2. ThriftMe's system database has information about the buyer's name, email address, and password linked to the buyer's account.

Scenario:

1. The buyer enters the Homepage of ThriftMe's website or application.
2. The system displays the contents of the Homepage.
3. The buyer selects the search bar by clicking on it.
4. The system displays the search page.
5. The buyer scrolls through the search results to find the items that they want.
6. The buyer clicks the item they want to look at its details.

Exceptions:

1. The buyer clicks on one of the items in the search results, the recommended items section of the search page, or the search history section of the search page; see use case **View item details**.
2. The buyer clicks on the *See all* button in the recommended item section; see use case **View all recommended items**.
3. The buyer clicks on the *clear search history* button in the Search history section; see use case **Clear search history**.
4. The buyer clicks *Add to cart* to add their desired item into their shopping cart; see use case **Manage shopping cart**.
5. A problem occurs on ThriftMe's platform, such as response failure or system crashing; see use case **Monitor the system performance**.

Priority: High priority because it is a basic function.

Frequency of use: Very frequently.

Channel to primary actor: via the *Search page* on ThriftMe's website or application.

Use Case 2: Purchase items

Primary Actor: *Buyer*

Preconditions:

1. The buyer has more than one item in their shopping cart.
2. The customer has provided their payment information in their ThriftMe account.

Scenario:

1. The buyer clicks the Checkout button in the shopping cart page.
2. The system displays the Check out page.
3. The buyer checks their name and shipping address.
4. The buyer selects the *Shipping method* tab to select their shipping method.
5. The buyer selects their payment method, either being *Cash on Delivery* or *Mobile Banking*.
6. The buyer checks the summary of the information concerning their item shipment at the bottom of the page, consisting of their name, address, payment method, and total payment price.
7. The buyer clicks the *Place Order* button to finalize the payment process.

Exceptions:

1. The buyer changes their name or shipping address; see use case **Change shipping information**.
2. The buyer selects their shipping method; see use case **Select shipping method**.
3. A problem occurs on ThriftMe's platform, such as response failure or system crashing; see use case **Monitor the system performance**.

Priority: High priority because it is a basic function.

Frequency of use: Very frequently.

Channel to primary actor: via the *Shopping Cart* and *Check out* page on ThriftMe's website or application.

Use Case 3: Add second-hand items to sell**Primary Actor:** *Seller***Preconditions:**

1. The seller must have an account on ThriftMe and has chosen a subscription plan.
2. ThriftMe's system database has information about the seller's name, email address, and password linked to the seller's account.
3. The seller has already been verified by the system.

Scenario:

1. The seller clicks the *Post* button at the bottom of the platform page.
2. The system displays the first page of *Add item to your store*.
3. The seller inputs the name and the price of the item by typing them into the input boxes.
4. The seller inputs the image of the item by clicking the button to insert the image.
5. The seller inputs the details of the item by typing into the input box.
6. The seller chooses the category of the item by clicking on one of the category buttons in the category selection section.
7. The seller selects the services and promotions that this item will have, such as free delivery and discounts, by selecting one of the service options in the service selection section.
8. The seller inputs the area that the product is located by typing in the input box.
9. The seller inputs their telephone number for contact by typing in the input box.
10. The seller clicks the *Continue* button to continue to the second page of *Add item to your store*.
11. The system displays the second page of the *Add item to your store*.
12. The seller chooses the type of selling plan they want to use for this item. They can choose the *Free* plan, which allows limited advertising, or the *premium* plan, which enables more advertising, the extent of which depends on the seller's subscription plan.
13. The system displays the final page of the *Add item to your store*, which displays the *successfully added item to store* message.
14. The seller clicks the *Go Back To Home* button.
15. The system displays the *Home Page*.

Exceptions:

1. The seller clicks on the *Change Plan* button in the *Premium* box of the selling plan selection; see use case **Select subscription plan**.
2. A problem occurs on ThriftMe's platform, such as response failure or system crashing; see use case **Monitor the system performance**.

Priority: High priority because it is a basic function.

Frequency of use: Frequently.

Channel to primary actor: via the *Add item to your store* page on ThriftMe's website or application.

Data Flow Diagram Level 0

We define 4 entities from use cases which are Buyers, Sellers, Customer Services Representatives, and Admins. And data in data flow comes from requirements.

Data Flow List

1. *Buyers*

Data Input

- User's information (Username/Profile picture/Password/Age)
- UserID, Password
- ID of Transaction Order
- Chat messages history, People who chatted with, Post content history, Comment messages history
- Searching items keywords, Searching item tags, "My likes" items
- Shipping & Payment method, Rating points

Output from system

- Email verification of sign up
- Sign in Access Token
- Status of orders tracking (Parcel Delivery information/ Transaction process)
- Posting Status, Number of Interactions, Parcel tracking notifications
- Search Results (Items name, Number of stocks, Average rating points, Price)
- Shipping & Payment status, Payment Gateway (Account No., Bank Verification gateway)

2. *Sellers*

Data Input

- User's information (Username/Profile picture/Password/Age)
- UserID, Password
- Seller's ID
- Subscription Plan ID (Regular or Premium)
- Product Information (Item ID, Item name, Description, Number of stocks, Price)
- Sellers' Product Verification request
- Chat messages history, People chatted with, Post content history, Comment messages history

Output from system

- Email verification of sign up
- Item verification Transaction
- Subscription-based access trigger (tell what regular/ premium member can access)
- Product Verification result
- Sales insight information for that seller
- Posting Status, Number of Interactions
- Sign in Access Token

3. *Admins*

Data Input

- System performance request
- Trading information request
- Event Schedule Info (Date-Time, Event name, Organizer)
- Items verification decision
- Item delete request

Output from system

- Number of users, System run-time reports, Transaction Bottleneck reports
- Buyer's ID, Seller's ID, Transaction ID
- Event scheduling confirmation
- Items access verification

4. *Customer service representatives*

Data Input

- Comment messages history
- Post Records

Output from system

- Posting Status
- Number of Interactions
- Interaction notifications
- Record Verification

Data Flow Diagram



Figure 3 Data Flow Diagram (DFD) - Level 0 of ThriftMe