

# CASE STUDY ON RETHRIFT: AN ONLINE THRIFTING APPLICATION



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# INTRODUCTION

- ReThrift is a web-based thrift marketplace where users can buy and sell pre-owned items.
- The system allows sellers to list products with details like name, category, price, and images.
- Buyers can browse items, add them to a shopping cart, adjust quantities, and proceed through checkout.
- The application supports user authentication so that only registered users can sell or purchase items.
- A structured cart and checkout flow lets users review their orders, view subtotals, and simulate payment.
- Admin and/or privileged users can manage items and potentially monitor transactions and listings.

# ABSTRACT

ReThrift is an e-commerce style web application focused on second-hand products, built with Spring Boot, Thymeleaf, and a relational database such as MySQL. The platform enables users to register, log in, discover items, add them to a cart, and complete a multi-step checkout that includes a review page and a simulated payment screen. Sellers can list items with images, descriptions, categories, and prices, while buyers enjoy a familiar shopping workflow with quantity management and a clear order summary. By integrating server-side rendering, REST-style controllers, and persistent storage, ReThrift demonstrates a full-stack implementation of a modern thrift marketplace with room for future extensions like real payment gateways and richer admin controls.

# WHAT WE ARE GOING TO BUILD:CLIENT REQUIREMENTS

- Users should be able to register, log in, and log out securely.
- Buyers should be able to browse and discover listed items with key details (name, price, category, image).
- Buyers should be able to add items to a cart, increase or decrease quantities, and remove items from the cart.
- The cart page should display all selected items, per-item price, quantity, and the subtotal.
- There should be a checkout flow where users can review order details and then proceed to a payment page.
- A basic “payment portal” should exist where users choose a method and confirm, after which the cart is cleared and a success page is shown.
- Sellers (or admin) should be able to create, update, and delete item listings.
- The navigation should provide quick access to Home, Discover, Sell, and Cart, with a visible cart count.

# WHAT WE ARE GOING TO BUILD: SOME TECHNICAL TERMS

- Proper Login and Register APIs or controllers for user authentication.
- Role-based access (e.g., Admin, Seller, Buyer) for protecting admin/sell features.
- MVC architecture with controllers handling routes such as /home, /discover, /sell, /cart, /checkout, and /payment.
- Cart operations using HTTP methods and parameters for actions like add, update quantity, and remove.
- Server-side HTML templates using Thymeleaf with dynamic attributes (th:each, th:text, th:href, etc.).
- Request handling for multi-step flows: add to cart → view cart → checkout → payment → success.
- Data persistence using entities and repositories for users, items, and cart items.

# WHAT WE THE TECHNOLOGIES AND TOOLS WE ARE GOING TO USE

- Framework: Spring Boot (Java)
- Language: Java 8+
- Build Tool: Maven or Gradle (commonly Maven)
- Core Spring Modules: Spring Web (MVC), Spring Data JPA, optionally Spring Security for authentication
- Template Engine: Thymeleaf for server-side HTML rendering
- Database: MySQL (or similar relational database)
- Application Server: Embedded Apache Tomcat (via Spring Boot)
- IDE: IntelliJ IDEA / Eclipse / Spring Tool Suite (STS)
- Frontend Stack: HTML5, CSS (Bootstrap), basic JavaScript for UI behavior
- Testing & Tools: JUnit for testing, browser developer tools for debugging, possibly Postman for API testing if REST endpoints are exposed

# SYSTEM REQUIREMENTS

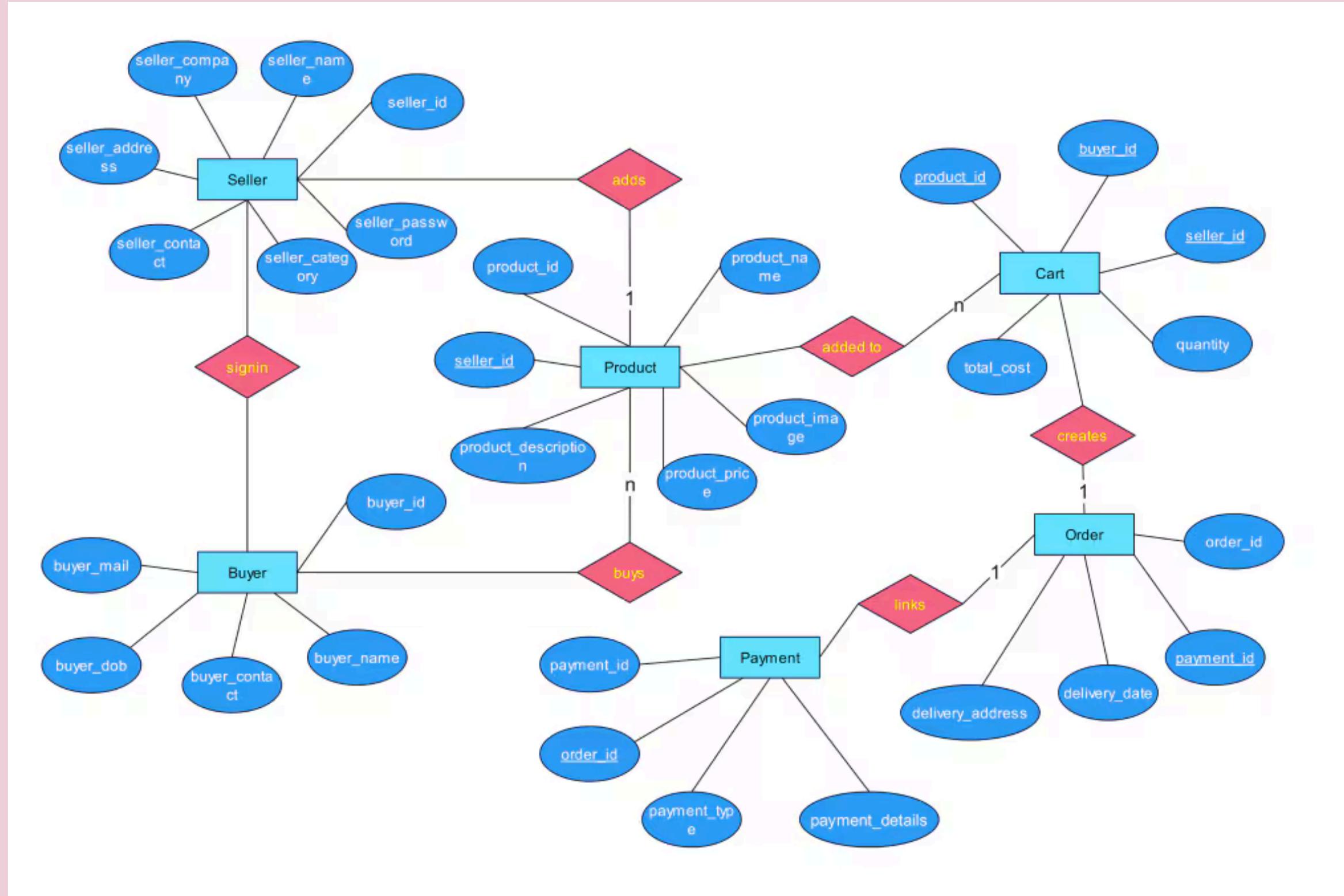
## SOFTWARE REQUIREMENT:

- Operating System: Windows / Linux / macOS
- Java Development Kit: JDK 8 or higher
- Backend Environment: Spring Boot with Spring Web and Spring Data JPA
- Database Server: MySQL 8.0 (or compatible version)
- Application Server: Embedded Apache Tomcat (bundled with Spring Boot)
- IDE / Editor: Spring Tool Suite (STS), IntelliJ IDEA, or Eclipse
- Browser: Google Chrome / Firefox / Edge for accessing the web application
- Build & Dependency Management: Maven
- Optional: Spring Security for authentication and authorization

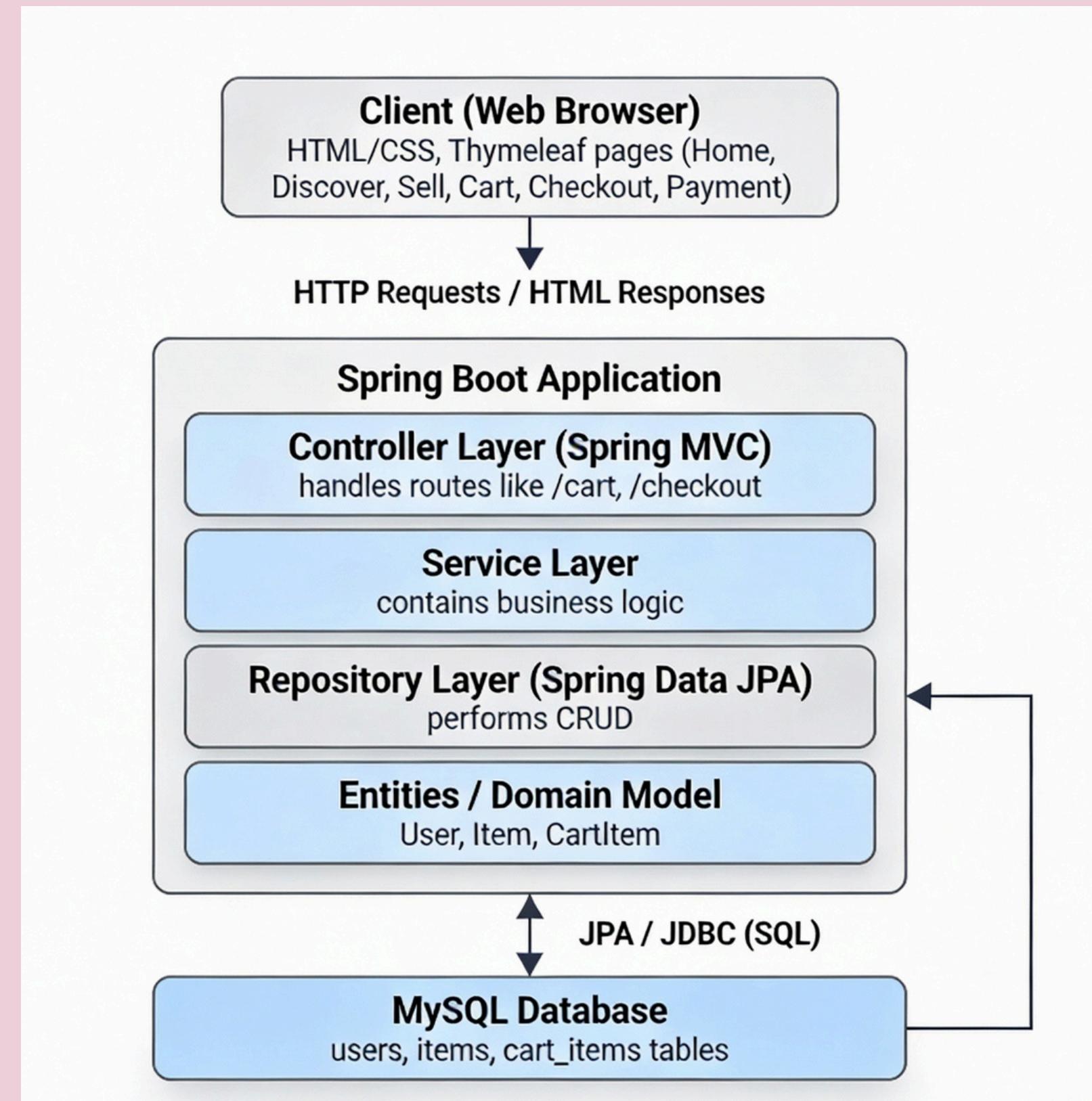
# PROJECT MODULE

- ADMIN MODULE
- ITEM MODULE
- DISCOVER MODULE
- CART&CHECKOUT MODULE

# ER DIAGRAM



# ARCHITECTURE DIAGRAM



# ADMIN MODULE

The User module is responsible for handling all user-related functionality in ReThrift, including registration, authentication, and session management. It ensures that only legitimate, authenticated users can perform actions such as selling products, adding items to the cart, or proceeding to checkout. During registration, users provide basic information like name, email, and password, which is stored securely in the database, while the login process validates credentials and initializes a user session. This module can also be extended to support different roles, such as buyer, seller, and admin, allowing role-based access to features like item management or administrative dashboards. Beyond authentication, the User module maintains user profiles and preferences that can be leveraged to improve the overall user experience. For example, it can track previous orders, favorite categories, or saved items, enabling personalized recommendations or targeted offers in the future. It also serves as a central link to other modules, since each cart, order, and listed item is associated with a specific user, making it easier to trace actions and maintain data integrity across the system.

# ITEM MODULE

The Item module manages all the products listed on ReThrift, forming the core of the marketplace. It defines and stores essential item attributes such as name, description, category (e.g., clothing, electronics, home decor), price, condition, image URL, and the seller who owns the listing. When a seller uses the “Sell” functionality, this module handles the creation of a new item record, validates the input, and persists it to the database so that it becomes visible to potential buyers. It also supports updating existing listings when sellers want to adjust prices, change descriptions, or upload new images, as well as deleting items that are no longer available.

From a system perspective, the Item module exposes operations that allow the rest of the application to search, filter, and retrieve items efficiently. The Discover/Browse pages, cart, and checkout flows all rely on this module to fetch accurate item details such as current price and availability. This design keeps product logic centralized, which simplifies future enhancements like adding stock control, rating/review systems, or more complex pricing strategies (e.g., discounts or offers). By linking each item to a seller, the module also provides a foundation for seller dashboards and analytics, such as how many items they have sold or how their listings are performing.

# DISCOVER MODULE

The Discover (or Browse) module focuses on how users explore and find items within ReThrift. It provides a user-friendly interface and supporting backend logic to display lists of items in a visually appealing and organized manner. Users can land on a “Discover” page where they see cards containing item images, names, prices, and categories, allowing them to quickly scan through available products. The module can be extended to support searching by keyword, filtering by category or price range, and sorting by criteria like newest, lowest price, or most popular, which greatly improves usability as the number of listed items grows.

This module acts as a bridge between the Item module and the shopping experience, since it is often the starting point for a buyer's journey. When a user clicks on an item or adds it to the cart from a listing, the Discover module coordinates with the Item and Cart modules to retrieve item details and perform the requested action. It also plays a role in highlighting curated collections or featured items, for example “Trending now” or “Recently added,” which can increase user engagement and time spent on the platform. Overall, the Discover module ensures that the marketplace feels lively, easy to navigate, and tailored to the user's interests.

# CART & CHECKOUT MODULE

The Cart & Checkout module handles the complete purchasing flow, from selecting items to confirming a simulated payment. When a user clicks “Add to cart” on an item, this module creates or updates a cart entry associated with the current user and the selected product, storing the quantity and referencing the latest product price. On the cart page, it displays all cart items with their images, names, prices, and quantities, and calculates the subtotal by multiplying each item’s price by its quantity and summing the results. Users can increase or decrease quantities, and the module ensures that changes are persisted correctly; they can also remove items entirely, keeping the cart in sync with user actions at all times.

Beyond managing the cart contents, this module orchestrates the multi-step checkout process. After reviewing the cart, the user proceeds to a checkout page where they can confirm their order details and (in a real system) provide address and contact information. From there, the flow leads to a payment page that simulates the selection of a payment method and confirmation of the purchase. When the user clicks “Pay” in the current implementation, the module clears the cart entries for that user and redirects them to a success page, indicating that the order has been placed. In a production-level system, this module would be the integration point for real payment gateways, order creation, invoice generation, and email notifications, but the current version already demonstrates the complete skeleton of a standard e-commerce checkout pipeline.



# DATA DICTIONARY

# TABLES OF DATABASE

The screenshot shows the MySQL Workbench interface. On the left, there's a tree view of database objects under the schema 'rethrift'. The 'Tables' node is expanded, showing 'Tables\_in\_rethrift' as the first item, followed by 'cart\_item', 'item', and 'user'. Below this tree view, the 'Information' panel displays 'No object selected'. In the main central area, a query editor window titled '98 • show tables;' contains the SQL command 'show tables;'. To the right of the query, a 'Result Grid' shows the output of the query: three rows labeled 'Tables\_in\_rethrift', 'cart\_item', 'item', and 'user'. At the bottom of the interface, the 'Action Output' panel lists two actions: '1 10:31:00 USE rethrift' and '2 10:31:06 show tables', both marked with green checkmarks.

```
98 • show tables;

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |A

Tables_in_rethrift
cart_item
item
user

Result 1 ×
Output ×
Action Output
# Time Action
1 10:31:00 USE rethrift
2 10:31:06 show tables
```

# TABLES OF DATABASE

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator: august23-constraints\* | august26\* | august28\* | august30\*

SCHEMAS

Filter objects

- eshop
- marketnexus
- mydatabase
- org123
- org1234
- rethrift**
  - Tables
  - Views
  - Stored Procedures
  - Functions
- saturday
- student
- sys
- test
- user\_management

113 WHERE i.id IS NULL;

114 • DELETE FROM cart\_item;

115 • select\*from item;

116

117

118

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: |

	id	created_at	description	price	status	title	seller_id	approved	deleted	image_url
▶	1	2025-12-15 01:12:44.740825	pretty mermaid dress	2000	Available	y2k dress	1	0	1	NULL
	2	2025-12-15 01:31:05.147530		0	Available		1	0	1	NULL
	3	2025-12-15 14:25:09.216163	soft, pretty	500	Available	mermaid dress	1	0	1	NULL
	4	2025-12-15 15:01:10.739277	soft	500	Available	mermaid dress	1	0	1	NULL
	5	2025-12-16 09:16:57.748991	size L to XXL available , in good condition	2500	NULL	NULL	NULL	1	0	/images/
	6	2025-12-16 09:50:52.355446	with a splashy dupatta , can be customized to y...	1500	NULL	NULL	NULL	1	0	/images/
	7	2025-12-16 09:51:58.550414	stylish embedded with sparkly rhinestones	2000	NULL	NULL	NULL	1	0	/images/
	8	2025-12-16 09:52:54.108886	ravishing party night out outfit	2500	NULL	NULL	NULL	1	0	/images/
	9	2025-12-16 09:53:50.632563	the perfect barbie heels	3000	NULL	NULL	NULL	1	0	/images/
	10	2025-12-16 09:55:16.121785	sparkly butterfly dress	3500	NULL	NULL	NULL	1	0	/images/
*		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Administration Schemas

Information

# LOGIN PAGE

The screenshot shows a web browser window with the URL `localhost:8080/login` in the address bar. The page has a light pink background with two main sections: a left sidebar and a right login form.

**Left Sidebar:**

- Header:** A pink circular icon with a white dot and the text "RETHRIFT STUDIO".
- Title:** **Log back into your wardrobe.**
- Description:** Save outfits you love, sell pieces you've outgrown, and keep your closet feeling fresh.
- Image:** A photograph of a clothing rack filled with various colorful garments, including dresses and tops, set against a floral backdrop.
- Text:** New drops, pre-loved.
- Text:** Thoughtfully thrifted. Zero clutter, maximum cute.

**Right Login Form:**

- Header:** A pink circular icon with a white letter "R" and the text "RETHRIFT". Below it is the tagline Curate your closet, not your stress.
- Title:** Welcome back
- Description:** Sign in to access your saved finds, cart, and selling dashboard.
- Email Input:** A text input field containing `you@example.com`.
- Password Input:** A text input field showing five dots.
- Keep me signed in:** A checkbox labeled  Keep me signed in.
- Forgot password?**: A link to reset a password.
- LOG IN:** A large pink button.
- OR:** A horizontal line with the word "OR" in the center.
- New here? Create a ReThrift account:** A link to sign up for a new account.
- Agreement:** By logging in you agree to our [terms & privacy](#).

# REGISTER PAGE

localhost:8080/register

Summarize Chat

**RETHRIFT**  
Welcome to your new closet ritual.

**Create your account**  
Just a few details so you can start saving looks and listing items.

Name  
What should we call you?

Email  
you@example.com

Password  
Make it a good one

Confirm password  
Just to be sure

Passwords are encrypted before storing. Your closet Please fill out this field.

**SIGN UP**

OR

Already have an account? [Log in instead](#)

By creating an account you agree to our [terms & privacy](#).

**RETHRIFT STUDIO**

**Start your softer closet.**  
Create an account to save outfits, sell pieces you're done with, and thrift in your own aesthetic.

One account. Buy, sell, and curate with less guilt and more joy.

# HOME PAGE

localhost:8080/home

RETHRIFT  
Thrifterd, but make it you.

FRESH DROPS. PRE-LOVED ENERGY.

## Curate your dream closet, without the guilt.

Discover hand-picked pieces from closets like yours. List what you don't love anymore and fund what you do.

START THRIFTING   SELL AN ITEM

Thoughtful, circular fashion. Because your style deserves a second (and third) life.

New in this week

HES A \*TEN BUT HE DOESN'T SHOP secondhand SO HES A ZERO

### New in

Freshly listed pieces from the community. Claim them before they ghost.

dresses

dresses

accessories

dresses

# HOME PAGE

← ⌛ localhost:8080/home Summarize ⚡ ⚡ ⚡ ... Chat

## New in

Freshly listed pieces from the community. Claim them before they ghost.

**dresses**



**pink floral flowy dress**  
size L to XXL available , in good condition

₹2500.0 [Add to cart](#)

Tap to see more photos & sizing.

**dresses**



**Blue Van Gogh dress**  
with a splashy dupatta , can be customized to your liking

₹1500.0 [Add to cart](#)

Tap to see more photos & sizing.

**accessories**



**sun and star heels**  
stylish embedded with sparkly rhinestones

₹2000.0 [Add to cart](#)

Tap to see more photos & sizing.

**dresses**



**red satin slip dress**  
ravishing party night out outfit

₹2500.0 [Add to cart](#)

Tap to see more photos & sizing.

**accessories**

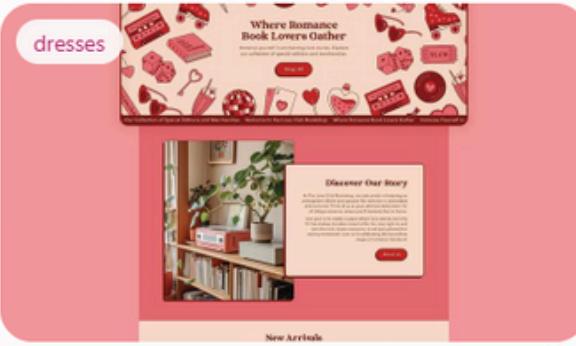


**barbie heels**  
the perfect barbie heels

₹3000.0 [Add to cart](#)

Tap to see more photos & sizing.

**dresses**



**princess gown**  
sparkly butterfly dress

₹3500.0 [Add to cart](#)

Tap to see more photos & sizing.

# SELL PAGE

The screenshot shows a web browser window with the URL `localhost:8080/sell`. The page is titled "SELL PAGE". At the top right, there are navigation links: "Home", "Discover", "Sell" (which is underlined), and "Create". On the left, there's a logo with a pink circle containing a white letter "R" and the text "RETHRIFT Turn your closet into credit.". The main content area is titled "List a new piece" and includes the following fields:

- ITEM NAME:** A text input field with placeholder text "e.g. Soft pink satin slip dress".
- DESCRIPTION:** A text input field with placeholder text "Sizing, fit, condition, styling ideas...".
- PRICE:** A text input field with a currency symbol ₹.
- CATEGORY:** A dropdown menu labeled "Choose".
- ITEM PHOTO:** A file upload input field with options "Choose File" and "No file chosen". Below it, instructions say "Upload a clear photo of your piece. If you leave this empty, the listing will use the placeholder image." and "Direct file uploads can be added later. For now, you can host images elsewhere and paste the link."
- PUBLISH LISTING:** A large pink button at the bottom of the form.

At the very bottom, there's a "Listing tips" section.

# SELL PAGE

Sizing, fit, condition, styling ideas...

PRICE

CATEGORY

ITEM PHOTO

Choose File No file chosen

Upload a clear photo of your piece. If you leave this empty, the listing will use the placeholder image.  
Direct file uploads can be added later. For now, you can host images elsewhere and paste the link.

PUBLISH LISTING

**Listing tips**

- Use natural light and show the piece from multiple angles.
- Mention exact size, height, and how it fits (tight / relaxed / oversized).
- Be honest about flaws — tiny marks, loose threads, etc.

Every sale = room for something better.

Once approved, your listing will appear under Discover and can be added to carts.

# CART PAGE

The screenshot shows a web browser window for the RETHRIFT website at localhost:8080/cart. The page has a pink gradient background.

**Your cart**  
Review your picks before they head to a new home.

**Blue Van Gogh dress**  
dresses · seller

1 item  
₹1500.0 [Remove](#)

**Order summary**

Subtotal	₹1500.0
Service fee	₹0
Estimated shipping	Calculated later

**Total** ₹1500.0

**PROCEED TO CHECKOUT**

You'll confirm address and payment on the next step.  
Items are not reserved until you complete checkout.

# CHECKOUT PAGE

localhost:8080/checkout

**Checkout**  
Add your details so your new pieces know where to go.

**FULL NAME**  
Your name on the parcel

**EMAIL**  
you@example.com

**ADDRESS LINE 1**  
Flat / house number, street

**ADDRESS LINE 2 (OPTIONAL)**  
Area, landmark, etc.

**CITY**

**STATE**

**PIN CODE**

**NOTES FOR SELLER (OPTIONAL)**  
Gate instructions, preferred delivery time, etc.

Payment step can be added later. For now, this can be cash on delivery or manual confirmation.

**CONFIRM ORDER**

**Order summary**

1 × Blue Van Gogh dress	₹1500.0
Subtotal	₹1500.0
Service fee	₹0
Estimated shipping	Calculated after address
<b>Total</b>	<b>₹1500.0</b>

You'll receive an email with order details after confirming.  
This is a demo checkout — no real payment is processed yet.

# ADMIN PAGE

localhost:8080/admin

RETHRIFT ADMIN  
Quietly keeping things cute and safe.

Summarize A ⚡ Chat

Home Discover Sell Logout

## Listings moderation

Approve or archive items. Only approved & not-deleted pieces show on ReThrift.

ITEM	PRICE	CATEGORY	SELLER	STATUS	CREATED	ACTIONS
 princess gown sparkly butterfly dress	₹3500.0	dresses	—	Approved	16 Dec 2025 09:55	<button>Approve</button> <button>Archive</button>
 barbie heels the perfect barbie heels	₹3000.0	accessories	—	Approved	16 Dec 2025 09:53	<button>Approve</button> <button>Archive</button>
 red satin slip dress ravishing party night out outfit	₹2500.0	dresses	—	Approved	16 Dec 2025 09:52	<button>Approve</button> <button>Archive</button>
 sun and star heels stylish embedded with sparkly rhinestones	₹2000.0	accessories	—	Approved	16 Dec 2025 09:51	<button>Approve</button> <button>Archive</button>
 Blue Van Gogh dress with a splashy dupatta , can be customized to your liking	₹1500.0	dresses	—	Approved	16 Dec 2025 09:50	<button>Approve</button> <button>Archive</button>
 pink floral flowy dress size L to XXL available , in good condition	₹2500.0	dresses	—	Approved	16 Dec 2025 09:16	<button>Approve</button> <button>Archive</button>



THE END

THANK YOU

