



Report & User Manual

CSC584-ENTERPRISE PROGRAMMING

THUNDERBOLTS

Discount & Coupon Management Portal for E-Commerce Promotions

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1.0 PROJECT OVERVIEW

The "Discount & Coupon Management Portal for E-Commerce Promotions" is designed to provide a comprehensive, reliable, and user-friendly solution for managing digital vouchers, promotional codes, and seasonal sales across online retail platforms. The portal enhances e-commerce operations by streamlining the creation, distribution, tracking, and analysis of promotional campaigns.

Equipped with intuitive CRUD (Create, Read, Update, Delete) functionalities, the system allows merchants to efficiently manage their promotions, ensuring that all data is up-to-date, accessible, and accurate. This includes creating unique promo codes, updating active discounts, viewing performance reports, and retiring outdated offers. The system is also equipped with real-time status updates and expiration alerts to ensure timely adjustments and engagement.

Built for scalability and ease of use, the portal integrates seamlessly into existing e-commerce systems, supporting administrators, marketers, and store managers in delivering impactful promotional campaigns. Through intelligent design and comprehensive data management, the portal significantly improves customer engagement and sales performance.

1.2 Project Description

This project is a Java-based web application that demonstrates essential web development concepts using Java technologies. It utilizes servlets, JSP (JavaServer Pages), JDBC (Java Database Connectivity), and is deployable on web servers such as GlassFish Server

1.3 Key Features

- Servlets: Handle HTTP requests and responses for promotion-related actions.
- JSP Pages: Dynamically render interactive web pages.
- Database Connectivity: CRUD operations via JDBC for managing discounts and coupons.
- Deployment Ready: Includes setup

1.4 Purpose

The system serves both as a practical tool for e-commerce promotion management and a learning resource for developers exploring Java-based web applications.

1.5 Technologies Used

- Java
- Servlets
- JSB
- JDBC

2.0 PROBLEM STATEMENT

- Lack of centralized platforms to manage multiple promotional campaigns effectively.
- Inefficient manual tracking of coupon usage, expiration, and effectiveness.
- Inconsistent application of discount logic across online stores.
- Limited tools for analysing promotional campaign success.

3.0 OBJECTIVES

The "Discount & Coupon Management Portal" focuses on improving promotional campaign coordination and providing actionable insights to enhance e-commerce profitability.

3.1 Objectives

- Simplify the process of creating and managing digital coupons.
- Automate coupon activation, expiry, and usage tracking.
- Provide analytics and reporting tools for campaign performance.

3.2 Features

- Centralized dashboard for managing all coupons and promotions.
- Real-time coupon validity and usage status.
- Discount configuration by percentage, fixed amount, or conditional logic.
- Admin-only access for promotion management.
- Expiration alerts and promotional scheduling.

3.3 Target Audience

- E-commerce administrators.
- Marketing teams.
- Online retailers and store owners.

3.4 Expected Outcomes

- Streamlined promotional campaign execution.
- Increased customer engagement and conversion rates.
- Real-time insights into discount usage and ROI.

3.5 Future Improvements

- Integration with major e-commerce platforms (e.g., Shopify, WooCommerce).
- Machine learning for auto-suggested promotions based on customer behaviour.
- Support for mobile-based promotional campaigns.
- Multi-language support.

4.0 DESIGN / STORYBOARD / USER INTERFACE

4.1 Login Page User

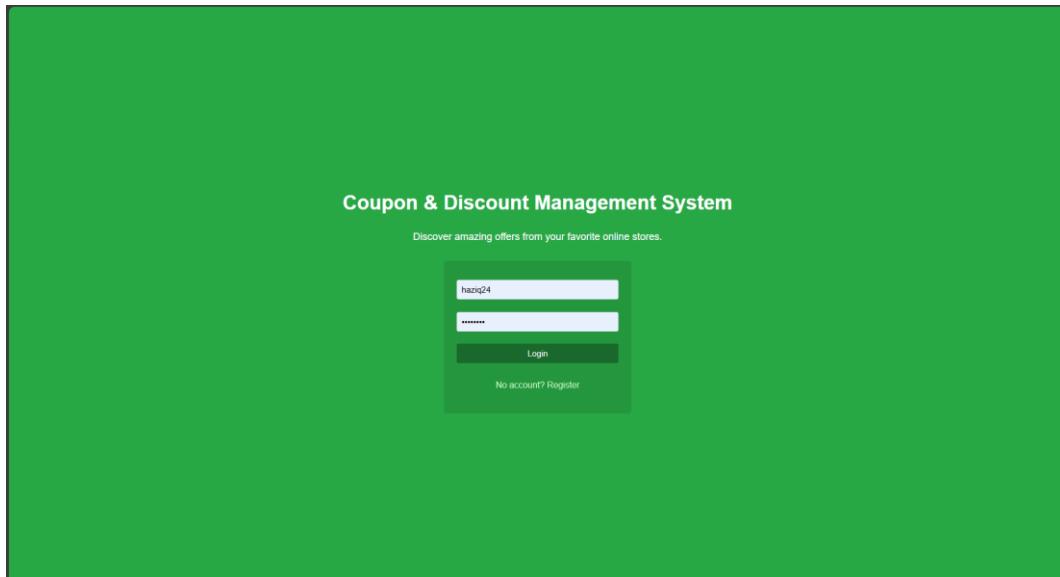
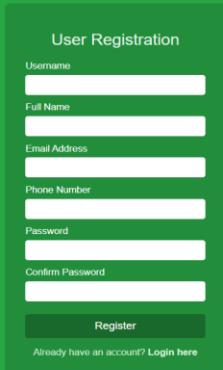


Figure 4.1: Login Page

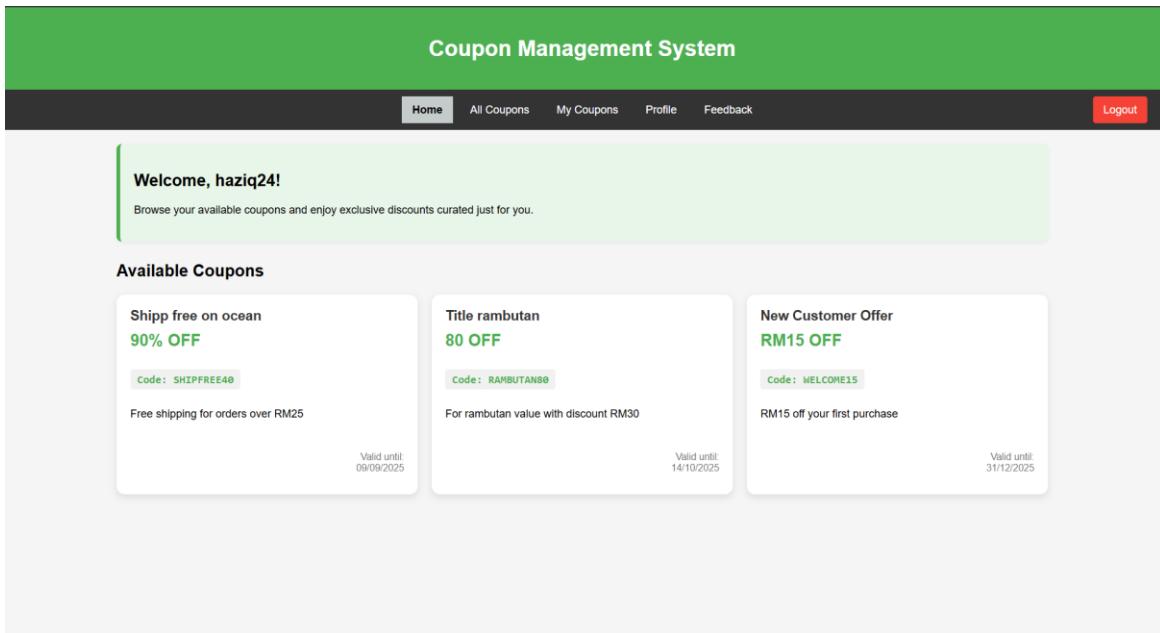
4.2 Registration Page as User



The image shows a registration form titled "User Registration". It contains fields for "Username", "Full Name", "Email Address", "Phone Number", "Password", and "Confirm Password". A "Register" button is at the bottom, and a link "Already have an account? Login here" is at the very bottom.

Figure 4.2: Input fields for full name, email address, password, confirm password

4.3 User Homepage



The image shows the "Coupon Management System" homepage. At the top, there's a green header bar with the title "Coupon Management System" and a "Logout" button. Below the header is a dark navigation bar with links for "Home", "All Coupons", "My Coupons", "Profile", and "Feedback". The main content area has a light gray background. On the left, a green sidebar displays a welcome message: "Welcome, haziq24! Browse your available coupons and enjoy exclusive discounts curated just for you." Below this is a section titled "Available Coupons" containing three coupon cards:

- Shipp free on ocean**
90% OFF
Code: SHIPFREE40
Free shipping for orders over RM25
Valid until: 09/09/2025
- Title rambutan**
80 OFF
Code: RAMBUTAN80
For rambutan value with discount RM30
Valid until: 14/10/2025
- New Customer Offer**
RM15 OFF
Code: WELCOME15
RM15 off your first purchase
Valid until: 31/12/2025

Figure 4.3: User Home page

4.4. All Coupon Page

The screenshot shows the 'Coupon Management System' interface. At the top, there is a green header bar with the title 'Coupon Management System'. Below it is a dark navigation bar with links: 'Home', 'All Coupons' (which is highlighted), 'My Coupons', 'Profile', 'Feedback', and 'Logout'. The main content area is titled 'Available Coupons to Claim' and lists three coupon offers:

- SHIPFREE40**: Free shipping for orders over RM25. Discount: 90%. Price: RM0. Valid until: 09/09/2025. A green 'Claim' button is present.
- RAMBUTAN80**: For rambutan value with discount RM30. Discount: 80. Price: RM0. Valid until: 14/10/2025. A green 'Claim' button is present.
- WELCOME15**: RM15 off your first purchase. Discount: RM15. Price: RM0. Valid until: 31/12/2025. A green 'Claim' button is present.

Figure 4.4: All Coupon Page

4.5 User Coupon

The screenshot shows the 'Coupon Management System' interface. At the top, there is a green header bar with the title 'Coupon Management System'. Below it is a dark navigation bar with links: 'Home', 'All Coupons', 'My Coupons' (which is highlighted), 'Profile', 'Feedback', and 'Logout'. The main content area is titled 'Your Claimed Coupons' and displays a table of claimed coupons:

Coupon Code	Claim Date	Payment Status	Action
JERUKPAPA88	26/07/25, 09:46 PM	Successfully Claimed	<button>Delete</button>

Figure 4.5: User Coupon Page

4.6 User Profile and Update Profile

The screenshot shows the 'Coupon Management System' interface. At the top, there is a green header bar with the title 'Coupon Management System'. Below it is a dark navigation bar with links: Home, All Coupons, My Coupons, Profile (which is highlighted in white), and Feedback. On the far right of the navigation bar is a red 'Logout' button. The main content area has a white background and features a form titled 'My Profile'. The form contains several input fields: 'Username' (haziq24), 'Password' (*****), 'Full Name' (haziq ahmad), 'Email' (haziq95@gmail.com), 'Phone Number' (0132076155), and 'Role' (user). At the bottom of the form is a green 'Update Profile' button.

Figure 6: User Profile and Update Profile

4.7 User Feedback

The screenshot shows the 'Coupon Management System' interface. At the top, there is a green header bar with the title 'Coupon Management System'. Below it is a dark navigation bar with links: Home, All Coupons, My Coupons, Profile, and Feedback (which is highlighted in white). On the far right of the navigation bar is a red 'Logout' button. The main content area has a white background and features a form titled 'Customer Feedback'. The form includes fields for 'Your Name *' (with a placeholder 'Enter your name...'), 'Email Address *' (with a placeholder 'Enter your email...'), 'Product Type *' (a dropdown menu with the option '-- Select a Product --'), and 'Your Feedback *' (a text area with the placeholder 'Please share your experience with our product...'). At the bottom left of the form is a checkbox labeled 'I agree to be contacted for follow-up regarding my feedback.' and at the bottom right is a green 'Submit Feedback' button.

Figure 4.7: User Feedback

4.8 Admin Dashboard

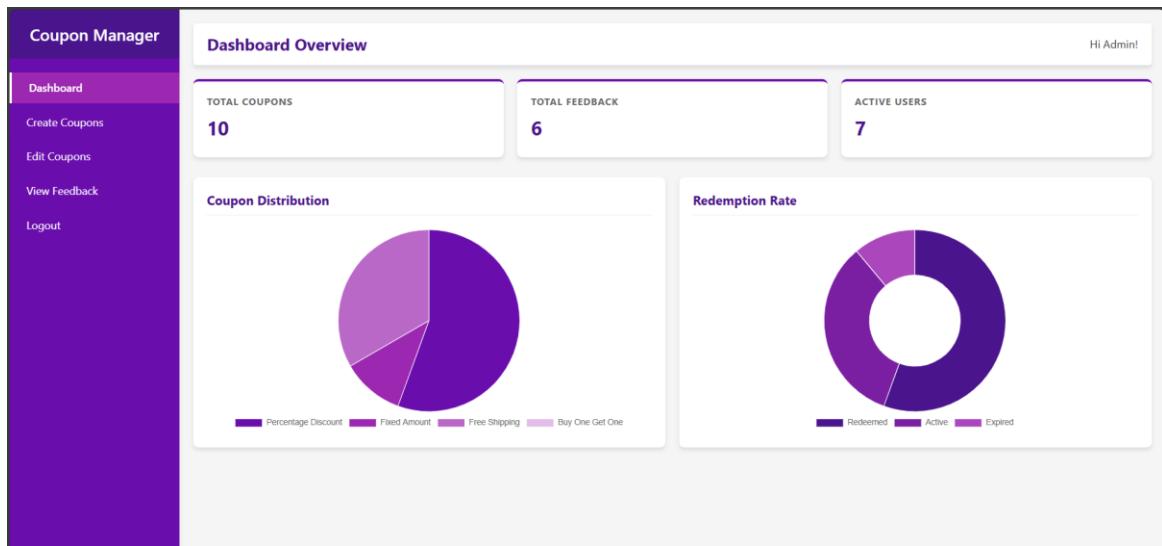


Figure 4.8: Admin Dashboard

4.9 Create Coupon

The figure shows the 'Create New Coupon' form within the 'Create Coupons' section of the sidebar. The sidebar also includes options: Dashboard, Create Coupons (which is selected and highlighted in purple), Edit Coupons, View Feedback, and Logout. The main form has a white header 'Create Coupons' with a 'Hi Admin!' message. It contains fields for 'Coupon Title' (with placeholder 'Enter coupon title'), 'Coupon Code' (with placeholder 'Enter coupon code'), 'Coupon Type' (a dropdown menu with placeholder 'Select coupon type'), 'Discount Value' (with placeholder 'Enter discount value'), 'Expiry Date' (a date input field with placeholder 'dd/mm/yyyy'), 'Amount (RM)' (a text input field), 'Description' (a text area with placeholder 'Enter coupon description'), and a 'Create Coupon' button at the bottom.

Figure 4.9 : Create Coupon by Admin

4.10 Edit Coupon

Edit Coupons							
All Coupons							
Coupon Code	Coupon Title	Type	Discount (%)	Expiry Date	Amount (RM)	Description	Action
DURIAN2025	Durian Season	free_shipping	80%	10-09-2025	50	Get 20% off on all durian items	 
WELCOME15	New Customer Offer	percentage	RM15	31-12-2025	0	RM15 off your first purchase	 
FLASH30	Flash Sale	percentage	30%	25-07-2025	0	Limited time 30% off selected items	 
SHIPFREE40	Shipp free on ocean	percentage	90%	09-09-2025	0	Free shipping for orders over RM25	 
BLACK50	Black Friday	free_shipping	50%	29-11-2025	0	Half price on selected electronics	 
SCHOOL10	Back to School	null	10%	15-08-2025	0	10% off on school supplies	 
HOLIDAY25	Holiday Special	percentage	25%	24-12-2025	0	Enjoy 25% off this holiday	 
RAMBUTAN80	Title rambutan	fixed	80	14-10-2025	0	For rambutan value with discount RM30	 

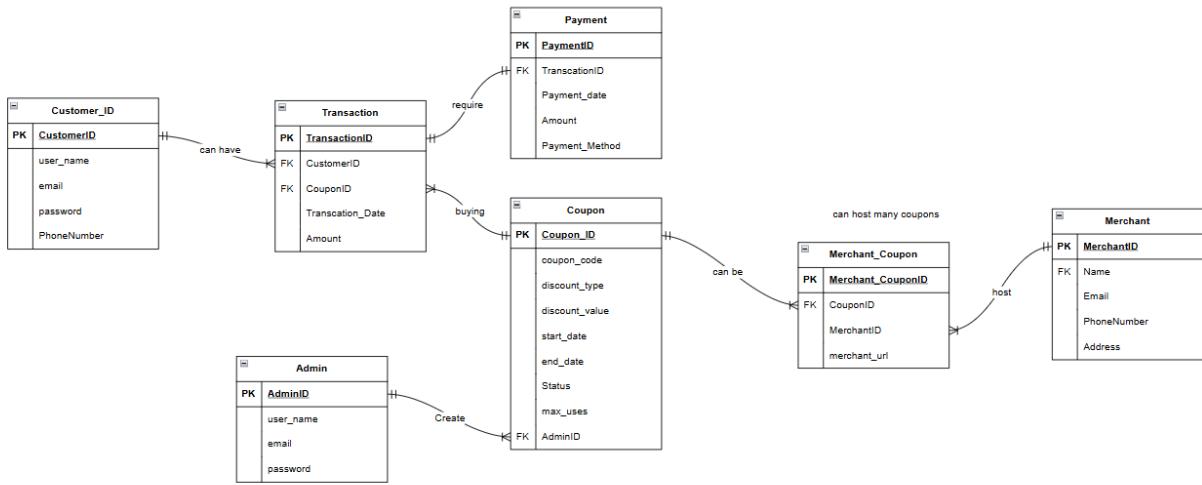
Figure 4.10: Edit Coupon

4.11 View Feedback

User Feedback		
All Feedback		
Name	Email	Message
Cuba	cuba@gmail.com	saya x suka cuba
Mathadir	mathadir@gmail.com	Saya suka membaca. Awak suka membaca tak
haziq	haziq@gmail.com	tatapan admin
haziq24	haziq95@gmail.com	The coupon processing fast and esay
yaho	irfan@gmail.com	testtt feedback
yaho2	irfan@gmail.com	cuba in perkara yang baru

Figure 4.11: View Feedback

5.0 ENTITY RELATIONSHIP DIAGRAM



Relationship

- Customer can make multiple purchases
- Each transaction purchase one coupon
- Every transaction result in one payment
- Coupons can be valid at multiple merchants
- Merchants can host many coupons

6.0 FLOW OF APPLICATION

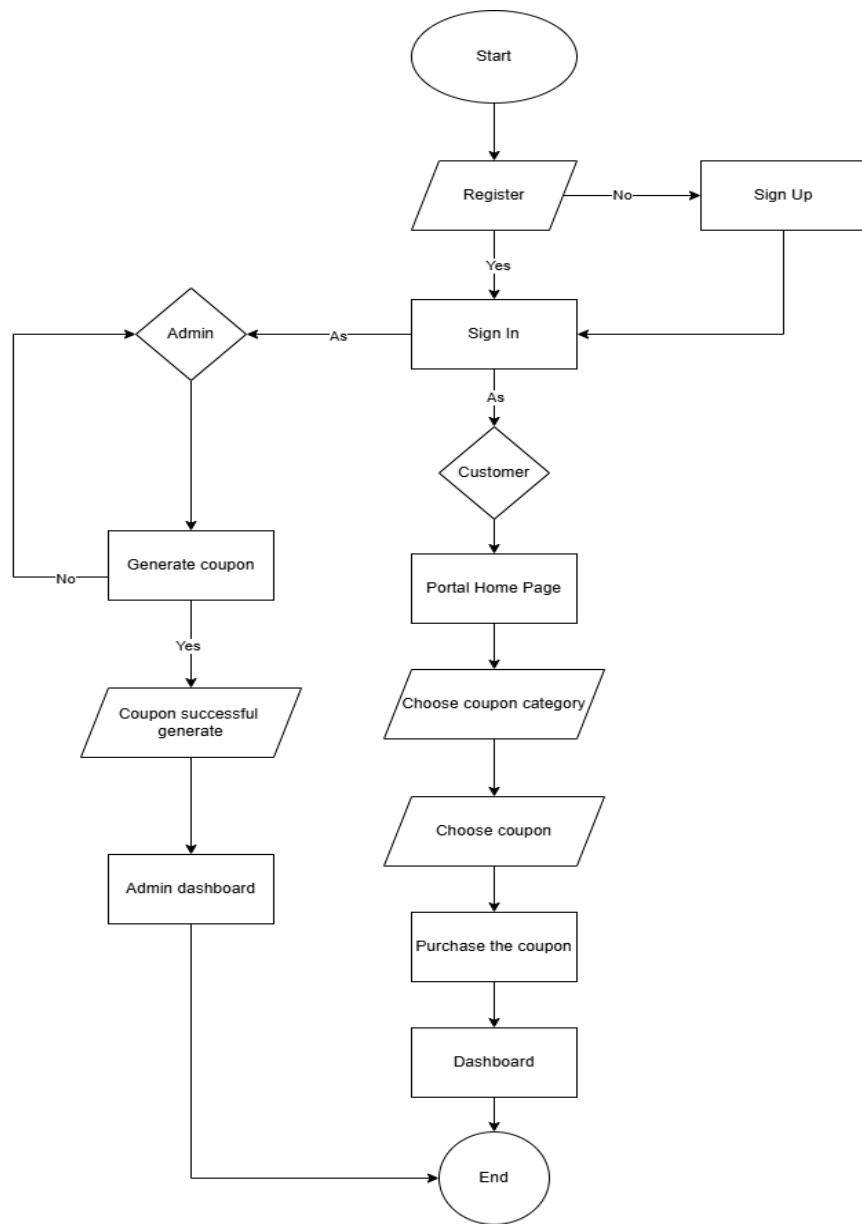


Figure 10: Flow of application

The system flow diagram illustrates the operational process of a **Coupon Management Portal**, which supports interactions for two types of users: **Admins** and **Customers**. The process begins with user registration and proceeds based on the role identified at login.

User Registration and Sign-In

New users must first register through the system. If a user does not already have an account, they are directed to a sign-up page. Once registered, users can sign in to access the system.

Role-Based Navigation

Upon successful sign-in, the system checks the user role and proceeds accordingly:

- **Admin Flow:** Admin users are directed to a module where they can generate coupons. If coupon generation is successful, the admin is directed to the **Admin Dashboard**. If unsuccessful, the system loops back to retry the process.
- **Customer Flow:** Customer users are taken to the **Portal Home Page**, where they can browse and select coupon categories. They proceed to choose a specific coupon, complete the purchase, and then access their **Dashboard** to manage their coupons.

Process Completion

Both user flows conclude at their respective dashboards, marking the end of the session process.

7.0 User Manual

7.1. Introduction

The Coupon Management System (CMS) is a web-based application developed using Java EE, JSP, Servlets, and Apache Derby. It allows Administrators to manage promotional coupons and Users to view, claim, and manage their coupons.

7.2. System Requirements

Client Side:

- Web Browser: Google Chrome, Mozilla Firefox, Microsoft Edge
- Internet access (for live hosting)

Server Side:

- Java JDK 8 or above
- Apache Tomcat 9 or above
- Apache Derby Database (Network Server Mode)

7.3. Accessing the System

1. Start Derby servers.
2. Deploy the project folder to webapps directory.
3. Open your browser and navigate to:

<http://localhost:8080/CouponManagementSystem/>

7.4. User Roles

Role	Description
Admin	Admin Can create, edit, delete coupons, view stats, and access user feedback
User	Can claim, view, cancel coupons and submit feedback

7.5. Admin Manual

🔒 Login

- Visit login.jsp
- Enter your admin username and password
- On success, you'll be redirected to the dashboard

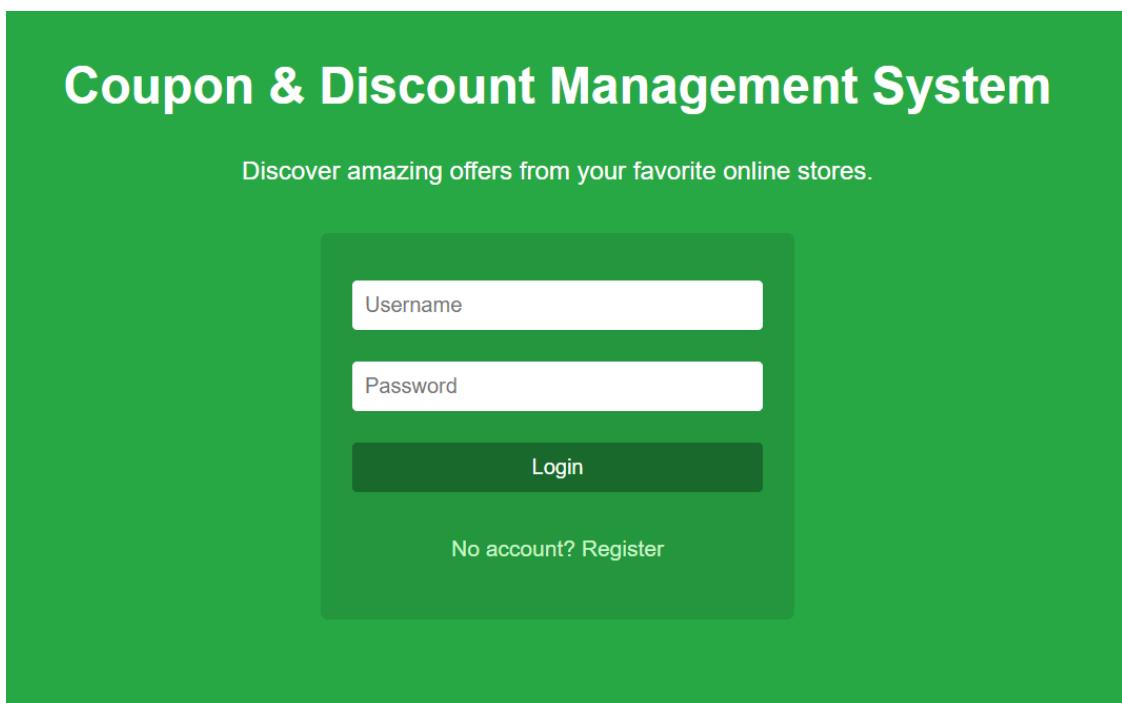


Figure 7.5: Login Page

7.5.1 Dashboard

Page: adminDashboard.jsp

Purpose: Provides an overview of system statistics.

Features:

- Visual Charts (Chart.js)
- Statistics Cards:
 - Total Coupons
 - Claimed Coupons
 - Active Users
 - Total Savings
- Redemption Stats Chart:
 - Shows Redeemed, Active, Expired

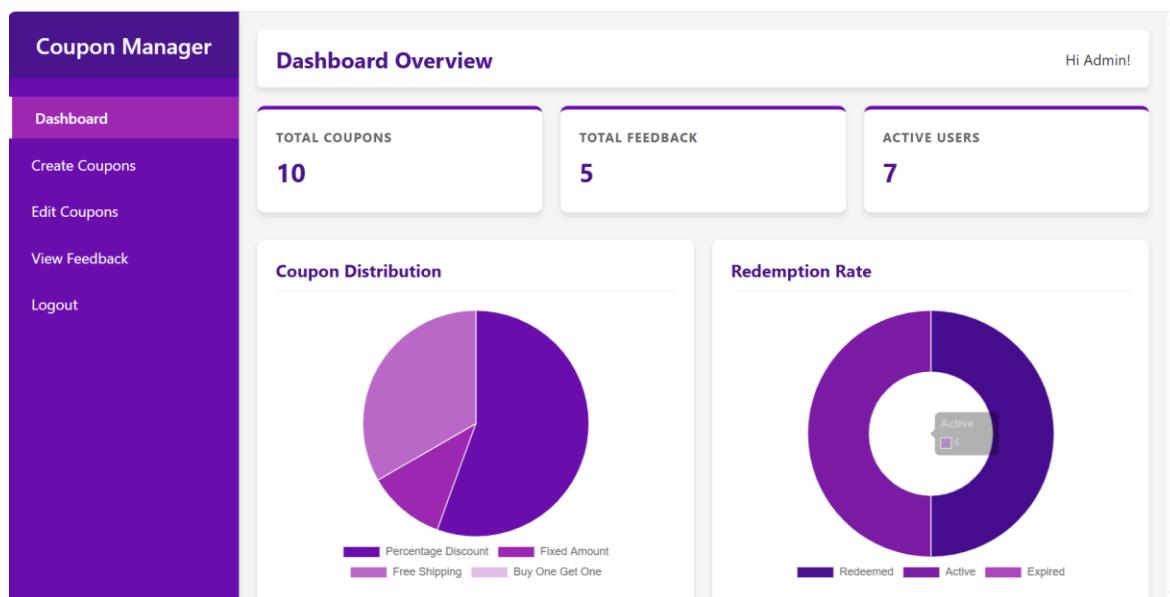


Figure 7.5: Dashboard Page

7.5.2 Create Coupon

Page: manageCoupon.jsp

Steps:

1. Click “Create Coupons” in sidebar

2. Fill in:

- Title
- Code (must be unique)
- Description
- Discount (e.g., 20)
- Coupon Type (e.g., percentage)
- Expiry Date (yyyy-MM-dd)

3. Click Submit

Expected Result:

- You'll see a success message
- Coupon is inserted into the COUPONS table

The screenshot shows the 'Coupon Manager' application interface. On the left is a sidebar with a dark purple header containing the title 'Coupon Manager'. Below the header, the sidebar has a light purple background with the following menu items: 'Dashboard', 'Create Coupons' (which is highlighted in pink), 'Edit Coupons', 'View Feedback', and 'Logout'. The main content area has a white background and features a form titled 'Create New Coupon'. The form fields are as follows: 'Coupon Title' (input field with placeholder 'Enter coupon title'), 'Coupon Code' (input field with placeholder 'Enter coupon code'), 'Coupon Type' (a dropdown menu with placeholder 'Select coupon type'), 'Discount Value' (input field with placeholder 'Enter discount value'), 'Valid Until' (input field with placeholder 'dd/mm/yyyy' and a small calendar icon to its right), 'Description' (input field with placeholder 'Enter coupon description'), and a 'Create Coupon' button at the bottom.

Figure 7.5.2: Create Coupon Page

7.5.3 Edit/Delete Coupon

Page: adminEditCoupon.jsp

Steps:

To Edit:

1. Click “Edit Coupons” from sidebar
2. All coupons are listed in a table
3. Click the pencil icon to open the modal
4. Modify any field, then click Save Changes

To Delete:

1. Click trash icon next to the coupon
2. Confirm deletion when prompted

The screenshot shows the 'Coupon Manager' dashboard. On the left, a sidebar menu includes 'Dashboard', 'Create Coupons', 'Edit Coupons' (which is highlighted in purple), 'View Feedback', and 'Logout'. The main content area is titled 'Edit Coupons' and 'All Coupons'. It displays a table with four rows of coupon information:

Coupon Code	Coupon Title	Type	Discount (%)	Expiry Date	Amount (RM)	Description	Action
DURIAN2025	Durian Season	free_shipping	80%	10-09-2025	50	Get 20% off on all durian items	
WELCOME15	New Customer Offer	percentage	RM15	31-12-2025	0	RM15 off your first purchase	
FLASH30	Flash Sale	percentage	30%	25-07-2025	0	Limited time 30% off selected items	
SHIPFREE40	Shipp free on ocean	percentage	90%	09-09-2025	0	Free shipping for orders over RM25	

Figure 7.5.3: Edit/Delete Coupon Page

7.5.4 View Feedback

Page: adminFeedback.jsp

Steps:

1. Click “View Feedback” in sidebar
2. List of all user feedback is shown:

- Name
- Email
- Feedback Message (with tooltip for overflow)

The screenshot shows the 'User Feedback' page within the 'Coupon Manager' application. On the left, there is a sidebar with a purple header containing the title 'Coupon Manager'. Below the header, the sidebar menu includes 'Dashboard', 'Create Coupons', 'Edit Coupons', 'View Feedback' (which is highlighted in blue), and 'Logout'. The main content area has a white header with the title 'User Feedback' and a greeting 'Hi Admin!'. Below the header is a table titled 'All Feedback' with three columns: 'Name', 'Email', and 'Message'. The table contains five rows of data, each representing a user's feedback entry. The 'Message' column for the first row is truncated with an ellipsis (...).

Name	Email	Message
Cuba	cuba@gmail.com	saya x suka cuba
Mathadir	mathadir@gmail.com	Saya suka membaca. Awak suka membaca tak
haziq	haziq@gmail.com	tatapan admin
yaho	irfan@gmail.com	testtt feedback
yaho2	irfan@gmail.com	cuba in perkara yang baru

Figure 7.5.4: View Feedback Page

7.6.For User Manual

Login

- Go to login.jsp
- Enter user credentials
- On success, user is redirected to the homepage or all coupons page

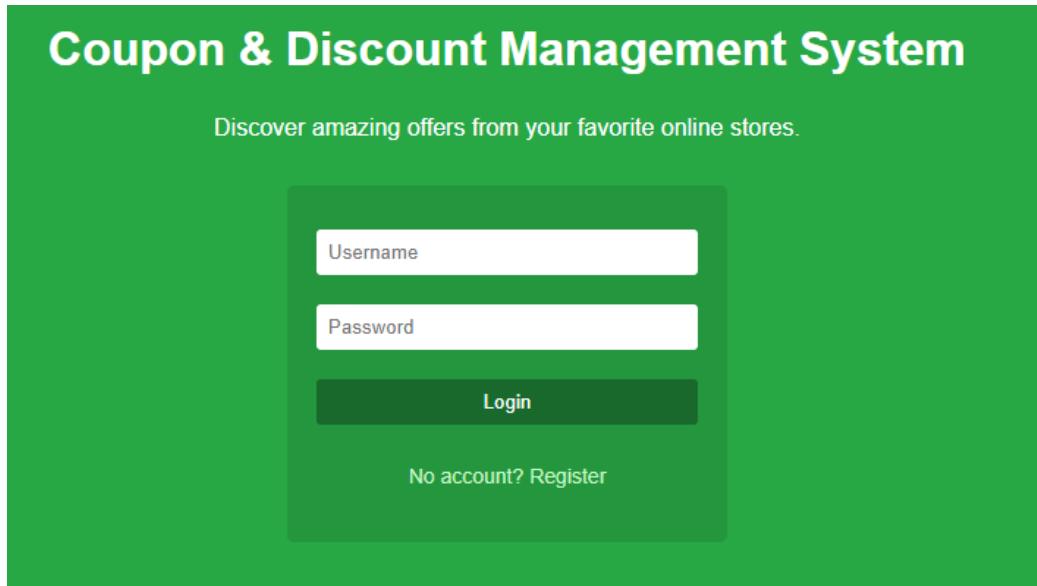


Figure 7.6: Login Page

7.6.1 View Available Coupons

Page: allCoupon.jsp

Steps:

1. After login, navigate to “Home”
2. It will show the available coupons
3. Coupon includes:
 - Code
 - Description
 - Discount
 - Expiry Date

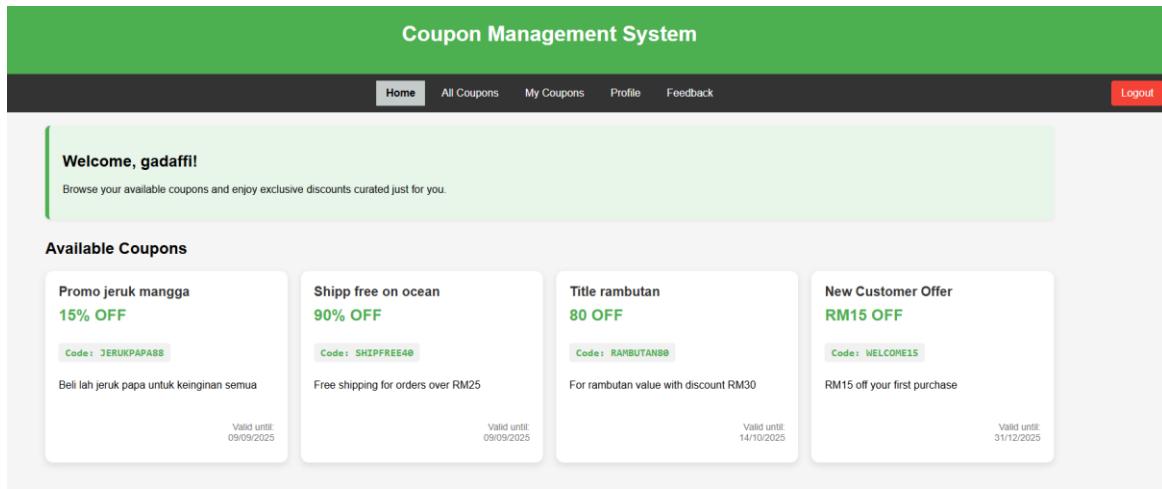


Figure 7.6.1: Home Page

7.6.2 Claim a Coupon

Steps:

1. On allCoupon.jsp, find a coupon you want
2. Click the **Claim** button
3. Coupon is added to the CLAIMED_COUPONS table

Expected Output:

- Redirect to myCoupons.jsp with success status

The screenshot shows the 'Coupon Management System' homepage. At the top, there's a green header bar with the title 'Coupon Management System'. Below it is a dark grey navigation bar containing links for 'Home', 'All Coupons' (which is highlighted in white), 'My Coupons', 'Profile', and 'Feedback'. The main content area is titled 'Available Coupons to Claim' and lists three coupons:

- SHIPFREE40**: Free shipping for orders over RM25. Discount: 90%. Valid until: 09/09/2025. A green 'Claim' button is on the right.
- RAMBUTAN80**: For rambutan value with discount RM30. Discount: 80%. Valid until: 14/10/2025. A green 'Claim' button is on the right.
- WELCOME15**: RM15 off your first purchase. Discount: RM15. Valid until: 31/12/2025. A green 'Claim' button is on the right.

Figure 7.6.2: All Coupons Page

7.6.3 Delete a Claimed Coupon

Page: myCoupons.jsp

Steps:

1. Locate the claimed coupon
2. Click **Delete** next to it
3. Coupon is removed from CLAIMED_COUPONS

The screenshot shows the 'Coupon Management System' 'My Coupons' page. At the top, there's a green header bar with the title 'Coupon Management System'. Below it is a dark grey navigation bar containing links for 'Home', 'All Coupons', 'My Coupons' (which is highlighted in white), 'Profile', and 'Feedback'. The main content area is titled 'Your Claimed Coupons' and displays a message: 'Coupon claimed successfully!'. Below this is a table showing the details of a claimed coupon:

Coupon Code	Claim Date	Payment Status	Action
JERUKPAPAB88	25/07/25, 11:43 PM	Pending Payment	Delete Pay

Figure 7.6.3: Coupon Management System Page

7.6.4 Submit Feedback

Page: feedback.jsp

Steps:

1. Fill in:

- Name
- Email
- Product/Service (optional)
- Feedback Message
- Contact Permission (checkbox)

2. Click Submit

Expected Output:

- Feedback is saved to the FEEDBACK table
- Success message displayed

The screenshot shows the 'Customer Feedback' page of the 'Coupon Management System'. The page has a green header bar with the title 'Coupon Management System'. Below it is a dark grey navigation bar with links: Home, All Coupons, My Coupons, Profile, and Feedback (which is highlighted). The main content area has a white background and a title 'Customer Feedback' at the top. It contains several input fields: 'Your Name *' with a text input field, 'Email Address *' with a text input field, 'Product Type *' with a dropdown menu containing 'Select a Product --', and 'Your Feedback *' with a text area placeholder 'Please share your experience with our product...'. At the bottom left is a checkbox labeled 'I agree to be contacted for follow-up regarding my feedback'. A large green button at the bottom right says 'Submit Feedback'.

Figure 7.6.4: Customer Feedback Page

7.7 🔒 Troubleshooting Guide

Problem	Possible Cause	Solution
Can't log in	Wrong credentials	Verify username/password
Coupons not showing	All are expired or claimed	Admin must add more coupons
Database error	Derby DB not running	Start Network Server Control
Servlet not found	Tomcat misconfigured	Check web.xml and servlet mappings

Conclusion

While developing this Coupon Management System project, we gained valuable hands-on experience in building a web-based application using JSP, Servlets, and JavaBeans following the MVC architecture. Throughout the process, we explored and implemented essential features such as user authentication, coupon creation and management, feedback submission, and admin dashboard analytics with data visualization.

This project not only enhanced our technical skills in server-side Java and database connectivity but also deepened our understanding of session management, dynamic content rendering, and responsive UI design using HTML, CSS variables, and JavaScript.

In conclusion, the project successfully met its objective of delivering a functional and user-friendly platform that allows administrators to manage promotional campaigns efficiently while enabling users to access and benefit from active coupons. The structured workflow and modular design will also make future scalability and maintenance straightforward.