



# COMP3900 Computer Science Project

## Project Report

Group: 3900-W14B-Three Days to See

### E-Commerce Recommender System - Gazzar

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# Table of Contents

1.Overview.....	4
1.1Intorduction.....	4
1.2Our Product .....	4
1.3 System Architecture .....	6
1.3.1 Presentation layer .....	6
1.3.2 Business layer .....	6
1.3.3 Data layer.....	6
1.4 Page Flow Diagram .....	8
1.5 Page Structure .....	10
1.5.1 For Customers: .....	10
1.5.2 For Sellers (admins): .....	11
2.Descriptions of functionalities.....	12
2.1 Project Objectives.....	12
2.2 User (client) .....	14
2.2.1 Register Pages.....	14
2.2.2 Login Page.....	15
2.2.3 Forget Password Page .....	16
2.2.4 Home Page.....	17
2.2.5 User Profile Page .....	18
2.2.6 Search Result Page .....	19
2.2.7 Surprise Store Page.....	19
2.2.8 Description Page.....	20
2.2.9 Checkout Page .....	21
2.2.10 Cart Page.....	22
2.2.11 Order Page .....	23
2.2.12 Order Details Page.....	24
2.2.13 Lottery Page.....	24
2.3 Seller (admin).....	25
2.3.1 Login Page.....	25
2.3.2 View Sales Page .....	26
2.3.3 Game Management Page .....	26
2.3.4 Add Product Page .....	27
2.3.5 Edit Product Page .....	28

2.3.6 Peripherals Management Page .....	28
2.3.7 Order Management Page .....	29
2.3.8 Admin Management Page .....	30
3.Third-Party APIs and Framworks .....	31
3.1 Frontend .....	31
3.1.2 React .....	31
3.1.3 React router .....	32
3.1.4 Less .....	32
3.1.5 UmiJs.....	32
3.1.6 Ant Design.....	33
3.2 Backend .....	33
3.2.1 Smtplib.....	33
3.2.2 Werkzeug.....	33
3.2.3 Flask and Flask SQLAlchemy .....	33
3.2.4 AWS .....	33
4.Implementation challenges .....	34
4.1 Deployment of cloud server .....	34
4.2 Deployment of database .....	34
4.3 Implementation of surprise store.....	34
4.4 Communication in the most sufficient way.....	34
5.User documentation.....	36
5.1 Installation of prerequisite environments and packages .....	36
5.1.1 Backend .....	36
5.1.2 Frontend .....	36
5.2 How do I start running the program.....	36
5.2.1 Backend .....	36
5.2.2. Frontend .....	37
6.Manual Guide .....	38
6.1 User (client) .....	38
6.2 Seller (admin).....	52
7.References.....	55

# 1. Overview

## 1.1 Introduction

The global gaming market has already generated \$180.3 billion in revenue in 2021, up 1.4% year-on-year. Although the growth of relevant data will slow down due to the impact of the epidemic in 2021, according to the current activity of the PC game market, PC game players still have excellent development potential in the future post-epidemic era (Newzoo, 2021).

With the popularity of video games and the development of Internet e-commerce platforms, more and more game sales platforms have emerged in the market. The online platform trading system can increase product exposure, and thus promote the increase in transaction rates. At the same time, the virtual commodity attributes of games are also in line with digital trading methods.

In recent years, most of the top game e-commerce platforms such as Steam, GOG, Shanguo, etc. have continued to expand their business, but after analysis of competitive products, we found that the products sold on their websites are mainly based on publishers, and the game is tailored for specific users. There are still deficiencies in the aspect of recommendation.

**Therefore, the market needs a game e-commerce platform like Gazzar that focuses on BtoC games and game peripheral sales, and recommends games that users are interested in through a qualified personalized recommendation system.** On the other hand, Gazzar will plan to purchase games in bulk at the right time, so that users can, to some extent, get rid of the influence of the publisher and have the opportunity to purchase the games that they are really interested in through adequate discounts.

## 1.2 Our Product

Our COMP3900 Project **Gazzar** is dedicated to creating a third-party e-commerce website that sells games and related peripheral products. Based on Gazzar's ability to integrate many games and peripherals, it provides a relatively complete game sales and recommendation platform. The products sold on the website include Action & Adventure, Casual, FPS, Sports & Racing, RPG, Strategy and Simulation games in seven major categories, as well as peripheral products such as costume and game props.

**For customers**, users can browse and purchase various types of popular games at a discount in Gazzar. Gazzar will also recommend some games that users are interested in based on their interests, which saves users time searching for games, and meanwhile users can operate their profiles, shopping carts and orders accordingly. **As a third-party**

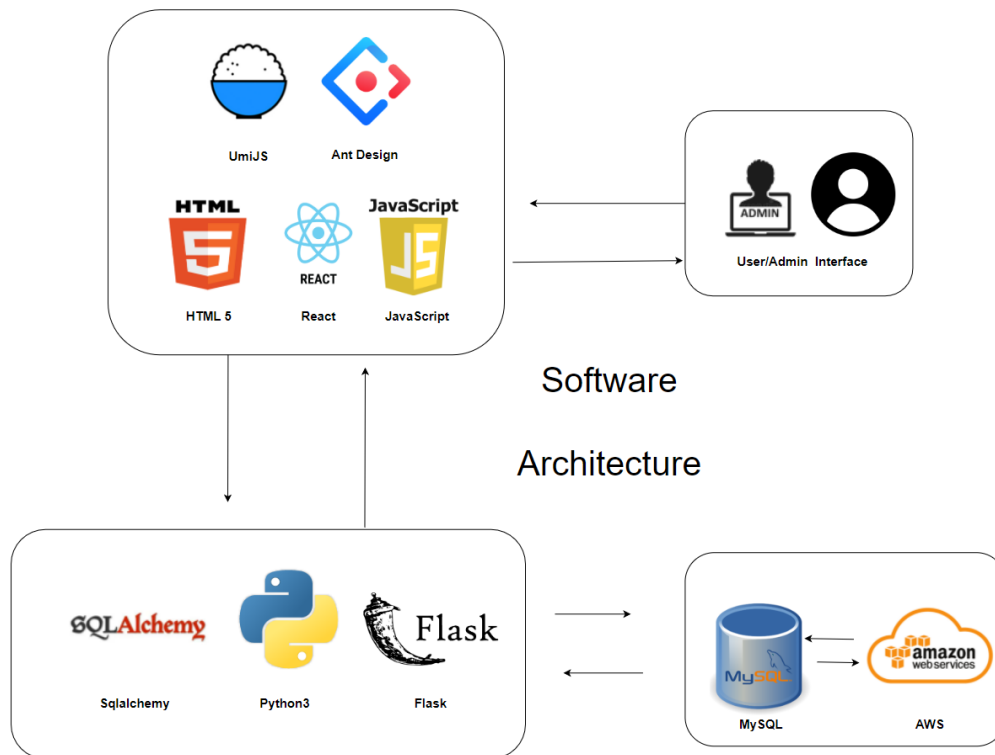
**website, all products will be sold in the form of CDKEY. After purchasing and obtaining the CDKEY, customers need to go to the designated platform for exchange before they have fun.** In this way, Gazzar can provide users with a wide range of choices on multiple platforms, maximize one-stop shopping services, and solve various cumbersome problems from cross game platforms.

**For admin**, Gazzar also has a relatively complete background system, which can effectively manage admins, products and orders. At the same time, Gazzar helps admin realize real-time and phased sales data display, quickly replenish and delete, and view various order information.

A major feature of Gazzar is recommendation. On the basis of recommendation, we established:

- User interest system. When new users register, they will fill in the interest category form. The system will also analyze users' personal interests and recommend corresponding categories.
- Gazzar will introduce a recommendation system to save users' search time and improve the exposure of games that really fit customers' preferences so as to solve the problem that the recommendation system of many game platforms is not perfect at present
- At the same time, the recommendation system will also consider the user's purchase intention, analyze the game products that the user wants to buy but has not paid in the shopping cart, and recommend the designated user from time to time.
- In addition, Gazzar will set up lottery activities and surprise discount stores on the basis of personalized recommendation to further promote transformation and improve sales.

## 1.3 System Architecture



### 1.3.1 Presentation layer

This layer can be able to access the website by using the framework of frontend bu using React and UmiJS. And users will be able to access the website by using different functions.

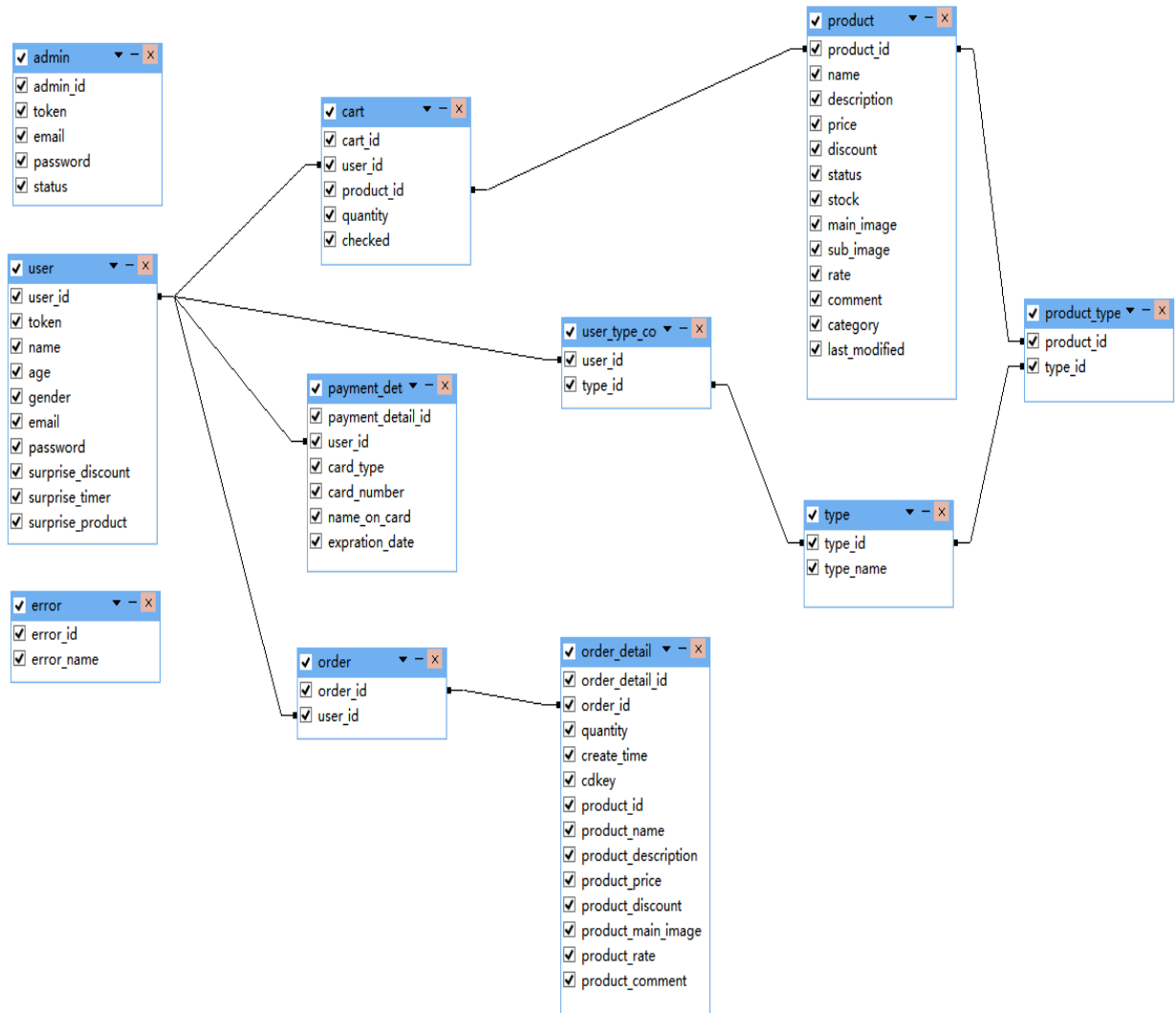
### 1.3.2 Business layer

This layer will receive requests from the user. When the user requests some functions, the data of this function will be sent to this layer and the layer will send the data to the data layer to ask for getting data or storing data. We use Python as programming language, Flask as backend framework, Flask-sqlalchemy as connection with the database.

### 1.3.3 Data layer

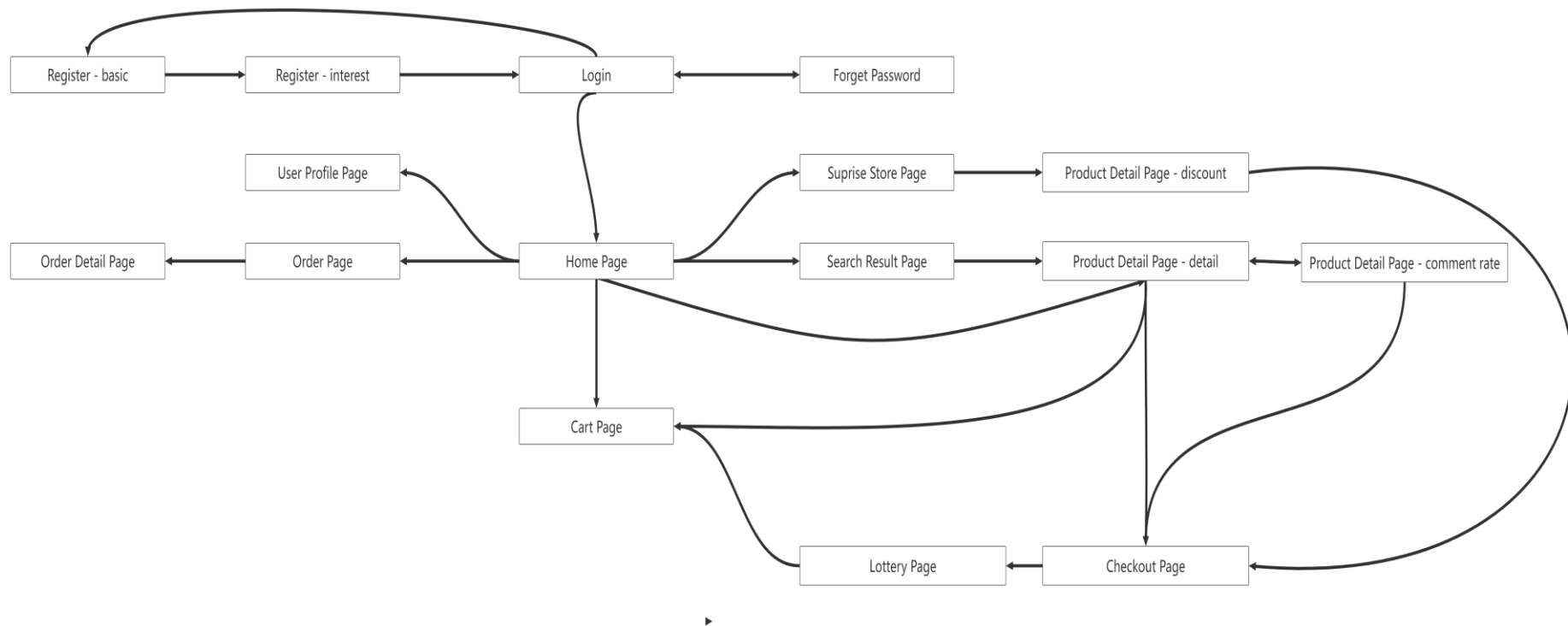
In the database layer, first we design the garphs that is about what we need. Then we should consider the relationship between graphs. Since we used Flask to be our backend framework, we chose MySQL to be our database system. And we also use Amazon Cloud as our database cloud server because if we store the database in our local database, the teamwork will be affected. If we use AWS so that we can improve our efficiency.

This graph shows the relationship between those tables.

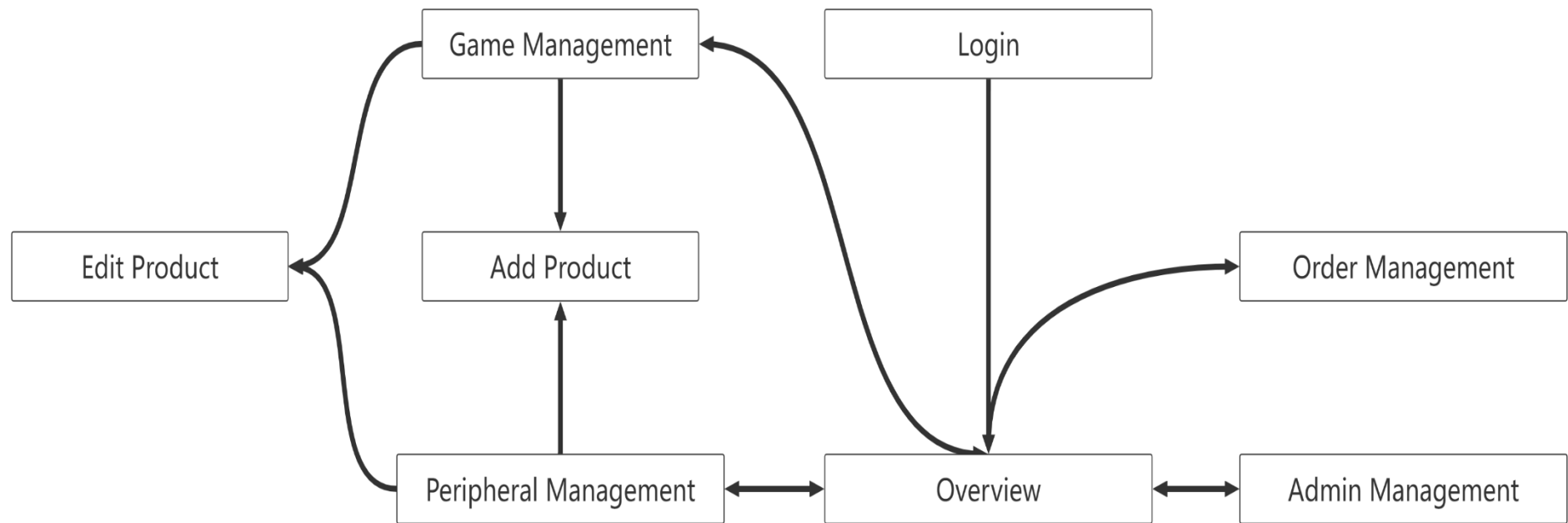


## 1.4 Page Flow Diagram

Below are the page flow diagrams for Gazzar customers and admins.







## 1.5 Page Structure

### 1.5.1 For Customers:

1. Register Pages: The interface for website visitors to register an account.
2. Login Page: The interface for website users to log in to their accounts.
3. Forget Password Page: When a website user forgets his account password, users retrieve the interface for the corresponding account password.
4. Home Page: Visitors or users access the website's default interface, including all product information and event information. Gazzar will provide a customized user-specific interface for all registered users.
5. User Profile Page: The user's personal information interface allows the user to modify the information and send the payment method.
6. Search Result Page: Accessed via the search box on the home page, all corresponding search results are displayed.
7. Surprise Store Page: Accessed via the homepage carousel, Gazzar offers different best-selling game products for all registered users each week, and offers each user its own exclusive discount.
8. Description Page: Detailed product interface, including the product's image, name, category, description, price, discount, rating and review.
9. Checkout Page: The payment interface of the user when consuming on the Gazzar website displays the goods and prices to be paid, and the user can freely choose the payment method.
10. Cart Page: Gazzar's shopping cart interface includes all pending product information and posters of popular events, and users can add, delete, modify, and check out the products in the shopping cart in bulk.
11. Order Page: Gazzar's order history interface includes all order information consumed by the user on the website.
12. Order Details Page: The order details interface of the user's consumption on the Gazzar website is automatically redirected when settling in the 'checkout page'. Includes all order details and a dedicated CDKey.
13. Lottery Page: The gazzar website's active interface, users automatically jump after each purchase, the website provides all consumers with free access to game products.

### 1.5.2 For Sellers (admins):

1. Login Page: Gazzar webmaster login interface.
2. View Sales Page: Provide an interface for real-time data statistics of the administrator's website.
3. Game Management Page: Provide an interface for administrators to manage the game on the website, including adding deletes and edits.
4. Add Product Page: By jumping through the game management interface, you can add new game data.
5. Edit Product Page: By jumping through the game management interface, you can edit the game data.
6. Peripherals Management Page: Provide an interface for administrators to manage the peripherals on the website, including adding deletes and edits.
7. Order Management Page: Provide an interface for administrators to manage the orders on the website, including adding and deleting.
8. Admin Management Page: Provide an interface for administrators to manage the admin on the website, including adding and deleting.

## 2. Descriptions of functionalities

The target customers at Gazzar generally include customers who want to buy games at higher discounts, customers with clear goals to shop, and customers with a shopping mentality. In terms of user identity, Gazzar's user groups can be roughly divided into tourists, registered customers, and administrators.

In this project, we assume that registered customers are buyers and admins are sellers. At the same time, **all purchased games can be exchanged on the Steam platform in the form of a single CDkey**, regardless of the number of games that are traded for a certain commodity at a time. On the other hand, in the customer system, the visitor is not required to enter a 3-digit code when adding a bank card, which is intended to remind the customer that this is only a student project. Moreover, the user will be informed that Gazzar will give each transaction a chance to win a prize in the lottery. Student developers have already **increased the probability of winning a prize in order to present the function easier**.

In this section, we'll detail the different features on a front-end page basis. At the same time, indicate that the user stories corresponding to each page are based on Jira Backlog (<https://3900-w14b-three-days-to-see.atlassian.net/jira/software/projects/TDTS/boards/1/backlog>)

### 2.1 Project Objectives

TDTS-3: As a user, I hope the website can customize the Home Page information according to my personal preferences, so that I can quickly find the products I'm interested in when I am on the home page.

TDTS-4: As a customer, I want to login to my account when I revisit the website, so that I can use the website features.

TDTS-5: As a user of this website, I want to retrieve password by email, so that I can solve the problem of account login.

TDTS-6: As a user of this website, I want to log out my account after finishing shopping, so that my account profile will not be leaked.

TDTS-7: As a user, I hope I can reset my password, so that I can maintain the security of my account.

TDTS-8: As a user, I want to have my own profile via a specific page, therefore I can check my personal information and change the information in my account.

TDTS-9: As a user, I want to record my payment card information, therefore I can use my different recorded payment option to pay the bill.

TDTS-10: As a new visitor to this website, I hope the Home Page has diversified contents, so that it can attract the interest of visitors.

TDTS-11: As a customer, I want to see more details about the product, so that I can know more about the product.

TDTS-12: As a user of this website, I want to pick items by category, so that my shopping with purpose can be more efficient.

TDTS-13: As a consumer with clear goals, I hope the web page has a search box, so that I can quickly find the product I want to buy.

TDTS-14: As a consumer, I want to check some further information after clicking the specific order, so that I can know more details of what I have bought.

TDTS-15: As a consumer, I want to be able to see all the orders I have purchased, so that I can browse my consumption history.

TDTS-16: As a user of this website, I want to rate a specific product after I buy, so that others can pick product according to overall rate.

TDTS-17: As a user of this website, I want to comment on a specific product after I buy it, so that others can pick product according to comments.

TDTS-18: As a customer, I need to check a list of all the products in my cart, so I can make purchases when I want.

TDTS-19: As a customer, I need to add some products to my cart, so that I can buy them in the cart later.

TDTS-20: As a customer, I need to discard some products from my cart list, so that I can delete the item that I do not want to buy.

TDTS-21: As a user of this website, I want to have Payment page after I order, so that I can confirm the total amount and payment method of the order.

TDTS-22: As a user of this website, I want the website to recommend something that matches my preference, so that I can buy products that fit me better.

TDTS-23: As a user of this website, I want the website to recommend something that matches my preference in various areas of the pages, so I can be reminded to check something from time to time.

TDTS-24: As a user of this website, I want to have a limited time offer in a surprise store, so that I can pick cheaper items for this activity.

TDTS-25: As a customer of the website, I hope the website can launch a lucky draw. So that I can have the opportunity to get my ideal products for free.

TDTS-26: As an administrator, I want the website to log in to my working account, so that every administrator can manage the website.

TDTS-27: As an administrator, I hope I can log out of the account, so that my account profile will not be leaked.

TDTS-28: As an admin, I want to see other admins in the system, so that I can reach them and follow things they have been done recently.

TDTs-29: As an Super-admin, I want to have a method of admin authority management, so that I can add a new admin account for my colleagues, and delete useless admin accounts.

TDTs-30: As an admin, I hope I can see the sales summary of website products, so that I can adjust products and formulate strategies in time according to the sales volume.

TDTs-31: As an administrator, I want to manage all the transaction orders on the website, so that I can save the order vouchers and details.

TDTs-32: As an admin, I want to view products in my shop, so that I can find what products I am selling.

TDTs-33: As an admin, I want to add a new product to my system, so that I can sell a new product on this website.

TDTs-34: As an admin, I want to edit detail of products in my shop, so that I can change products' characteristics.(name, description, picture, type, etc).

TDTs-35: As an administrator, I want the system to manage the product stock of the website including the sold out products, so that I can replenish them in time.

TDTs-36: As an admin, I want to delete products in my shop, so that I can withdraw some products from sale.

TDTs-37: As a new visitor to this website, I want to use this website for further operations (visit the Business Details Page, make payment, etc.), so I need to register to become the real user.

## 2.2 User (client)

### 2.2.1 Register Pages

Related to: TDTs-37

The Register Pages are divided into 2 sections.

The first one is general information about the customer . The customers need to fill in their name, gender, age, email, password, and click the 'Next' button to jump to the second step. Error input will pop out at the top of page.

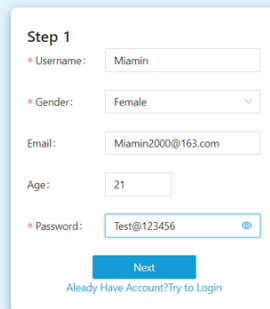
Step 2 is to invite customers to choose what type of game and peripherals they are interested in. Users can tick the box to choose the specific type of product, or they can just skip it by clicking the 'Register'.

After being registered, the user will jump to the Home Page with a registered identity.

Error Case:

- Error 001: The nickname cannot be entered null
- Error 002: The email is invalid

- Error 003: The email has been registered
- Error 005: The length of password should be 8-15 characters
- Error 006: The password is incorrect
- Error 007: The password must contain at least one character from each of the following groups: -lower
- Error 008: Age is invalid
- Error frontend: Please input your Username!
- Error frontend: 'email' is not a valid email
- Error frontend: 'age' must be between 0 and 99
- Error frontend: Please input your Password!



**Step 1**

\* Username:

\* Gender:

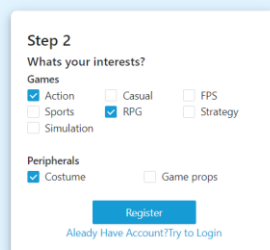
Email:

Age:

\* Password:

[Next](#)

[Already Have Account? Try to Login](#)



**Step 2**

Whats your interests?

**Games**

☒ Action ☐ Casual ☐ FPS  
☐ Sports ☒ RPG ☐ Strategy  
☐ Simulation

**Peripherals**

☒ Costume ☐ Game props

[Register](#)

[Already Have Account? Try to Login](#)

## 2.2.2 Login Page

Related to: TDTS-4

Login page asks customers to fill Email and password that they registered, then click Login, so that customers can succeed to login main page.

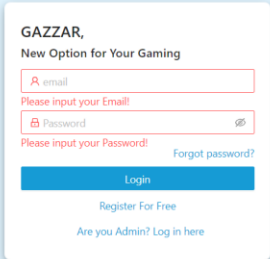
If customers forget their password, they can click "Forget your password?" to jump to reset password page.

If visitors are not registered, they can click "Register for Free" to jump to register page.

If admins can click and jump to admin login page.

Error Case:

- Error frontend: Please input your Email!
- Error frontend: Please input your Password!

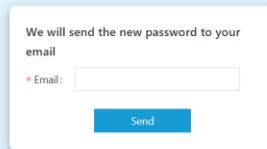
A screenshot of a login form for 'GAZZAR, New Option for Your Gaming'. The form is centered on a light blue background. It contains two input fields: 'Email' and 'Password'. Both fields have red borders and red error messages below them: 'Please input your Email!' and 'Please input your Password!'. There is a 'Forgot password?' link next to the password field. Below the inputs is a blue 'Login' button. At the bottom of the form, there are two links: 'Register For Free' and 'Are you Admin? Log in here'.

### 2.2.3 Forget Password Page

Related to: TDTS-5

If a user forget the account password on the login page, click 'Forget Password' to switch to the Password Retrieval Page. The user needs to type correct account email. The system automatically sends the randomly generated new password to the account email, and the user can reset the password in the Profile Page later.





We will send the new password to your email

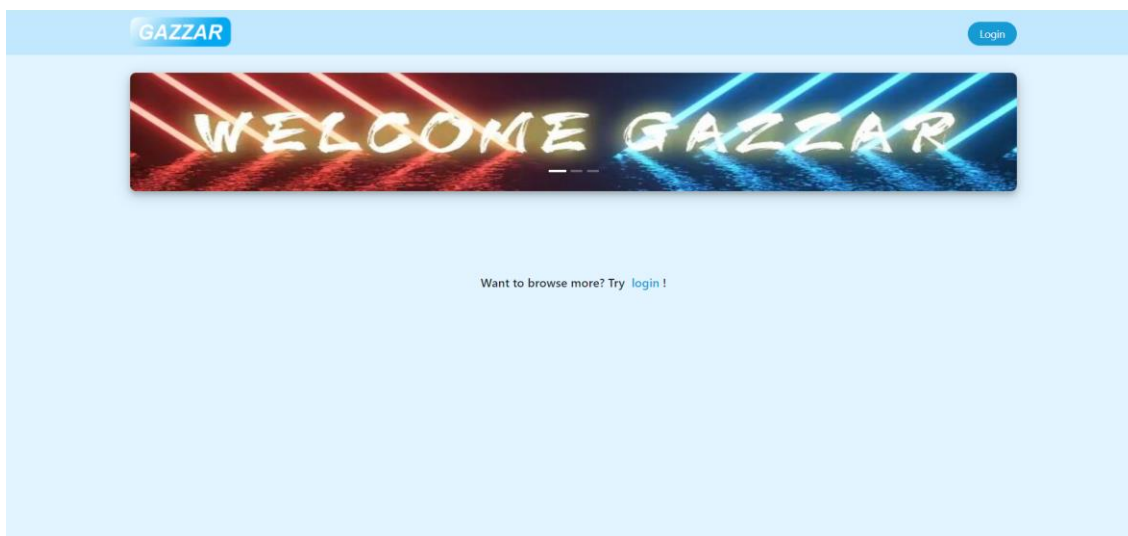
\* Email:

Send

## 2.2.4 Home Page

Related to: TDTS-10, 3

Users can access the Home Page in login status and visitor status, but customized recommendations will be displayed after logging in, otherwise it will be the default page.

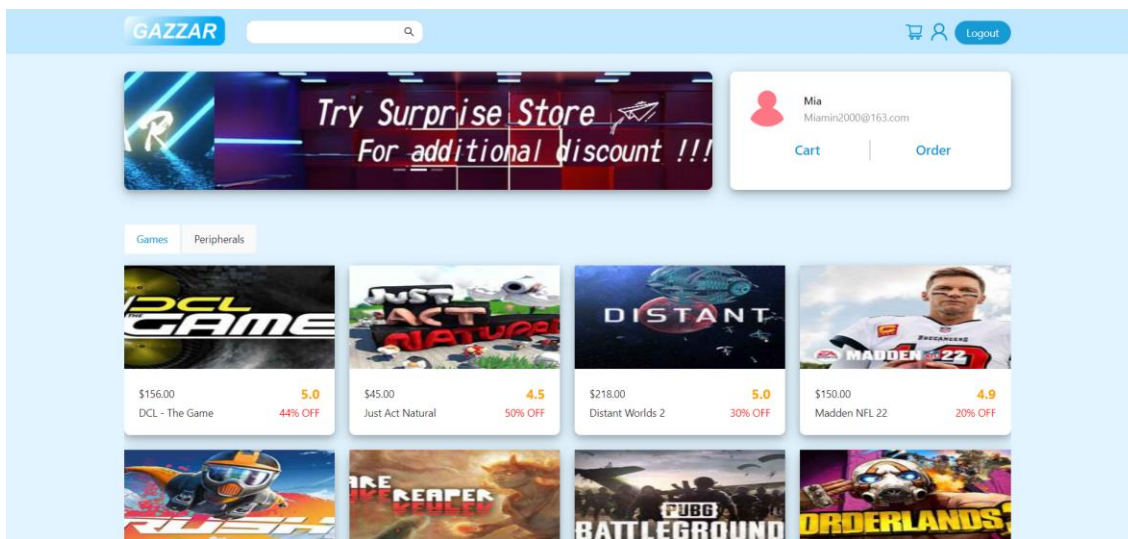


After Logging in, the page will display:

Search box provides users to search items.

- If users click the "order", users will jump to the order management page. If users click the cart icon, users will jump to the cart management page.
- If users click the profile image or the "profile" icon on the navigation bar, users will jump to the profile page.
- User can click Logout icon to logout and jump to login page. If users can switch the "Games" and "Peripherals" label, to view recommended game or peripheral products below. Users can click games or peripherals picture to jump to the specific product detail page. Each product will show its name, price, rate and discount(if have).

- The banner on the left scrolls displays posters for surprise store, lottery, and welcome. Clicking on the surprise store poster will jump to the surprise store page.



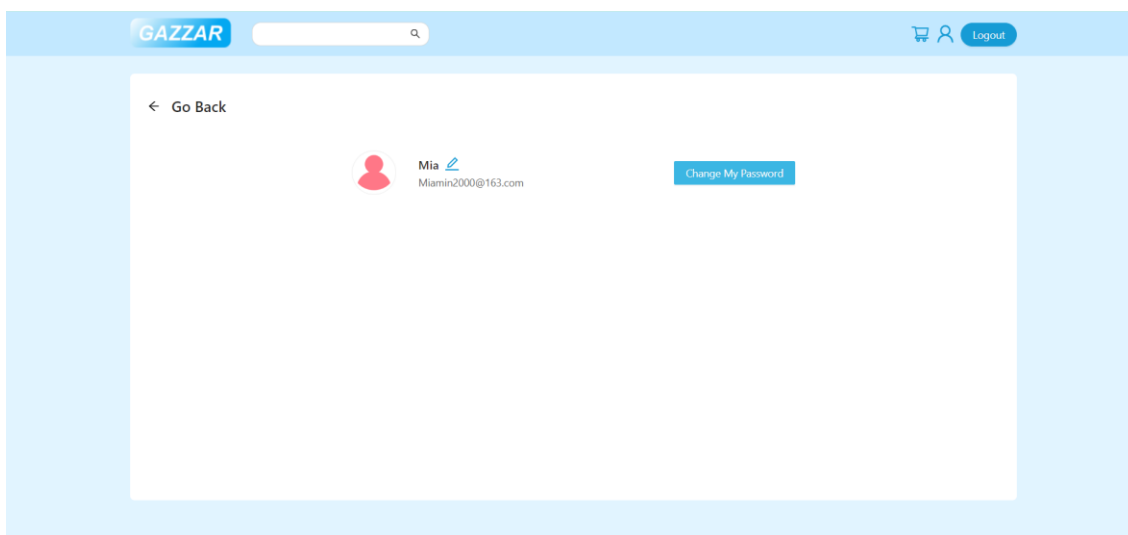
## 2.2.5 User Profile Page

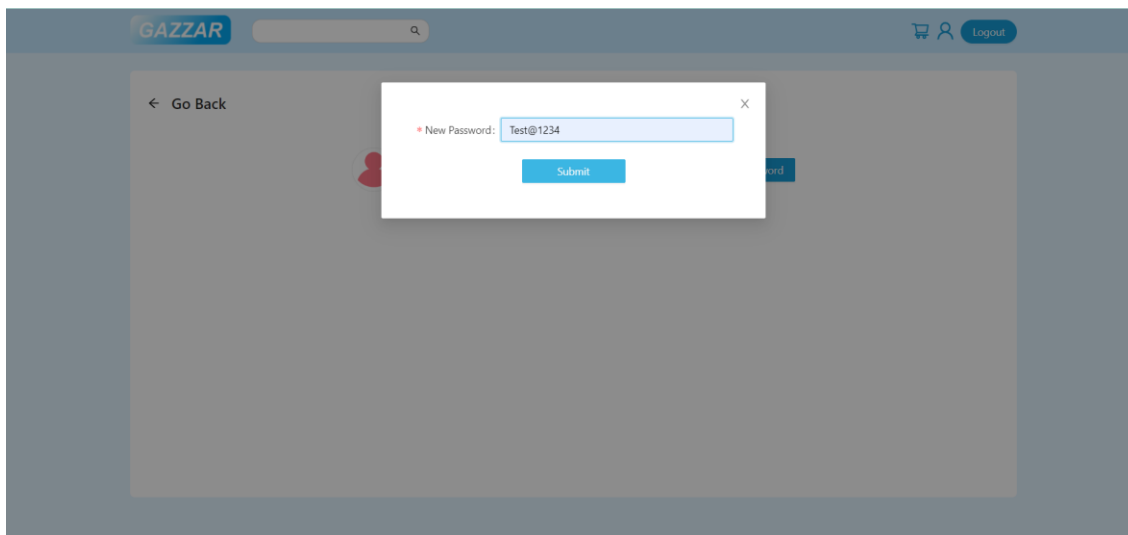
Related to: TDTS-8, 9

User can change nickname, email and picture by clicking pencil icon.

If users click Change My Password button, the system will provide users a window to fill a new password.

Different genders will show different headshot.

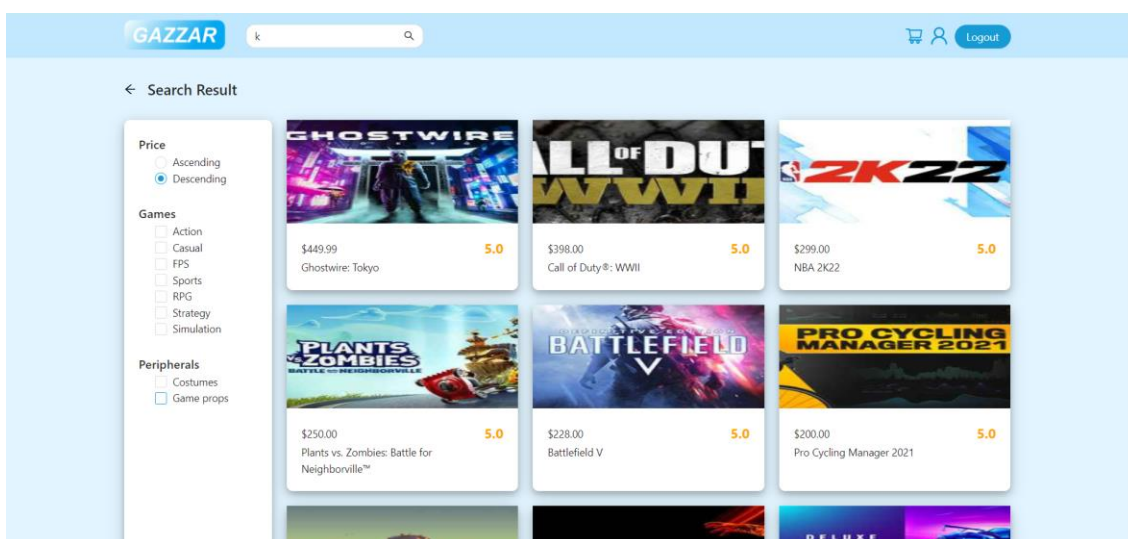




## 2.2.6 Search Result Page

Related to: TDTS-13, 12

Users can use the search function in the Page containing search box, search all products of the website by entering characters, and jump to the Search Result Page. If no search result is found, the search result area is empty, otherwise, the matching product information block is displayed. The left list is search option. User can tick them to choose the result shows by ascending or descending on price. Users can also choose what type of product to be shown at search result by ticking the product type.



## 2.2.7 Surprise Store Page

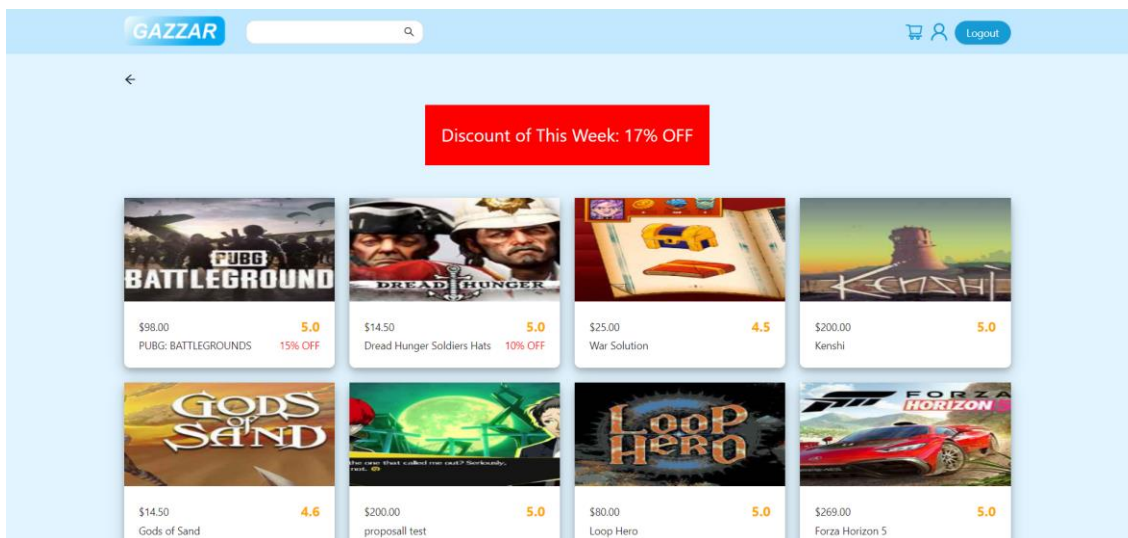
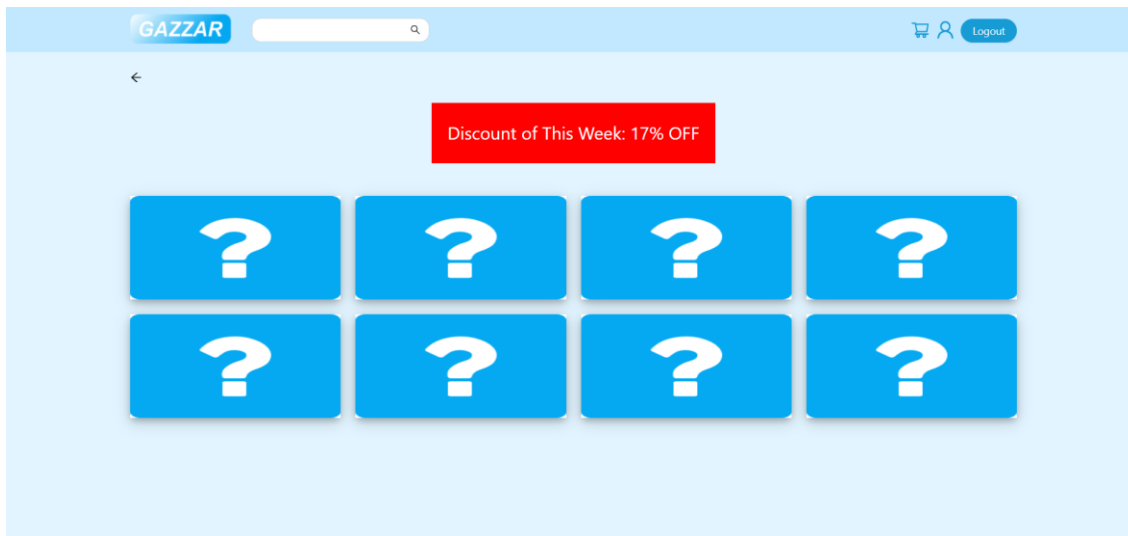
Related to: TDTS-24

Registered users can access their own Surprise Store Page through the rolling banner of Home Page. The Surprise Store Page mainly provides user specific discounts and personalized recommended products, and they are first displayed with a mystery hover.

Products selected from the Gazzar website recommendations/ custmor's interests/ custmor's cart.

Promotion product also have chance to be selected in surprise store, it will have double discount.

The user can click on each item to check further details.



## 2.2.8 Description Page

Related to: TDTS-11

Users can access Product Details Page through Home Page, Search Results Page and Surprise Store Page.

The Product Details Page mainly introduces the basic information of the specific product such as name, rate, price, type, stock, images (can jump to each other), product detail and other buyers' comments & rate.

User can edit product quantity by clicking on "-" and "+" icons, or filling number in the box. Users can add the product to the cart by clicking on "add to cart" button. If users click on "Buy Now" button, the system will jump to the checkout page.

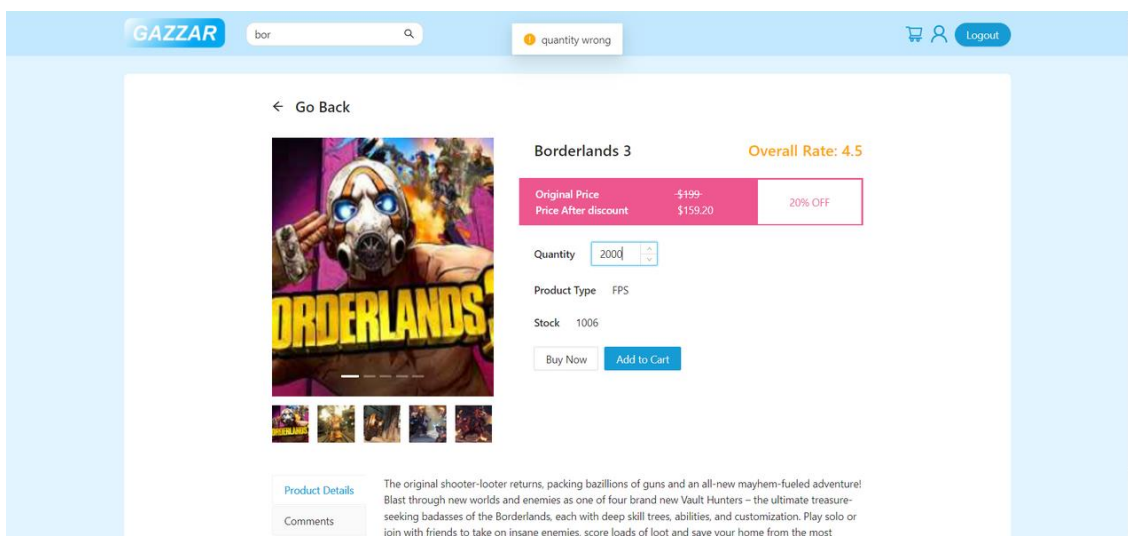
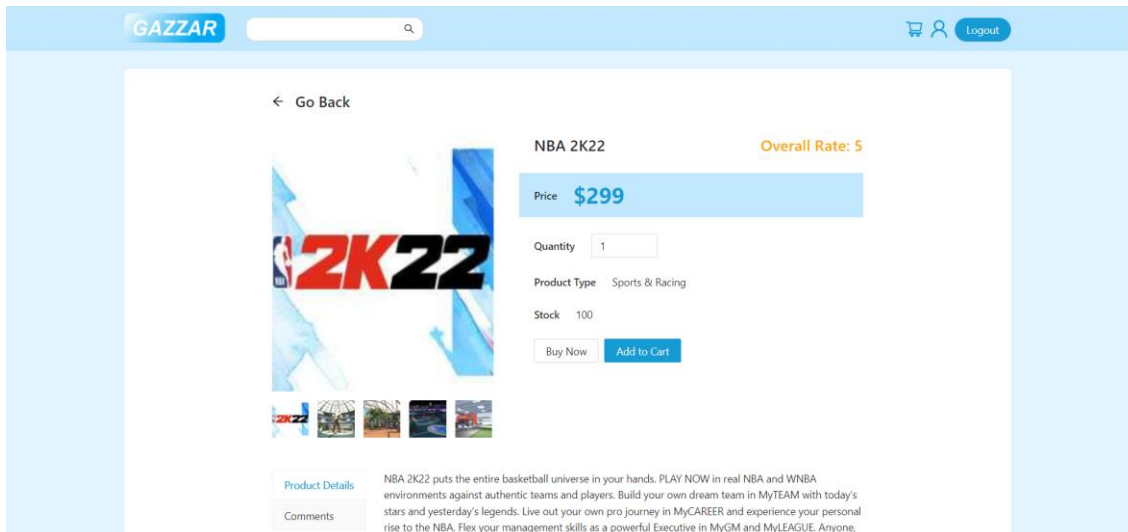
User can go back to Home Page.

If the product is on discount, this page will show the product's original price, now price and discount.

If users click comments, the page will show each comment and it's rate (piece form).

Error Case:

- Error frontend: Quantity wrong



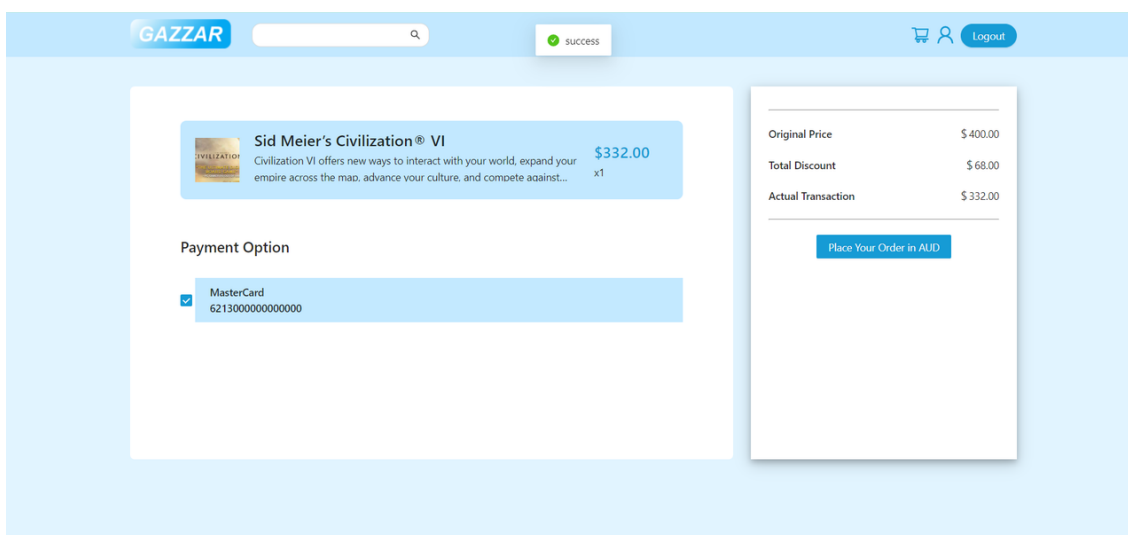
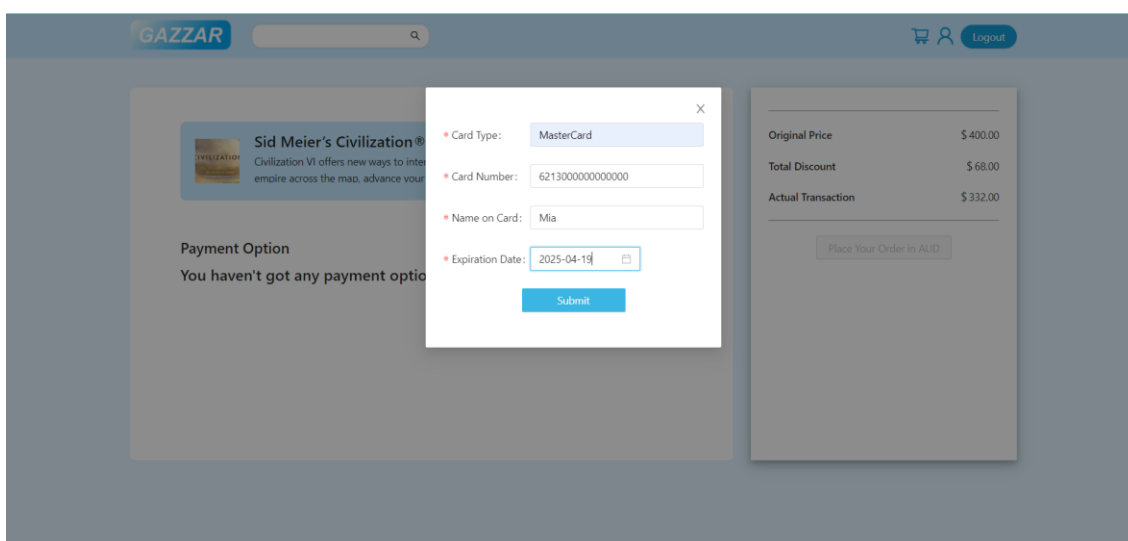
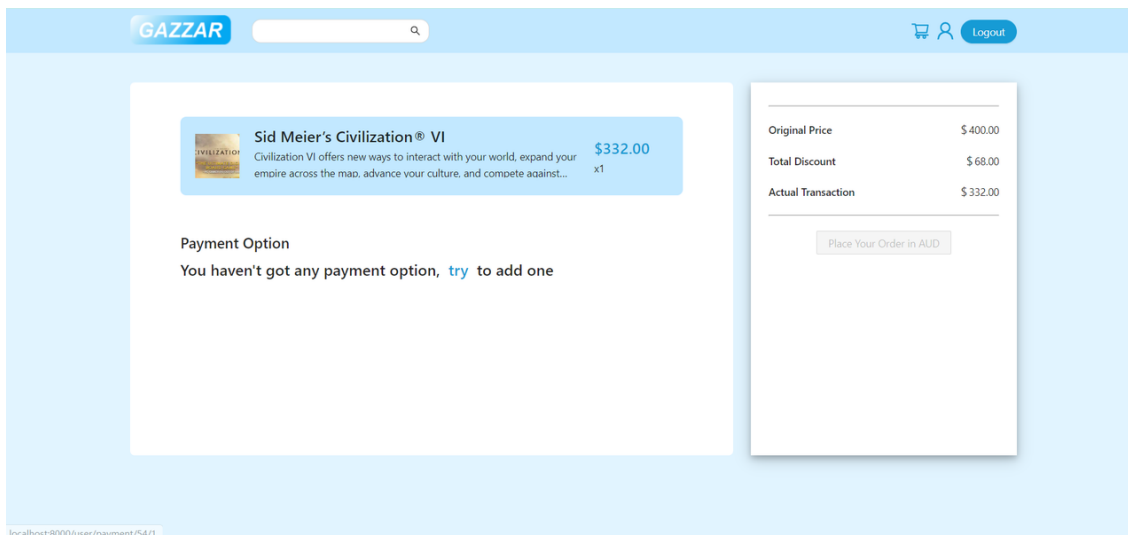
## 2.2.9 Checkout Page

Related to: TDTS-21

Check out page shows what product you wanna buy, original price, discount, final price and payment information.

The user cannot place his or her order if they haven't added a payment.

If users click 'Place Your Order in AUD' button, the system will jump to Bank Payment Page.



## 2.2.10 Cart Page

Related to: TDTS-19, 18, 20

The user can access the shopping Cart Page on any page containing the shopping Cart Icon.

If the user has not added product to the shopping cart, the empty page will be displayed. Otherwise, the products of the shopping cart will be displayed. The page will show products' quantity, price, image and description.

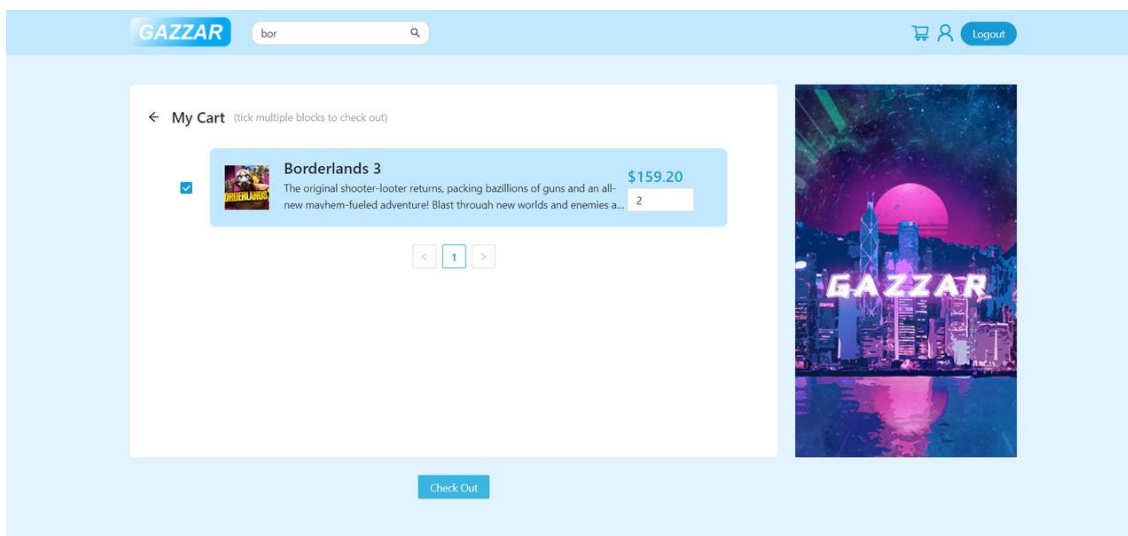
Cart page provides user with editing and removing product.

If users want to check out, they can tick which products to buy and click "check out" button, then the page will jump to the checkout page.

User can also click "<—" button to be back to Last Page.

Error Case:

- Error 009: Quantity cannot exceed Stock limit



## 2.2.11 Order Page

Related to: TDTS-15

Users can access their own History Order Page through the Home Page.

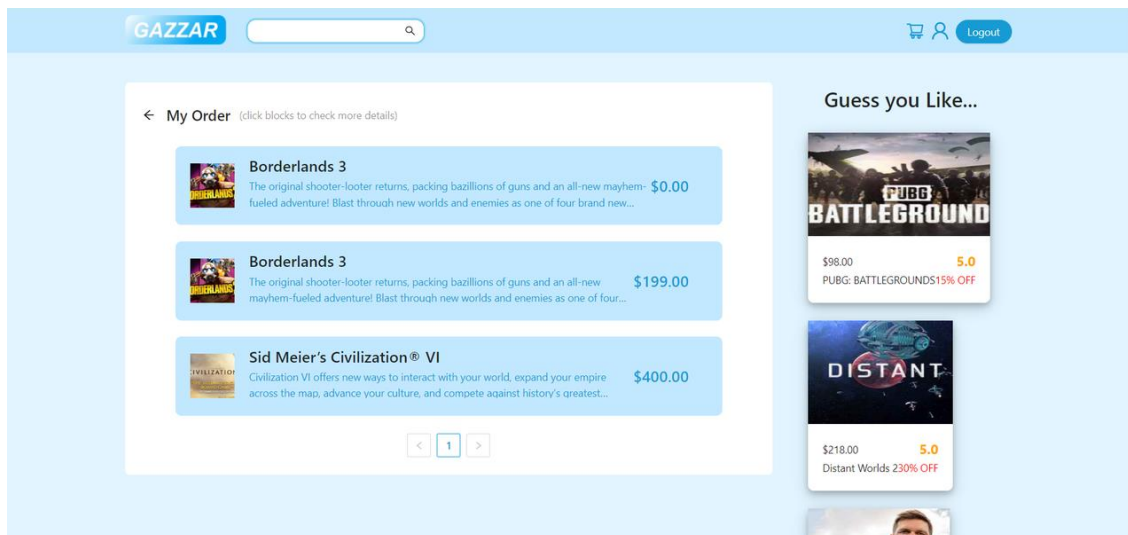
If the user has no order history, a blank page will be displayed. Otherwise, the order list is displayed. In order to facilitate users' view, the system displays the order information in units of products.

It shows products' description, image and price. If users click the order, the page will jump to the order information page.

At the right of the page, Gazzar will recommend some products (guss your like).

User can also click "<—" button to be back to Last Page.





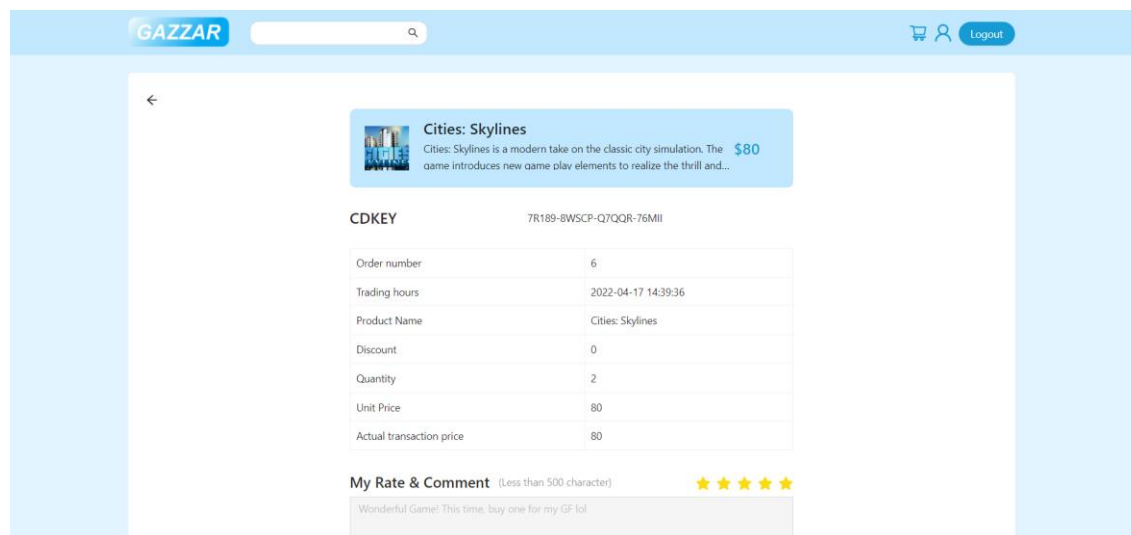
## 2.2.12 Order Details Page

Related to: TDTS-14, 16, 17

Users can click the order in the history order list to access the specified order details page.

The details page will contain product information, CDkey, order number, trading date, product name, discount, quantity, unit price, price after discount, my rate and my comment etc.

If users have rated and finished writing, one order can only rate and comment once, and can not be edited.



## 2.2.13 Lottery Page

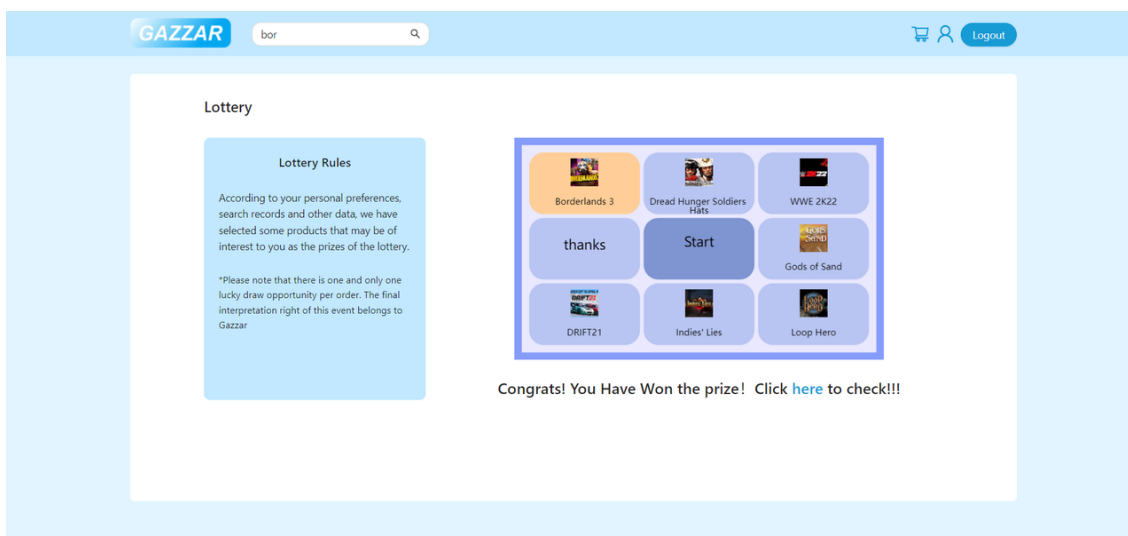
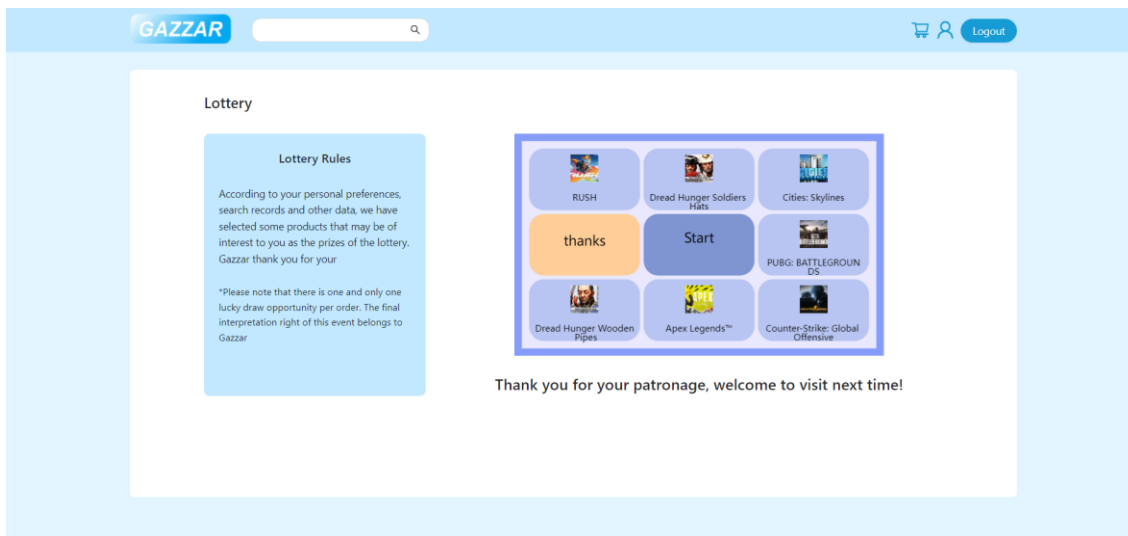
Related to: TDTS-25

After successful payment, users would be redirected to the lottery page.



User could click 'START' button to start the lottery game.

If the user wins the prize, a \$0 order will be generated and the link will direct him to the order page. Otherwise, a thank you message will be displayed.

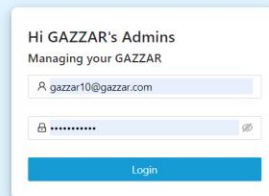


## 2.3 Seller (admin)

### 2.3.1 Login Page

Related to: TDTS-26

Login page asks admins to enter the email and password that they registered, then click Login, so that admins can succeed to View Sales page.



Hi GAZZAR's Admins  
Managing your GAZZAR

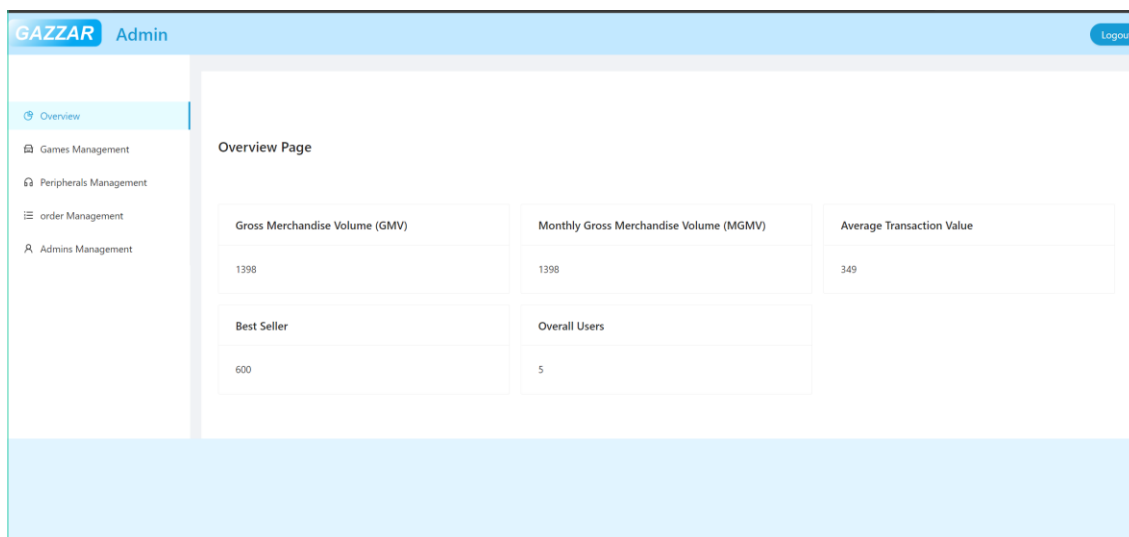
Login

## 2.3.2 View Sales Page

Related to: TDTS-30

After logging in, the administrator can access the View Sales Page through the management option on the left of the page by clicking 'OverView'.

All kinds of digital sales information will be shown on this page. Additionally, there is a left bar (including View Sales, Games Management, Peripherals Management, Order Management, User Management, Stock Management).



GAZZAR Admin Logout

Overview

- Games Management
- Peripherals Management
- Order Management
- Admins Management

Overview Page

Gross Merchandise Volume (GMV)	Monthly Gross Merchandise Volume (MGMV)	Average Transaction Value
1398	1398	349
Best Seller	Overall Users	
600	5	

## 2.3.3 Game Management Page

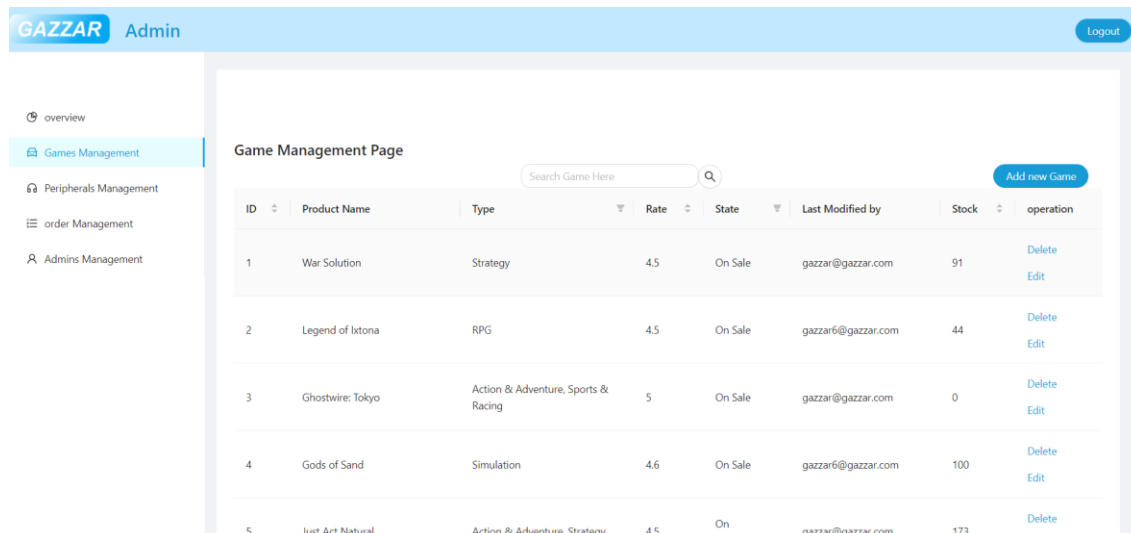
Related to: TDTS-32, 33, 34, 35, 36

The administrator can access the Games Management Page through the management option on the left of the page. Admins can view the product details via the form.

Admins can search the specified product by the search bar, or just choose the specific State / Type by the dropbox.

Besides, admins will be redirected to the Add Products Page by clicking 'Add new Product' button to add a new product. Admins can delete the product by clicking 'Delete' button.

Additionally, admins can edit the specific product's details and redirect to Edit Product Page by selecting 'Edit'.



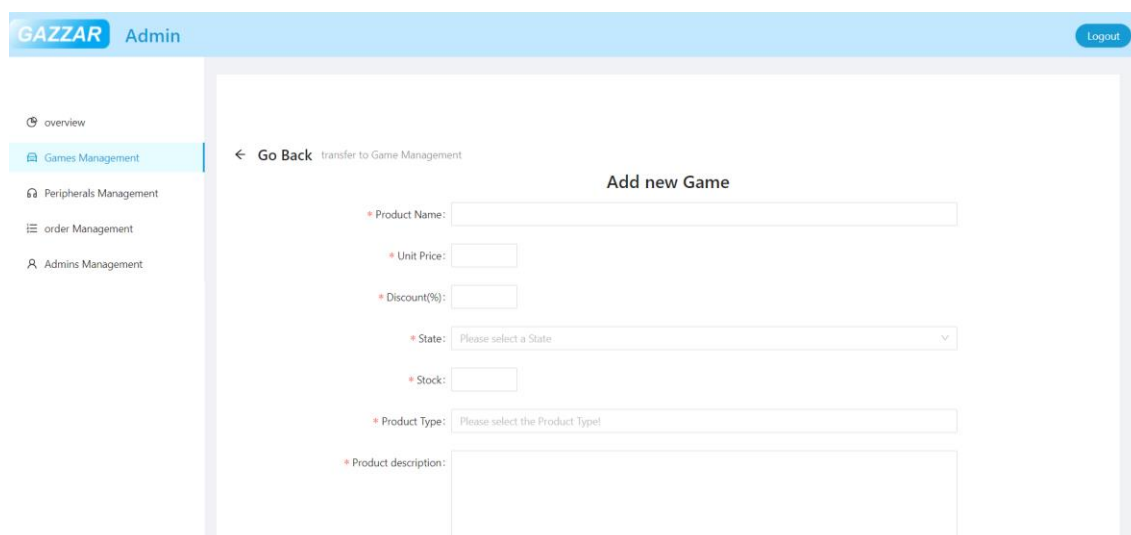
ID	Product Name	Type	Rate	State	Last Modified by	Stock	operation
1	War Solution	Strategy	4.5	On Sale	gazzar@gazzar.com	91	<a href="#">Delete</a> <a href="#">Edit</a>
2	Legend of Ixtona	RPG	4.5	On Sale	gazzar6@gazzar.com	44	<a href="#">Delete</a> <a href="#">Edit</a>
3	Ghostwire: Tokyo	Action & Adventure, Sports & Racing	5	On Sale	gazzar@gazzar.com	0	<a href="#">Delete</a> <a href="#">Edit</a>
4	Gods of Sand	Simulation	4.6	On Sale	gazzar6@gazzar.com	100	<a href="#">Delete</a> <a href="#">Edit</a>
5	Just Act Natural	Action & Adventure, Strategy	4.5	On Promotion	gazzar@gazzar.com	173	<a href="#">Delete</a>

## 2.3.4 Add Product Page

Related to: TDTS-33

In the Add Product Page, admins could input the specific product details (including price, name, photo, and description) .

After selecting 'submit', all the details would be uploaded and the page would be redirected to the Game Management Page. Management Options / Logout will visit the designated page.



< Go Back transfer to Game Management

Add new Game

\* Product Name:

\* Unit Price:

\* Discount(%):

\* State:

\* Stock:

\* Product Type:

\* Product description:

## 2.3.5 Edit Product Page

Related to: TDTS-34

In the Edit Product Page, admins could edit the specific product details (including price, name, photo, and description) .

After selecting 'submit', all the details would be uploaded and the page would be redirected to the Game Management Page. Management Options / Logout will visit the designated page.

The screenshot shows the 'Edit Game' form in a web application. The form is titled 'Edit Game' and includes a 'Go Back' link. It contains the following fields and sections:

- Game ID:** 2
- Game Name:** Legend of Ixtona
- Unit Price:** 22.5
- Discount(%):** 0
- State:** On Sales
- Stock:** 44
- Game Type:** RPG
- Game Description:** Fight turn-based strategy battles and save the kingdom of Ixtona
- Photo:** Two small thumbnail images and an 'Upload' button.
- Cover:** A small thumbnail image and an 'Upload' button.
- Submit:** A blue button at the bottom.

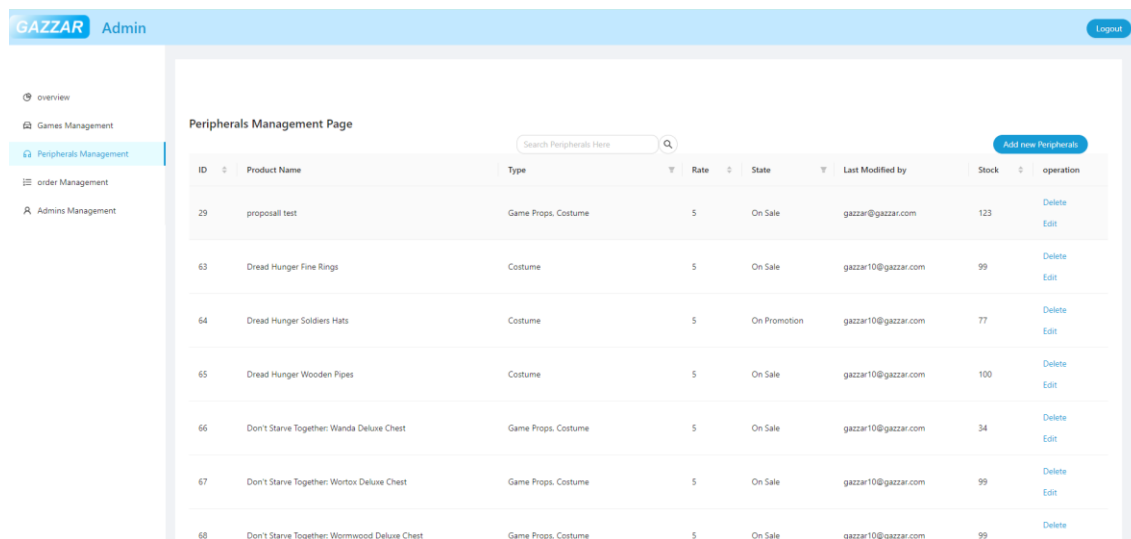
## 2.3.6 Peripherals Management Page

Related to: TDTS-32, 33, 34, 35, 36

The administrator can access the Peripherals Management Page through the Peripherals management option on the left of the page.

Admins can view the product details via the form. User can search the specified product by the search bar, or just choose the specific State / Type by the dropbox. Besides, admins will be redirected to the Add Products Page by clicking 'Add new Product' button to add a new product. Admins can delete the product by clicking 'Delete' button. Additionally,

admins can edit the specific product's details and redirect to Edit Product Page by selecting 'Edit'.



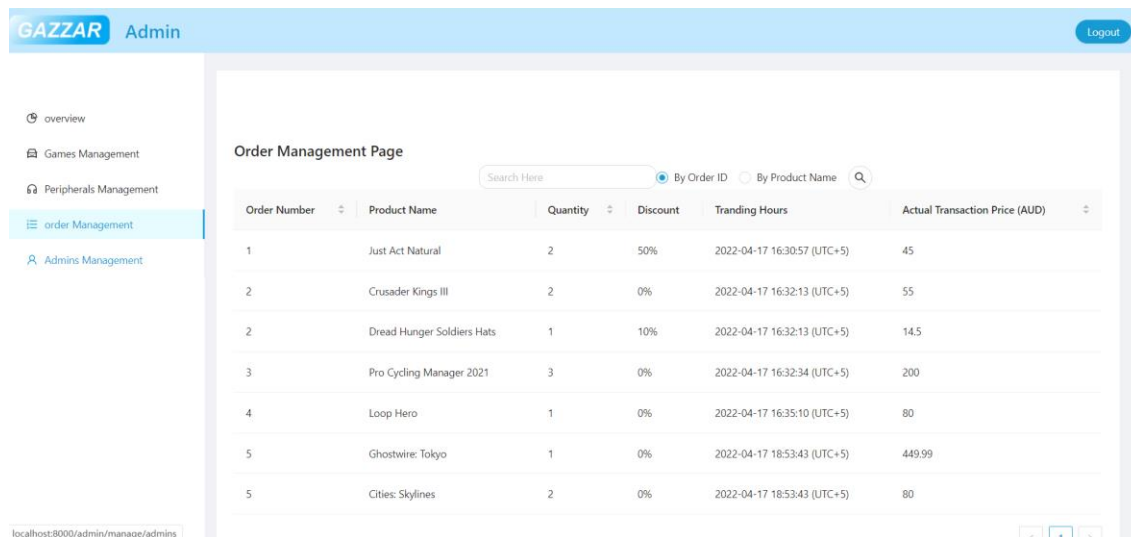
ID	Product Name	Type	Rate	State	Last Modified by	Stock	operation
29	proposal test	Game Props, Costume	5	On Sale	gazzar@gazzar.com	123	Delete Edit
63	Dread Hunger Fine Rings	Costume	5	On Sale	gazzar10@gazzar.com	99	Delete Edit
64	Dread Hunger Soldiers Hats	Costume	5	On Promotion	gazzar10@gazzar.com	77	Delete Edit
65	Dread Hunger Wooden Pipes	Costume	5	On Sale	gazzar10@gazzar.com	100	Delete Edit
66	Don't Starve Together: Wanda Deluxe Chest	Game Props, Costume	5	On Sale	gazzar10@gazzar.com	34	Delete Edit
67	Don't Starve Together: Wortox Deluxe Chest	Game Props, Costume	5	On Sale	gazzar10@gazzar.com	99	Delete Edit
68	Don't Starve Together: Wormwood Deluxe Chest	Game Props, Costume	5	On Sale	gazzar10@gazzar.com	99	Delete

## 2.3.7 Order Management Page

Related to: TDTS-31

The administrator can access the Order Management Page through the Order management option on the left of the page.

Admins can view the order details via the form. User can search the specified order by the search bar.



Order Number	Product Name	Quantity	Discount	Trading Hours	Actual Transaction Price (AUD)
1	Just Act Natural	2	50%	2022-04-17 16:30:57 (UTC+5)	45
2	Crusader Kings III	2	0%	2022-04-17 16:32:13 (UTC+5)	55
2	Dread Hunger Soldiers Hats	1	10%	2022-04-17 16:32:13 (UTC+5)	14.5
3	Pro Cycling Manager 2021	3	0%	2022-04-17 16:32:34 (UTC+5)	200
4	Loop Hero	1	0%	2022-04-17 16:35:10 (UTC+5)	80
5	Ghostwire: Tokyo	1	0%	2022-04-17 18:53:43 (UTC+5)	449.99
5	Cities: Skylines	2	0%	2022-04-17 18:53:43 (UTC+5)	80

## 2.3.8 Admin Management Page

Related to: TDTS-28, 29

The administrator can access the Admin Management Page through the Admin management option on the left of the page.

You can view all the admins' details via the form (including emails and password). You also can delete the admin account by clicking 'Delete' button.

Additionally, you can Register a new admin account by typing in emails and passwords and clicking 'Register New Admin' button.

Email	Password	operation
gazzar@gazzar.com	Boss@123456	Delete
gazzar6@gazzar.com	Boss@123456	Delete
gazzar7@gazzar.com	Boss@123456	Delete
gazzar8@gazzar.com	Boss@123456	Delete
gazzar9@gazzar.com	Boss@123456	Delete
gazzar10@gazzar.com	Boss@123456	Delete

## 3.Third-Party APIs and Framworks

### 3.1 Frontend

#### 3.1.2 React

We are using React in front-end development of our Gazzar project. React(Meta Platforms, Inc., 2022) has multiple advantages, such as fast speed and cross-browser compatibility through virtual DOM. On the other hand, components make code more modular, easier to reuse code, and more maintainable. This makes it easy to isolate when a problem occurs with one or some components. Each component can be independently developed and tested, and they can import other components.

2. Also worth noting that we adopted jsx in React. As its official introduction, as an extension of the development of JavaScript, which is very suitable for use with React. Jsx allows the use of familiar syntax to define HTML element trees and provides more semantic and mobile tags; at the same time, Jsx ensures the separation of tags in components and all business logic in a clean and concise way, making widgets simpler , Intuitive, and the abstraction capability it provides can indeed reduce code changes during project development.

```
1  {
2    "private": true,
3    > 调试
4    "scripts": {
5      "start": "umi dev",
6      "build": "umi build",
7      "postinstall": "umi generate tmp",
8      "prettier": "prettier --write 'src/**/*.js,jsx,tsx,ts,less,md,json'",
9      "prettier:win": "prettier --write 'src/**/*.js,jsx,tsx,ts,less,md,json'",
10   },
11   "lint-staged": {
12     "**.{js,jsx,less,md,json}": [
13       "prettier --write"
14     ],
15     "**.ts?(x)": [
16       "prettier --parser=typescript --write"
17     ]
18   },
19   "dependencies": {
20     "@ant-design/pro-layout": "^6.5.0",
21     "@lucky-canvas/react": "^0.1.6",
22     "ahooks": "^3.1.13",
23     "antd": "^4.18.9",
24     "antd-img-crop": "^4.2.0",
25     "react": "^17.0.2",
26     "react-dom": "^17.0.2",
27     "umi": "^3.5.21"
28   },
29   "devDependencies": {
30     "@types/react": "^17.0.0",
31     "@types/react-dom": "^17.0.0",
32     "@umijs/preset-react": "1.x",
33     "@umijs/test": "^3.5.21",
34     "lint-staged": "^10.0.7",
35     "prettier": "^2.2.0",
36     "typescript": "^4.1.2",
37     "yorkie": "^2.0.0"
38   }
39 }
```

### 3.1.3 React router

React Router(Remix, 2022) is a set of React navigation components that handle routing jumps without manually setting routing history. We choose react router in the project, precisely because it can configure components through components and configuration objects, can switch routes through link and redirect, and can easily complete on-demand loading and other characteristics.

### 3.1.4 Less

As a CSS preprocessor, Less(The core Less team, 2022) compiles to generate simple CSS that can be used in the browser. Less supports cross-browser compatibility, and can easily block browser private syntax differences through encapsulation, and the structure is clear and easy to expand. In addition, through the Less syntax, developers can easily implement multiple inheritance.

### 3.1.5 UmiJs

Umi(UmiJS, 2017) is an enterprise-level front-end application framework. It has many built-in functions commonly used in front-end development, allowing users to save a lot of configuration time and achieve real out-of-the-box use. Through conventional routing, developers do not need to write configuration(the file system is routing), and the routing configuration is analyzed through the src/pages directory and file and its naming. In other words, let umi generate routing configuration files according to the agreed directory structure. Moreover, Umi realizes a complete life cycle through its powerful extensibility and makes it plug-in, and Umi's internal functions are also completed by plug-ins. In addition, plugins and plugin sets are supported to meet the layering needs of functional and vertical domains.

```
1  import {
2    defineConfig
3  } from 'umi';
4
5  export default defineConfig({
6    routes: [{
7      path: '/admin/login',
8      component: '@admin/pages/login'
9    },
10   {
11     path: '/admin',
12     redirect: '/admin/login'
13   },
14   {
15     path: '/admin/manage',
16     component: '@admin/layouts/index',
17     routes: [
18       { path: '/admin/manage/admins', component: '@admin/pages/adminManage' },
19       { path: '/admin/manage/orders', component: '@admin/pages/orderManage' },
20       { path: '/admin/manage/games', component: '@admin/pages/gameManage' },
21       { path: '/admin/manage/games/add', component: '@admin/pages/gameAdd' },
22       { path: '/admin/manage/games/edit/:gameid', component: '@admin/pages/gameEdit' },
23       { path: '/admin/manage/Peripherals', component: '@admin/pages/PeripheralsManage' },
24       { path: '/admin/manage/Peripherals/add', component: '@admin/pages/PeripheralsAdd' },
25       { path: '/admin/manage/Peripherals/edit/:peripheralsid', component: '@admin/pages/PeripheralsEdit' },
26     ],
27   },
28 ],
29 });
```



### 3.1.6 Ant Design

Ant Design(XTech, 2022) is a React-based front-end UI component library. It provides a very complete set of componentized design specifications and componentized coding specifications, which greatly improves the design and development efficiency and quality of some products. By using ant design, we were able to efficiently create responsive components during Gazzar's front-end development process and team to maximize the ui and ux design of the website.

## 3.2 Backend

### 3.2.1 Smtplib

Python provides the SMTPLIB module(Python Software Foundation, 2022), which defines an SMTP client session object that can be used to send mail. This is mainly for our user register and if the users forget the password, it can be used to send the email to users.

### 3.2.2 Werkzeug

Python provides the Werkzeug module, which defines an http exception that can be used for error code. For instance, if the users enter the wrong password when the users try to login to the website, the error message will be shown on the frontend page. And the server will be 400 code.

### 3.2.3 Flask and Flask SQLAlchemy

This assignment is basically based on the Flask framework. Flask is used for providing the developing web applicant. And it is easy for beginners to use. There is a built-in debugger, so that we also can use that for our testing. And Flask (Pallets, 2010) provides many modules. For instance, in the database section, we used Flask-sqlalchemy (Pallets, 2010) so that we could built our database for website. So we can improve our efficiency in backend part by using Flask.

### 3.2.4 AWS

AWS(Amazon Web Services, Inc., 2022) is a tool to deploy the applicant . We put our database in the AWS, so that our teammates can access the database easily.

## 4.Implementation challenges

### 4.1 Deployment of cloud server

In this part, since we have no experience of deployment the cloud server, we searched for the method in Google, but after we deployed the backend and the frontend in cloud server, we found it was so slow that we cannot get the result when accessing the server because of the timeout error.

Finally, we just use AWS and Heroku to deploy the cloud server, then it is quicker than before. Since we put database in AWS, and the backend in Heroku.

### 4.2 Deployment of database

In this part, since we have no experience of using the flask-sqlalchemy, when we first deployed the database, we did not realize the relation between tables. So that we did totally wrong, we tried to fix it. But since in the product part, the product will have the image, the image will be stored as base64 . When the image is saved in the database, it will have some problems. Later we searched in the cs forum . We found many be we can save the base64 as a string to the database, so that it can deal with the format of base64.

### 4.3 Implementation of surprise store

When designing the recommendation system, we consider the user's interests, website promotion and user's wish list as the basic data of each user. However, in the process of implementation, it is found that if the promotional product discount encounters surprise discount, it needs to be calculated twice. Fortunately, we solved this problem quickly through mathematical methods. When we consider that the user's surprise products are based on the user instead of the user, because the database cannot establish the relationship between user table and product table, we finally decided to store the product ID list in the user table in the form of string, and when using it, use the function in the ast library to retrieve the ID list, so as to more easily complete the storage and use of surprise products.

### 4.4 Communication in the most sufficient way

**In terms of teamwork**, our team members have known each other for many years, and we also completed large and small group assignments together before learning COMP3900. After the corresponding adjustment of RetroA, our members believe that our team may have reached a relatively ideal level of running-in in this project.

But we still have room to improve. At the time of deployment, the efficiency of our team's cooperation has yet to be improved. We have encountered situations where minor bugs are frequently modified and the front-end needs to be deployed repeatedly, which actually

imposes a certain workload burden on the students who deploy the back-end. At the same time, the situation of modifying the back-end code but not communicating in time has also occurred in this sprint. Insufficient git operation and slightly negligent communication are also areas that we need to improve. Due to time and learning cost considerations, we cannot achieve automatic deployment at the current stage, but we will adjust our deployment progress to achieve a workflow that balances front-end and back-end development.

# 5. User documentation

## 5.1 Installation of prerequisite environments and packages

### 5.1.1 Backend

If you are not in CSE Vlab environment, please go to <https://www.python.org/downloads/> and properly install the 3.7.8 version python3 if needed. If you are in CSE Vlab environment, then change to the directory capstone-project-3900-w14b-three-days-to-see

Run `$ cd backend`

and run command below after you successfully install the required packages:

Run `$ python3 -m pip install -r requirements.txt`

Therefore packages including flask==2.0.3, flask-sqlalchemy==2.1, sqlalchemy==1.3.24, PyJWT==2.3.0, pymysql==1.0.2, flask-cors==3.0.10 and vwerkzug==2.0.3 will be successfully installed.

### 5.1.2 Frontend

If you are not in CSE Vlab environment, please go to <https://nodejs.org/en/download/> and download the latest version of node.js. Therefore, user can use Yarn through the npm package manager, which comes bundled with Node.js when you install it on your system.

If you are in CSE Vlab environment, then change to the directory of capstone-project-3900-w14b-three-days-to-see to prepare the environment of frontend. And the next step, run the command

Run `$ cd frontend`

`$ yarn install` in the terminal and install all the frontend related packages in package.json.

## 5.2 How do I start running the program

### 5.2.1 Backend

Change to the **directory capstone-project-3900-w14b-three-days-to-see/backend**, and run python3 server.py or python server.py if you are not in CSE Vlab environment.

It's worth noting that our database cloud sometimes has slow data transmission. If an error occurs, it's probably because the data hasn't kept pace with your operation, so we suggest you to restart the backend server.

Run `$python3 server.py`

### 5.2.2. Frontend

Change to the directory **capstone-project-3900-w14b-three-days-to-see/frontend**, and run `yarn start` to start the frontend. After the webpack is built, click the `http://localhost:8000` to visit the website.

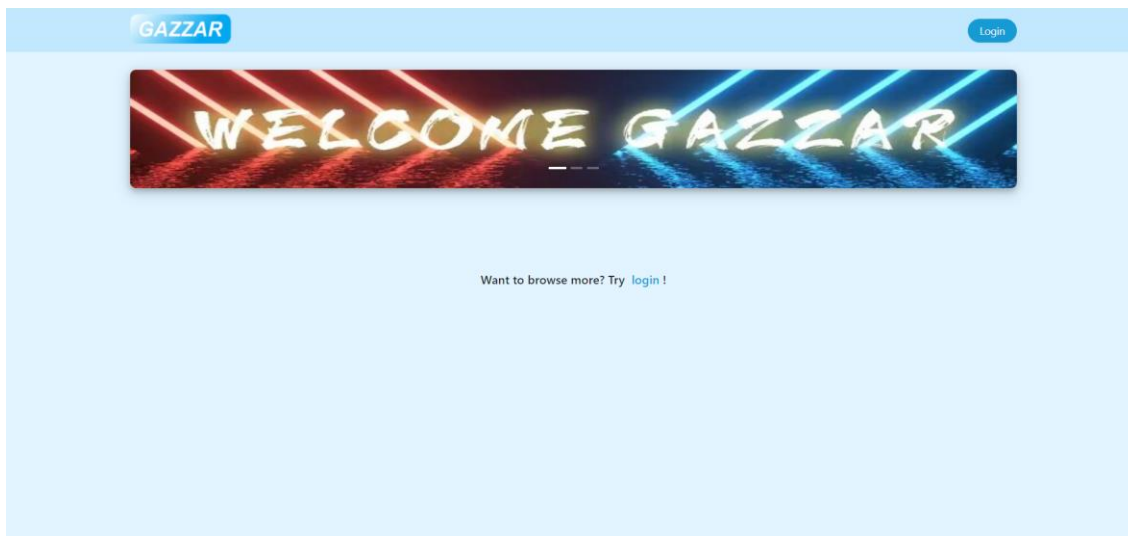
Run `yarn start`

click the `http://localhost:8000`

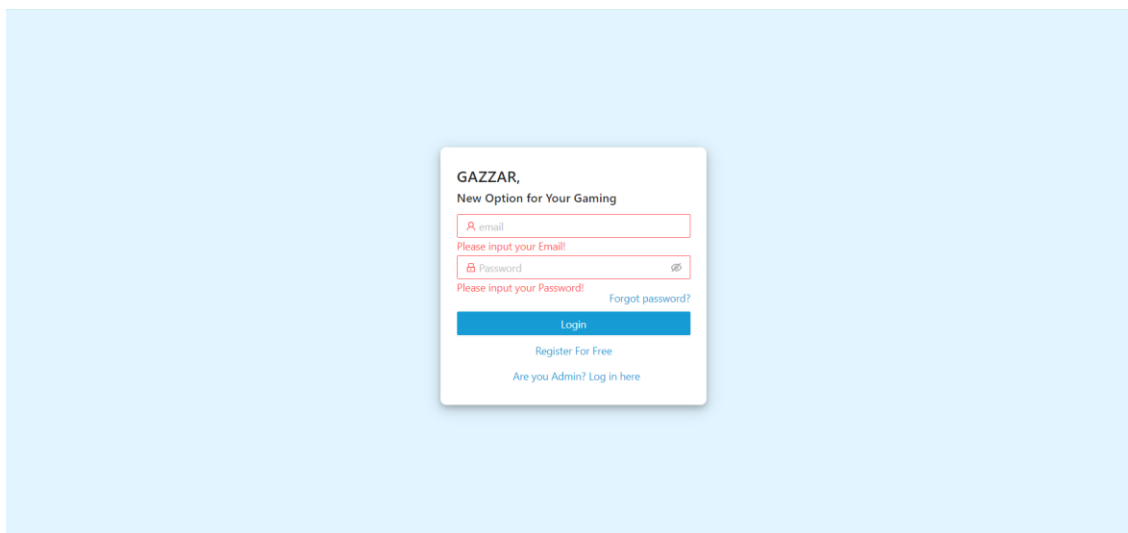
# 6.Manual Guide

## 6.1 User (client)

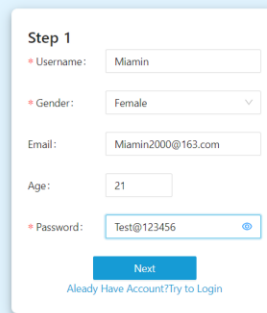
You are free to use any user, but if an error occurs, we recommend you to use Mia to have another try. In this manual section, Mia (email: [Miamin2000@163.com](mailto:Miamin2000@163.com), password:Test@1234) will be taken as an example:



Firstly, Mia wants to register herself as a customer on the Gazzar website, so she clicks 'login' on the home page as a visitor. And then goes to the login page, where she will first click "[Register For Free](#)" to register.



She follows the step to insert valid information including username, gender, email address, age and password, trying to avoid input error.



Step 1

\* Username:

\* Gender:

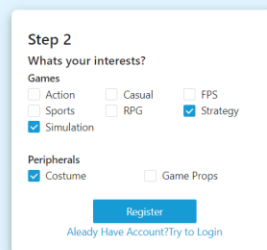
Email:

Age:

\* Password:

[Already Have Account? Try to Login](#)

By clicking the "next", Mia has a chance to choose the specific types of games and peripherals by her interest.



Step 2

Whats your interests?

Games

☐ Action ☐ Casual ☐ FPS

☐ Sports ☐ RPG ☒ Strategy

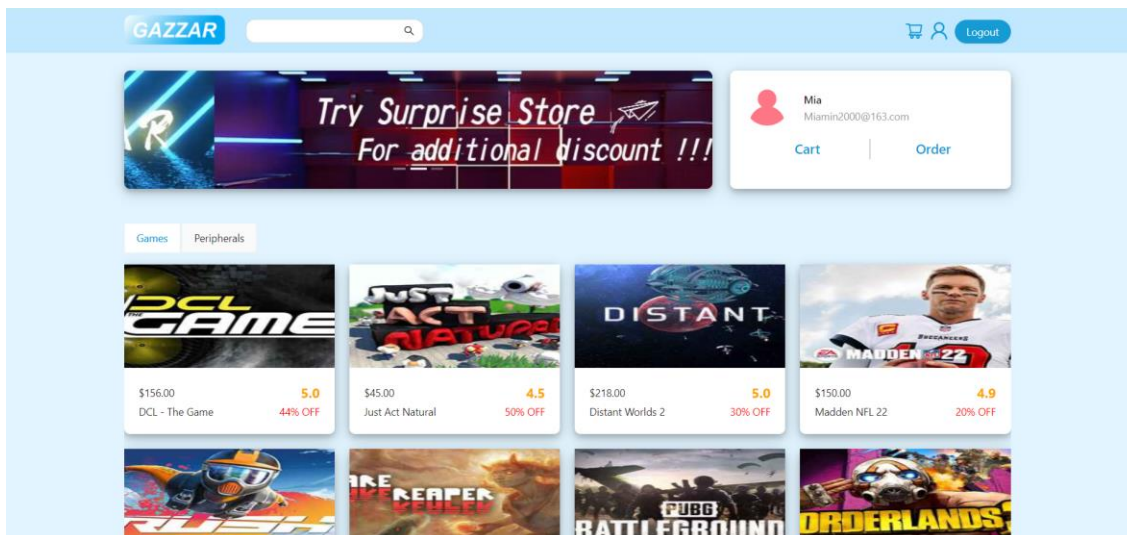
☒ Simulation

Peripherals

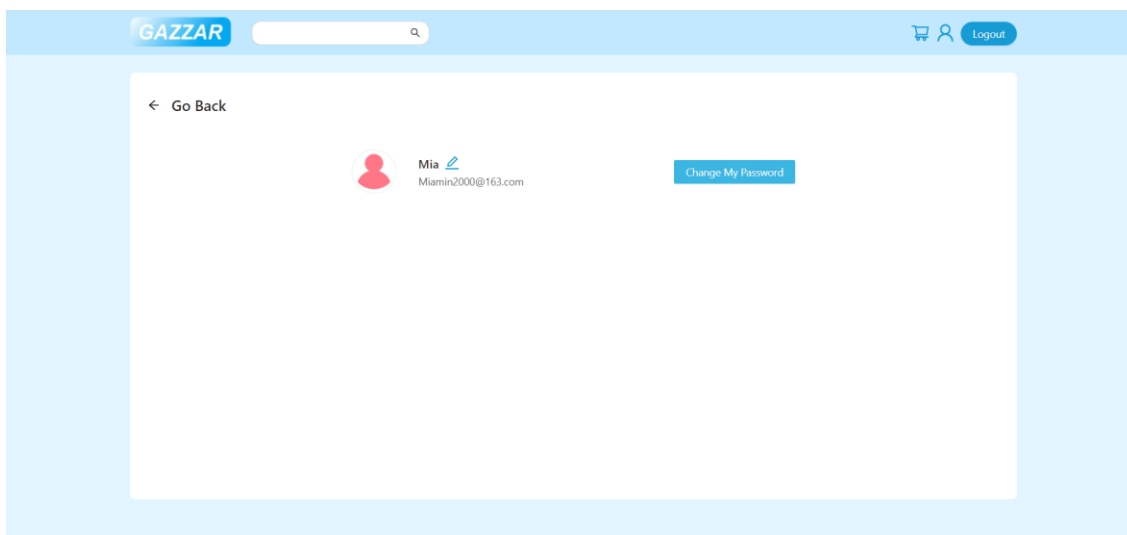
☒ Costume ☐ Game Props

[Already Have Account? Try to Login](#)

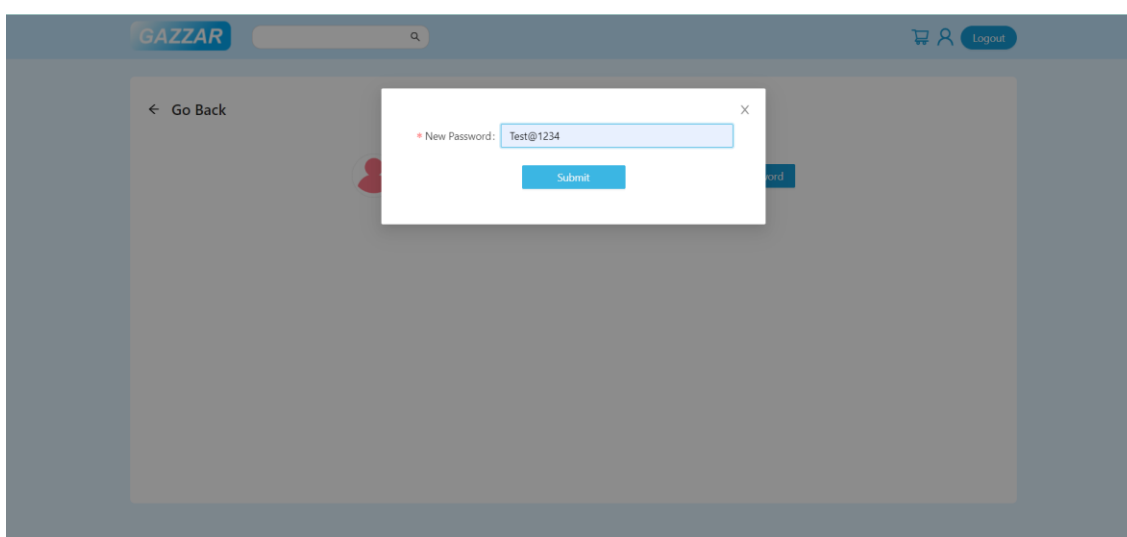
By clicking the "Register", Mia thus has registered successfully with her interests, and she will be direct to the home page, where she wants to check her user profile. So she clicks the "user icon" or just clicks the profile photo (pink for female, blue for male, green for mysterious) to jump onto the user profile.



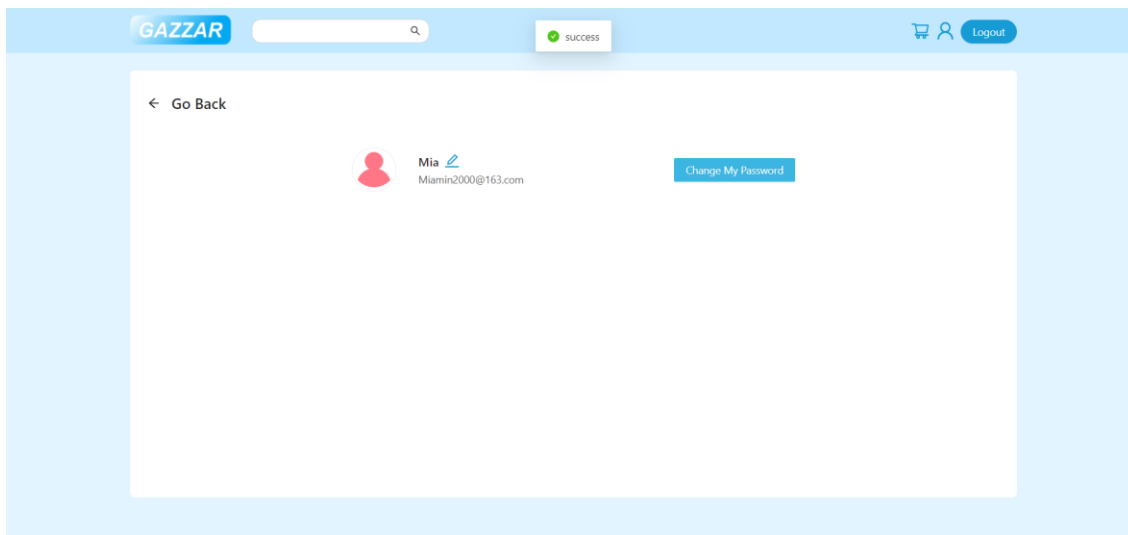
In the user profile, Mia can change her nickname by clicking the "pen icon", or change the password by clicking "Change My Password" button.



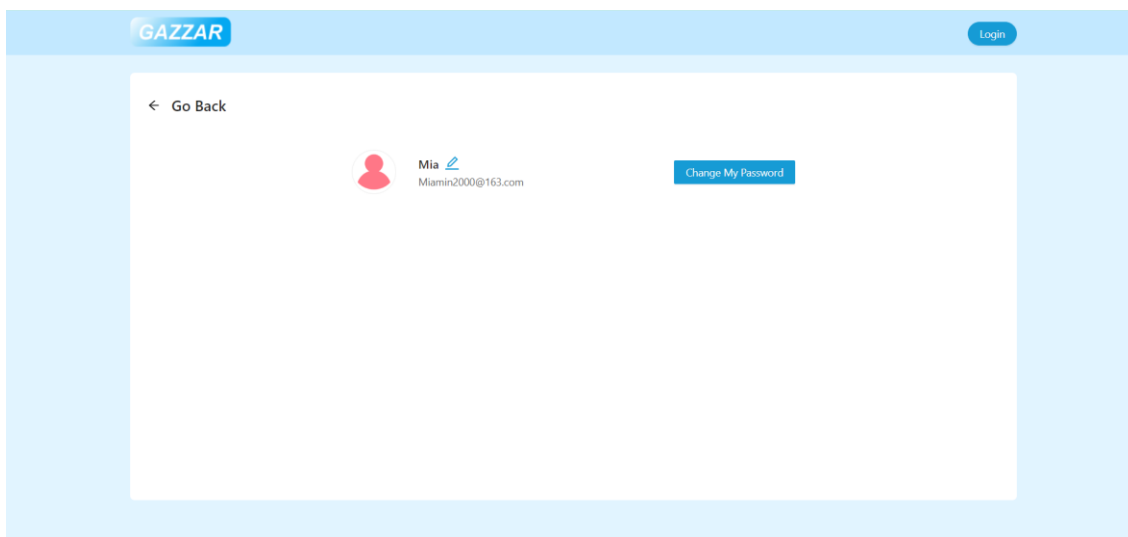
Mia filled in her new password and then clicked "Submit" button to update the new password.



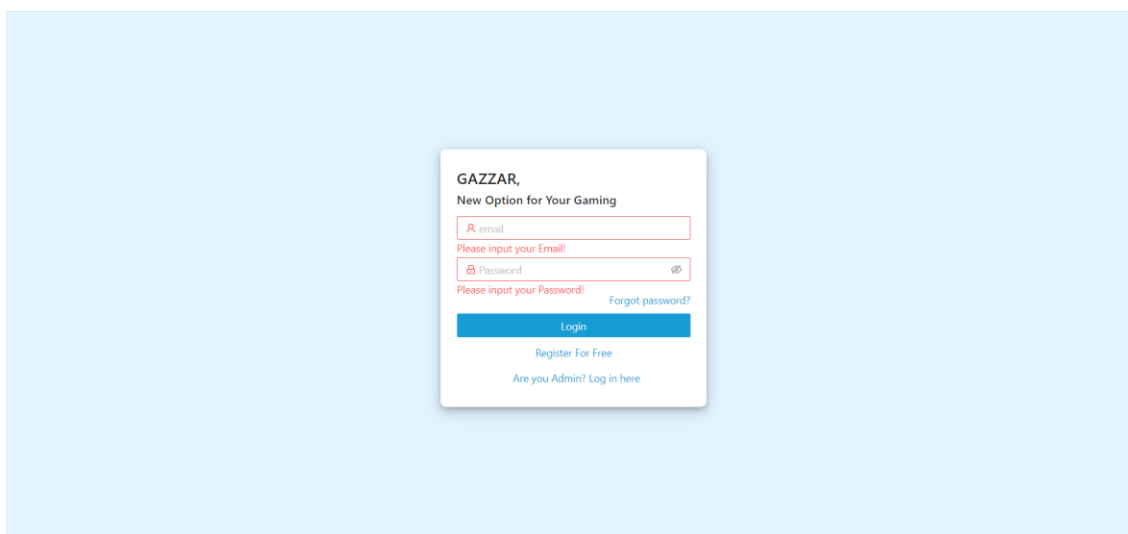




Then Mia can log out by clicking the "logout button".



Next time, she wants to login but she forgets the password, so she will go to the login page. If she forgets her password, she can click the 'Forgot password?' to jump to the forget password page.



Mia inserts the correct password and clicks the "send" button, and then she will receive an email containing her original password. She can change it later in the user profile after logging in.

The top screenshot shows a modal dialog with the text "We will send the new password to your email". It contains an "Email:" label, a text input field with the value "Miami2000@163.com", and a blue "Send" button.

The bottom screenshot shows the main login page for "GAZZAR, New Option for Your Gaming". It features a search bar with the value "Miami2000@163.com", a password input field with masked characters, a "Forgot password?" link, a blue "Login" button, a "Register For Free" link, and a link for "Are you Admin? Log in here".


localhost:8000/user/password






After login, Mia wants to browse the homepage and see what product she is interested in. The first two rows are discounted products, but Mia wants to buy one Civilization VI for herself. So she clicked the corresponding product and jumped to the product detail page.

GAZZAR

Logout

← Go Back





Sid Meier's Civilization® VI

Overall Rate: 5

Price

\$400

Quantity

1

Product Type

Strategy

Stock

500

Buy Now

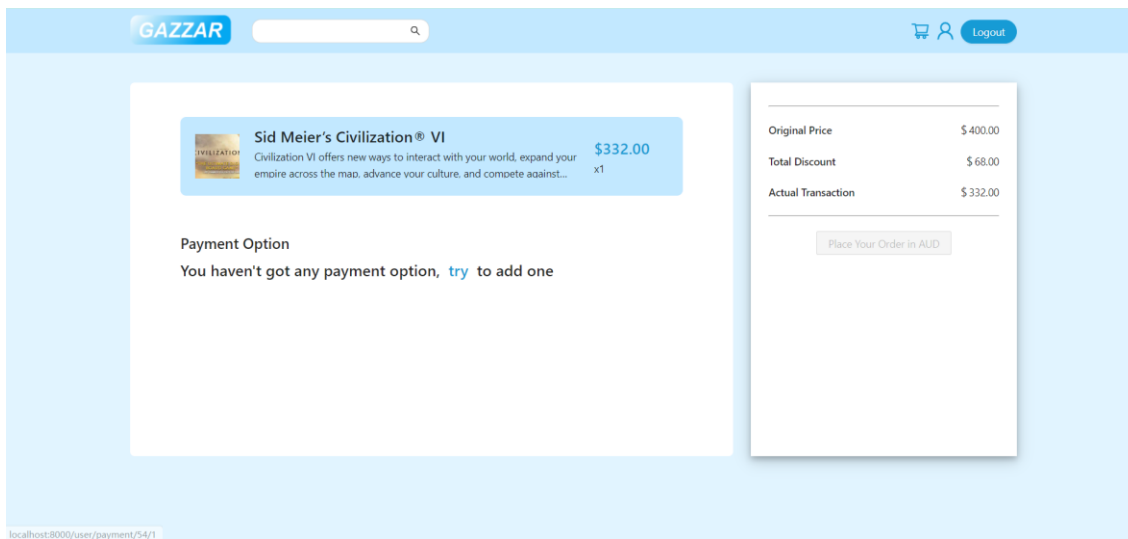
Add to Cart

Product Details

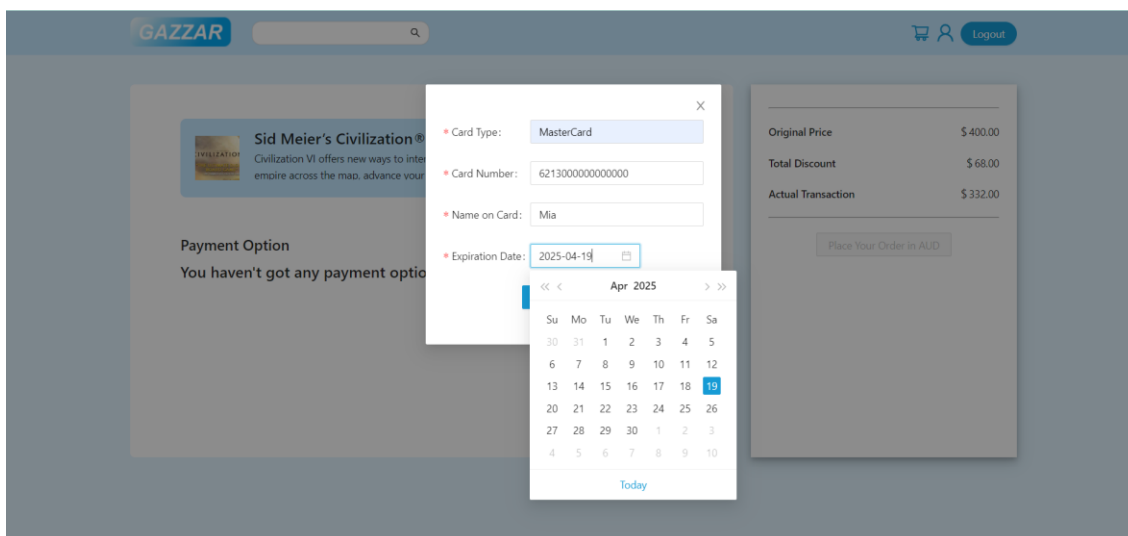
Comments

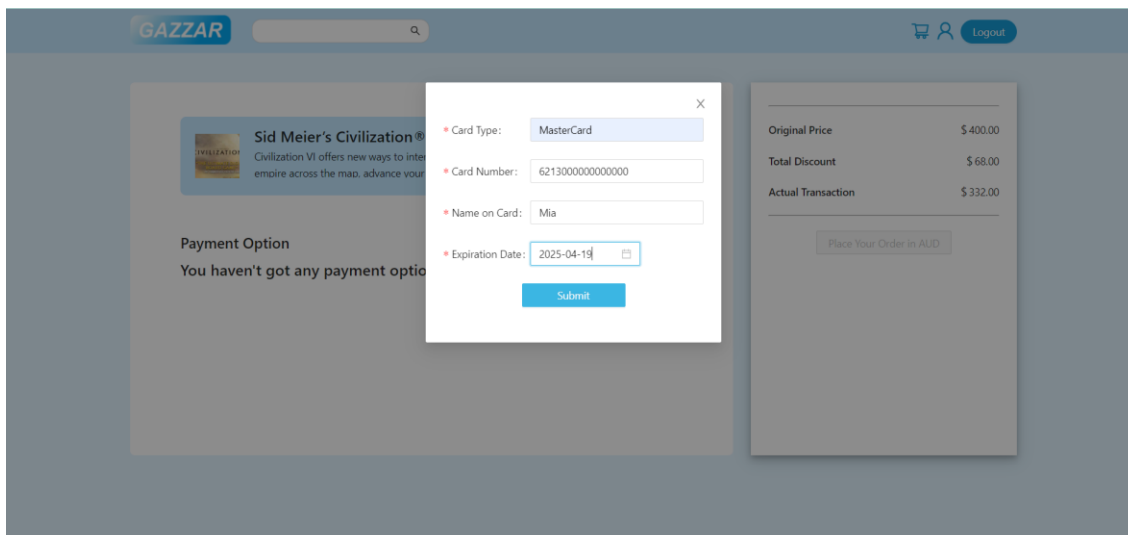
Civilization VI offers new ways to interact with your world, expand your empire across the map, advance your culture, and compete against history's greatest leaders to build a civilization that will stand the test of time. Play as one of 20 historical leaders including Roosevelt (America) and Victoria (England).

Mia wants to buy it now, so she clicked the "Buy Now" button and went to the checkout page (the price is different from the image above is because this is a product with additional discount in the surprise store as the novel function, we will talk about is at the end).

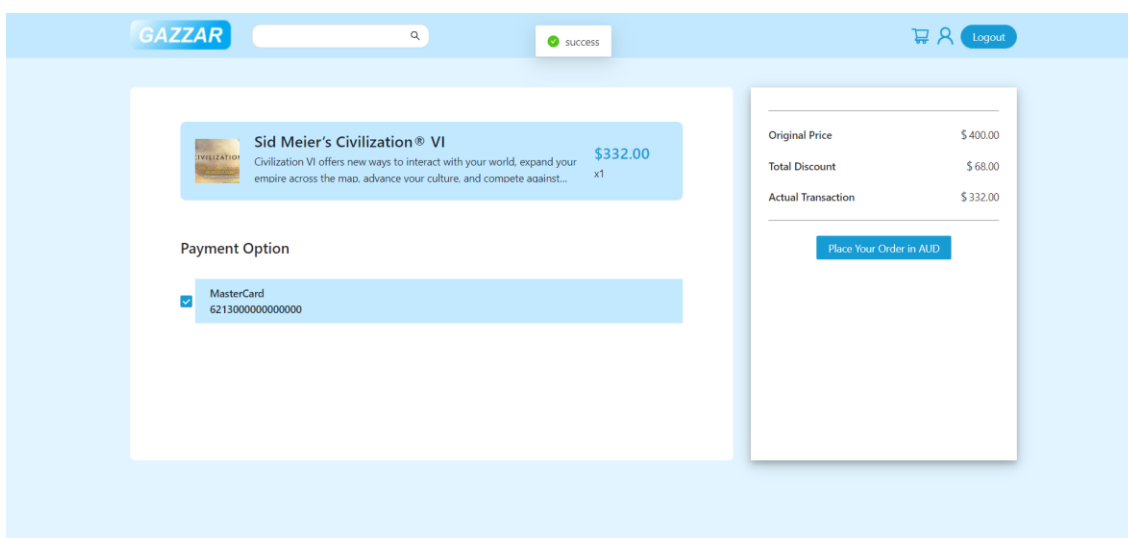


Here, Mia needs to click "try" to add a payment option. After she filled in successfully, she clicked the "Submit" button to add the information for this particular order.

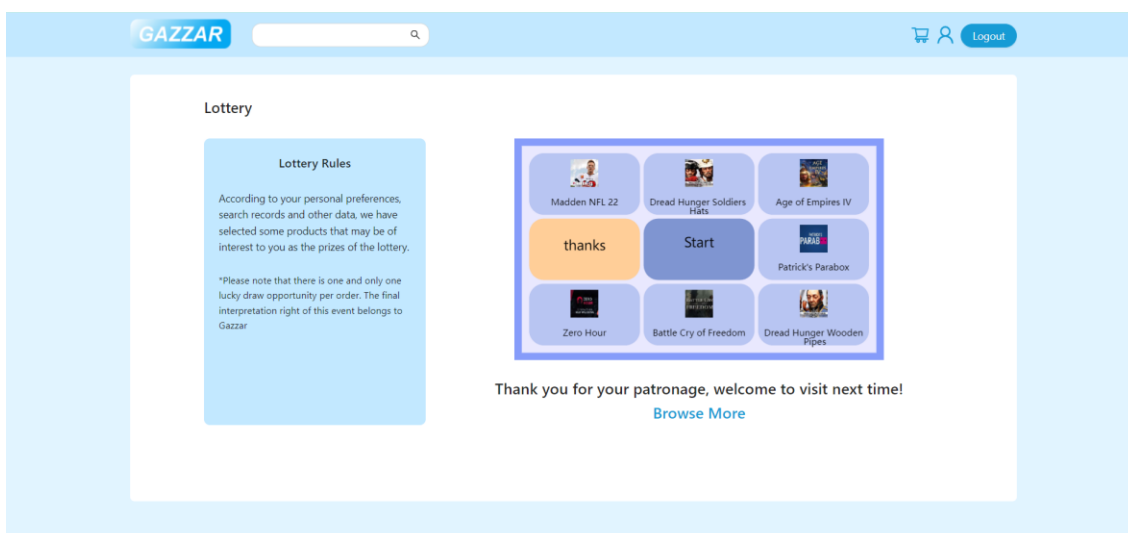




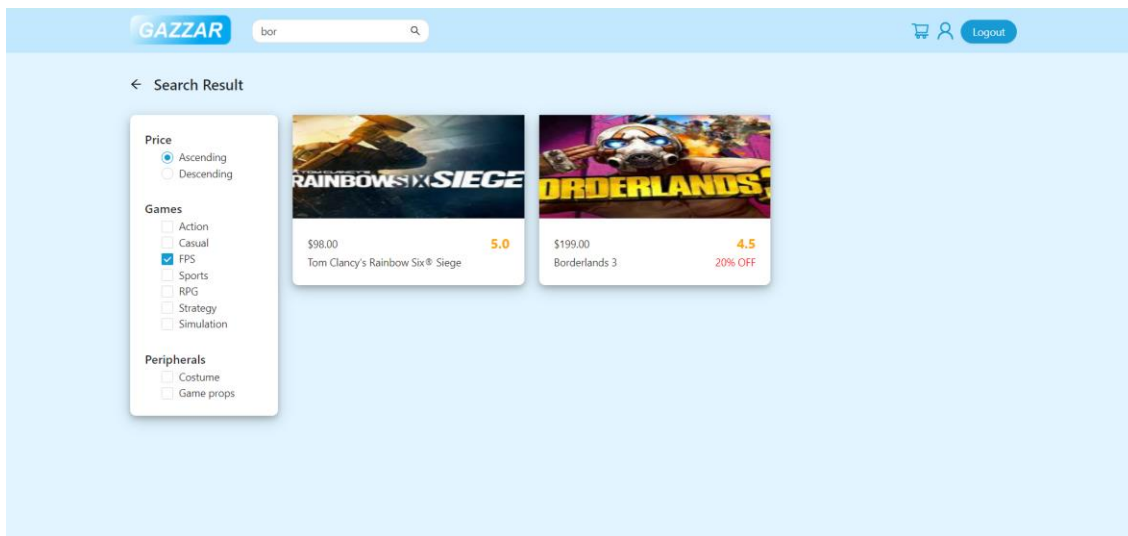
Then she only needed to click "Place my order in AUD", she would pay for the order successfully.



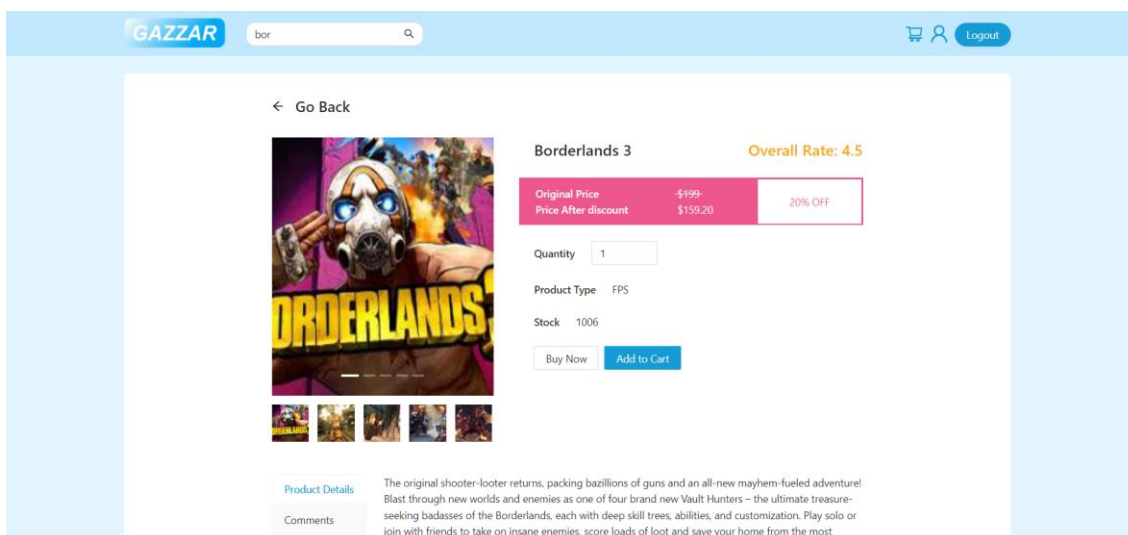
As soon as the payment is successful, The Gazzar will reward you with a try at the lottery lucky draw for each transaction. Mia Tried by clicking the "start" button, but she didn't win the prize.



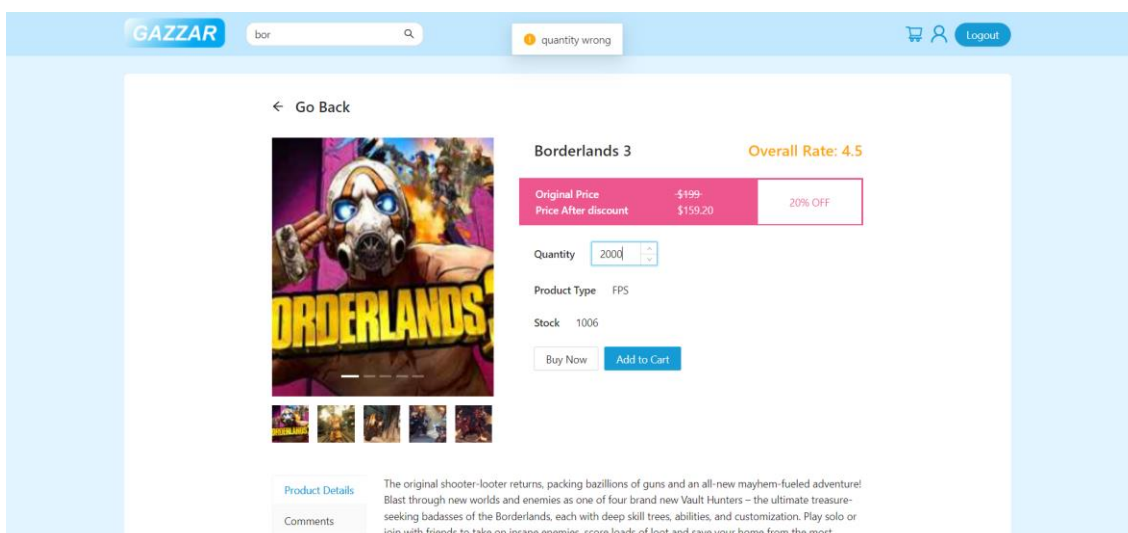
She did not go back to the home page by the guide of website. She wanted to search for another game called "borxxxxx" but she can't remember, so she just typed in "bor" in the search box and pressed "Enter" to search for the result.



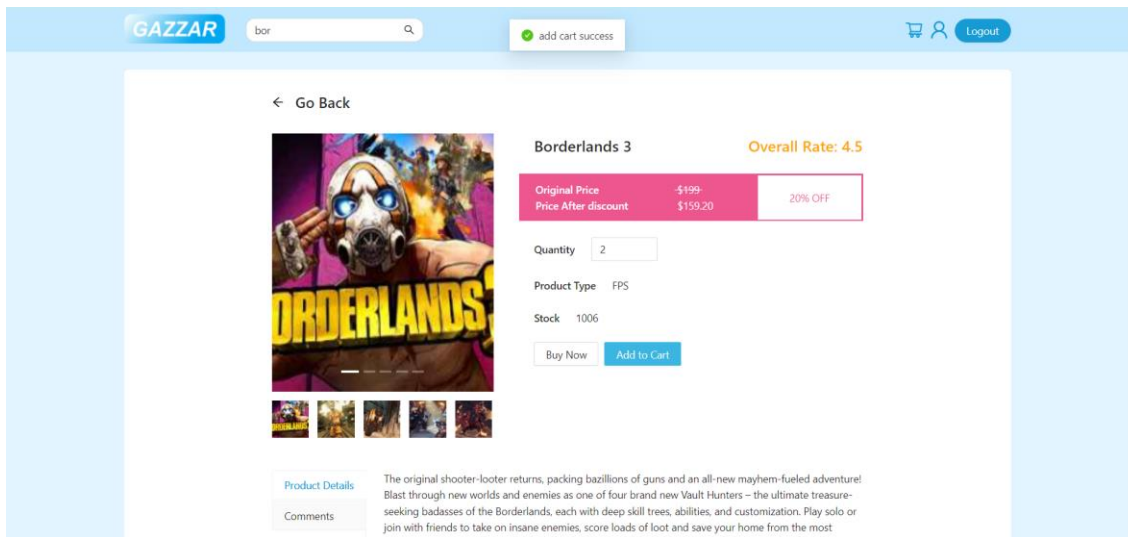
Then she saw the product detail.



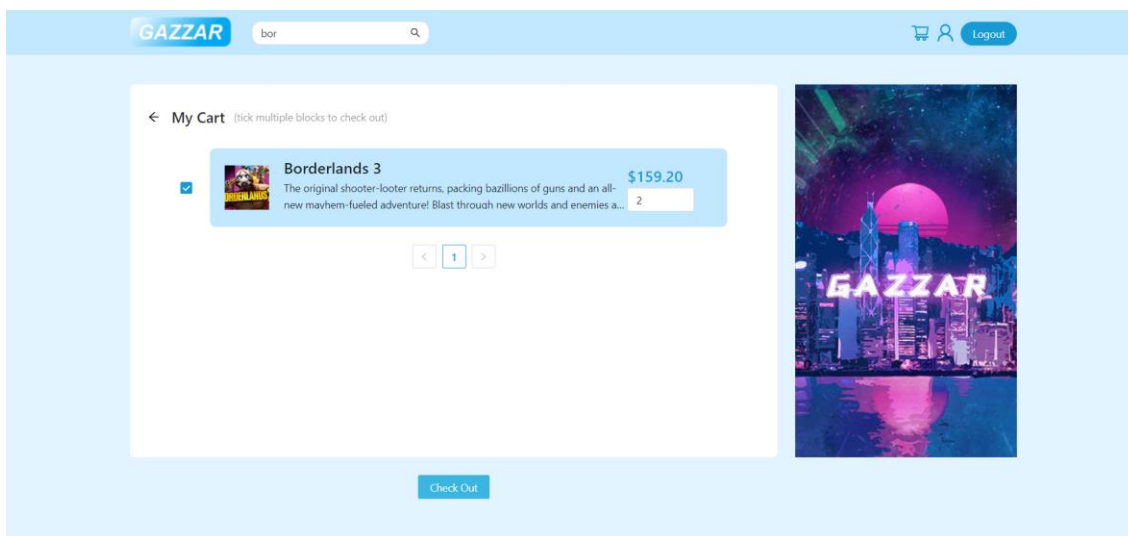
She tried to add the quantity more than the stock for a joke, but she failed.

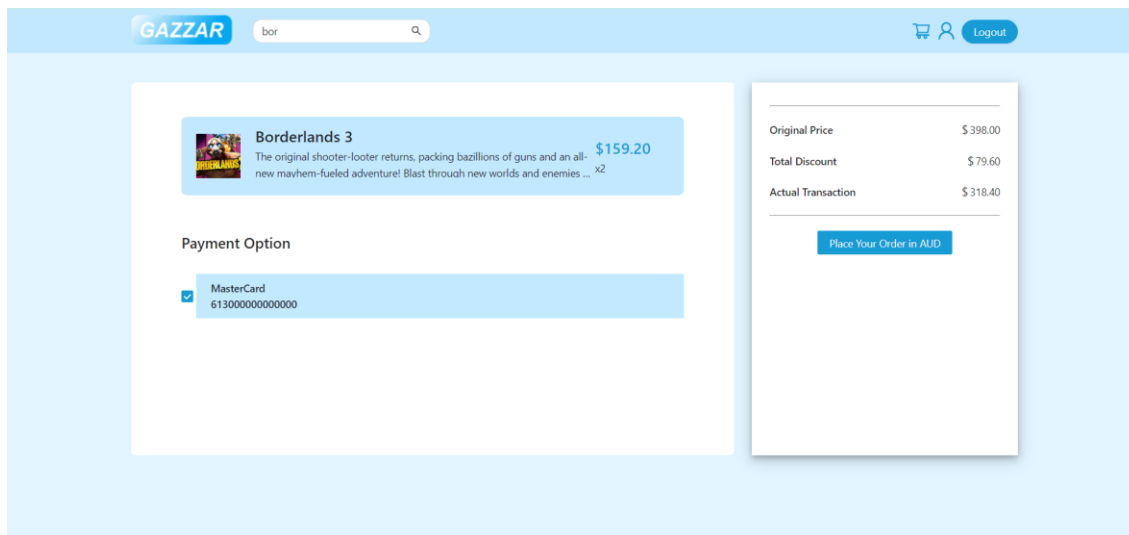


She tried to add 2 Borderland games to the cart by clicking the "Add to Cart", and she succeeded.

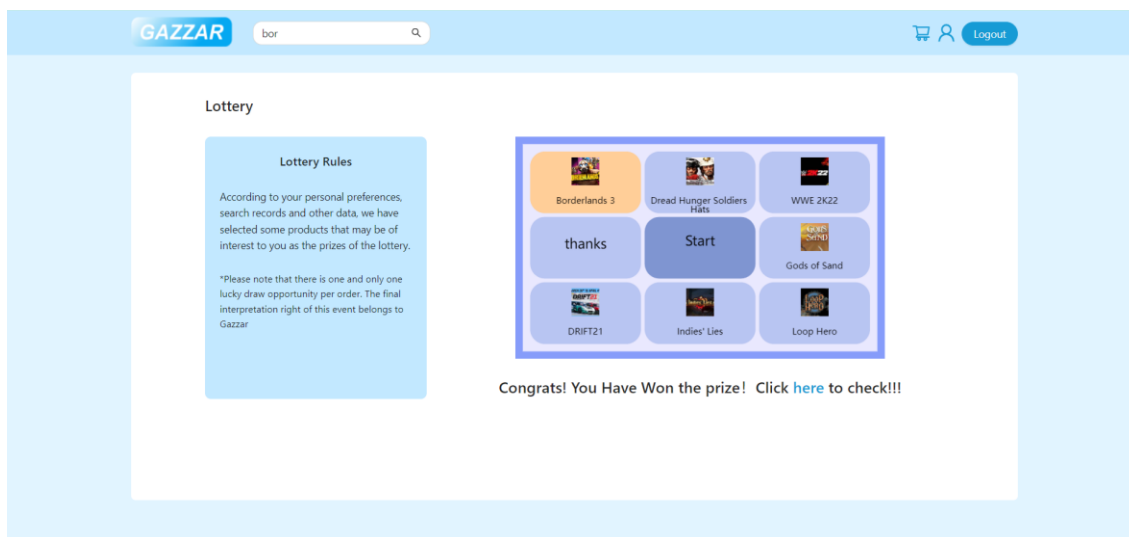


She wanted to confirm if the products had been added, so she clicked the "cart icon" in the navigation bar and jumped to the cart overview page (this page can also be accessed from the home page), where she could see the product added. By ticking the box on the left side, she can choose the item she wants to click the "check out" to check out.

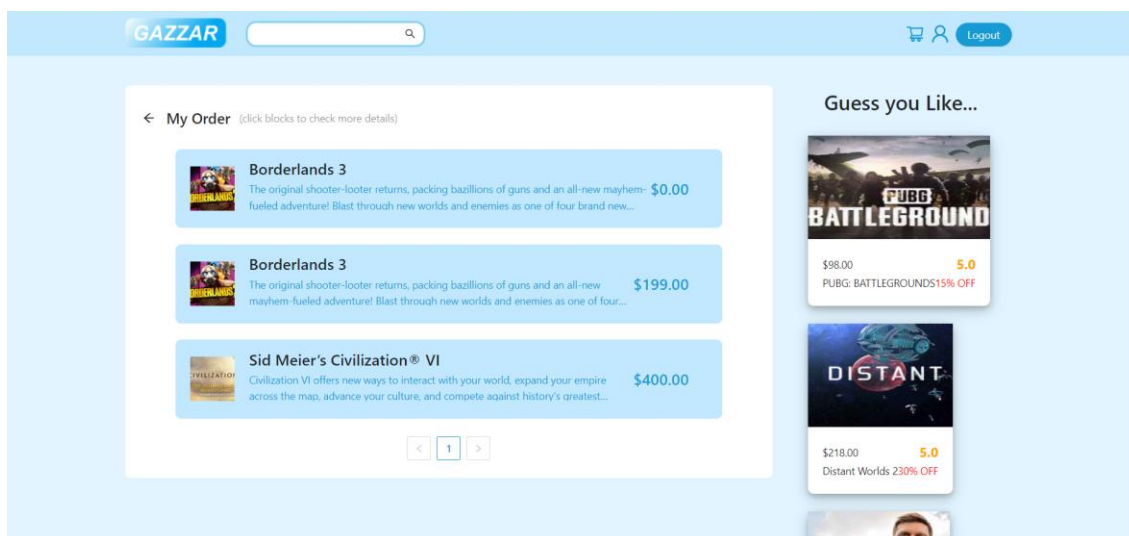




After placing the order successfully, Mia tried another lottery, and she won!!!



By clicking "here", she will be linked to the order page (this page can also be accessed from the home page), where she could see the prize was an order with 0AUD. She could also see orders and recommendations on the right.





By clicking the second order, she can see the data of the transaction from the order number, transaction time, purchase quantity, price and other dimensions etc.

GAZZAR

Borderlands 3

The original shooter-looter returns, packing bazillions of guns and an all-new mayhem-fueled adventure! Blast...

\$199.00

CDKEY E4GDS-BHN7R-17FXT-YKQ4V

Order number	3
Trading hours	2022-04-20 14:05:08
Product Name	Borderlands 3
Discount	39.80
Quantity	2
Unit Price	199.00
Actual transaction price	159.20

My Rate & Comment (Less than 500 character) ★ ★ ★ ★ ★

Mia wants to give Borderland a comment and rate, and this is what she wrote. After submitting, she won't be able to change it again.

My Rate & Comment (Less than 500 character) ★ ★ ★ ★ ★

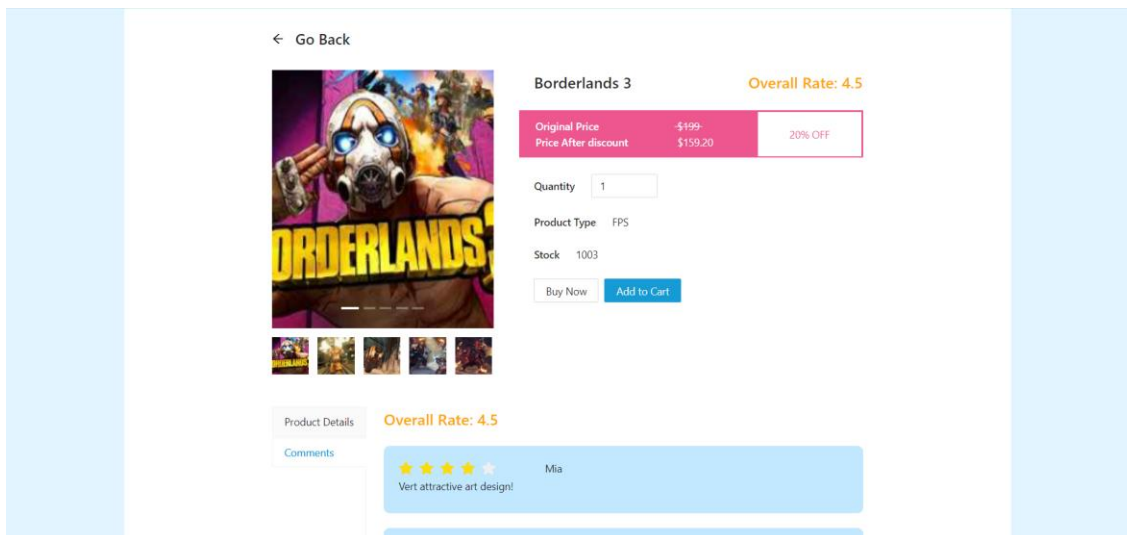
Vert attractive art design!

Submit

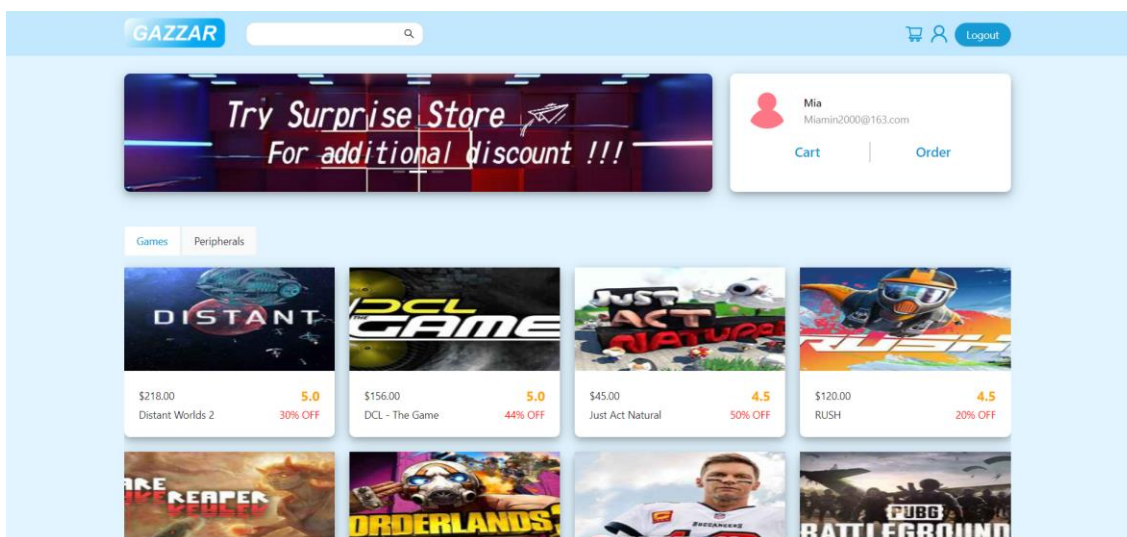
My Rate & Comment (Less than 500 character) ★ ★ ★ ★ ★

Vert attractive art design!

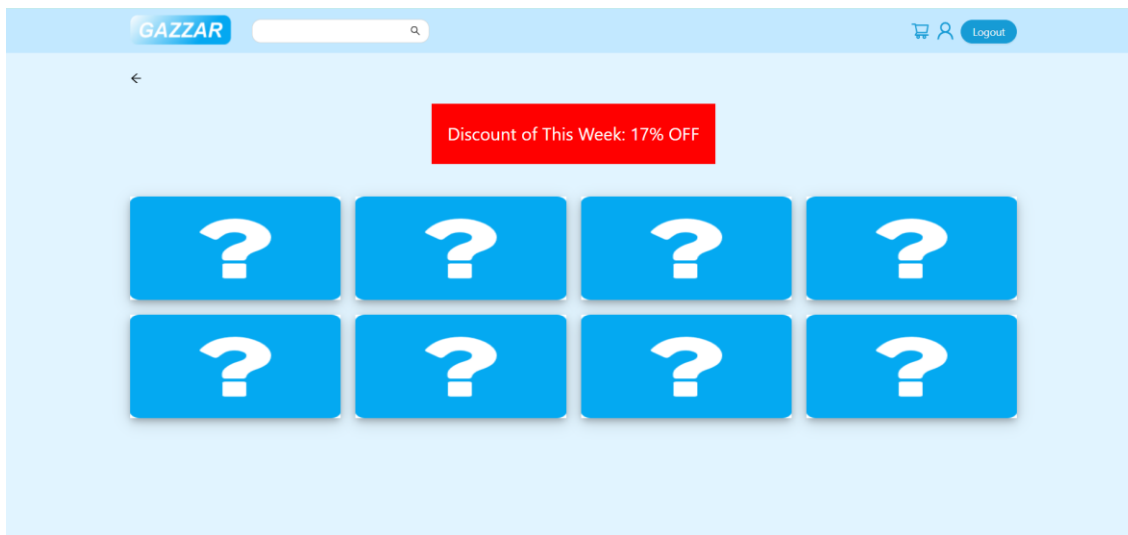
When she checked the product detail page for Borderland again, she will find her comment and rate.



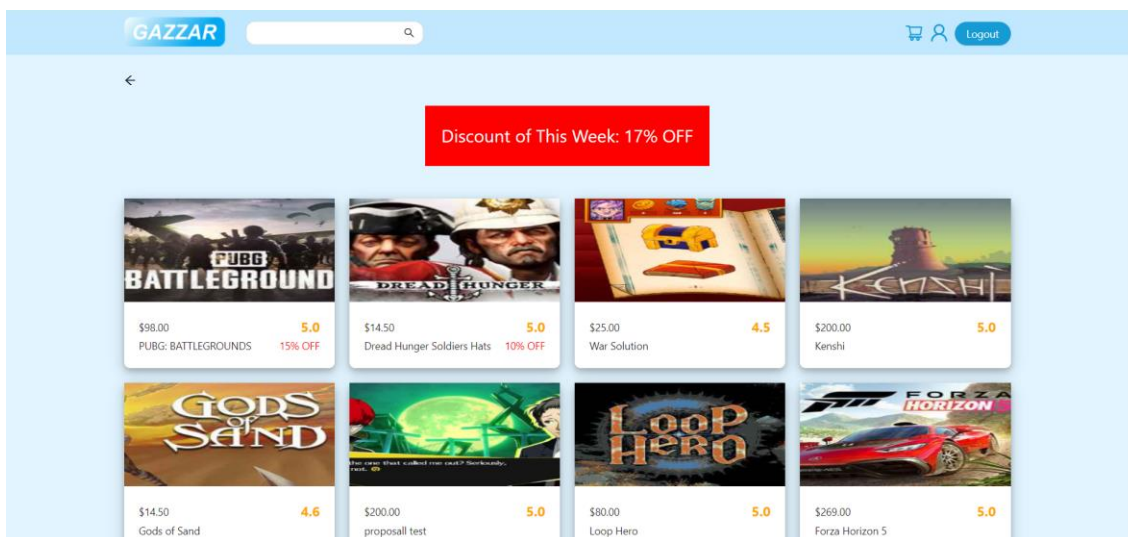
Last but not least, Mia finds out the Gazzar website has another novel feature besides the lottery, that is the surprise store. She viewed the carousel banner on the home page and found the poster.



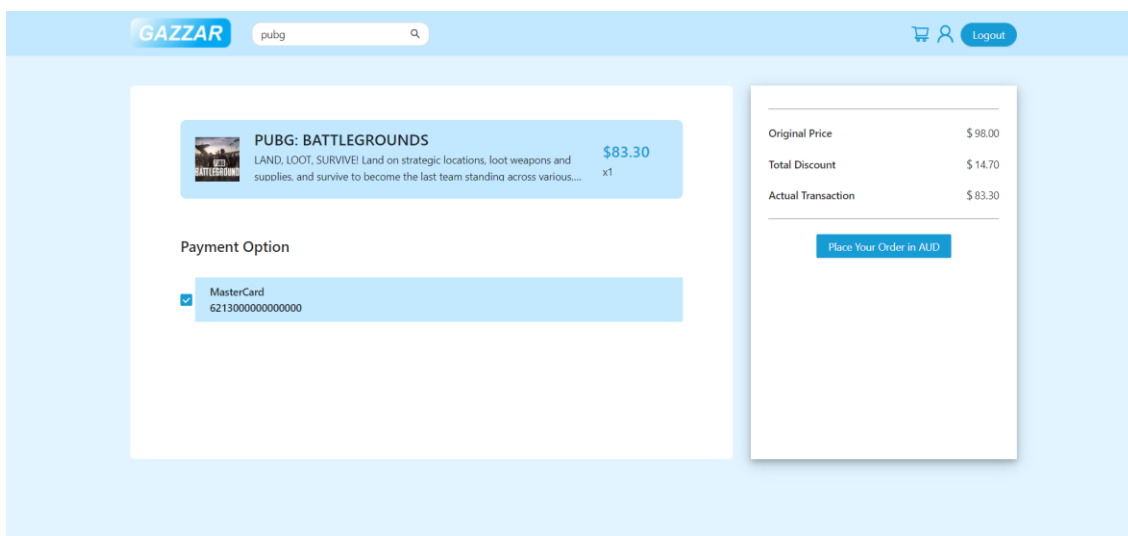
After clicking the banner image, she was directed to the surprise store. She saw her special discount for this week was 17% off.



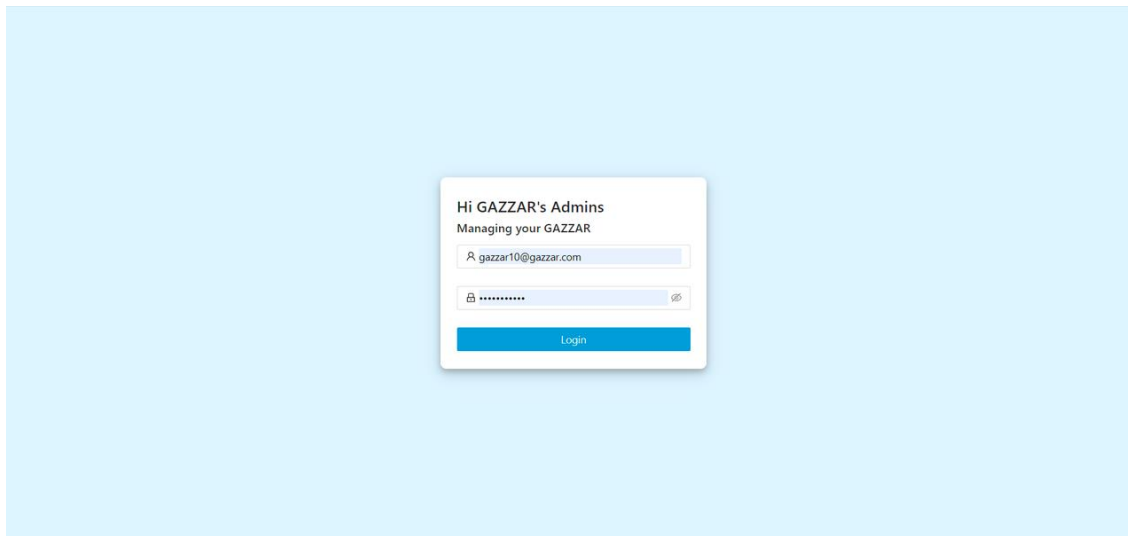
By clicking the hover, the recommended products were revealed. They all have an additional discount when Mia buy them.



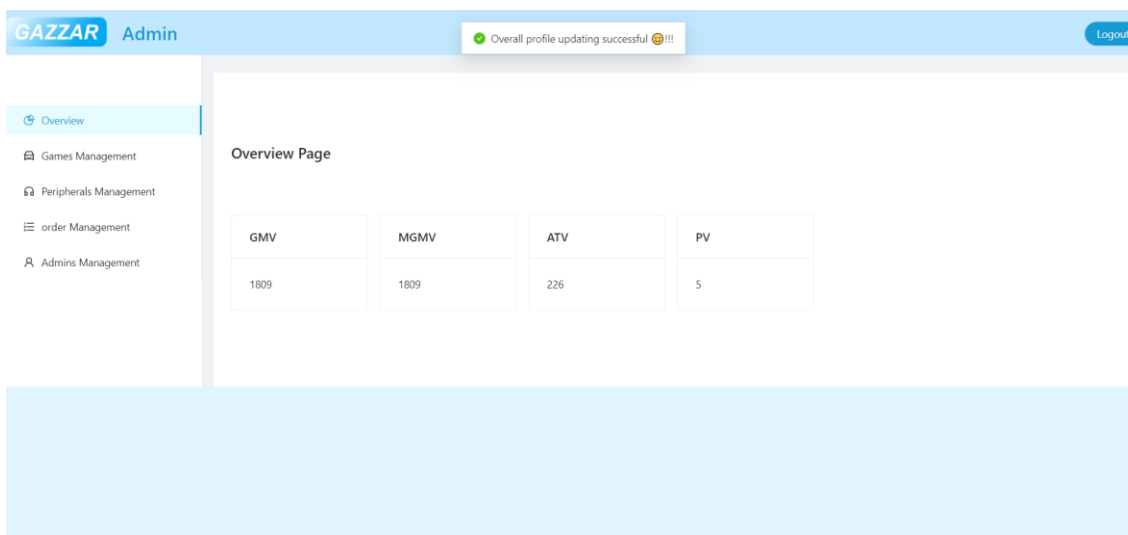
This is exactly the discount and the actual transaction.



## 6.2 Seller (admin)



This is the admin login page. After clicking the login Button, it will go to Overview Page



When clicking Game Management Button and Peripherals Management Button, we can see all games and peripherals on the website. After clicking the search Button, we can search by product name or peripherals name.

GAZZAR Admin Logout

[overview](#)
[Games Management](#)
[Peripherals Management](#)
[order Management](#)
[Admins Management](#)

Game Management Page

Search Game Here Q Add new Game

ID	Product Name	Type	Rate	State	Last Modified by	Stock	operation
1	War Solution	Strategy	4.5	On Sale	gazzar@gazzar.com	91	<a href="#">Delete</a> <a href="#">Edit</a>
2	Legend of Ixtona	RPG	4.5	On Sale	gazzar6@gazzar.com	44	<a href="#">Delete</a> <a href="#">Edit</a>
3	Ghostwire: Tokyo	Action & Adventure, Sports & Racing	5	On Sale	gazzar@gazzar.com	0	<a href="#">Delete</a> <a href="#">Edit</a>
4	Gods of Sand	Simulation	4.6	On Sale	gazzar6@gazzar.com	100	<a href="#">Delete</a> <a href="#">Edit</a>
5	Just Act Natural	Action & Adventure, Strategy	4.5	On Promotion	gazzar@gazzar.com	173	<a href="#">Delete</a>

GAZZAR Admin Logout

[overview](#)
[Games Management](#)
[Peripherals Management](#)
[order Management](#)
[Admins Management](#)

Peripherals Management Page

Search Peripherals Here Q Add new Peripherals

ID	Product Name	Type	Rate	State	Last Modified by	Stock	operation
29	proposal test	Game Props, Costume	5	On Sale	gazzar@gazzar.com	123	<a href="#">Delete</a> <a href="#">Edit</a>
63	Dread Hunger Fine Rings	Costume	5	On Sale	gazzar10@gazzar.com	99	<a href="#">Delete</a> <a href="#">Edit</a>
64	Dread Hunger Soldiers Hats	Costume	5	On Promotion	gazzar10@gazzar.com	77	<a href="#">Delete</a> <a href="#">Edit</a>
65	Dread Hunger: Wooden Pipes	Costume	5	On Sale	gazzar10@gazzar.com	100	<a href="#">Delete</a> <a href="#">Edit</a>
66	Don't Starve Together: Wanda Deluxe Chest	Game Props, Costume	5	On Sale	gazzar10@gazzar.com	34	<a href="#">Delete</a> <a href="#">Edit</a>
67	Don't Starve Together: Wortox Deluxe Chest	Game Props, Costume	5	On Sale	gazzar10@gazzar.com	99	<a href="#">Delete</a> <a href="#">Edit</a>
68	Don't Starve Together: Wormwood Deluxe Chest	Game Props, Costume	5	On Sale	gazzar10@gazzar.com	99	<a href="#">Delete</a>

After clicking the Edit button for each product, then it will turn to edit page.

GAZZAR Admin Logout

[overview](#)
[Games Management](#)
[Peripherals Management](#)
[order Management](#)
[Admins Management](#)

[Go Back](#) transfer to Game Management

Edit Game

Game ID: 2

Game Name: Legend of Ixtona

Unit Price: 22.5



Discount(%): 0

State: On Sales

Stock: 44

Game Type: RPG

Game Description: Fight turn-based strategy battles and save the kingdom of Ixtona

Photo:   + Upload

Upload the photo here

After clicking the order Management, we can see all orders. After clicking the search Button, we can search by the order id and product name.

GAZZAR Admin Logout

overview

Games Management

Peripherals Management

order Management

Admins Management

Order Management Page

Search Here By Order ID By Product Name

Order Number	Product Name	Quantity	Discount	Tranding Hours	Actual Transaction Price (AUD)
1	Just Act Natural	2	50%	2022-04-17 16:30:57 (UTC+5)	45
2	Crusader Kings III	2	0%	2022-04-17 16:32:13 (UTC+5)	55
2	Dread Hunger Soldiers Hats	1	10%	2022-04-17 16:32:13 (UTC+5)	14.5
3	Pro Cycling Manager 2021	3	0%	2022-04-17 16:32:34 (UTC+5)	200
4	Loop Hero	1	0%	2022-04-17 16:35:10 (UTC+5)	80
5	Ghostwire: Tokyo	1	0%	2022-04-17 18:53:43 (UTC+5)	449.99
5	Cities: Skylines	2	0%	2022-04-17 18:53:43 (UTC+5)	80

After clicking the Admins Management, we can see all admins. And we also can delete the admin if the admin is the super-admin.

GAZZAR Admin Logout

overview

Games Management

Peripherals Management

order Management

Admins Management

Admins Management Page

Email: 

Register

Email	Password	operation
gazzar@gazzar.com	Boss@123456	Delete
gazzar6@gazzar.com	Boss@123456	Delete
gazzar7@gazzar.com	Boss@123456	Delete
gazzar8@gazzar.com	Boss@123456	Delete
gazzar9@gazzar.com	Boss@123456	Delete
gazzar10@gazzar.com	Boss@123456	Delete

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- Pallets. (2010). Flask Documentation. Flask-SQLAlchemy Documentation (2.x). Retrieved from <https://flask-sqlalchemy.palletsprojects.com/quickstart/>
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- Python Software Foundation. (2022). smtplib — SMTP protocol client. Retrieved from <https://docs.python.org/3/library/smtplib.html>
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- XTech. (2022). AntDesign A design system for enterprise-level products. Create an efficient and enjoyable work experience. Retrieved from <https://ant.design/>