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Online Quadace Gamestore: Selling, Renting and Trading Video Games Online

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Abstract: The Selling, Renting and Trading Video Games Online for Quadace Gamestore is a web-application which act as a platform for Quadace Gamestore to do their business online. The purpose of developing this system is to solve the problem of decreasing profit in their business during MCO. This system allows customers to purchase, rent or trade game products online. Product information will be displayed according to their category in the home page. To ensure the safety of user, they are required to register or login before they can make any payment. The user of the system will be administrator. The functional modules are login module, customers management module, product management module, ordering management module and generate report module. The software using will be Microsoft Visual Studio Code and the database used is Microsoft SQL Server Management Studio 18. Through the system, customer can make order through the system online while the administrator will deliver their game product to their doorstep. The development of this system will make the business of Quadace Gamestore better because more people may access to their shop through online website.

Keywords: gamestore, video games, web-application

1. Introduction

In 2020, the COVID-19 is presently ravaging the world and causes a huge impact to the world economy, including Malaysia [1]. The enterprises in Malaysia are severely affected by the pandemic [2]. Every citizen must adhere to the Movement Control Order (MCO) and Recovery Movement Control Order (RMCO) promulgated by the Malaysian government and stays at home [3]. This leads to quite several people that stay-at-home increase and their free time increase too [4]. Therefore, demand of having some entertainment at home increase [5]. On the other hand, there is also a drastic decrease in the turnover of the enterprises like game sellers during this period because face to face selling has been decrease [6]. Therefore, Quadace Gamestore also faced the problem.

This project aims to design and develop an online website which may help Quadace Gamestore to solve their business difficulties during this period. Customers can order the game through an online website from the shop and the shop will delivers to the customers. If the customer chooses to rent game, then the customer had to drop off the game to the courier service center to return the product they rent. Besides, when the customers face some problems during an online purchase, they can contact the store owner through the online website[7]. By giving feedback or contacting the owner of the store, the problems can be solved in time [8].

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2. Related Work

2.1 Gamers Hideout

Gamers Hideout is a game shop that is now soaring high in its achievements, particularly in game shop [9]. This is because its perfect and effective management application brings strong public trust to them. Gamers Hideout website use high-level advertisement to their story and highlight promotion game. It has many physical game stores located in Kuala Lumpur. Besides that, they also always promote their products through various platforms, especially through their websites and agents which attract customers' interest.

In Gamers Hideout application, the customer can access the website as guest. However, customers must login or register if they want to make order. Customer will see the promotion page at first to check whether what is the product undergoing promotion at the current period. Next, customer can check the product games according to the console group they want. From the product, they are allowed to view all the product description and total prices. The customer can also delete or add any items before confirming the order.

The interface of web application which displays the categories of product, contact menu, cart, customer's account, and search bar. Home page of Gamers Hideout interface is easy to use and user-friendly. In login and register module in Gamers Hideout, the customers need to enter their username or email address with password to login to the application. They are also able to login with Facebook or Google. There is a "Remember me" section provided for the customers who don't want to login every time they access the webpage.

In this application, menu module displays according to the category of the type of genre of the video games. Each product has a price and description for the customer to choose the products they want. The order module of Gamers Hideout displayed the price of individual and total. Customers may apply promotion code before proceeding to checkout to get discount. Besides that, customer can delete, add items and change the quantities of the product from this module.

2.2 G2A

For the application G2A, it is a application developed in mobile application. It has three main modules for the application. The three main modules are profile modules, promotion modules and ordering modules.

The profile modules is a module with contain customer's personal details and setting. Customers may choose to sign in with Google or with Facebook. Customers can check their orders and change the currency in this module too. Besides that, customer can enable notifications to receive message from this mobile application.

The promotion page is the home page of the application. Whenever the user opens the application, they will see the promotion page. From the promotion page, the user can know what the limited promotion at the moment is.

In ordering module of G2A, the products are displayed with the photo, name, prices, and details. Customer may choose the payment method which is buy with online banking or buy with plus. If the product has discount, it will also display the original price and the discount percentage.

2.3 Steam

Steam is a video game digital distribution service by Valve [10]. It was launched as a standalone software client in September 2003 as a way for Valve to provide automatic updates for their games and, expanded to include games from third-party publishers. Steam has also expanded into an online web-based and mobile digital storefront. Steam offers digital rights management (DRM), server hosting, video streaming, and social networking services. It also provides the user with installation and automatic updating of games, and community features such as friends lists and groups, cloud storage, and in-game voice and chat functionality.

Steam has four main modules which are profile module, recommendations module, catalogue module and community module.

In the profile module of Steam, a user must register an account to access features in Steam. The profile module will show the details of the user. Recent Activity will also be displayed on the profile of the user. User are allowed to add friends and friends will be displayed on profile too.

The recommendation module is the home page of Steam. When the user opens the application, they are able to see all the promotion ongoing and available.

In the catalogue module of Steam. All game products are listed neatly and there are with name, price, and description. Customers may click the products to buy online. However, Steam only sells online game, so delivery address no need to be considered in this application.

The community module is built like a forum. It allows all the user to communicate among each other about the games here. Besides that, this module has a sub-module call review that enable users to give their review here.

2.4 Comparison Analysis of existing application and proposed applications

Most of the existing application provide function of login, register, product promotion and ordering section. Gamers Hideout and G2A has delivery section while Steam don't have because Gamers Hideout and G2A are selling physical game whereas Steam is selling virtual game. However, Gamers Hideout has trading section but the other two don't have. Notification section also important for the application but only G2A have this function. Therefore, proposed application going to implement all the functions to make it more user friendly.

Table 1: Comparison Analysis between existing application and proposed application

Features/Modules	Gamers Hideout	G2A	Steam	Quadace Gamestore
Login	Yes	Yes	Yes	Yes
Register	Yes	Yes	Yes	Yes
Product Promotion	Yes	Yes	Yes	Yes
Ordering Section	Yes	Yes	Yes	Yes
Delivery Section	Yes	Yes	No	Yes
Renting Section	No	No	No	Yes
Trading Section	Yes	No	No	Yes
Search Module	Yes	Yes	Yes	Yes

3. Methodology/Framework

Prototyping methodology is us used in this project. It can be explained by the context of “prototype” [11]. Prototyping Model is also known as application development method (SDM). The development of the prototype can apply to both hardware design and software development. Prototype Modelling is a method of software development in which the prototype is produced, tested, and revised until it is good. The main purpose of the prototyping model is to satisfy the customer’s need where the developer presents the prototype to the customer then modifies according to the suggestion make then implemented in the prototype and again it is presented to the customer for evolution.

3.1 Planning Phase

In the planning phase, the title of the project is decided. After deciding the title, the project proposal with objectives, problem statements and scopes was prepared. A schedule of the development process has also determined in this phase.

3.2 Requirements gathering and analysis phase

System requirements analysis covers all activities that determine the requirements or specifications to be met for a new or upgraded product or project, taking into account the different stakeholders' potentially conflicting requirements, evaluating, recording, validating and managing program or system requirements. The system requirements are divided in two which is functional requirement and non-functional requirement.

Table 2: Functional Requirement of the project

Item	Parameter Name
Login Module	- The system should allow administrator and customer login to the system using username and password.
	- The system should authenticate the user during the login process with a valid id and password.
	- If the system detects an invalid input for username and password, error message will appear.
	- The system should allow the users to register before login.
	- The system should redirect to the dashboard after a user successfully logged in.
Customers Management Module	- The system should allow administrator to edit and delete the customers' information.
	- The system should allow administrator to search the customers present and check their profile in the system.
Product Management	- The system should allow administrator to add, edit and delete the product selling.
	- The system should allow administrator to add, edit, update, and delete the price of product.
Ordering Management	- The system should allow customers to buy or rent the video games.
	- The system should allow customers to pay through online transaction.
	- The system should allow customers to enter select the delivery option.
	- The system should allow customers to trade their game.
Search Module	- The system should allow the user to search the products by product name.
Generate Report	- The system should allow administrator to generate a report for daily sales or monthly sales.

Table 3: Non-functional requirement

Item	Parameter Name
Performance	- The interaction between the user and the system should not be more than 10 minutes.
	- The system should be able for use anytime.
Operational	- The system should be user friendly.
	- The system should be able to work on any web browser
	- The system should be easily maintained and updated
Security	- Only administrator can generate the report
	- Users can only access their own account with user id and password
Reliability	- The system should allow multiple devices to operate at the same time
Look and feel	- The system should look clean and tidy.

In this gathering and analysis phase, steps to find out what should be develop based on the existing inventory application and how to build the new features for the existing online store must be listed. Information is gathered and changed into requirements after analysing the information. To obtain all the information, an interviewed is conducted to see their expectations from the application. This helps

the analysts to develop an initial set of application requirements according to aspects of the existing applications.

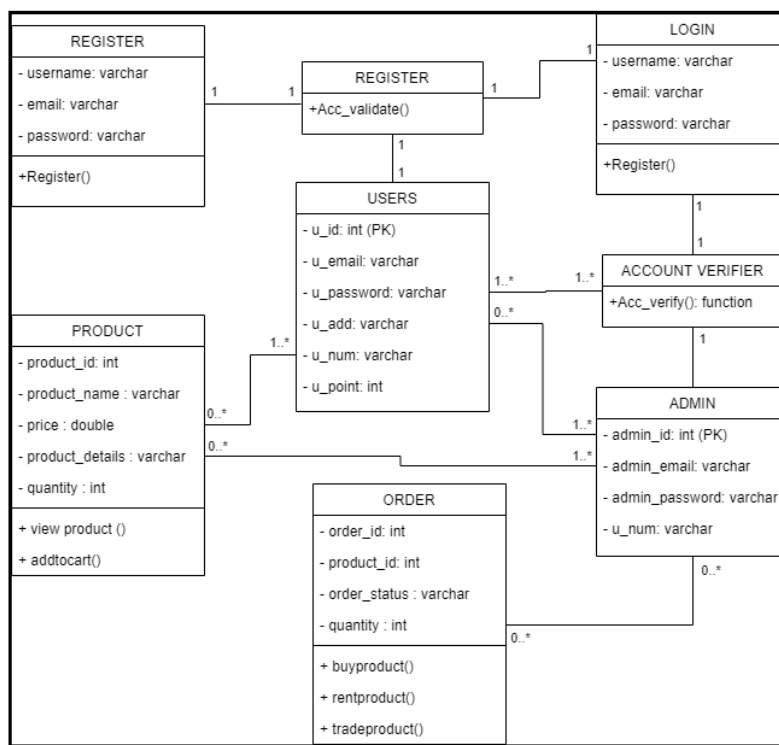


Figure 1: Class Diagram

After identifying the object classes from the use case diagram, a class diagram is created. Figure 2 is the class diagram. The goal of a class diagram is to show the relationship between the class objects in the use case diagram.

3.3 Design phase

In design phase, a simple and quick structure design will be created related to the planning and requirement analysis. Hardware, software, and network infrastructure that have been used to develop the application was determined in this phase too. Following that, interface design was completed to establish the application's navigation mechanisms, which were then followed by database and file specification, which determined what and where the data was stored. Finally, the application's exact job requirements were defined.

User interface design refers to the visual layout used to build interfaces in computer devices or software. The advantage of user interface design helps in captivates the viewers and persuades them to remain on the platform and take a closer look at it. Next, there are two types of interfaces design on the proposed system which is customer interface and admin interface. The interface design is described based on the modules of the proposed system.

The screenshot shows the QUADACE website's login and registration interface. The header features the QUADACE logo and the text "GAMES STORE". The page is divided into two main sections: LOGIN and REGISTER. The LOGIN section includes a "Username or email address" field, a "Password" field, a "Remember me" checkbox, a "LOG IN" button, and a link for "Lost your password?". The REGISTER section includes "Username", "Email address", "Password", and "Retype Password" fields, along with a "REGISTER" button.

Figure 2: Login and Registration Page

The screenshot displays the user homepage. The top navigation bar includes a search bar, a "BUY RENT TRADE" menu, and a shopping cart icon. A sidebar on the left lists various console categories: PlayStation5, PlayStation4, Xbox Series X, Xbox One, Nintendo Switch, PlayStation3, Xbox 360, 3DS, 4K UHD, Blu-ray, and Consoles. The main content area features a large placeholder image of a person and a row of four product cards, each with a placeholder image and the text "Product Name Price".

Figure 3: User Homepage

The screenshot shows the trade-in submission page. The top navigation bar is identical to the homepage. The sidebar on the left lists the same console categories. The main content area is titled "Trade-in Submission" and contains two sections: "Product Details" and "User Profile". The "Product Details" section includes "Product Name" and "Price" input fields, and a "Category" dropdown menu with options for "Nintendo Switch", "XBox", and "Play Station". The "User Profile" section includes "Name" and "Telephone Number" input fields. A "SUBMIT" button is located at the bottom of the form.

Figure 4: User Trade-in Submission Page

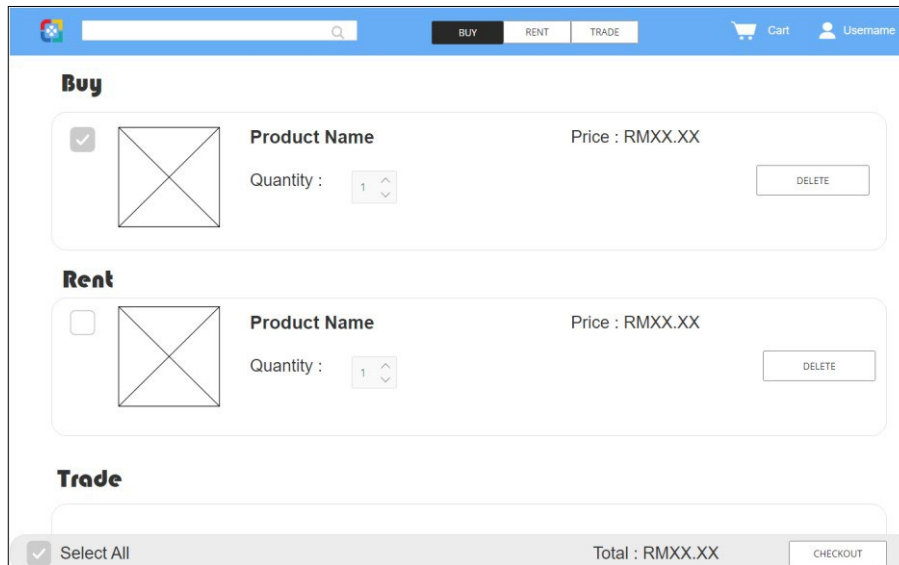


Figure 5: Cart Page

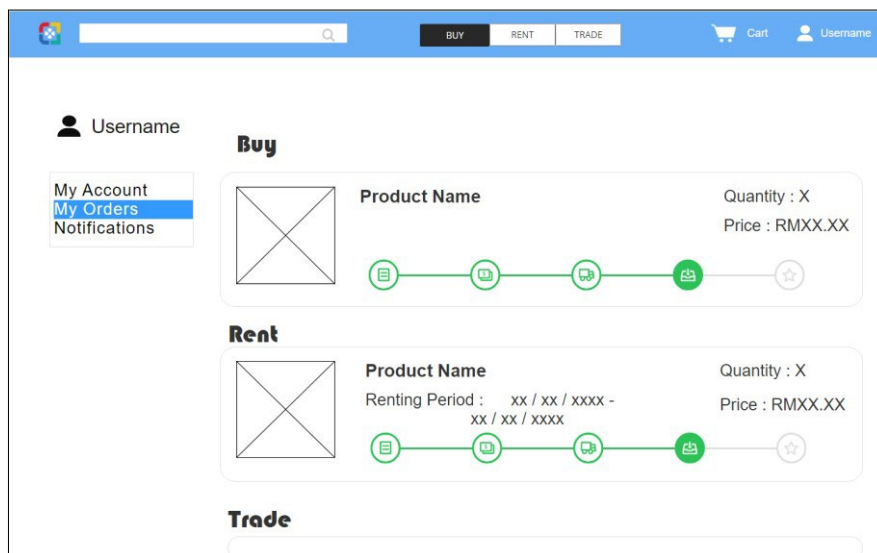


Figure 6: Checking Ordering Page

Figure 4 above shows user interfaces. Customer interfaces consist of login and registration, homepage, category menu, order, Address detail and tracking number detail. This customer interface helps to visualize the layout in developing the proposed system later.

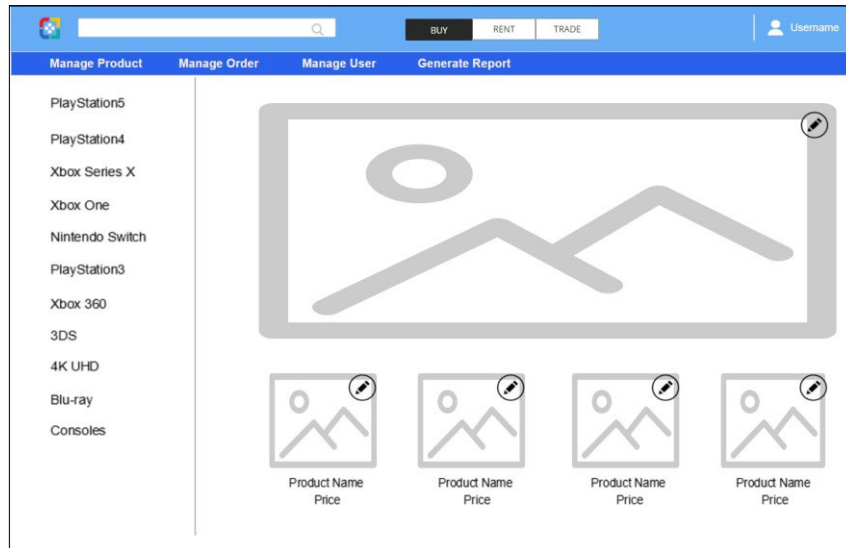


Figure 7: Admin Manage Product Page

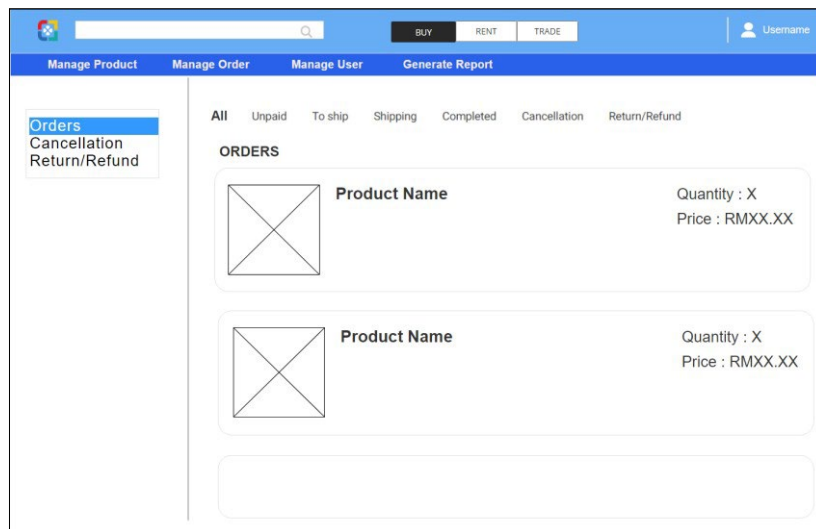


Figure 8: Admin Manage Order Page

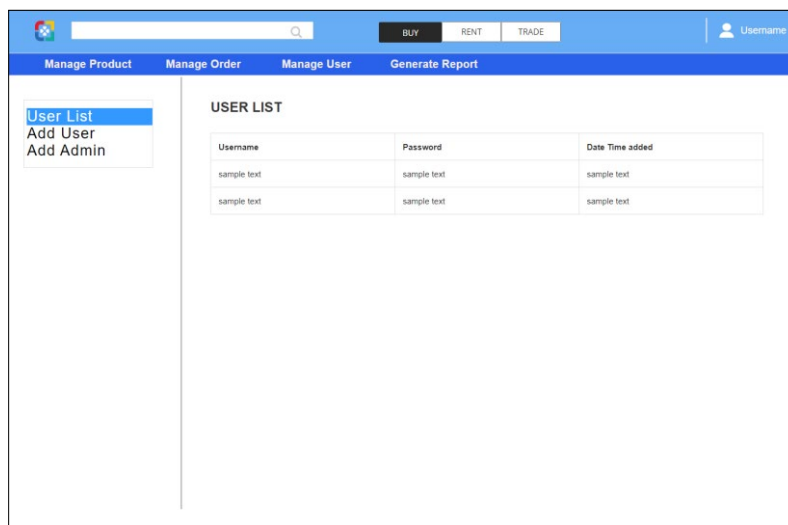


Figure 9: Admin Manage User Page

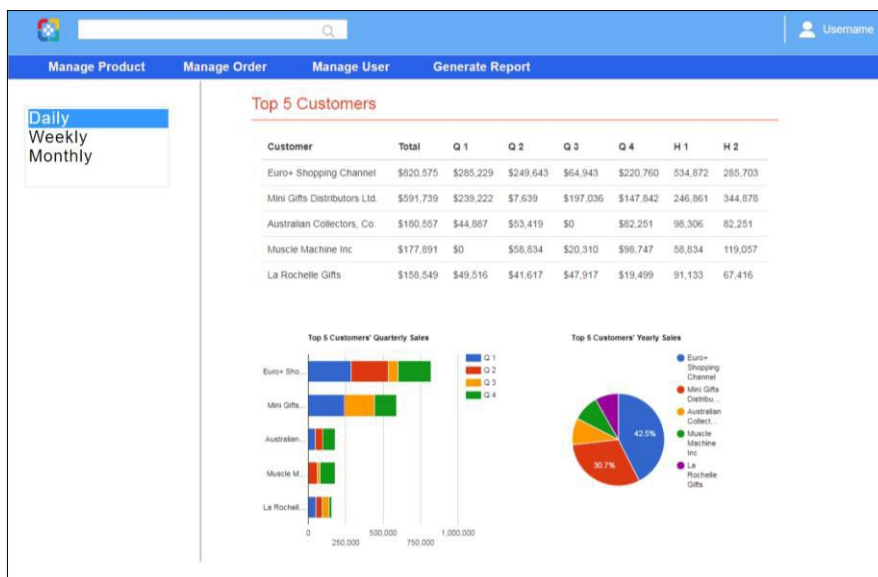


Figure 10: Admin Generate Report Page

Figure above shows admin interfaces. Customer interfaces consist of manage product, manage order, manage user and generate report. This admin interface helps to visualize the layout in developing the proposed system later.

3.4 Prototyping implementation phase

The interface designed in the previous step will be implemented in the initial prototype in this phase. The goal of this phase is to create a prototype based on client requirements and to put the application design into action. The design will be turned into a prototype, and the database design will be implemented at this phase. As shown in 3.3 design phase, the prototype will be based on the given hardware and software requirements. This phase produces programming code and an initial prototype.

3.5 User evaluation phase

The prototype created was presented to the owner of Quadace Gamestore, who provided comments so that the prototype could be updated to suit the criteria. The owner may get a new idea from the prototype that can improve the application more or discover an issue due to communication problem. Following the evaluation, the application can be upgraded and made more accurate to the owner’s specifications. The proposed application will be implemented once the user is pleased with the prototype and agrees to move on to the next phase.

4. Result and Discussion

The results of the analysis of the study is represented using a few type of UML diagrams while the discussion will be discussing the advantages of the system.

4.1 Use Case Diagram

The use case diagram in figure 1 shows that the system contains of two main stakeholders, which is admin(owner), the customers. Each use case represents the functions of the system and the line between the actors and the use case represents the relationship between the stakeholders and the system functions.

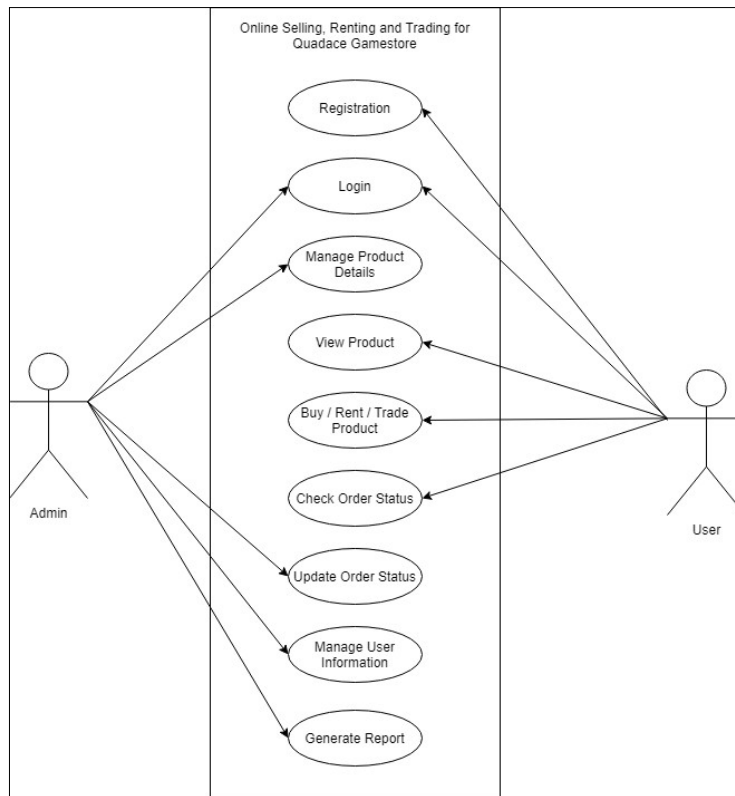


Figure 12: Use Case Diagram

4.2 Use Case Specification

An overview or the system requirements can be shown in a use case diagram. A use case specification is essential to have a clearer picture of the system requirements. Each use case was described in depth in a use case specification, including the input output process and alternate flows.

4.3 System Architecture

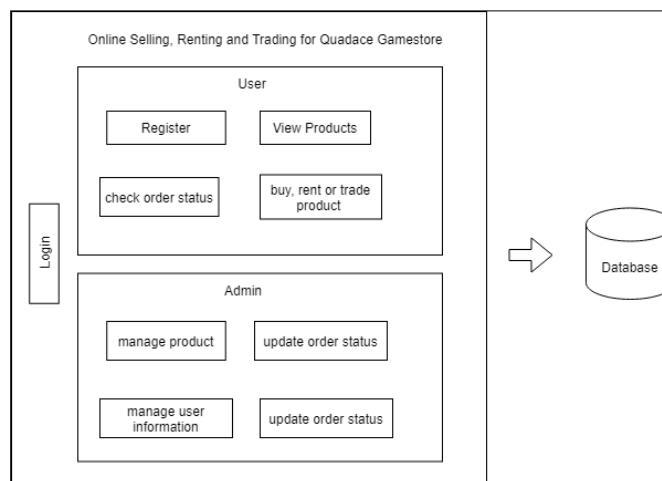


Figure 13: System architecture for the proposed system.

Figure 3 show the architecture of the proposed system. The use cases of the system can be separate into two big parts which are user part and admin part. The user part consists of modules register, view product, buy, rent or trade product and check order status. For admin, the use cases involved is manage product, update order status, manage user information and generate sales report. There is one use case

that involved in both parts which is the login use case. All the information obtained from the use cases stated was stored in a database for further use.

4.4 Database Design

In this section, the class diagram of the system is shown and the data dictionary of each table of the database was discussed as well. Figure 4.6 illustrates the class diagram of the system. There are six table involve. The database schema table for this system are shown in Table 4.7, Table 4.8, Table 4.9, Table 4.10, Table 4.11, Table 4.12.

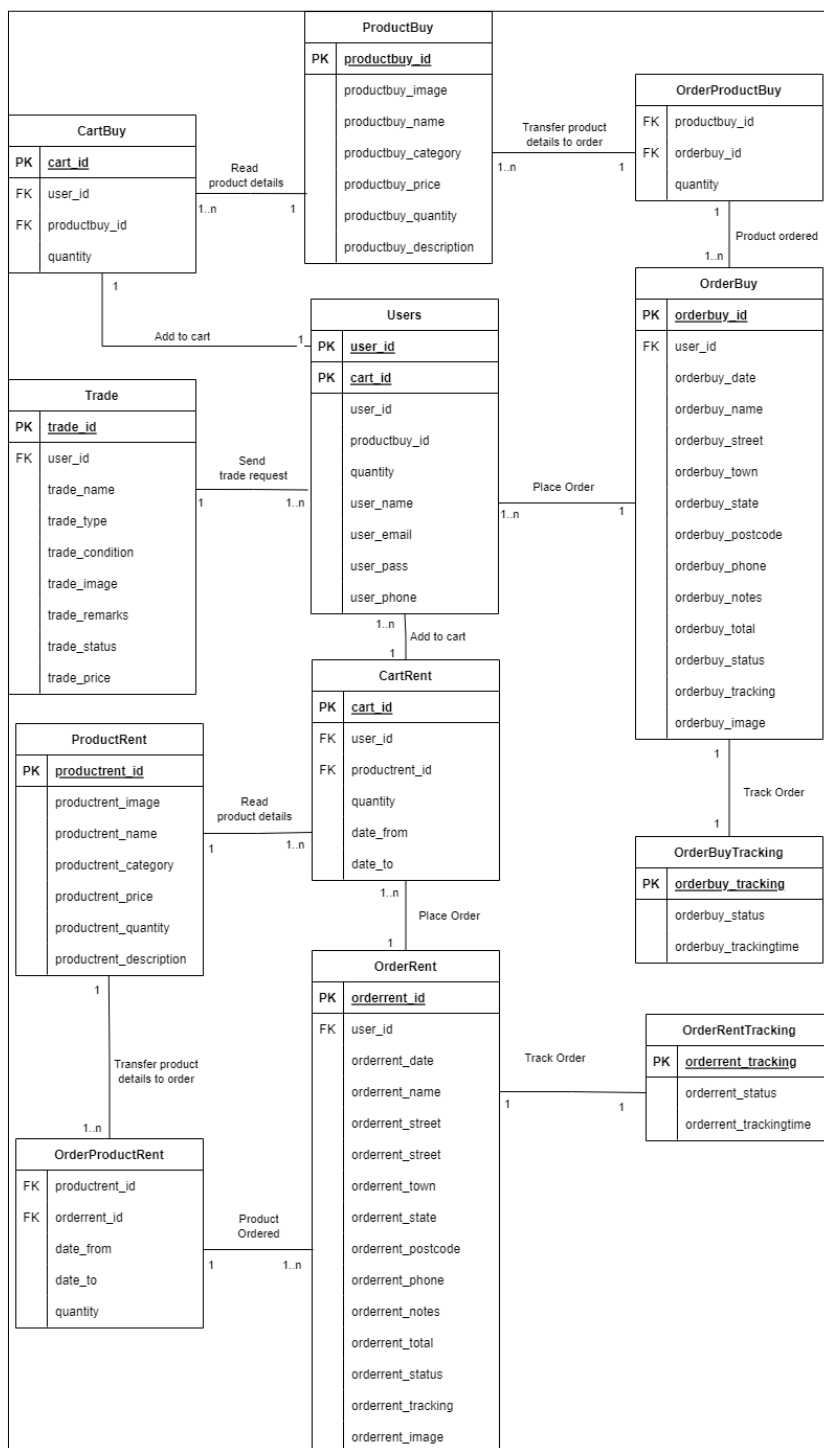


Figure 14: Entity Relationship Diagram of Online Selling, Renting, Trading for Quadace Gamestore

Table 4: Users Table

Field	Data Type	Size	Key	Description
user_id	Int	5	Primary	Id of the user.
user_name	Varchar	30		Username of the user.
user_email	Varchar	30		Email of the user.
user_pass	Varchar	30		Password of the user.
user_phone	Varchar	15		Phone of the user.

Table 5: Productbuy Table

Field	Data Type	Size	Key	Description
productbuy_id	int	5	Primary	Id of the product.
productbuy_image	varchar	500		Image of the product.
productbuy_name	varchar	50		Name of the product.
productbuy_category	varchar	50		Category of the product.
productbuy_price	float			Price of the product.
productbuy_quantity	int			Quantity of the product.
productbuy_description	text			Description of the product.

Table 6: Productrent Table

Field	Data Type	Size	Key	Description
productrent_id	int	5	Primary	Id of the product.
productrent_image	varchar	500		Image of the product.
productrent_name	varchar	50		Name of the product.
productrent_category	varchar	50		Category of the product.
productrent_price	float			Price of the product.
productrent_quantity	int			Quantity of the product.
productrent_description	text			Description of the product.

Table 7: CartBuy Table

Field	Data Type	Size	Key	Description
cart_id	int		Primary	Id of the cart.
user_id	int		Foreign	Id of the user.
productbuy_id	int		Foreign	Id of the product.

Table 8: CartRent Table

Field	Data Type	Size	Key	Description
cart_id	int		Primary	Id of the cart.
user_id	int		Foreign	Id of the user.
productrent_id	int		Foreign	Id of the product.

Table 9: OrderBuy Table

Field	Data Type	Size	Key	Description
orderbuy_id	int		Primary	Id of the order.
user_id	int		Foreign	Id of the user.
orderbuy_date	int			Date and time of the order.
orderbuy_name	int			Name of the user who ordered.
orderbuy_street	datetime			Street of the user who ordered.
orderbuy_town	vvarchar	50		Town of the user who ordered.
orderbuy_state	vvarchar	100		State of the user who ordered.
orderbuy_postcode	vvarchar	5		Postcode of the user who ordered.
orderbuy_phone	vvarchar	15		Phone of the user who ordered.
orderbuy_notes	text			Notes for the administrator.
orderbuy_total	vvarchar	10		Total price of the order.
orderbuy_status	vvarchar	15		Shipping status of the order.
orderbuy_tracking	vvarchar	20	Primary	Tracking number of the order.
orderbuy_image	vvarchar	500		Proof of image of the order.

Table 10: OrderProductBuy Table

Field	Data Type	Size	Key	Description
productbuy_id	int		Foreign	Id of the product ordered.
orderbuy_id	int		Foreign	Id of the order.
quantity	int			Quantity of the product ordered.

Table 11: OrderProductRent Table

Field	Data Type	Size	Key	Description
productrent_id	int		Foreign	Id of the product ordered.
orderrent_id	int		Foreign	Id of the order.
quantity	int			Quantity of the product ordered.

Table 12: OrderBuyTracking Table

Field	Data Type	Size	Key	Description
orderbuy_tracking	vvarchar	20	Foreign	Tracking number of the order.
orderbuy_status	Text			Tracking status of the order.
orderbuy_trackingtime	datetime			Tracking time when the status of the order update

Table 13: OrderRentTracking Table

Field	Data Type	Size	Key	Description
orderrent_tracking	vvarchar	20	Foreign	Tracking number of the order.
orderrent_status	Text			Tracking status of the order.
orderrent_trackingtime	datetime			Tracking time when the status of the order update

5. Implementation and Testing

5.1 Implementation

The system's analysis and design are executed in this chapter. Users' and system need drive the implementation and creation of system capabilities and features. The coding process is used to transform a system's logical design into a functional system that fulfils the criteria. After that, the system components will be combined into a full system that will be thoroughly tested before being delivered to the client.

5.1.1 Login and Register Module

Registration segment is only for user. Users need to sign up if they do not have an account to be able to login and purchase the products. Users insert data such as their username, email and password. If any of the field is empty upon submission, the form will reset, and user needs to fill in the empty field. If the password field and confirm password field is different, the user cannot sign up.

Login segment is for both user and administrator. User may login their account using the email and password they registered earlier. If the data inserted does match with the data in database, then they can login. Administrator may login using the system given email address and password too.

5.1.2 Customer Management Module

Manage customer function allows user to view, add, delete and update the user. When user registered an account or they updated their account, the data will appear at the manage customer page. Administrator can also search for the user according to their username or user email.

5.1.3 Product Management Module

Manage product function allows administrator to view, add, delete and update the product for buy and rent. User can also search for the registered using the search bar.

5.1.4 Ordering Management Module

Manage order function allows administrator to manage the buy, rent or trade order from the customer. For the order of buy section, it has 4 order status which are to ship, shipping, completed and cancelled. For the order of rent section, it has 5 section which are to ship, shipping, renting, returned and cancelled. For the order of trade section, it has 3 section which are pending, accepted, and declined.

For order buy and rent, administrator can view details of the order and can click the ship button for the order. After the button has clicked, the order status will change to shipping. The order status will change to completed when it is completed and change to cancelled when the order has been cancelled.

For order trade, when the user submit a trade request, the request will be appeared in the order management of trade. The administrator may choose to accept the request by inserting a price or declined the request.

5.1.5 Search Module

The search module is for the user to search the product name or product category by typing the keyword in the search box. After the user click it, the products with the keyword will be displayed.

5.1.6 Generate Report Module

Report module is for administrator to see the number of orders and total sales for buy and rent for each day. The reports may help the administrator to observe their sales statistic.

5.2 Testing

A test case is a document that contains a set of test data, descriptions, and expected outcomes for a specific test scenario to verify compliance with the specific criteria listed in the system requirements

list. The test cases created are from system requirement requirements, as well as the test cases' descriptions and predicted outcomes.

5.2.1 Test Case Result of Login and Register Module

Table 14: Test case for register module

Test Case	Test Case Id	Description	Expected Result	Actual Result
TEST_100 [Register New Users]	TEST_100_001	Submit the form without key-in any data.	Register fails	PASS
	TEST_100_002	Submit the form without filling username.	Register fails	PASS
	TEST_100_003	Submit the form without filling username.	Register fails	PASS
	TEST_100_004	Submit the form without filling email address.	Register fails	PASS
	TEST_100_005	Submit the form without filling password.	Register fails	PASS
	TEST_100_006	Submit the form with wrong format of email address	Register fails	PASS
	TEST_100_007	Submit the form with password and confirm password that are not match.	Register fails	PASS
	TEST_100_008	Submit the form with all data filled and correct format.	Register successful	PASS

Table 15: Test case for login module

Test Case	Test Case Id	Description	Expected Result	Actual Result
TEST_200 [Admin and user login]	TEST_200_001	Submit the form without key-in any data.	Login fail	PASS
	TEST_200_002	Submit the form without filling email.	Login fail	PASS
	TEST_200_003	Submit the form without filling password.	Login fail	PASS
	TEST_200_004	Submit the form with wrong format of email	Login fail	PASS
	TEST_200_005	Submit the form with email or password that is not match in the data in database	Login fail	PASS
	TEST_200_006	Submit the form with email or password that is match with the data in database	Login successful	PASS

5.2.2 Test Case Result of Customer Management Module

Table 16: Test case for customer management module

Test Case	Test Case Id	Description	Expected Result	Actual Result
TEST_300 [Manage Customer]	TEST_300_001	Admin register user.	User registered	PASS
	TEST_300_002	Admin edit user details.	User edited	PASS
	TEST_300_003	Admin update user details.	User updated	PASS
	TEST_300_004	Admin delete user.	User deleted	PASS

5.2.3 Test Case Result of Product Management Module

Table 17: Test case for product management module

Test Case	Test Case Id	Description	Expected Result	Actual Result
TEST_400 [Manage Product]	TEST_400_001	Admin want to add product for buy by clicking “Add” button.	Redirect to add product page	PASS
	TEST_400_002	Admin submit the form of add product for buy without key-in any data.	Add product fail	PASS
	TEST_400_003	Admin submit the form for buy without filling product name.	Add product fail	PASS
	TEST_400_004	Admin submit the form for buy without choosing any product image.	Add product fail	PASS
	TEST_400_005	Admin submit the form for buy without filling product price.	Add product fail	PASS
	TEST_400_006	Admin submit the form for buy without filling product quantity.	Add product fail	PASS
	TEST_400_007	Admin submit the form for buy without filling description.	Add product pass	PASS
	TEST_400_008	Admin submit the form for buy with everything filled.	Add product fail	PASS
	TEST_400_009	Admin edit the product for buy details.	Product updated	PASS
	TEST_400_010	Admin delete the product for buy.	Product deleted	PASS
	TEST_400_011	Admin search for the product for buy by entering the keyword of the product.	Product with keyword displayed	PASS
	TEST_400_012	Admin want to add product for rent by clicking “Add” button.	Redirect to add product page	PASS
	TEST_400_013	Admin submit the form of add product for rent without key-in any data.	Add product fail	PASS
	TEST_400_014	Admin submit the form for rent without filling product name.	Add product fail	PASS
	TEST_400_015	Admin submit the form for rent without choosing any product image.	Add product fail	PASS
	TEST_400_016	Admin submit the form for rent without filling product price.	Add product fail	PASS
	TEST_400_017	Admin submit the form for rent without filling product quantity.	Add product fail	PASS
	TEST_400_018	Admin submit the form for rent without filling description.	Add product pass	PASS
	TEST_400_019	Admin submit the form for rent with everything filled.	Add product fail	PASS
	TEST_400_020	Admin edit the product for rent details.	Product updated	PASS
	TEST_400_021	Admin delete the product for rent.	Product deleted	PASS
	TEST_400_022	Admin search for the product for rent by entering the keyword of the product.	Product with keyword displayed	PASS

TEST_400_023	Product for buy that is added by admin is displayed on product page.	Product displayed	PASS
TEST_400_024	Details of product for buy can be viewed.	Product viewed	PASS

5.2.4 Test Case Result of Ordering Management Module

Table 18: Test case for ordering management module

Test Case	Test Case Id	Description	Expected Result	Actual Result
TEST_500 [Manage Order]	TEST_500_001	Admin can delete order for buy when the order status is “To Ship”	Order Deleted	PASS
	TEST_500_002	Admin can view order details for buy when the order status is “To Ship”	Order viewed	PASS
	TEST_500_003	Admin can ship the order for buy when the order status is “To Ship”	Order shipped	PASS
	TEST_500_004	Admin can view order details for buy when the order status is “Shipping”	Order viewed	PASS
	TEST_500_005	Admin can view order details for buy when the order status is “Completed”	Order viewed	PASS
	TEST_500_006	Admin can view order details for buy when the order status is “Cancelled”	Order viewed	PASS
	TEST_500_007	Admin of delivery can update tracking status for order of buy.	Status updated	PASS
	TEST_500_008	Admin of delivery can upload image as proof of delivery as order completed for order of buy.	Image uploaded	PASS
	TEST_500_009	Admin can delete order for rent when the order status is “To Ship”	Order Deleted	PASS
	TEST_500_010	Admin can view order details for rent when the order status is “To Ship”	Order viewed	PASS
	TEST_500_011	Admin can ship the order for rent when the order status is “To Ship”	Order shipped	PASS
	TEST_500_012	Admin can view order details for rent when the order status is “Shipping”	Order viewed	PASS
	TEST_500_013	Admin can view order details for rent when the order status is “Completed”	Order viewed	PASS
	TEST_500_014	Admin can view order details for rent when the order status is “Cancelled”	Order viewed	PASS
	TEST_500_015	Admin of delivery can update tracking status for order of rent.	Status updated	PASS
	TEST_500_016	Admin of delivery can upload image as proof of delivery as order completed for order of rent.	Image uploaded	PASS
	TEST_500_017	Admin leave the price textbox blank when click “Accept” in trade request.	Error message displayed	PASS
	TEST_500_018	Admin fill the price textbox and click “Accept” in trade request.	Trade request status turn into “Accepted”	PASS
	TEST_500_019	Admin click the “Declined” button in trade request.	Trade request status turn into “Declined”	PASS

5.2.5 Test Case Result of Search Module

Table 19: Test case for search module

Test Case	Test Case Id	Description	Expected Result	Actual Result
TEST_600 [Search Product]	TEST_600_001	Users fill the search box with some keyword of product name.	Product displayed	PASS
	TEST_600_002	Users view details of the product from the search page they searched.	Product details viewed	PASS
	TEST_600_003	Users fill the search box with keyword that is not exist in the database.	No product displayed.	PASS

5.2.6 Test Case Result of Generate Report Module

Table 20: Test case for generate report module

Test Case	Test Case Id	Description	Expected Result	Actual Result
TEST_700 [Generate Report]	TEST_700_001	Today's order sales for buy are <u>match with the sales amount.</u>	Data matched	PASS
	TEST_700_002	Today's order sales for rent are match with the sales amount.	Data matched	PASS
	TEST_700_003	The statistic are match with all the data related.	Data matched	PASS

5.2.7 Overall Test Result

In this test plan, a total of 67 test cases were developed and conducted to check and validate the system's functionality and behaviors under various scenarios. The testing were carried out along the development of the system. The total outcome of the available test cases is illustrated in the diagram below:

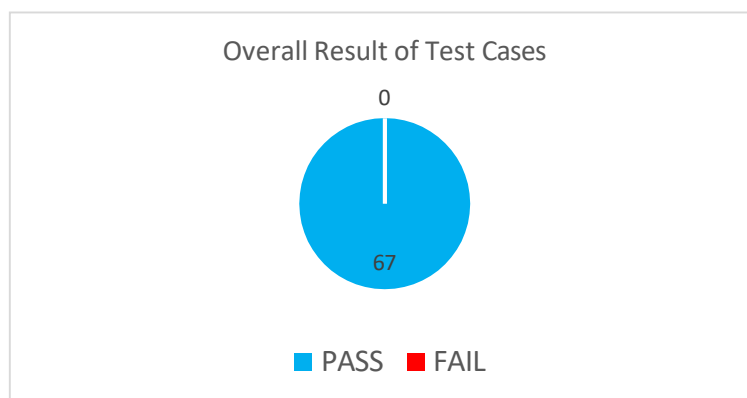


Figure 15: Percentage of pass and fail in overall result of functional testing

5.3 User Acceptance Testing

The user acceptance testing was conducted at Quadace Gamestore, Melaka. The survey form was afterwards filled out online using Google Form. The developed system was put to the test by the users. The user acceptance test was completed by a total of ten individuals. Application testing went off without a hitch. The actual outcomes are in line with what was predicted. User feedback and recommendations are gathered and implemented in the future to improve the application.

5.3.1 User Acceptance Testing for Admin

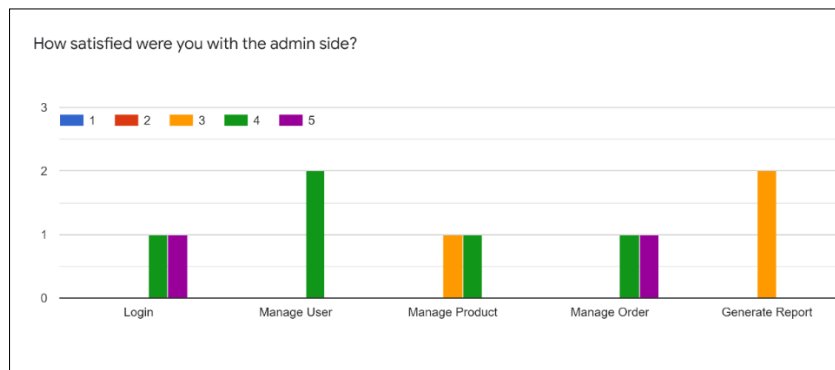


Figure 16: Results of Functional Requirement for Admin Side

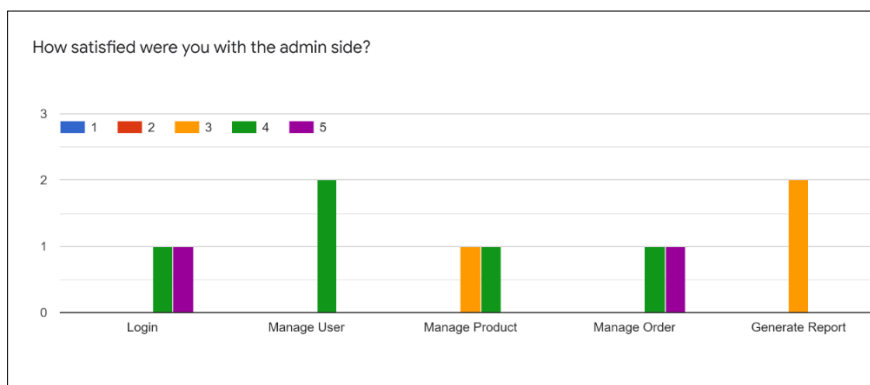


Figure 17: Results by Admin for Non-Functional Requirements

5.3.2 User Acceptance Testing for User

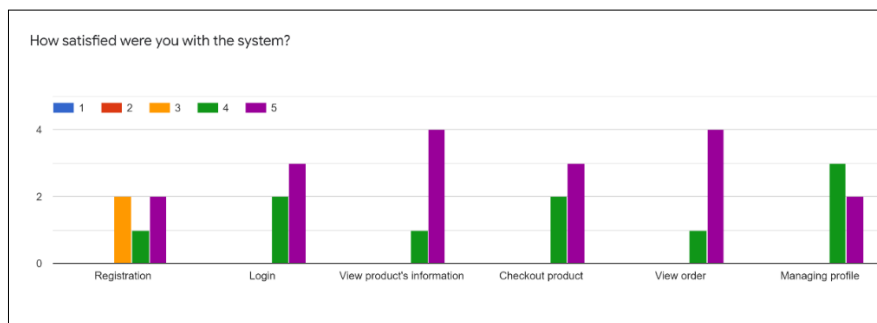


Figure 18: Results by User for Functional Requirement for User Side

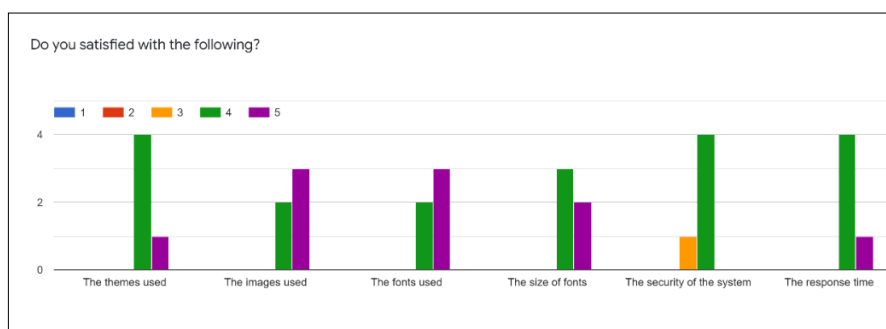


Figure 19: Results by User for Non-Functional Requirements for User Side

6. Conclusion

This report contains the results of the development of Online Selling, Renting or Trading for Quadace Gamestore. The software development life cycle of the system is fully presented in this thesis. First and foremost, a basic introduction to the project was completed, which included the system introduction, project objectives, and system modules.

A literature review was conducted as part of the project process, which included studying related articles for development ideas and deciding on an appropriate software development life cycle model for the system development. Following that, the projects go on to the analysis and design phase. The system's functional and non-functional requirements were decided during this phase, and a use case specification based on the use cases described in the use case diagram was generated.

The process of implementation and testing is explained in the following section. The most difficult challenges of completing this project were creating some of the functions from scratch as well as creating an appealing system interface. The main benefit of this method is that it reduces the amount of work that the store owner has to do in terms of product management.

As a conclusion, this project is complete because it achieves all of the objectives, and further work can be done to improve the existing system.

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