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A Development of Deezek.co Ecommerce System

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Abstract: *Dezeek.co is an Instagram user that sells several styles of shoes from various brands via the social media site. Dezeek.co began selling shoes online in 2017 as a student and has continued to do so. Currently they did not have any working website that they can use to sell their products and properly show rating to attract customer trust. The system's scope is that it will be created by utilizing a website to guarantee that customers and any user can enjoy using the system. The system is developed using object-oriented-approach and using System Development Life Cycle (SDLC) as its model. This is to create functional ecommerce system to help Dezeek.co promote its system. HTML and CSS will be used to develop the system for the Dezeek.co ecommerce system. Having own website can be beneficial as it can increase business revenue and help to gain customer trust.*

Keywords: *Ecommerce, Dezeek.co, SDLC, Website*

1. Introduction

Ecommerce, sometimes known as online shopping, is the act of purchasing and selling goods and services through the internet. In another scenario, a consumer would go to a website that sold whatever things they need, look for the item they wanted, and then purchase everything. After receiving the goods, the customer can pay using a card or online banking. Today, even if an item is located in a far-off location, a client can purchase it online. Dezeek.co is an online seller who sell all their products through social media like Instagram. They started as a student in 2017 who want to start an online business. Even with the use of social media as platform, it still gives problem to customer to know if the stock is available or not without having the admin to update the stock manually. By having their own system, admin can update it once and the system will handle the rest. This also increase customer trust as they know that the seller has their own system to sell their products. Their issues are that they did not have any system to help them to sell their products. Other than that, they did not have rating or feedback about the product they bought making it hard for other customer see if the product is good or bad. By having rating, it will help to gain more customer about the product. Traditional ways of paying

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using WhatsApp to send any receipt is hard especially for admin as they need to see if the payment is completed or not. The development will be use object-oriented-approach as and the System Development Life Cycle (SDLC) as its model when develop the system. The scope of the project is to develop the system using websites to give the user good experience when using the system.

2. Related Work

2.1 Introduction

With the advancement of technology today, new network technologies that link people from all over the world have made it possible for every user to stay in touch with one another, even from a distance. This also applies to all online sellers, or those who engage in what is known as e-commerce, whereby they advertise and sell their goods on websites like Facebook, Instagram, and other platforms. The seller who wants to advertise their company to customers and boost sales by utilizing the effective systems on the market now has hope thanks to all the modern technology has to offer. Deezek.co sells their product using Instagram as their main platform. Instagram is a worldwide social media that is used as tools to promote business nowadays. It provides a simple and understandable interface that is easy to use. Deezek.co has been using the platform ever since as their main tool.

2.2 Development Technology

A system can be developed in a variety of ways, including web applications, which has its own development process. Thanks to modern technology, anyone who wants to learn how to create any applications may do so by conducting a free online search. Modern technology makes it possible for those without programming experience to create their own systems. As for Deezek.co, they still lacked a personal strategy to advertise their product effectively unlike Shopee or Al-Ikhsan. Hyper Text Markup Language (HTML) is the basic language used to develop any website view. Nowadays HTML support both mobile and computer development. It is used to construct a web page and all of the content. It mostly pair with Cascading Style Sheet (CSS) to make the interface of the system look better and readable. Java-Script is the back end of any programming. It can be used to customize the interface to make it more dynamic and interactive for the user to use it.

2.3 Study of existing Related System

The system that has been chosen is the system that are related to the development project. It has the common features that can be compared to with the development system. Al-Ikhsan, Shopee and Carousell were chosen as the related system. Table 1 shows the system comparison between each chose system.

Table 1: System comparison

Features/System	Al-Ikhsan	Shopee	Carousell	Deezek.co Ecommerce system
Login module	√	√	√	√
Register module	√	√	√	√
User profile module	X	√	√	√
Catalogue module	√	√	√	√
Product info module	√	√	√	√
Cart module	√	√	√	√
Report module	X	√	X	√
Order module	√	√	√	√
Rating module	X	√	X	√
Shipping module	√	√	√	√

In system comparison, the table shows that Al-Ikhsan did not have user profile modules and rating modules while shoppe has it. Carousell did not have rating modules. The developed system will have the rating modules as a part to give rating for the products and gain trust from other custommers.

3. Methodology/Framework

The methodology used in the development of the system is the System Development Life Cycle or SDLC. It is imposed on the creation of a software product within a software corporation or any system development, the SDLC is a method used for software projects (T Bhuvaneswari, S Prabakaran, 2013). It acts as guidelines on how to develop, maintain, replace, and change or make any improvise into the system. SDLC allows development to be done quick and easy as all the phases were direct approach making it easy to follow and understand. It is cost efficient which convenient, especially for small companies. Figure 1 shows the System development Life Cycle.



Figure 1: System Development Life Cycle

During the planning phase, all the information will be gathered from any existing group that can be take. The technology used will be gathered and chose which will be used as a reference. All data and resources will be gathered by using any articles, journals or project studies. In analysis phase, it will analyse the functional requirement required in the system. The information gathered be then will studied and used to improve the system from the current method. The result is the system will be fully functioning and can be used properly. In Design phase, the system will be design in term of interface make sure that the system can fulfil the user need and aid in determining the overall system architecture. Implementation phases is an important as all the function from the requirement must be implemented in the system and function properly. Testing phase will be conducted to make sure that all the system work as it intended and making sure every requirement is implemented. Alpha and beta testing will be use in this phase.

3.1 Functional Requirements

Functional requirements are functions or module components that developers must implement to ensure that the system is operational and carries out its intended function. How the system should be used and how it functions might serve as a definition of a functional requirement (Matthew Martin, 2022). To ensure that the system functions as intended, it is crucial to implement the function correctly. Table 2 shows Functional Requirements.

Table 2: Functional Requirements

Modules	Function
Login module	System allows the user such as customer and staff to login into the system using the account created by the user itself. If the user does not have any account, it will prompt error and ask the user to create new account before login to the system.
Register Module	System allows the user to register as a new user before using the system. Give the user flexibility to create new account before they can use the system.
User Profile module	System allows the customer to see and edit their profile and see their history purchase.

Table 2: Functional Requirements (Continued)

Catalogue module	System allows the customer to browse through all the catalogue of shoes. Each of the shoes will have price displayed and show the customer if the stock is still available. Allow the admin to edit quantity, price, and details of the product(shoes)
Product info module	System allows the customer to see the full description of the product(shoes) including all the details such as if the product(shoes) have discount or any type of sales.
Cart module	System allows customer to edit their cart such as add, delete item in the cart. Customer can check out the item and proceed to payment module.
Report module	System allows the admin to generate report sales for the sales. In the report it will contain all the performance sales from the past sales.
Order module	System allows admin and staff to receive order from the customer and print the order including all the details of the customer.
Rating module	System allows customer to give rating or feedback based on the product or the services given by the Dezeek.co.
Shipping module	System allows customer to see their item shipping status.

The developed system has several modules that are needed to make sure that it can work as intended. The purpose of the modules it to increase the website functionality, and making sure that customer are satisfied when using the system.

3.2 Non-Functional Requirements

With the advancement of technology today, new network technologies that link people from all over the world have made it possible for every user to stay in touch with one another, even from a distance. This also applies to all online sellers, or those who engage in what is known as e-commerce, whereby they advertise and sell their goods on websites. The seller who wants to advertise their company to customers and boost sales by utilizing the effective systems on the market now has hope thanks to all the modern technology has to offer. Table 3 shows Non-Functional Requirements.

Table 3: Non-Functional Requirements

Modules	Function
Usability	The system may be utilised by users with less technological skills and with a variety of business sizes. This includes: <ol style="list-style-type: none"> 1. How user can do thing in one page. 2. How fast they can perform any task. 3. How the design is attractive to the user.
Performance	Increase the user efficiency when using the website. The screen should load faster and working even with higher user traffic.
Security	Most important function in ecommerce system. Given different roles for each user such as admin and customer, which give different access towards the system. Admin will be able to change and delete the information in the system while customer can only interact without having fully access to the system.
Scalability	Certain business growth rapidly especially in ecommerce system which is important as the system should follow the growth of the system. Having scalable system allow the admin to add function to the system without having to affect the system.
Availability	The system should be able to operate and available to use for website.

The non-functionality to make sure that the system can be function and increase its performance. This it make sure that customers who use the system can get best user experience when using the system.

3.3 User Requirements Analysis

User requirements show what users require from the system in detail. In other words, user requirement describes user expectation about what the application can do. Table 4 shows User Requirement Analysis:

Table 4: User Requirement Analysis

No	User Requirements
1	Customer shall be able to login and register new account
2	Customer shall be able to insert username and password
3	Customer shall be able to browse the catalogue system
4	Customer shall be able to add item into the cart
5	Customer shall be able to edit item in the cart
6	Customer shall be able to select payment method
7	Customer shall be able to edit user profile
8	Customer shall be able to give rating
9	Admin and staff shall be able to login into the system
10	Admin shall be able to edit the catalogue
11	Admin and staff shall be able to accept order from the customer
12	Admin shall be able to generate sales

3.4 Use Case Diagram

The use case diagram was created because of research on the system's overall functionality. It stands for the way the Deezek.co system uses to detect and arrange its own system requirements. The players utilised in the use case diagram are the administrators, clients, and employees who will carry out various tasks for the module. Figure 2 shows Use Case Diagram.

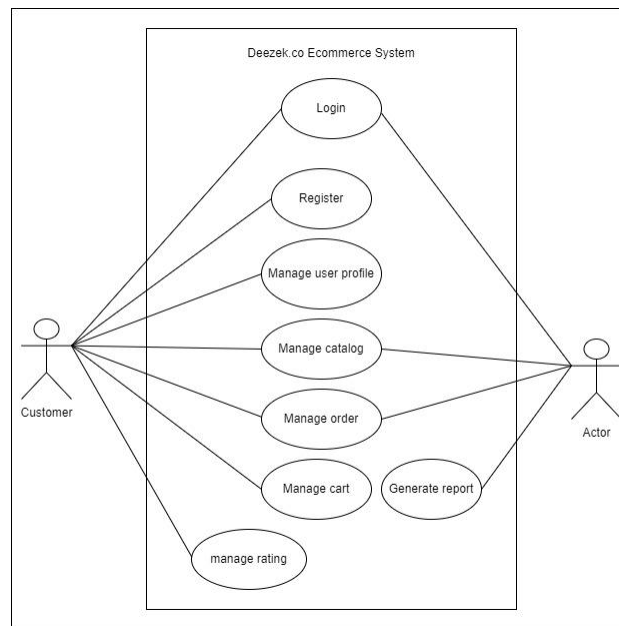


Figure 2: Use Case Diagram

3.5 Class Diagram

In the Unified Modelling Language (UML), a class diagram is a particular type of diagram that shows a system's classes, properties, and links between the classes to show the system's structure. Class diagrams are used to represent a system from a static standpoint, which means they don't show how the system changes over time but rather show it at a certain point in time. Class diagrams can be used to show how a system will be designed or to offer documentation for an existing system. Figure 3 show Class Diagram.

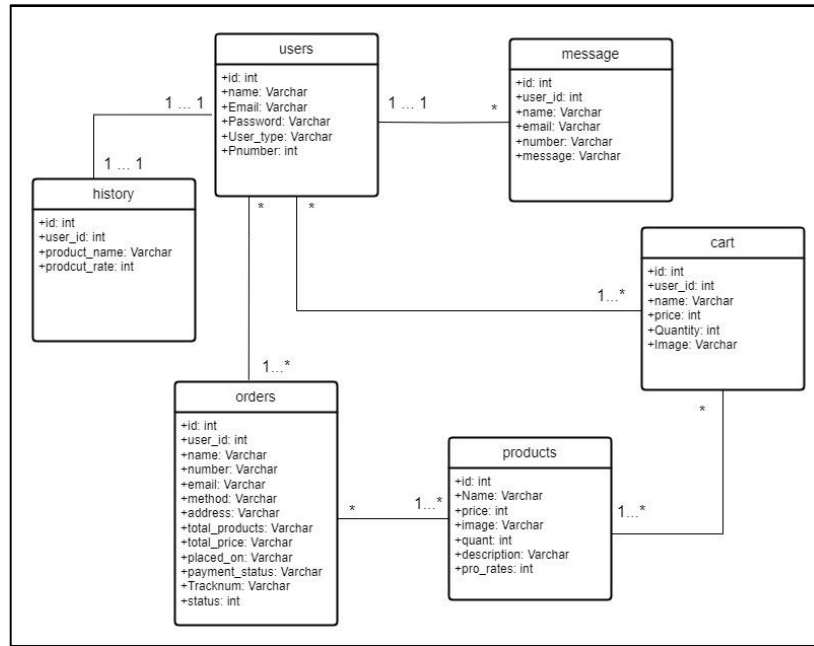


Figure 3: Class diagram

3.6 System Design

System design is a representation of the components and its subcomponent that represent the system actions (Naren, 2019). It also be used to specify a project objective and give a direct design which decrease the system complexity. The website will act as front end and this is where user will see. Example of it is HTML, CSS for. The back end are the one who connect the system with the database and do all the function. The database store all the data given by the user input and display it if needed. Figure 4 shows System Design Deezek.co.

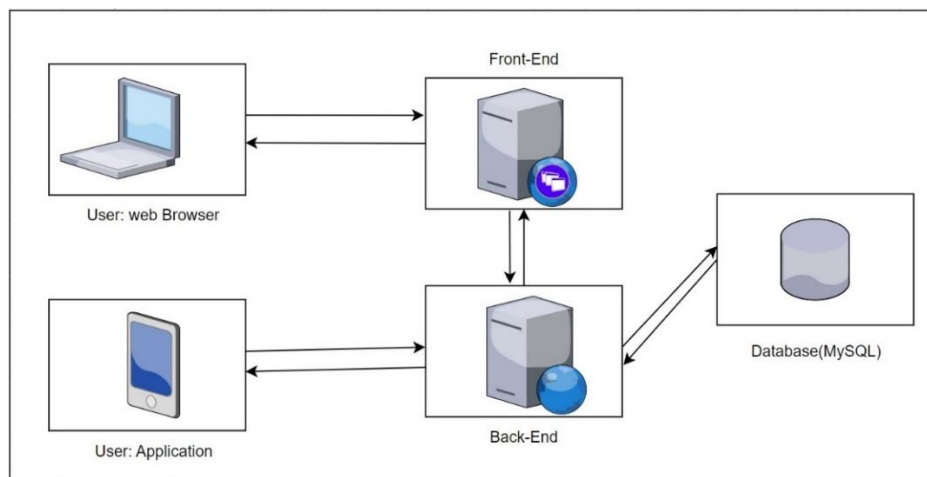


Figure 4: System Design Deezek.co

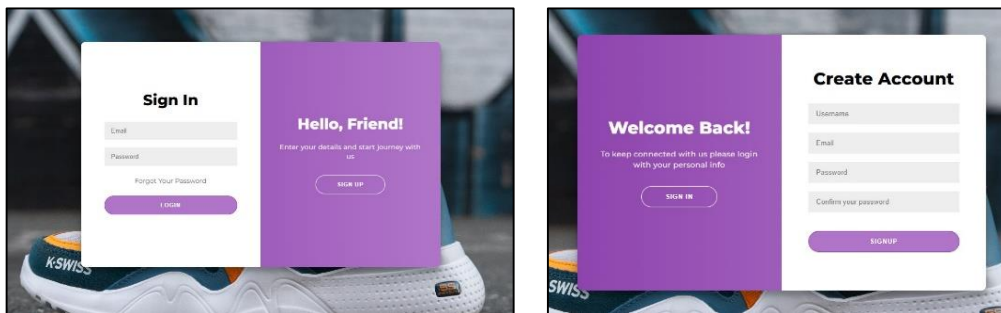
3.7 Database Schema

Database is a process of arrange the data in the table knows as database table. Database Schema is a list of all the tables, indexes, triggers, views that database has. It is a formal description of that database`s organization or structure (Abe Dearmer, 2021). It shows how each of the table relate with each other.

- Users (id, name, email, password, user_type, pnumber)
- products (id, name, price, image, quant, description, pro_rates)
- orders (id, user_id, name, number, email, method, address, total_products, total_price, placed_on, payment status, tracknum, status)
- message (id, user_id, name, email, number, message)
- history (id, user_id, product_name, product_name)
- cart (id, user_id, name, price, quantity, image)

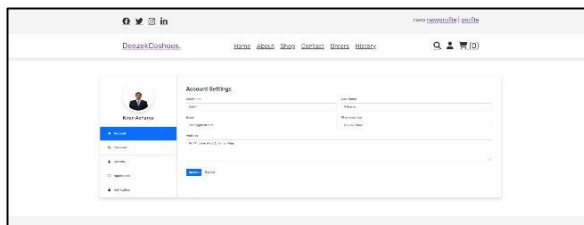
3.8 Interface Design

A process where designer will design the interface for the development system. Most of the designs must be enjoyable and can easily be used by the user. Figure 5 shows all interface design of the system.

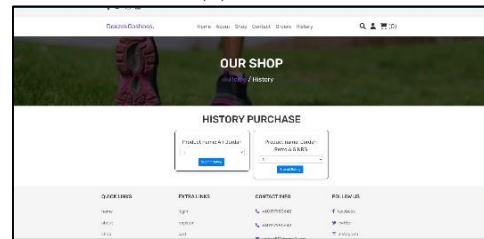


(a)

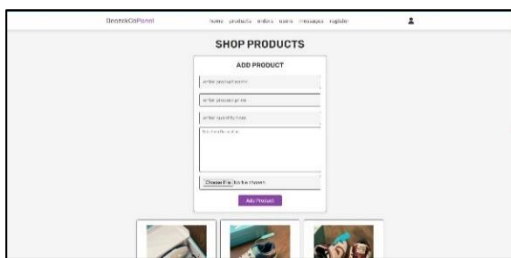
(b)



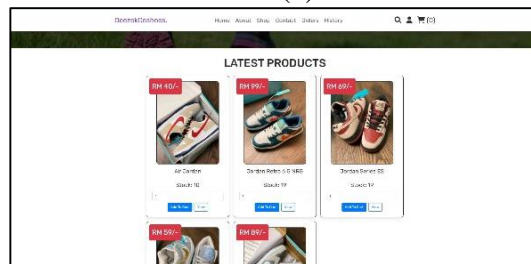
(c)



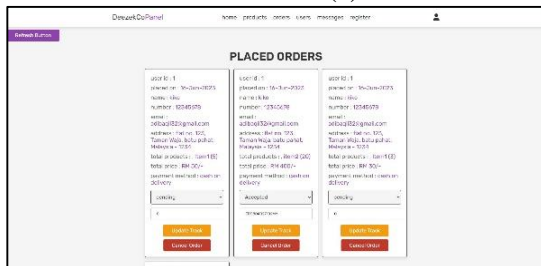
(d)



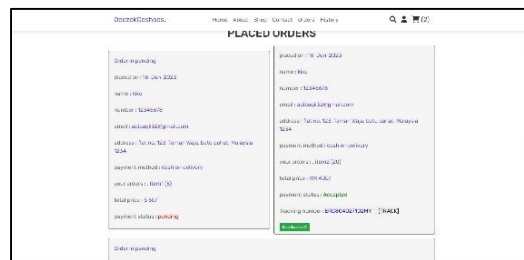
(e)



(f)



(g)



(h)



Figure 5: Interface design of the system

4. Results and Discussion

In this section, the implementation is done using HTML, CSS as front end and PHP and MYSQL as backend for the system. There are multiple interfaces where customers and admin can interact with the system. Customer can choose to browse the product based on their needs and desire. The admin can add the product and update the product based on stock availability (Normann, F. (2019)). Testing is done to verify that the required functionality for the system is correctly implemented.

4.1 Test Case

The list of test cases is included in table 4. The test case involves 8 main modules in the system and a total of 24 test cases. Most of the test cases are in a success state therefore the average percentage of success is 79%. Table 5 shows the overall results of the test cases:

Table 5: overall results of test cases

Test case module	Number of test cases	Total passed test cases	Total failed test cases
Login Module	3	3	0
Register Module	4	4	0
Manage Profile	3	1	2
Manage Catalogue	3	3	0
Manage Cart	3	3	0
Generate Report	3	2	1
Manage Order	3	3	0
Manage Rating	2	1	1

Test case is a step or action that is performed on the system to determine if the system satisfies the functional requirement and user need. The document is mainly focused on separating all the different modules and features in the system. The goal is to verify all the function of the system and code behavior by optimize the effort and time to test the system. Test cases also help to detect errors and bugs that may happen during the test session. Table 6 shows the list of test cases.

Table 6: List of test cases

No.	FR	Test cases	Expected outcome	Status
LOGIN				
1.	FR01-01	Users enter email and password	The system should be able to verify the user.	Success
2.	FR01-02	Users enter correct confidential	The system should be able to redirect the form when login is invalid	Success
3.	FR01-03	Users enter false confidential	the system shall be able to connect with user's account once logged in	Success
REGISTER				
1.	FR02-01	Users choose registration page	The system shall be able to display two separate sections for email and password.	Success

Table 6: List of test cases (Continued)				
2.	FR02-02	Users press the sign-up button	the system shall be able to save email and password after signing up process is successful	Success
3.	FR02-03	Users enter existing email and password	the system shall be able to validate user email existence	Success
4.	FR02-04	The confirm password does not match	the system shall be able to handle exceptions.	Success
MANAGE PROFILE				
1.	FR03-01	Users enter details on profile	The system shall save the new details of the user.	Success
2.	FR03-02	Users press the reset button	The system able to reset the form	Failed
3.	FR03-03	If errors, back to profile page	While exceptions occur. The system shall return to previous state.	Failed
MANAGE CATALOG				
1.	FR04-01	System fetch data from the database	The system should be able to display the product information to the user	Success
2.	FR04-02	Admin update the product	The system should allow admin to add, update and delete the product	Success
3.	FR04-03	Customers add product to cart	The system shall display the message to the customer	Success
MANAGE CART				
1.	FR05-01	Customers update their product in the cart	The system should allow users to manage their cart.	Success
2.	FR05-02	Customer update product in the cart	The system shall be able to display an error message	Success
3.	FR05-03	Customers go to cart page.	The system shall be able to display product details and the total price	Success
GENERATE REPORT				
1.	FR06-01	Admin go to report page	The system shall redirect the user to report section	Success
2.	FR06-02	Admin generate report	The system shall generate report for the admin	Success
3.	FR06-03	Admin generate report	The system shows sales performance	Failed
MANAGE ORDER				
1.	FR07-01	Customer complete payment	The system shall show order if available	Success
2.	FR07-02	System fetch order from the database	The system shall print the order if available	Success
3.	FR07-03	Admin open order page	The system shows details of the order	Success
MANAGE RATING				
1.	FR08-01	Customer give rating to the product	The system shall allow customer to give rating.	success
2.	FR08-02	Customer press the wrong button	While exceptions occur. The system shall return to previous state.	failed

In table 6, we can conclude that there are 24 test case that can be tested in the system. From all the test cases, we can conclude that only 19 test cases are success while the other 3 are failed. This error may due to ineffective implementation of the code during the development of the system.

4.2 User Acceptance Test

User acceptance testing is a phase to determine if the system is applicable in the real world. The requirements for the system must be accepted by the user who wants to use the system. It is mostly performed before the system is deployed to the end user or the market. User acceptance testing allows the user to interact with the system even before the final release of the system. After conducting a survey using google form and getting response from 20 respondents, there are several percentages on different parts of modules that can be display. The questionnaire can be separated into 3 modules. The first modules question is about the interface of the system. Respondents are asked to rate the overall interface and design of the system. Figure 6 shows the percentage of respondents responding to the first modules.

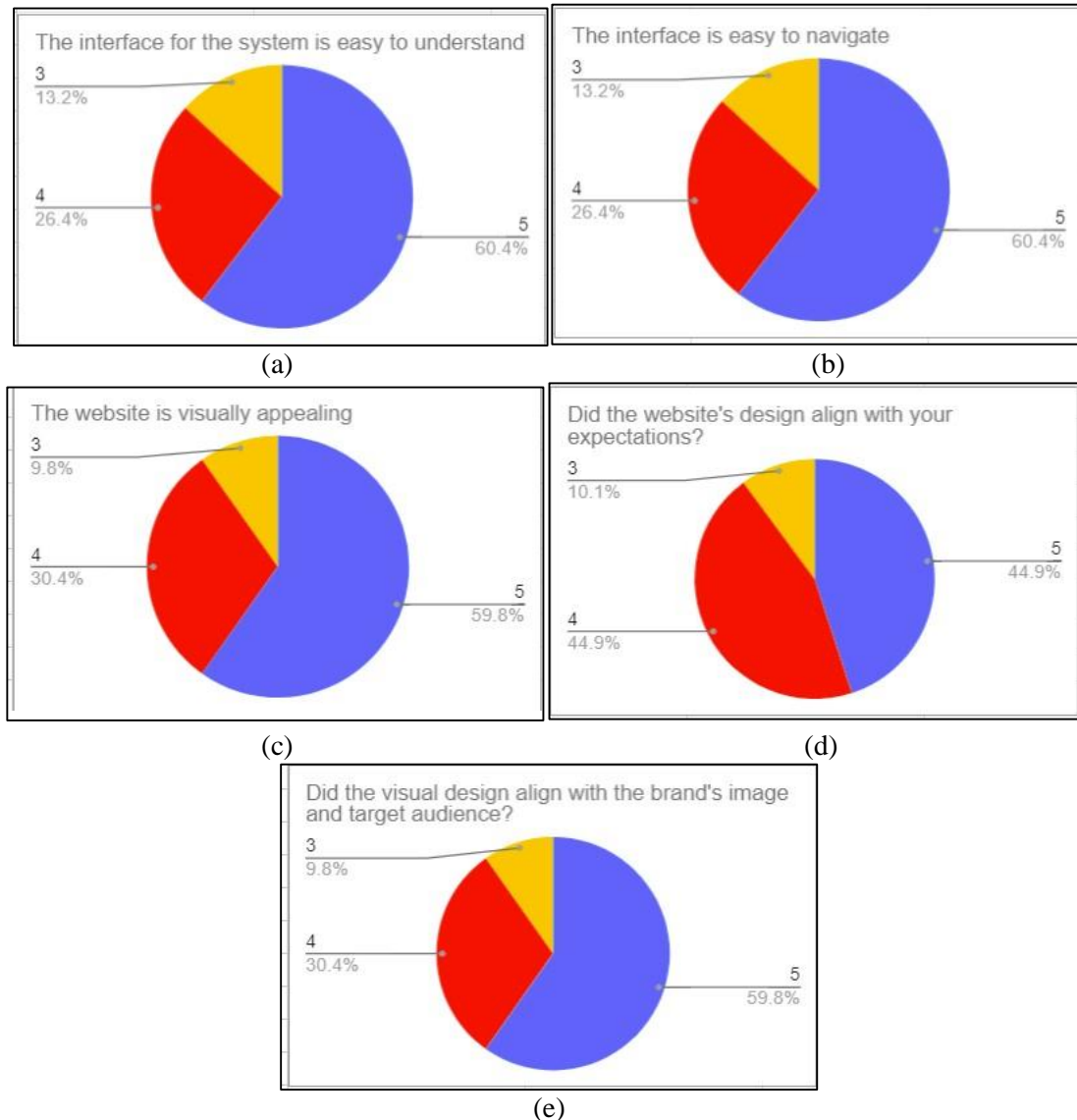


Figure 6: Percentage of respondents responding modules 1(Interface Design)

The figure shows the percentage of respondents responding to interface design, respondents are required to rate the overall user interface design of the system. The percentage of respondents are based on the total number of respondents that answer the question. In conclusion, most respondents choose 5 as their answers indicating that they are satisfied with the overall design of the interface.

The second module asks respondents about the functionality of the system. Respondents are required to rate the overall functionality of the system. Figure 7 shows the respondents responding to the functionality of the system.

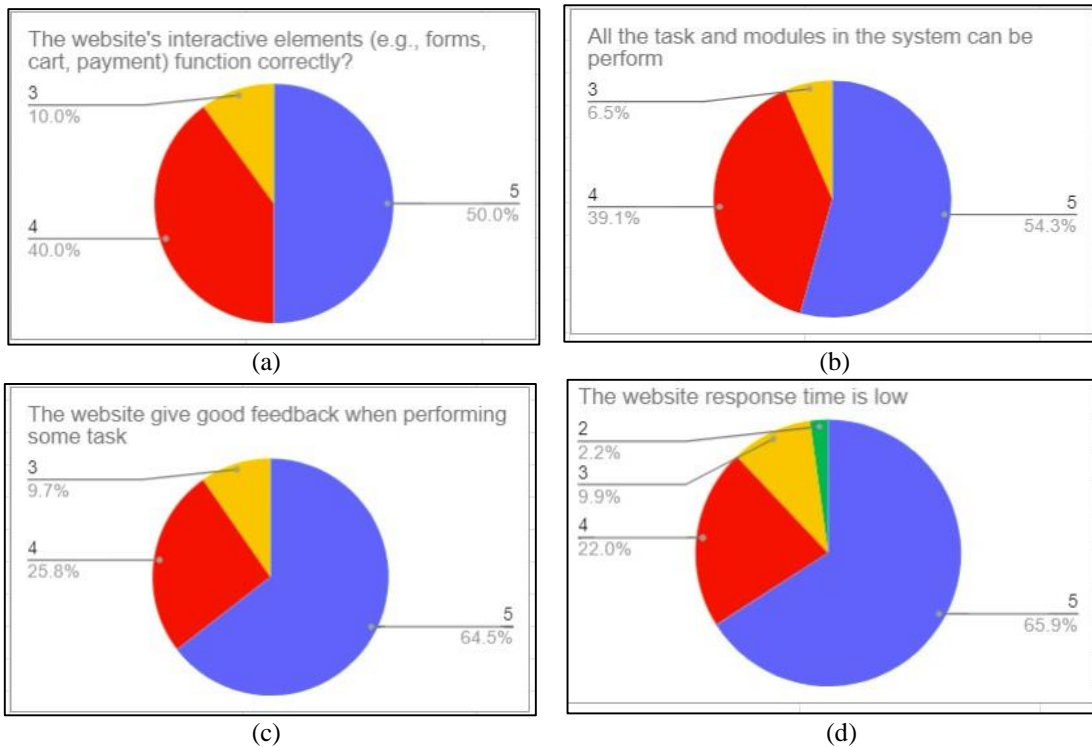


Figure 7 shows the percentage of respondent to the function functionality of the system

The pie chart indicates that most of the respondents choose 5 as their answers. It indicates that the functionality of the system is working as they intended. The result also shows that there are several respondents answers with 4, this indicates that the system has some function that may not properly implemented and not in their liking.

The last question is about the user experience when using the system. Respondents are asked to rate their whole experience when using the system including the design and functionality of the system. Figure 8 shows the percentage of respondents to user experience.

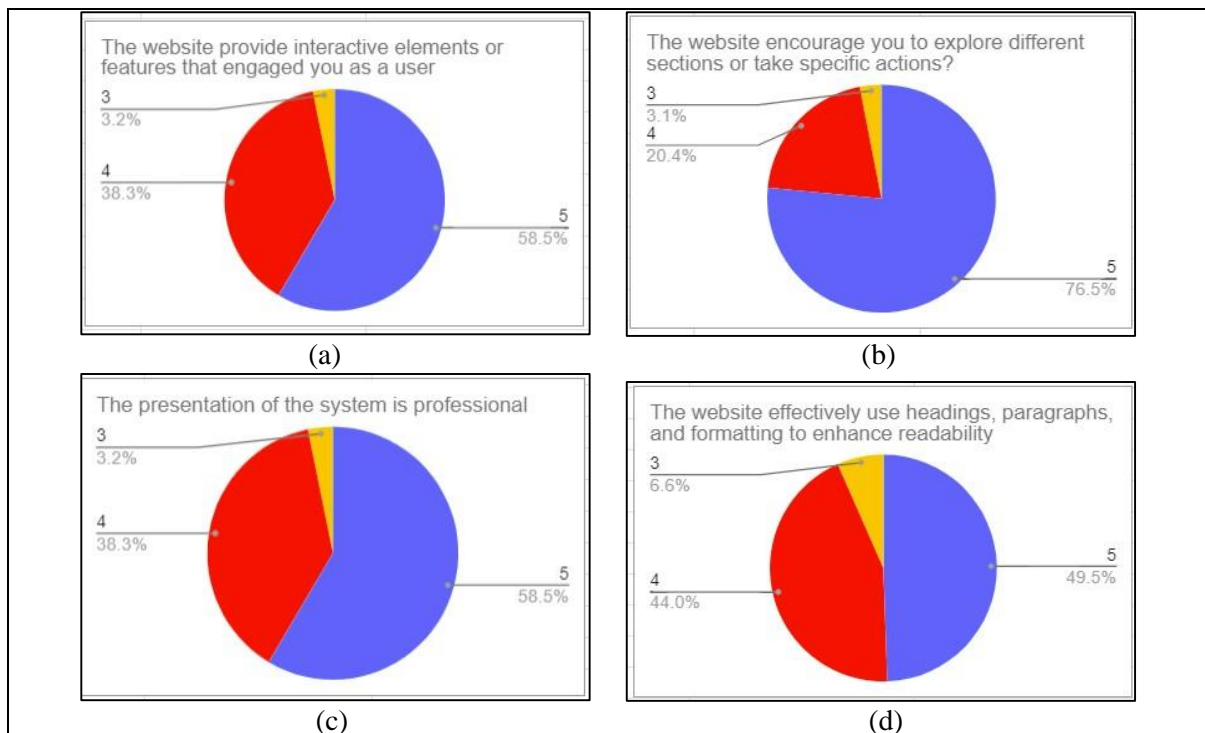


Figure 8: percentage of respondents to user experience

Figure 8 shows the user experience of user when using the system. Most respondents give good feedback when using the system by giving 5 as their answers. This indicates that most respondents feeling that the system is good and have good user experience.

5. Conclusion

In Conclusion, Deezek.co Ecommerce system has been successfully implemented and developed to achieve all the objectives during the beginning of the chapter report. The system will help the admin to manage the selling using the ecommerce system instead of using Instagram as platform to sell the products. This allows the customer to effortlessly buy the product without having to direct message the admin through WhatsApp to buy the shoes. The system also supports the administrator part for the admin to manage all the product details, manage orders and manage rating. The system is tested in to make sure that all the functionality of the system is working properly and fix all the bugs and error. Lastly, during the development of the system, various knowledge and new skill has been learned, the experience during the development of the system has teach me to always seek all the opportunity to always improve existing skills to make sure it can be beneficial in the future.

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