Website Design Using Laravel Framework for Tart Tuns Shop Sales Pontianak

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Abstract

Websites have become a means of getting information, promotion, sales that are widely used by Indonesians. Tart Tuns has difficulties in managing orders and products because currently sales in this shop are only through Instagram, in making transactions with buyers the admin communicates via Instagram direct messages and via WhatsApp messenger. This transaction process is less efficient because the Tart Tuns cake shop must always update information about product availability on insta story. This research aims to address the existing needs of the store in the form of a website that can be used as a sales medium to be more structured and expand product offerings not limited to the store's Instagram account by utilizing the MVC architecture of the Laravel Framework and collaborative filtering algorithms. System modeling uses UML (Unified Modeling Languange) and the research method used is Design Science Research (DSR). The results of this study are to produce a sales website software at Tart Tuns using the Laravel framework which functions to help shop owners in making it easier to manage orders, products, transactions, and product categories. Suggestions from this research are that other developers can add / develop features such as product reviews, chat on the website,and product liking features.

Keywords *— Selling Online, Model View Controller, Framework Laravel*

1. INTRODUCTION

Along with the times, websites have become a means of obtaining information, promotion, sales that are widely used by the Indonesian people. The website provides convenience for sales and ordering goods because it can be accessed from anywhere using a computer connected to the internet[1]. As for designing a website, a framework is needed, one of which is the Laravel framework, which is a new technology provider to make it easier for developers to build web applications based on the PHP programming language, a powerful and flexible PHP framework. PHP is a script used to create dynamic web pages. Laravel framework becomes easier by applying the MVC concept.

The concept in the MVC model itself separates the location of files or folders where the view part handles the user interface or as a link between the controller and model, the controller part handles all functions that will be executed on the view, while the model part handles all database queries which will be called when the view takes action on the controller and then the controller will make a request to the model[2]. The Laravel framework is an MVC web development framework designed to improve software quality by reducing development

and repair costs and increasing work productivity with clean and functional syntax that can reduce a lot of time for implementation[3]. In the laravel framework there are excellent features, namely the composer and command line interface called artisan[4].

Tart Tuns cake shop, which is currently the object of research, has difficulties in managing orders and products because sales in this shop are only through Instagram, in making transactions with buyers the admin communicates via Instagram direct messages and via WhatsApp messenger to convey information about product availability, product descriptions, shipping costs, payment confirmation, and delivery receipts one by one to prospective buyers.

This transaction process is less efficient because the Tuns Tart cake shop must always update information about product availability on insta story. Sales reports in this shop are still written in books. The above problems require a sales website that can help business owners manage their business.

2. RESEARCH METHOD

The form and method of research used is a case study of the Tuns Tart cake shop and the research method used is Design Science Research (DSR). Design Science Research (DSR) is a problem-solving paradigm that seeks to increase human knowledge through the creation of innovative artifacts[5] (DSR) has stages that are used in this research, namely Identify problems and motivate, Define objectives of a solution, Design and development, and Evaluation. The data collection methods used in the research are primary data and secondary data. Data collection techniques are carried out through the stages of observation, interviews and documentation directly with the shop owner, Dheliz Fahratun Nisa, to obtain information by asking direct questions verbally. The algorithm used is item-based collaborative filtering. The method in designing a sales website using Extreme Programming which has stages that must be passed such as Planning, Design, Coding and Testing. System analysis and design tools using the Unified Modeling Language (UML) is one of the most reliable tools in the world of object-oriented system development[6] and the testing method used is Black-Box Testing with Equivalence Partitioning technique.

3. RESEARCH RESULTS AND DISCUSSION

Sales website design in this study using Extreme programming method. The first stage in designing a sales website using Extreme Programming is planning. At this stage of planning will analyze every need used in developing software. The needs of this starts from the interview stage and direct observation of the process of sales transaction activities that exist in Tart Tuns so that the data obtained more accurately. The architecture of this software design is:

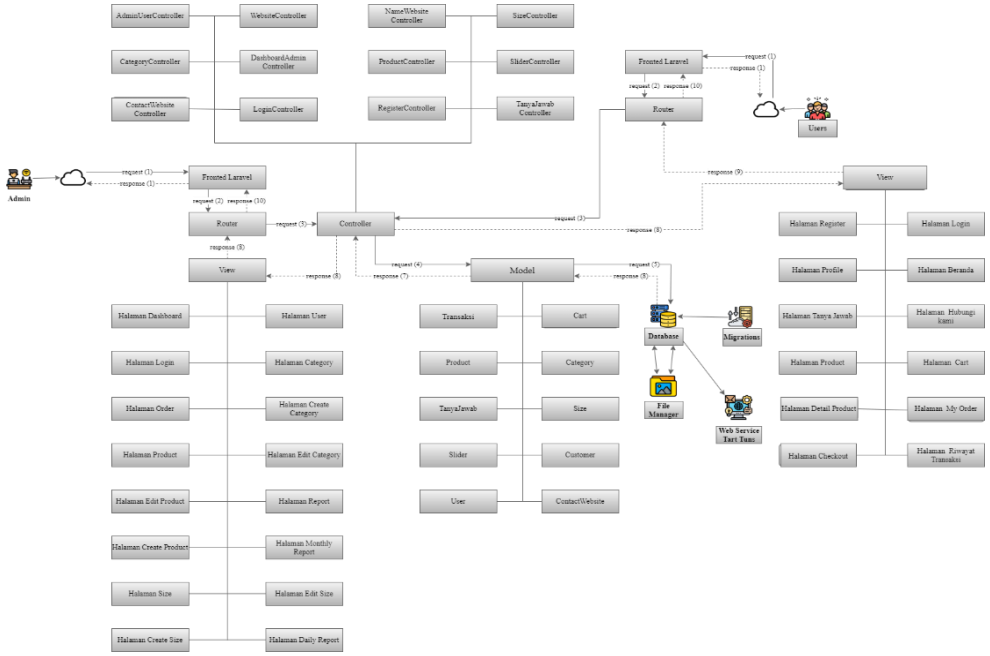


Figure 1. Software Architecture

Software architecture is a structure or description of the features of the software being built. Sales software architecture design identifies all system structures, component principles (sub- systems/modules), their relationships and how they are distributed. The design of the Pontianak

Tart Tuns shop sales website uses the Laravel framework. In Figure 1 the architecture above illustrates how the MVC concept mechanism in Laravel when the website is accessed. The MVC concept is a method in programming by separating the main components that build applications, namely data manipulation, user interface and the part that controls the application [7]. When the website is accessed, the web browser will send a request that will be responded to by the route. On the route there are several functions that will direct to the Controller and the required method. The controller in the system functions to store the method called by the router and directs the required model and view. The controller contains AdminUserController.php, WebsiteController.php, CategoryController.php, ContactWebsiteController.php, LoginController.php, DashboardAdminController.php, RegisterController.php, ProductController.php, NameWebsiteController.php, SliderController.php, Q&AController.php, SizeController.php. The controller called by the route makes a request to the model. The model in the system functions to process requests received from the controller and send responses in the form of data retrieved from the database. The model is useful for receiving requests from the controller and sending responses according to user requests in the form of data directly related to the database, be it in the form of customer data, products, categories, administrative and sales transaction data. The results of the processed data are returned to the controller and then used in the view.

View on the system serves to display pages that will be seen by users and admins on a web browser based on requests sent by the controller. View for users contains register, login, product, profile, homepage, product details, cart, my order, checkout, question and answer,

contact us, transaction history. While the view for admin contains admin-user, category, contact-website, product, slider, size, name-website, question and answer and transaction pages. The view which is divided into 2 parts aims to be able to process the display easily because both the appearance and functions available to the admin and frontend are different. And the controller that regulates both parts of this view also adjusts to its function, the admin controller will manage the admin view and the frontend controller will manage the frontend view. The use case diagram stages can be seen in the figure below:

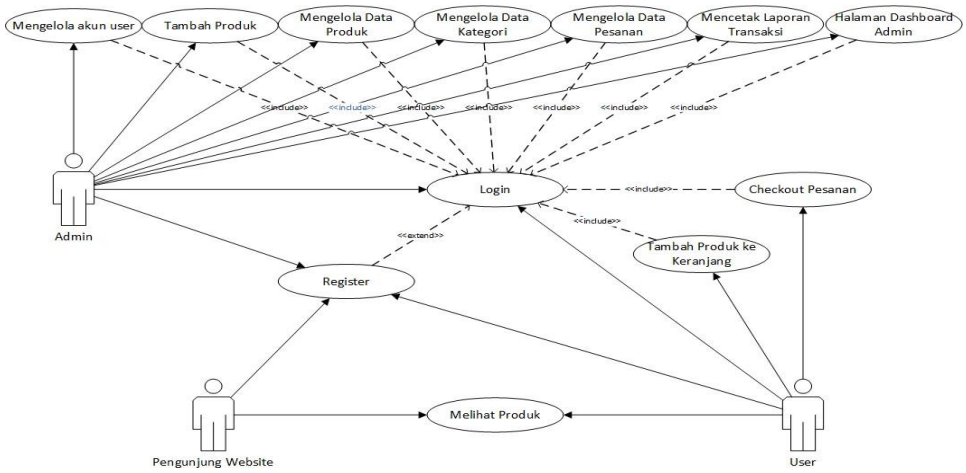


Figure 2. Use Case Diagram

Use case diagrams contain the business needs of the system and also illustrate the interaction between the system and its environment[8]. In Figure 2 use case diagram of the sales website, it can be seen that there are several actors who run it, namely there are admin actors, user actors and website visitor actors. Admins get access rights on condition that they must log in first and users can view products first without having to register on the sales website, but if the user wants to add products to the basket and purchase products, they must log in first or if they don't have an account, they can register first. Visitors to the sales website can only access the sales website and view products without having to register and log in to the sales website. The activity, sequence, and class diagram images can be seen below:

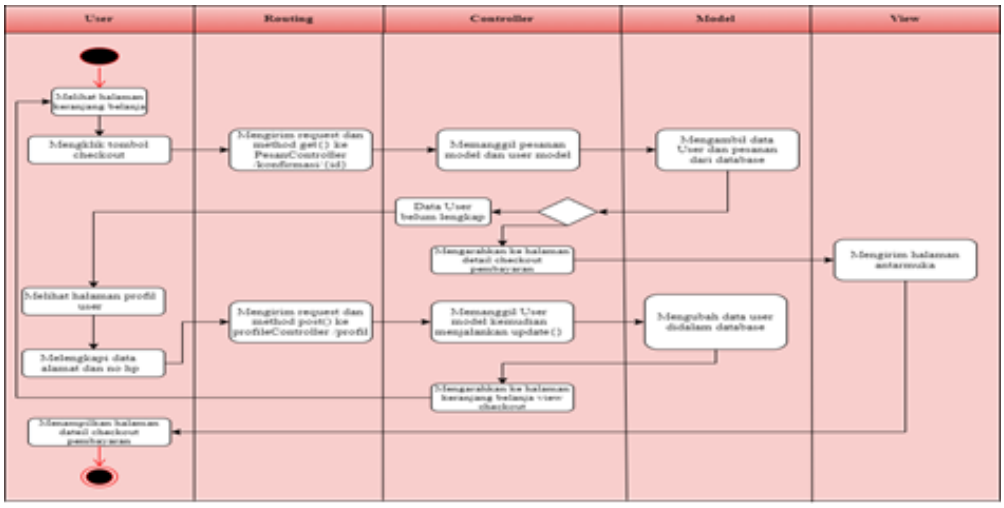


Figure 3. Order Checkout Activity Diagram

In Figure 3 above, the user selects the shopping basket and checks out, then the routing system will make a request to the MessageController/Confirmation/{id}. Then the system will call the message model and user model. Then the system retrieves user and order data from the database. In this process the user is faced with 2 conditions, first if the user data is incomplete, the system will display the user profile page and the user will complete the address and mobile phone number data. Activity diagrams can make it easier to design activities that are formed in an operation on the system to be created[9] The next diagram is a sequence diagram. Sequence diagrams are used to describe interactions between objects in and around the system. The sequence diagram in designing the Pontianak Tuns Tart sales website is:

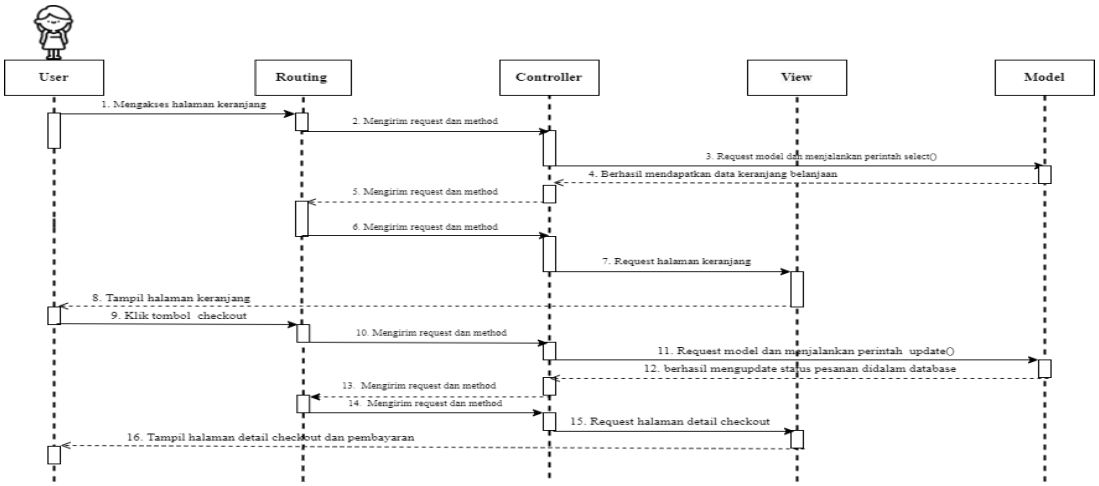


Figure 4. Order Checkout Sequence Diagram

In Figure 4 above, it can be explained that in this process the user is faced with 2 conditions, first if the user data is incomplete, the system will display the user profile page and the user will complete the address and mobile phone number data. Then the system will display the shopping basket page again to the user. Second, if the user data is complete, the system will display the payment checkout detail page to the user. The next diagram is a class diagram. This diagram illustrates the relationship between tables in the system database. There are several relationships that exist in the system including one-to-one, one-to-many, and many-to-many relationships. Tables and relationships in the system to be built can be seen in Figure 5 below:

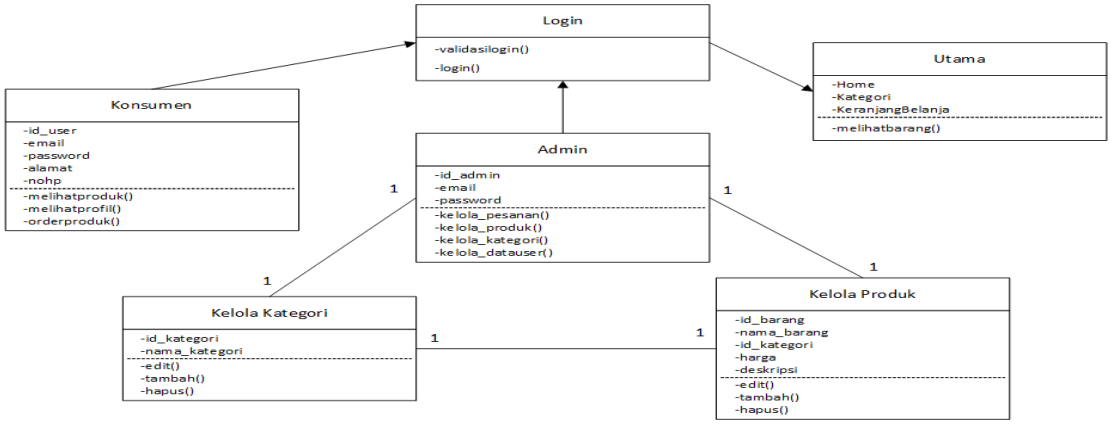


Figure 5. Class Diagram

The class diagram in Figure 5 above illustrates the relationship between entities related to the sales website system. In this system there are 6 entities that are related to each other. This relationship illustrates that there is a direct or indirect link between each system entity. The relationship between components in this context maps the arrangement and references that exist between tables in the database design. The entity relationship diagram of the Tuns Tart sales website can be seen in Figure 6 below:

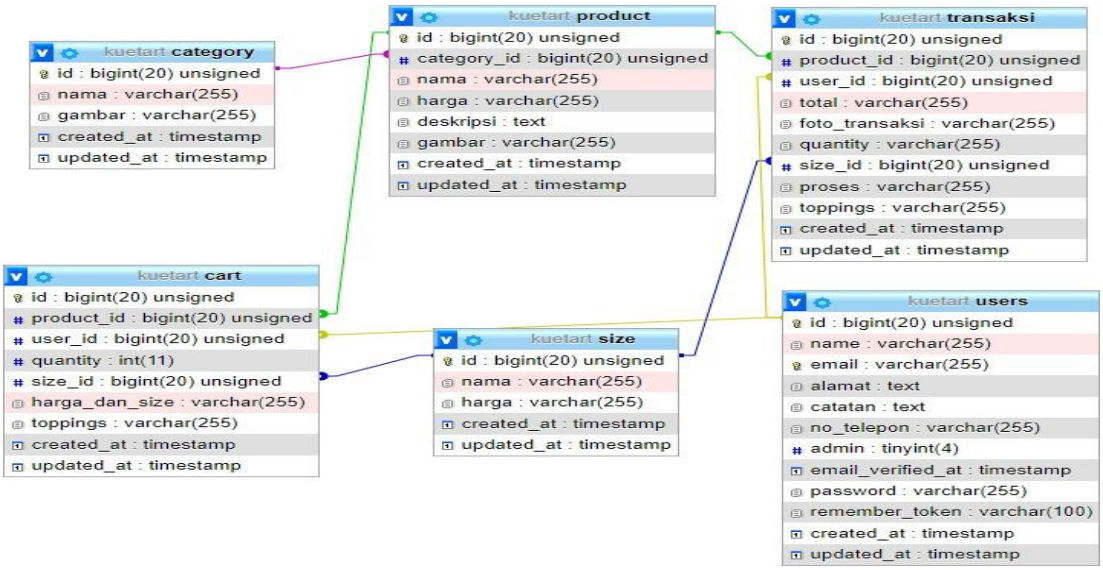


Figure 6. Entity Relationship Diagram

In Figure 6 is an entity relationship diagram or Entity Relationship Diagram is a data model in the form of graphical notation in conceptual data modelling that describes the relationship between storage[10]. The entity relationship diagram is a description of the system design symbolised by certain symbols to provide an overview of the data flow between one component and another[11]. After making the diagram, it is continued with the stage of designing the website interface to be built, this design can be seen in the figure below:

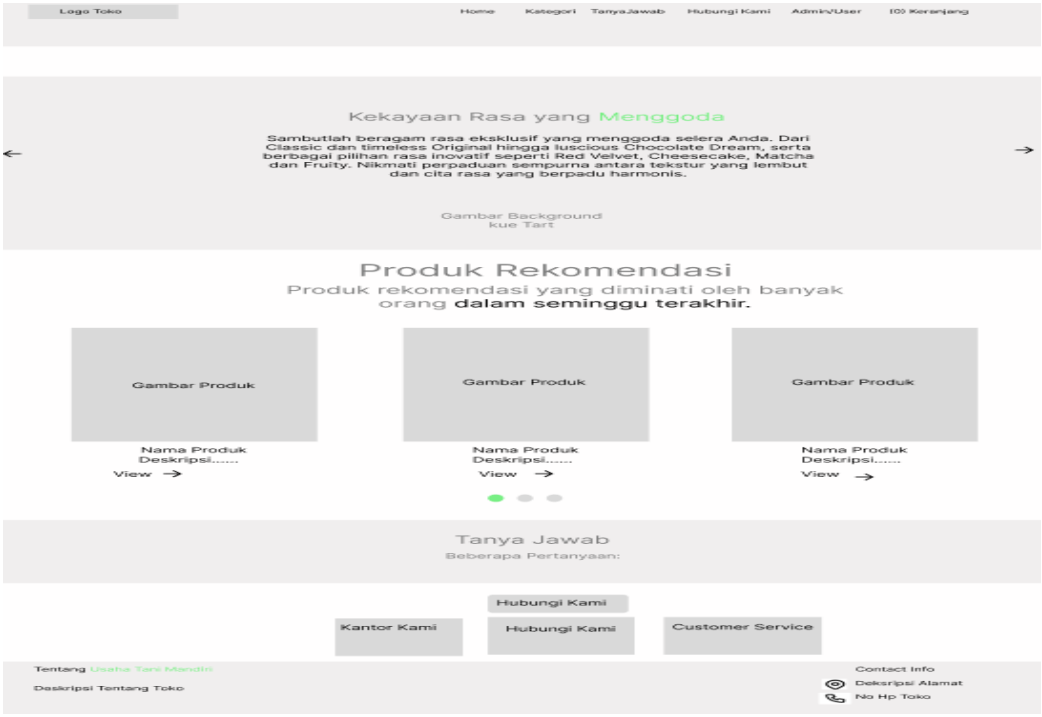


Figure 7. Website Home Page Design

Based on Figure 7 above, the user interface design determines how the user will interact with the system as well as the input and output that can be received and generated by the system. After the design stage is complete, then the coding stage will be carried out to build a website that has been designed. Coding is done using the Laravel template with the Model View Controller (MVC) method. The MVC architecture has a business logic that is separate from the model and presentation, when making modifications to the coding does not affect other components that are not changed, and a faster development process, as well as reuse of code where this function is useful in website development without having to do coding from scratch[12]. There are several main pages of the website which are divided into admin and user pages. Below will be shown the results of the design of the sales website at the Tuns Tart cake shop.

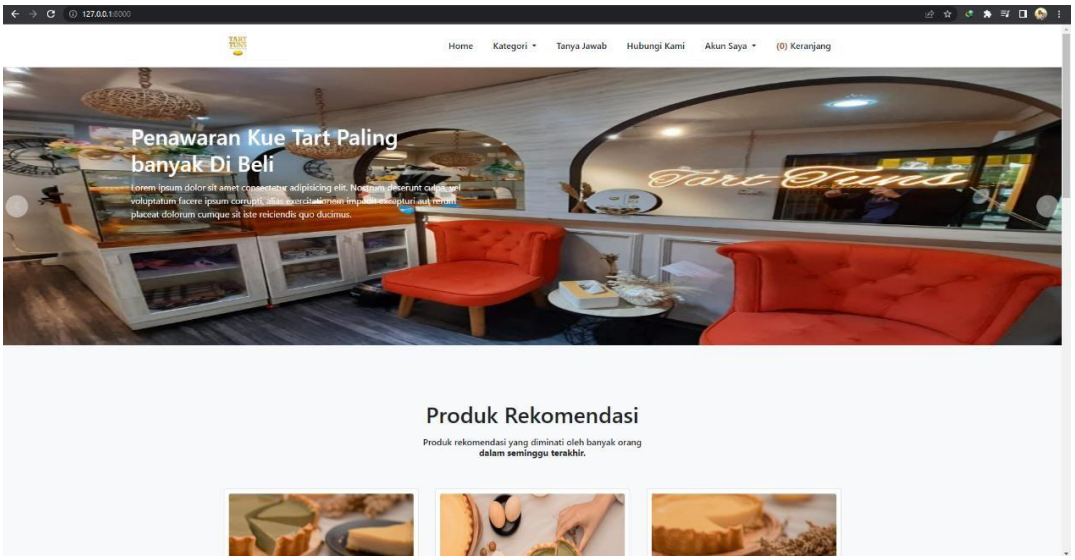


Figure 8. Main Page

In Figure 8 above, where the user's main page is displayed is the initial display when the user visits the website. On this page are displayed popular products every week and some other information. After the main page, the product recommendation page will be displayed, it can be seen in the picture below:

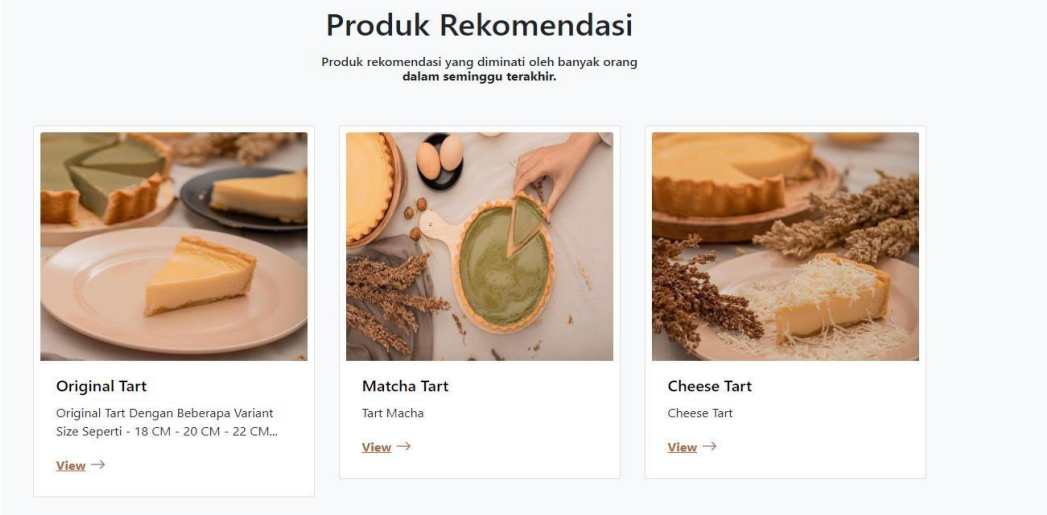


Figure 9. Product Recommendations

In Figure 9 which is a display of the best-selling product recommendation feature in the last week where this feature uses a collaborative filtering algorithm using the item-based collaborative filtering method. The method chosen is item-based collaborative filtering. Collaborative filtering is the simplest implementation of this approach, this algorithm makes recommendations to active users based on items that other users with similar tastes have liked in the past[13]. The advantage of the method is that it can utilise other users' existing opinions to predict items that a user is likely to like/interest in. Item-based will calculate the similarity between items, judging from the ratings given by users for the items. By using collaborative filtering algorithms, recommended products can be tailored to similar consumer preferences [14]. Below will be shown the image of order checkout and transaction print:

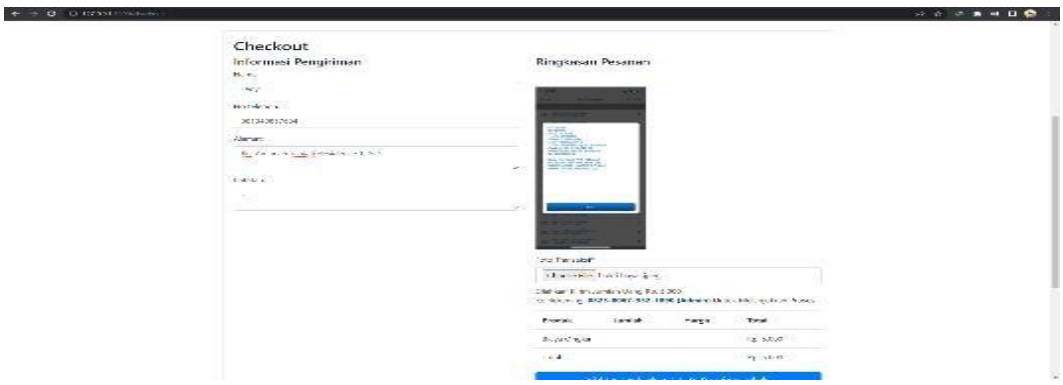


Figure 10. Order Checkout

Based on Figure 10 above, is a checkout page display that is used to checkout and pay on the Tart Tuns sales website by clicking the checkout button on the checkout page.Below will be displayed an image of the transaction print on the website that was built.

Figure 11. Print Transaction

In Figure 11 above, displays a page from the admin side in printing transactions. Below will be displayed a list of categories on this website.

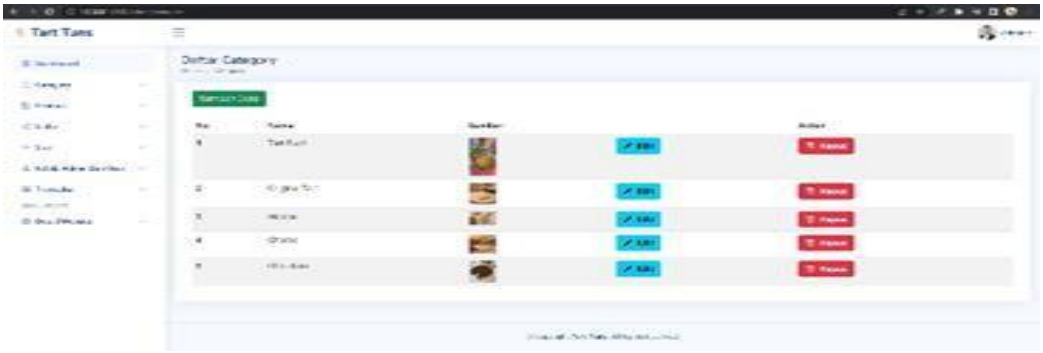


Figure 12. Category List

In Figure 12 above, is a display of data listing what categories are sold at the Tart Tuns shop where this is located on the admin page in managing product categories, where the admin can add, edit and delete data. Below will be displayed a picture of the transaction list on this website.

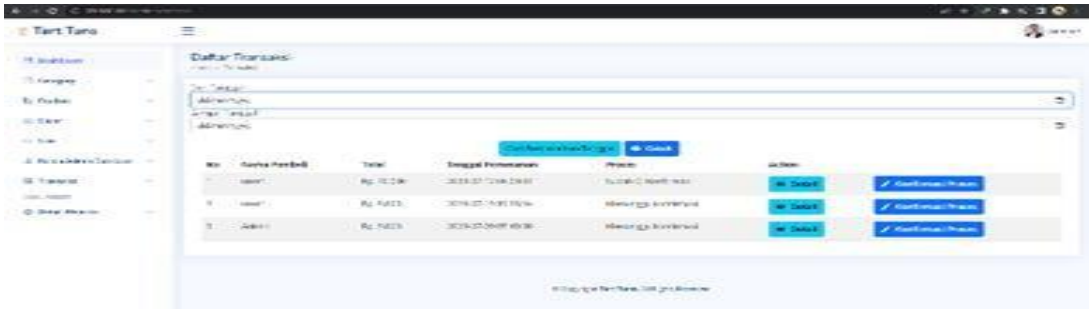


Figure 13. Transaction List

Based on Figure 13 above, is a transaction list form that is useful for displaying order data from users who purchase cakes at the Tart Tuns shop, the admin can view order details by pressing the transaction list button. This transaction list can also be printed. The following will display an image of the customer order or order basket.

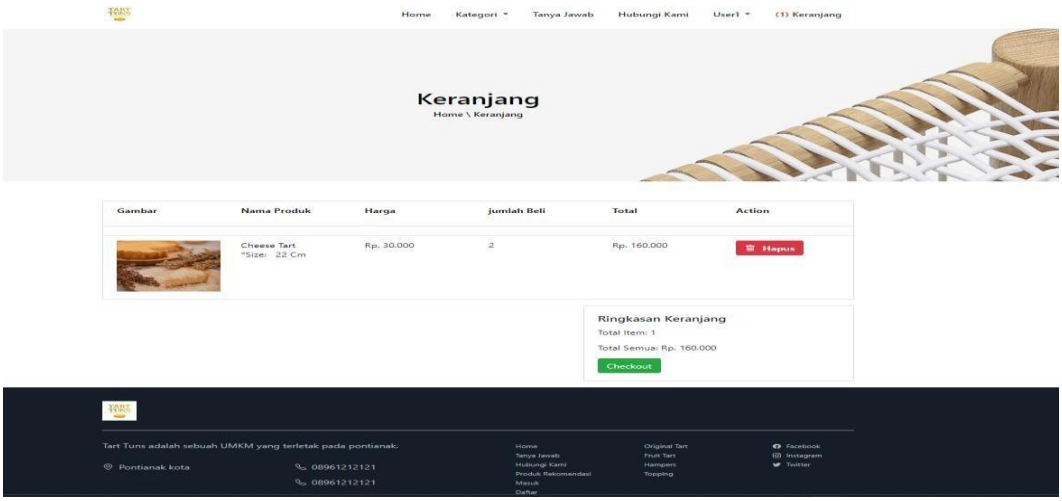
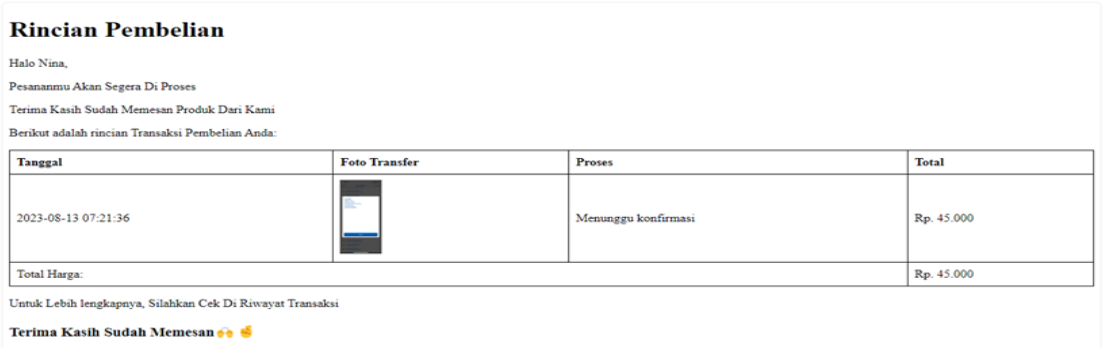


Figure 14. Order Basket

Based on Figure 14 above is a display of the My Orders page which is used to check the status of the user's order. User order data will be stored in the customer basket so that the user can check the order details. Below will be shown what web technology is used on this Tart Tuns sales website.



Rincian Pembelian

Halo Nina,

Pesananmu Akan Segera Di Proses

Terima Kasih Sudah Memesan Produk Dari Kami

Berikut adalah rincian Transaksi Pembelian Anda:

Tanggal	Foto Transfer	Proses	Total
2023-08-13 07:21:36		Menunggu konfirmasi	Rp. 45.000
Total Harga:			Rp. 45.000

Untuk Lebih lengkapnya, Silahkan Cek Di Riwayat Transaksi

Terima Kasih Sudah Memesan

Figure 15. Gmail Web Notif Technology

Based on Figure 15 above, the notification algorithm on this sales website serves to notify users of product updates such as changes in order status. The web technology applied to this website is notification via gmail, when the user completes the order, the system will provide email notification to the Tart Tuns admin.

The testing phase is carried out to ensure that all functions on the website can run according to the needs. The test method used is black-box testing with Equivalence partitioning technique. The following table 1 is the test results of the Sales website at the Tart Tuns Pontianak Store:

Table 1. User Website Black-Box Testing

No	Test scenario	Test Case	Expectedresults	Testing Results
1.	Register aNew Account	User opens the register page, inputs data, then presses submit	User data is successfully entered into the database and canbe used	Valid
2.	Login checkout	The user opens the account page then inputs data and presses login.	Login can beused and successfully enter the checkout page	Valid
3.	Order a product	Pressing the button on the basket to put the groceries into the basket.	The groceries made it into thebasket.	Valid
4.	Order Checkout	Pressing the basket and viewing the shopping basket whether it is appropriate, then uploading proof of payment .	The page will move to the order page waiting for store admin confirmation.	Valid
5.	Notif Email	View email notifications in the user's email to view orders booked	Emails successfully describe detailed orders placed by users	Valid

Based on table 1 above, the testing stage is carried out to ensure that all website functions can run as needed. Black-box testing focuses on the functional requirements of the software. Thus, black-box assessment allows software engineers to obtain a set of input conditions that fully use all functional requirements for a programme [15]. This black-box method was chosen because the development of the Tart Tuns sales website did not know the internal structure of the web.

4. CONCLUSION

The results of this study are to produce a sales website software at Tart Tuns using the Laravel framework which functions to help shop owners in easily managing orders, products, transactions, and product categories. The website built can display product information and purchases to buyers as well as information and management functions for admins or users. In this sales website, the admin can print transactions according to the desired day, month or year and can be used as a PDF file. This sales website with the Laravel framework is expected to contribute to the store.

5. SUGGESTED

The following are suggestions for further software development. Other developers can add/develop features such as product reviews, chat on the website, and product liking features. This website still needs to be developed better, because here it still uses notifications via email so it is hoped that in the future other developers can improve it into notifications via WhatsApp or WA.

6. REFERENCES

[1] Pradana, A. A., & Oktavianus, R., 2022, Implementasi Website Penjualan menggunakan Framework Laravel Pada Senentang Garage, Seminar Ilmiah Sistem Informasi dan Teknologi Informasi (Prosiding SISITI), Vol. 11, No. 1, pp.321-330.

[2] Kosasi S, 2016, Perancangan bisnis Toko Online Untuk Memperluas Pangsa Pasar Aksesoris Produk Rohani, Seminar Nasional Teknologi Informasi dan Multimedia (SEMNAS TEKNOMEDIA), Vol. 4, No. 1, pp. 3-2.

[3] Luthfi, Farizan. 2017, Penggunaan Framework Laravel Dalam Rancang Bangun Modul Back-End Artikel Website Bisnisbisnis.ID, Jurnal Informatika Sunan Kalijaga 2, Vol. 2, no. 1, pp. 34-41.

[4] Gat., Alfaqy. H.M., Wahyuni. T., 2021, Pemanfaatan Framework Laravel Dalam Sistem Id Affiliate Pada Website Lacoga.com, Prosiding Seminar Nasional CORISINDO, Vol. 1, No. 1, pp. 31.

[5] Brooke V.J., Maedche A. & Hevner A. 2020. Introduction to Design Science Research, Cases, Cham.

[6] Pressman, R.S., Maxim, B.R. 2020. Software Engineering: a practtioner's approach ninth edition, McGraw-Hill Education, New York.

[7] Abdulloh, R. 2017. Membuat Toko Online dengan Teknik OOP, MVC, dan AJAX, Elex Media Komputindo, Jakarta.

[8] Rachmaniah, M. 2018. Pengembangan perangkat lunak dan sistem informasi. PT Penerbit IPB Press, Bogor.

[9] Munawar., 2018, Analisis Perancangan Sistem Berorientasi Objek dengan UML: Unified Modeling Language, Penerbit, Depok.

[10] Rusmawan, U., 2019, Teknik Penulisan Tugas Akhir dan Skripsi Pemrograman. Elex Media Komputindo.

[11] Ginting, U. R., & Wardoyo, R. 2019. Sistem Evaluasi kepuasan Mahasiswa Menggunakan Metode Fuzzy, Zifatama Jawara, Sidoarjo.

[12] Jakaria, David. 2021, Penerapan Web Service Pada Aplikasi Sistem Pemesanan Rental Mobil, Jurnal IT CIDA, Vol. 7, No. 2, pp. 34-52.

[13] Ricci, F., Rokach, L., & Shapira, B. 2022. Recommender systems Handbook, Springer US, New York.

[14] Hartatik, Kwintiana, B., Baradja, A., Harto, B., Robet., Sudipa, I. G. I., handika, S. P.I., Adhicandra, I., Gugat, D. M. R., & Terttiaavini. 2023. Data Science For Busniess: pengantar & penerapan Berbagai Sektor, Sonpedia Publishing Indonesia, Jambi.

[15] Jauhari, A., Anamisa, R. D., & Mufarroha, A. F. 2022. Rekayasa Perangkat Lunak, Media Nusa Creative (MNC Publishing), Malang.