

Implementation of Cross Selling in Product Selection in Entok Chamber E-commerce

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Abstract. During the COVID-19 pandemic, the Indonesian economy was heavily affected because Indonesia experienced an increase in the status of pandemic danger, in which PPKM was implemented to reduce the spread of COVID-19 and its variants. All activities including sales and purchases were conducted according to health protocols, followed by many complaints from both sellers and buyers who are afraid to leave their home. Therefore, online sales to limit the spread of the virus is beneficial. The development of technology and the rapid flow of data and information spread over the internet has brought about the emergence of e-commerce where sellers can sell directly to buyers. This requires people to know information and buy goods on e-commerce by using search engines that can help find information related to products that consumers want to buy. This research is based on data obtained from the Entok Chamber shop owner regarding declining sales due to the pandemic. To respond to this, the researchers conducted research aimed at increasing sales in this COVID-19 era. This research utilizes the waterfall model and displays in formal Cross Selling for the product buyers are looking for. This system is made using the PHP programming language and MySQL database and implements a responsive web that functions to store sales, purchase data, and others.

Keywords: COVID-19, e-commerce, database, cross selling.

INTRODUCTION

The e-commerce system is one of the most popular systems in use for buying and selling, because the e-commerce system helps both sellers and buyers to conduct transactions safely and efficiently digitally and is also easy to be understood and used by ordinary users [1] [2] [3]. Currently, there are many e-commerce system applications that are used by both sellers and buyers globally, but not many have produced cross-selling, forcing sellers and buyers to speak face-to-face about the favorite menu or the best-selling menu from store sales. This is obtained from processing customer data regularly and optimally so that it serves as a more specific sales description [4] [5] [6]. This application was developed based on efforts to overcome the problem of declining sales of the Entok Chamber store due to the pandemic and finding the best solution for sellers and buyers with the aim of helping increase sales of the Chamber Store. This research was conducted using the cross selling method as a method for optimizing the process of providing recommendations in product selection in the Entok Chamber e-commerce.

METHOD AND MATERIALS

Data Collecting Method

The method used by the author is a descriptive method which describes the state of the system design object and all data related to the system design which is then analyzed and adapted to the data obtained from observations, interviews, and literature studies.

System Development Method

In developing this software, the author uses the Waterfall method, which is a development of a Systems Development Life Cycle (SDLC) project [7]. Where the Waterfall method is a method that is systematic, and sequential in building software that goes through 5 stages of system design, namely 1) Communication; 2) Planning; 3) Modeling; 4) Construction; 5) Deployment. The stages of the Waterfall model can be seen in Figure 1.

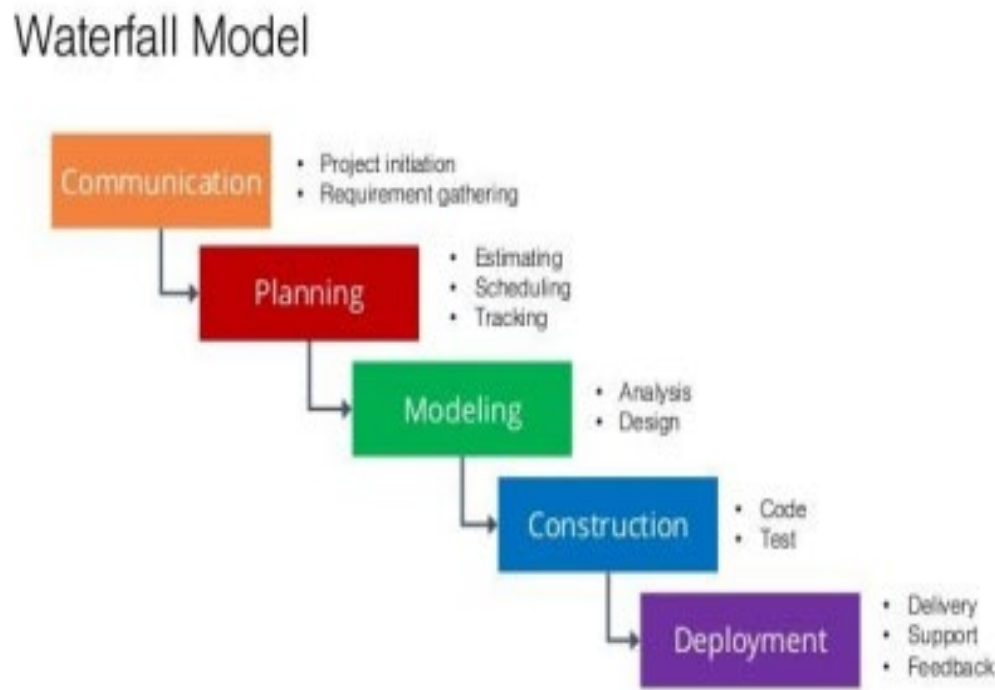


FIGURE 1. Waterfall Model [8]

Materials

The data collection technique that the author uses is observation where the author makes direct observations of the object of the system design, namely transactions and the implementation of operational activities at the Entok Chamber store and asks for data related to the system design that the author worked on. Meanwhile, literature study was

conducted through reading several e-book related to system design, while the author also conducted direct interviews with the CEO of Entok Chamber in f2f (face to face) and online via WhatsApp.

LITERATURE REVIEW

There are several studies that produce e-commerce with cross-selling that have been published. As in research [9], the implementation of cross-selling is used in developing a web crawler application to compare the prices of two e-commerce sites. Making cross-selling-based online sales system applications was also conducted in previous studies [10] [11], supported by the waterfall method in application development.

RESULT AND DISCUSSION

The result of this research is a web-based application that aims to increase sales of the Entok Chamber store by making cross selling on the Entok Chamber e-commerce website. Users can start by registering an account and logging in to select the available order menu. Figure 2. is a display of the register page and account login page.

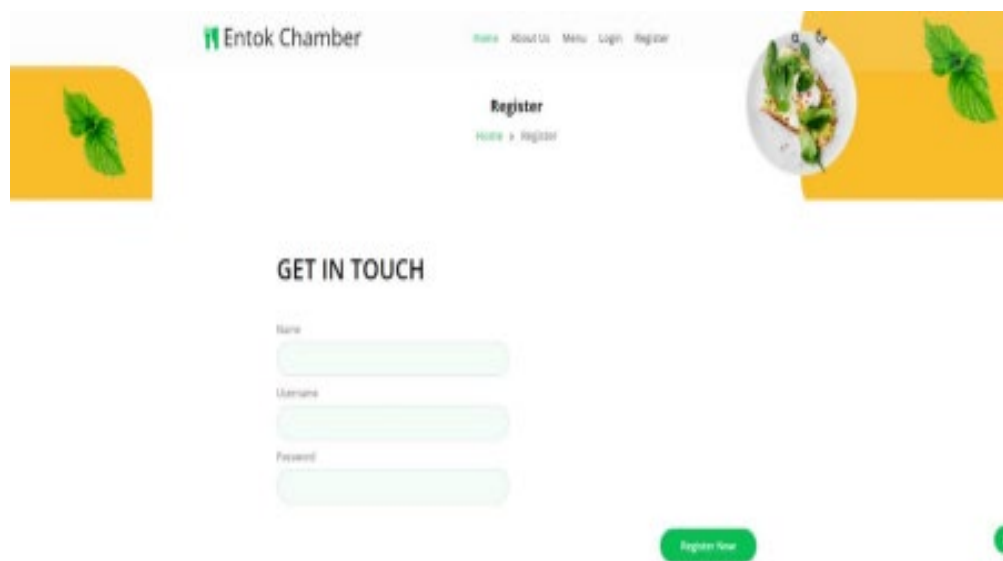


FIGURE 2. Display of the register page

During the test, the author logged in after registration on the web-based application that had been created, with the username and password already stored in the database as shown in Figure 3.

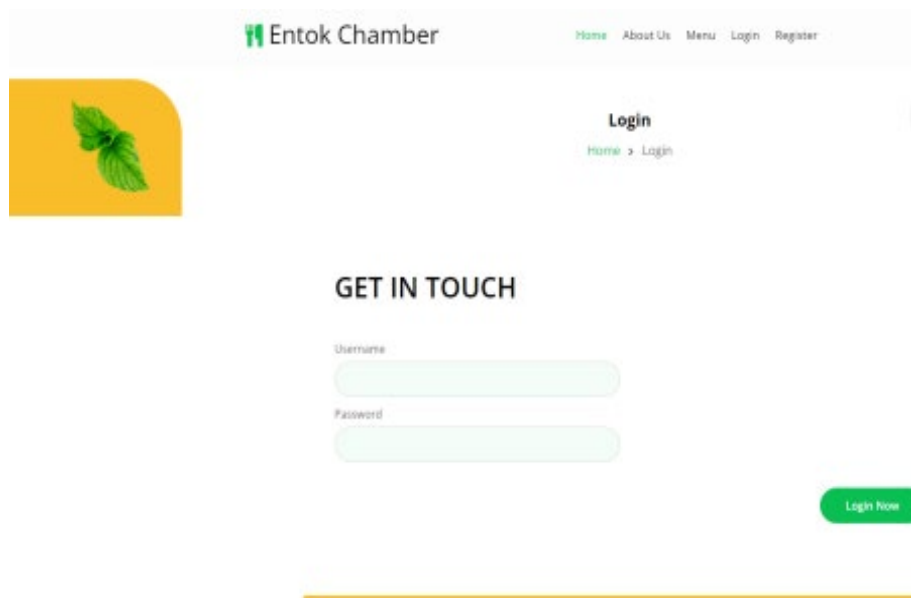


FIGURE 3. Display of the login page

After logging in, the customer or user can place an order after selecting the items they wish to order, as can be seen in Figure 4.

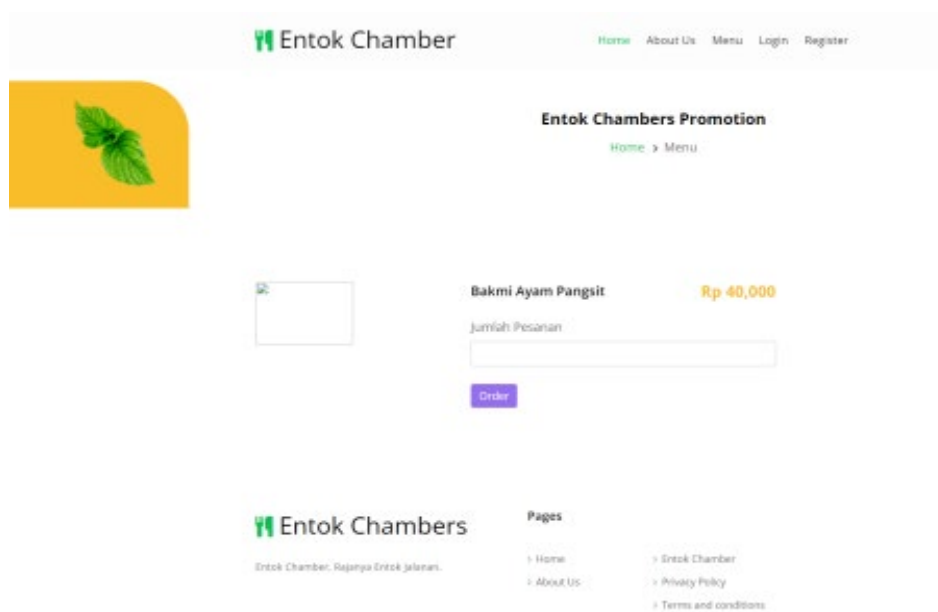
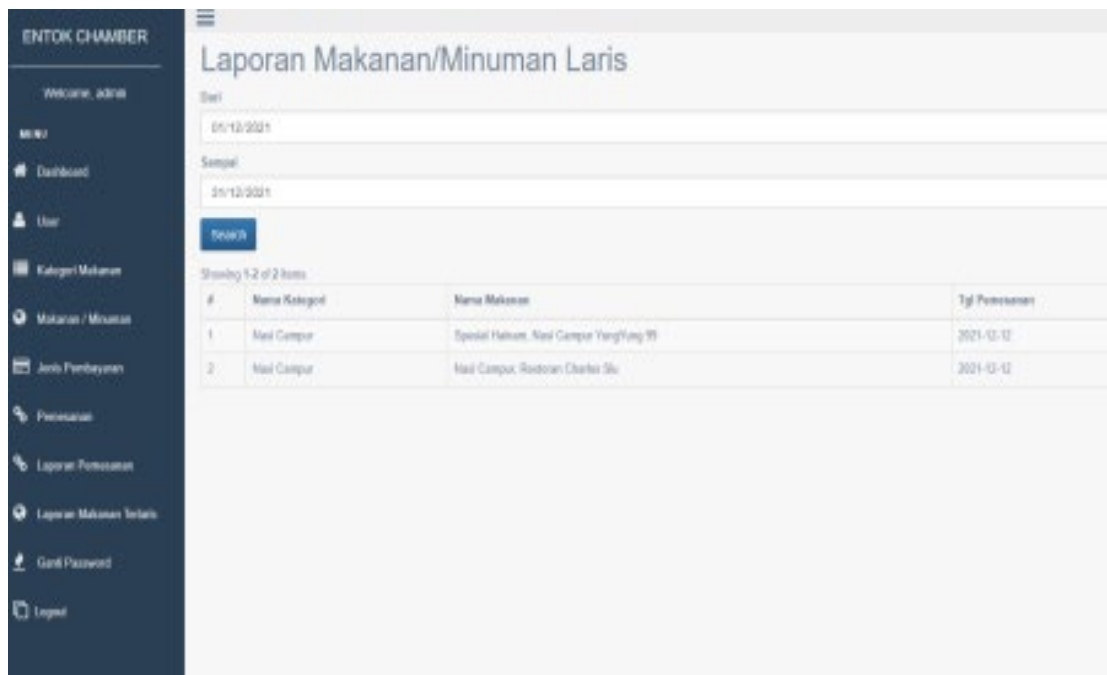


FIGURE 4. Display of the order page

This web-based application program also produces reports on the best-selling food and beverages as cross-selling to be used as evaluation material for sellers of what they want to sell and develop as can be seen in Figure 5.



#	Nama Kategori	Nama Makanan	Tgl Penjualan
1	Nasi Goreng	Special Nasi Goreng, Nasi Goreng Yang Yang 99	2021-12-12
2	Nasi Goreng	Nasi Goreng, Rendang Charcoal Siku	2021-12-12

FIGURE 5. Food and Beverage Report

CONCLUSION

The result of this research is an e-commerce application system with the implementation of web-based cross-selling in the form of a personalized Entok Chamber store e-commerce website. From the tests, which includes registering, logging in, ordering food or drinks, the result of the system needed is a report on the best-selling food or beverage which is also the implementation of cross-selling, so that sellers can overcome the problem of declining sales during the pandemic caused by COVID-19. Therefore, with the best-selling food/beverage report, sellers can evaluate and innovate more on store product sellers and find out what customers or buyers are interested in so that they can increase Entok Chamber store sales. From this research, the researcher hopes to increase the use of the application by adding cross-selling and using the waterfall method to facilitate the system to be more responsive, efficient, to the needs of users (buyers and sellers).

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REFERENCES

1. S. Mulyani, "Analisis dan Perancangan Sistem Informasi Manajemen Keuangan Daerah: Notasi Pemodelan Unified Modeling Language (UML)", Abdi Sistemika, 2017.
2. W. A. Kamakura, "Cross-selling: Offering the right product to the right customer at the right time", in *Journal of Relationship Marketing*, 2008, 6(3-4), pp. 41-58.

3. P. May and P. R. May, "The business of ecommerce: From corporate strategy to technology", Cambridge University Press, 2000, Vol. 1.
4. J. T. Beng, A. F. Amanto, A. Aurelia, D. Chandra, K. Y. D. Mandey, L. A. Ramadhani, R., Stephanie, and S. Tiatri, "Designing mathematics, science, and reading competency dashboard using business intelligence algorithm" [Unpublished], in *AIP Conference Proceedings*, 2022.
5. Z.-Y. Chen, Z.-P. Fan, and M. Sun, "A multi-kernel support tensor machine for classification with multitype multiway data and an application to cross-selling recommendations", in *European Journal of Operational Research*, 2016, 255(1), pp. 110–120. doi:10.1016/j.ejor.2016.05.020
6. C. Yan, H. Sun, and W. Liu, "Study of fuzzy association rules and cross-selling toward property insurance customers based on FARMA", in *Journal of Intelligent & Fuzzy Systems*, 2016, 31(6), 2789–2794. doi:10.3233/jifs-169160
7. J. T. Beng, A. F. Amanto, A. Aurelia, D. Chandra, K. Y. D. Mandey, L. A. Ramadhani, R., Stephanie, and S. Tiatri, "Fisher-Yates Shuffle Algorithm application to develop a visualization assistance application for learning physics in high school" [Unpublished], in *AIP Conference Proceedings*, 2022.
8. Software engineering 1 (Software development process model). (n.d.), Share and Discover Knowledge on SlideShare, 2016. <https://pt.slideshare.net/adfbipotter/software-engineering-1-software-development-process-model?smtNoRedir=1>
9. R. Sona, "Implementasi Cross Selling Dalam Pemilihan Produk Pada Ecommerce", in *Jurnal Ilmu Komputer dan Sistem Informasi (JIKSI)*, 2020, 1(1), pp. 31-41.
10. R. A. Saputra, "Penerapan Metode Cross Selling Dan Upselling Pada Aplikasi Web E Commerce", Swabumi, 2015, 3(1), pp. 50-58.
11. M. Ng, and J. Kasih, "Penerapan Metode Cross Selling pada Aplikasi Online ISMSHOP11– Bandung", in *Media Informatika*, 2018, 17(2), pp. 98-113.