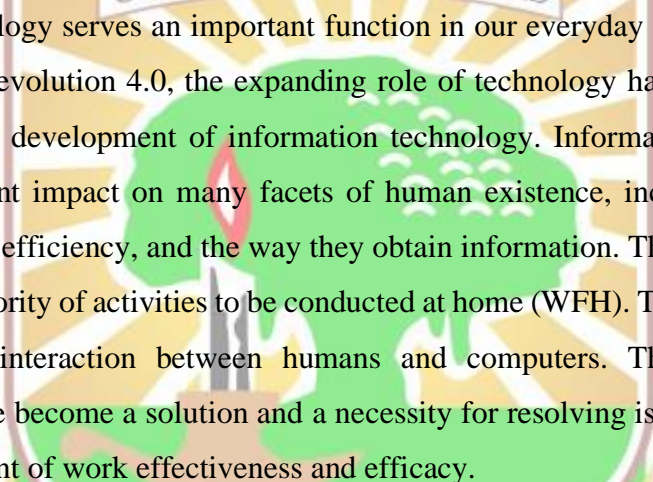


CHAPTER I

INTRODUCTION

Chapter I explains about the background, problem formulation, research objectives, research scopes, and outline reports discussed in the Final Project.

1.1 Background



Technology serves an important function in our everyday lives. In this era of Industrial Revolution 4.0, the expanding role of technology has contributed to the accelerated development of information technology. Information technology has a significant impact on many facets of human existence, including people's attitudes, work efficiency, and the way they obtain information. The pandemic has caused the majority of activities to be conducted at home (WFH). This significantly increases the interaction between humans and computers. The internet and computers have become a solution and a necessity for resolving issues concerning the enhancement of work effectiveness and efficacy.

As of January 2020, there were 175.4 million internet network consumers in Indonesia. There was significant growth, amounting to 17% year-over-year. Consequently, the present internet penetration rate in Indonesia is 64%. Digital platforms such as online marketplaces and social media have had a significant impact on the growth of internet usage in Indonesia.

The data demonstrates that the Fourth Industrial Revolution has accelerated the development of digitalization. Digitalization was utilized to optimize system enhancement feedback, process adjustments, and adaptive learning. In this case, several factors can be considered in the digitalization process in the Industrial Revolution Era 4.0, such as the orientation of quality control shifting from process operators to process designers, machines learning how to self-regulate on the

management of productivity and quality, and the importance of human performance increasing with the emphasis shifting from production to systems design and business system integration.

The shift from conventional purchasing and selling to online marketplace buying and selling is another indicator of digitalization's growth. Data from the third quarter of 2022 shows that 57.6 % of internet users use the marketplace to support online buying and selling activities (Hootsuite & We Are Social, 2022). This information indicates an upward market trajectory in Indonesia. Additionally, the marketplace has its own platform, which typically consists of applications and websites for conducting commerce.

The marketplace business model is utilized by the majority of e-commerce enterprises for product distribution. This motivates the organization to continually expand and enhance the quality of its marketplace platform, in terms of both websites and mobile applications. A website or application can be used as one of the factors to determine the viability of e-commerce. From the perspective of human interaction with computer applications, the appearance of the website or application will ultimately result in varying levels of satisfaction and user experience for each individual user. Websites and applications also function as intermediaries so that developers can interact with users; therefore, e-commerce companies must be able to develop websites and applications that cater to the requirements and desires of users. In other words, when designing and developing their websites and applications, businesses must prioritize the user experience.

User visits to the platform can also be used to ascertain the position of e-commerce in relation to one another. Visits to the platform by users can be used to determine the company's deficiencies. Indonesia has a number of thriving e-commerce industries. Tokopedia, Bukalapak, and Shopee are the top three e-commerce websites in Indonesia. **Figure 1.1** displays visitor comparison data for the three major e-commerce sites in Indonesia.

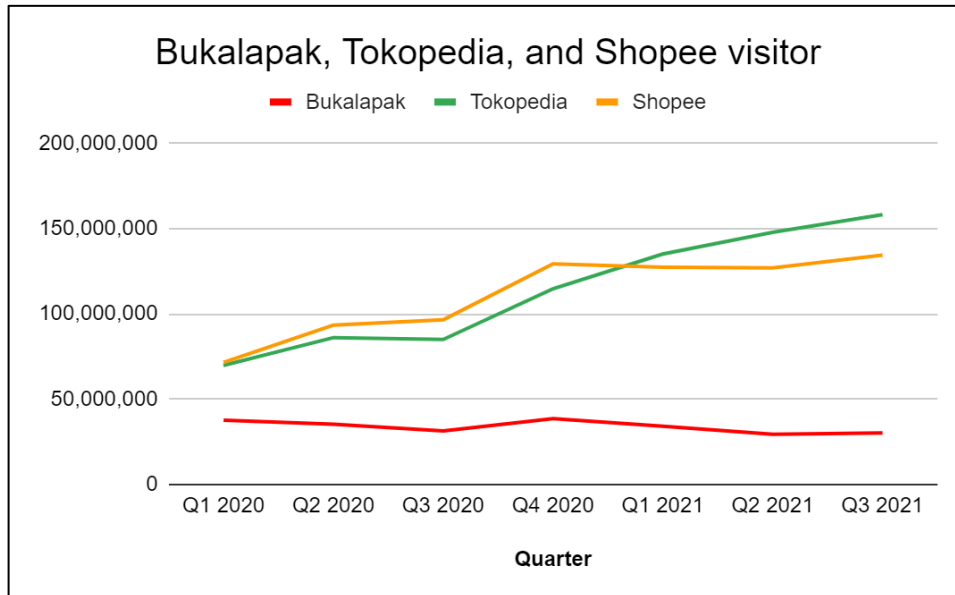


Figure 1.1 Comparison of E-commerce Visitors in the Last 2 Years

Based on the data on user visits to the e-commerce platform, Tokopedia and Shopee experienced a significant increase in visits, while Bukalapak experienced a decrease in visits. The number of visitors to Bukalapak decreased from 37,633,399 in the first quarter of 2020 to 30,126,700 in the third quarter of 2021, making it the Indonesian marketplace with the fewest visitors in the fourth quarter of 2021.

To evaluate the success of e-commerce companies, it is beneficial to examine user evaluations of their applications on platforms like the Google Play Store. For the purposes of this study, the authors explicitly analyzed the data pertaining to user feedback on the Bukalapak application as it appears in the Google Play Store. **Table 1.1** provides a summary of the user testimonials regarding the Bukalapak application. By analyzing these reviews, the research hopes to gain insights into the users' experiences, opinions, and levels of satisfaction, which can contribute to a thorough evaluation of the application's performance and success in the competitive e-commerce market. The analysis of user feedback on the Google Play Store is a valuable resource for comprehending the strengths and weaknesses of the Bukalapak application and identifying potential areas for enhancement.

Table 1. 1 Examples of Bukalapak Application User Reviews on the Google Play Store

User	Rating	Date	Review
User 1	1	07/05/2021 3:24	<i>Bukalapak versi terbaru fonts yang dipakai lebih jelek daripada versi yang dulu, sekarang mau cari cari barang dibukalapak jadi males karena tampilan font terkesan kurang tegas. Sehingga barang terlihat kurang terpercaya.</i>
User 2	1	09/10/2021 11:56	<i>Baru buka aplikasinya sudah jenuh...bingung terlalu banyak menu tapi gak membantu. Baru pertama kali transaksi eh mau kena tipu. Masak suruh konfirmasi barang diterima tapi barang belum diterima. Sudah ngajukan komplain dan minta dana dikembalikan tapi respon sangat lama. Mana uangnya kelebihan.</i>
User 3	1	13/02/2021 13:54	<i>Sekarang susah mau beli peralatan tertentu aja ngga muncul setelah di instal ulang bukalapak. Terus banyak kekurangan di menu" nya. Dari dulu cuman pake BUKALAPAK tapi sekarang maaf auto uninstal. Turun jadi bintang satu</i>
User 4	1	19/04/2021 13:40	<i>Sangat kecewa. Buat apa banyak menu kalau sulit digunakan. Bisa buka tapi blang gk da apa apa. d refressh juga sma gtu ajh... Klo bikin apk tu yg berkualitas dong.</i>
User 5	1	20/03/2021 23:43	<i>Menurut saya aplikasi ini makin membingungkan. Menyanya pindah-pindah. Coba membuka beberapa menu, kaya lomba marathon, bikin lelah. Klik menu, yang keluar malah popup apa tahu. Terus begitu. Saya compares dengan marketplace lain, mereka lebih konsisten. Meskipun rata-rata, semuanya "doyan" menggunakan popup flash yang menyakitkan mata.</i>
User 6	5	30/03/2021 07:45	<i>Selalu ada inovasi, tapi tampilan di menu kok tulisanya kecil kecil sulit dibaca. maklum mata saya sdh kurang awas lihat Tulisan kecil. ya klo enak di bikin dark mode biar mata tidak cepat lelah. (Sekedar usul)</i>

The information in **Table 1.1** was obtained by scraping reviews from the Google Play Store website over a period of ten months (from January 1, 2022, to November 1, 2022), or approximately 246,947 user reviews. User evaluations of the Bukalapak application mention WEBQUAL 4.0 dimensions, including usability, information quality, interaction/service quality, and user satisfaction. This

study concentrates on aspects of usability (user interface design) and user satisfaction. After categorizing the data into various aspects, a total of 4462 reviews indicated a positive opinion of the user interface. From January 1, 2022, to November 1, 2022, there are multiple defect fixes, error corrections, etc.-related updates. Rarely are updates to the interface implemented. The most recent update is Version 5.23.1, which includes updates for minor problem fixes and promotion updates but not interface updates. Appendix A contains a list of all updates and previous versions.

According to **Table 1.1**, there are still numerous negative comments regarding the user interface, such as fonts that are too tiny and menus that are difficult to navigate. This suggests that the majority of consumers are still unhappy with the user interface. **Table 1.2** displays the review of the Bukalapak application with the greatest frequency of user interface-related words.

Table 1. 2 Word Frequency Indicating sentiment toward User Interface

Words	Frequency
Button	951
Dashboard	235
Size	113
Menu	2677
Interface	486

The procedure of sentiment analysis was performed on a dataset containing terms indicating user sentiment. The results of this sentiment analysis are presented in **Table 1.3** and **Figure 1.2**, which provide a comprehensive overview of the opinions conveyed by users regarding the user interface. By analyzing the sentiment of user comments, this study seeks to comprehend the overall perception and satisfaction of users with regard to UI design. The results of the sentiment analysis provide valuable insights into the strengths and shortcomings of the user interface, emphasizing areas that need development and those that are positively received by users. These results serve as a foundation for further investigation and refinement

of the UI design in order to improve user experience and satisfaction. The process of sentiment analysis is performed on data containing User Interface-related expressions of emotion. **Table 1.3** and **Figure 1.2** below depict the results of the sentiment analysis.

Table 1.3 Sentiment Analysis for Words Indicating sentiment toward UI

Sentiment Analysis	Frequency	Percentage			
Neutral	2142	48%			
Negative	1380	31%			
Positive	490	11%	Mixed	450	10%
Mixed	450	10%			

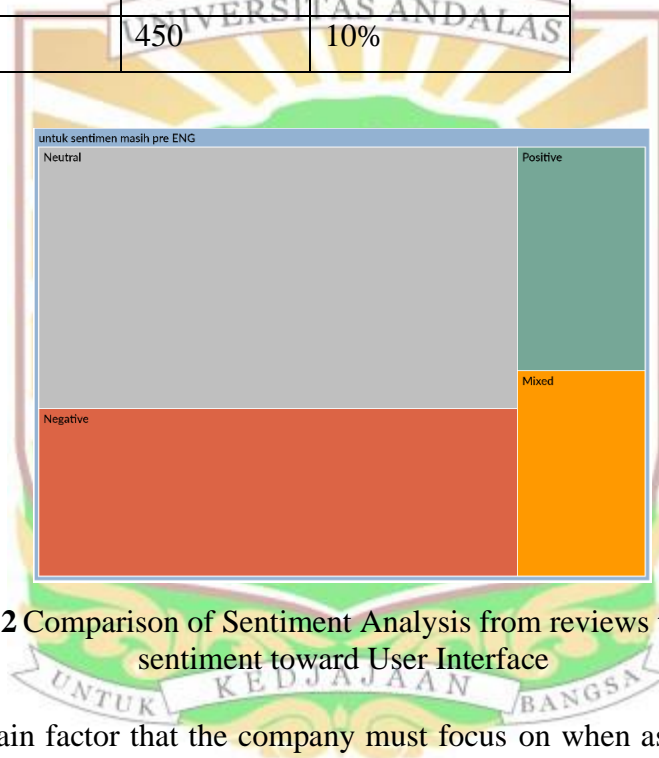


Figure 1.2 Comparison of Sentiment Analysis from reviews that Indicate sentiment toward User Interface

The main factor that the company must focus on when assessing the user exience is the user, what the user needs, what the user considers valuable, the user's ability to use it, and the user's limitations (Hartawan, 2019). The user experience is deemed satisfactory if it meets the user's requirements. This is frequently overlooked, despite its importance in determining whether a product is deemed successful.

In the era of the 4.0 Industrial Revolution, service quality was essential for enhancing consumer satisfaction. As a consequence of technological advancements and the emergence of new interaction patterns, the importance of user interface (UI)

and user experience (UX) is growing in terms of altering user expectations and demands. Poor UI for websites and mobile applications can negatively impact the user experience in the context of the market. This can lead to inconvenience, misunderstanding of the platform, dissatisfaction, inefficient information delivery, and a decrease in the quality of the platform (Ariawan et al., 2020).

Considering that the majority of online buying and selling processes involve user interaction with the platform, it is essential for an e-commerce platform to provide a user interface (UI) that enhances the customer experience and facilitates business processes effectively. This is primarily intended to enhance user interaction with the platform and increase their participation in the marketplace's purchasing and selling processes.

Previous research conducted by Nurulita (2021) discusses about a partial test analysis regarding the effect of user interface and usability on the user experience for Shopee application users. Usability analysis was conducted using a user experience questionnaire concludes that the usability factor is the most influential factor on the user experience of Shopee users in Medan. Aspects of usability are used to generate suggestions for redesigning the user interface.

Another research by Anggina, S. (2021), in which positive or negative sentiment labeling was applied to Formaggio Coffee and Resto review data. SUS and Lexicon-based sentiment analysis are the methodologies utilized. The data set includes 741 review records. The investigation yielded 394 positive reviews and 34 negative reviews on the culinary aspect, among other aspects.

Karina (2021) conducted sentiment analysis research on the Female Daily application review, which was classified according to the Lexicon dictionary as positive and negative evaluations. 63% and 37% of Female Daily application users on the Google Play website gave positive and negative evaluations, respectively, based on an analysis of their sentiments. This study did not, however, reach the stage of recommending UI enhancements.

Furthermore, another research by Muslim et al. (2019) evaluated the UX of the Kudo mobile application. It was determined that the Kudo application's user interface required enhancements to increase the application's appeal to users. The redesign of the user interface incorporates the evaluation results and concentrates on the use of colors, typefaces, and layouts by employing the UI design principal approach and the Activity Relation Chart.

Research by Jailani et al. (2020) mapped the e-auction application procedure to the user interface design using the UCD (User-Centered Design) methodology. On the basis of reference models and user feedback, prototype e-auction interfaces were developed. It was determined that interface design plays a crucial role in facilitating effective interaction between users and systems.

Haryani et al. (2018) conducted a study on sentiment analysis of Twitter user remarks using the Lexicon classification method to determine e-commerce consumer satisfaction. This research concentrates on e-commerce, especially sites that already facilitate international transactions, such as Amazon, eBay, and e-commerce. Utilization, system quality, and data quality have the greatest bearing on customer satisfaction. Because these companies are among the greatest e-commerce companies, they can serve as a model for other e-commerce businesses.

Another study was conducted by Alamsyah et al. (2017) in which the research examined consumer satisfaction across three prominent Indonesian e-commerce platforms: Bukalapak, Tokopedia, and Elevenia. Using the Naive Bayes Classifier technique, data collected from the Twitter social media platform was analyzed to determine their sentiment. According to the findings on social media, the three e-commerce sites are associated with a pervasive negative sentiment. The platforms with the highest levels of negative sentiment were Bukalapak, Tokopedia, and Elevenia. It should be noted, however, that this study did not entail the creation of a prototype based on the results of the sentiment analysis.

Based on the background and previous research described above, it can be deduced that the primary area requiring additional research is the user interface's effect on the user experience. Previous research has largely remained at the analysis stage without progressing to the enhancement stage. In this study, the researchers have chosen to concentrate on user experience data derived from sentiment analysis of Google Play Store evaluations. Specifically, evaluations comprising terms indicating sentiment toward the user interface will be subjected to additional analysis in order to formulate and propose design enhancements for the user interface. To supplement the initial study of the user interface with user sentiment analysis, it is essential to conduct follow-up research that verifies the initial findings with information gathered from the larger user community. This study will employ the User-Centered Design (UCD) methodology to create design prototypes, which will then be evaluated using community-based data. Consequently, the researcher proposed the title "**User Interface Re-design on Bukalapak Mobile Application**".

This research aims to improve the user interface quality and user experience of Bukalapak application users by implementing enhancement factors and developing a prototype user interface design derived from sentiment analysis. This initiative aims to improve the overall usability and contentment of users interacting with the application.

1.2 Problem Formulation

Based on the background, the formulation of the problem that will be discussed in this study, namely:

1. How can user sentiment be utilized to identify enhancements for improving the User Interface quality of the Bukalapak application?
2. What is the outcome of the usability testing conducted to evaluate the effectiveness of the latest User Interface design?

1.3 Research Objectives

Based on the problem formulation and research background, this study aims to determine the UI (User Interface) improvement of the Bukalapak application based on sentiment analysis of user reviews.

1.4 Research Scope

The scope and limitations of the problem determined in this study are as follows:

1. The data utilized in this research comprises user reviews of the Bukalapak application collected from the Google Play Store website, spanning from January 1, 2022, to November 1, 2022.
2. The analysis of the user review data focuses specifically on the User Interface aspect of the application.
3. This study does not delve into the technological aspects of the application, as these elements can be influenced by various factors such as the service provider, device specifications, and geographical location, which are beyond the author's control.
4. The data extracted from the reviews on the Google Play Store provides valuable insights into the general sentiment of the public regarding the User Interface of the Bukalapak application.

1.5 Outline of Reports

The outline or reports used in this research are as follows:

CHAPTER I INTRODUCTION

This chapter discusses the research's background, problem formulation, research objectives, problem boundaries, and the outline of the final project.

CHAPTER II LITERATURE REVIEW

This chapter contains theories related to and supporting this research, including human-computer interaction (HCI), data mining, text analysis, sentiment analysis, and other theories compiled from diverse sources such as books, journals, previous research, and the Internet.

CHAPTER III RESEARCH METHODOLOGY

This chapter describes the procedures necessary to complete the research. These stages include a literature review, problem identification, problem formulation, data collection and processing, analysis, discussion of results, and a flowchart presentation of overall research findings.

CHAPTER IV DATA COLLECTION AND DATA PROCESSING

This chapter contains the outcomes of the data collection and data processing used to produce a prototype user interface and evaluate it based on user requirements.

BAB V ANALYSIS

This chapter provides an analysis of the data processing results from this research project's capstone.

BAB VI CONCLUSION

This chapter presents the research's conclusions and recommendations for future investigation.

