


Test Jurnal

fauzi arif 2

 Quick Submit

 Quick Submit

 Universitas Islam Negeri Sumatera Utara

Document Details

Submission ID

trn:oid::1:3020056930

Submission Date

Sep 25, 2024, 7:05 PM GMT+7

Download Date

Sep 25, 2024, 7:08 PM GMT+7

File Name

test_turnitin_fauzi_2.docx

File Size

173.4 KB

14 Pages





5,768 Words

32,828 Characters




17% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

Match Groups

-  **61 Not Cited or Quoted 12%**
Matches with neither in-text citation nor quotation marks
-  **15 Missing Quotations 3%**
Matches that are still very similar to source material
-  **3 Missing Citation 1%**
Matches that have quotation marks, but no in-text citation
-  **2 Cited and Quoted 0%**
Matches with in-text citation present, but no quotation marks

Top Sources

- 15%  Internet sources
- 7%  Publications
- 8%  Submitted works (Student Papers)

Integrity Flags

0 Integrity Flags for Review

No suspicious text manipulations found.

Our system's algorithms look deeply at a document for any inconsistencies that would set it apart from a normal submission. If we notice something strange, we flag it for you to review.

A Flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.

Match Groups

- **61 Not Cited or Quoted 12%**
Matches with neither in-text citation nor quotation marks
- **15 Missing Quotations 3%**
Matches that are still very similar to source material
- **3 Missing Citation 1%**
Matches that have quotation marks, but no in-text citation
- **2 Cited and Quoted 0%**
Matches with in-text citation present, but no quotation marks

Top Sources

- 15% Internet sources
- 7% Publications
- 8% Submitted works (Student Papers)

Top Sources

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

1	Internet		
		www.researchgate.net	6%
2	Internet		
		www.ijsrp.org	1%
3	Internet		
		aiforsocialgood.ca	1%
4	Internet		
		www.businessperspectives.org	1%
5	Student papers		
		Polytechnic of Turin	1%
6	Student papers		
		Sultan Agung Islamic University	1%
7	Internet		
		ejournal.radenintan.ac.id	1%
8	Internet		
		pdfs.semanticscholar.org	0%
9	Publication		
		Annisa Kartika Ocktavia, Silvy Eka Marenza, Solahuddin Al-Ayubi, Huda Kurnia M...	0%
10	Internet		
		assets.researchsquare.com	0%

11	Internet	lppm.tazkia.ac.id	0%
12	Internet	mzuir.inflibnet.ac.in:8080	0%
13	Internet	fastercapital.com	0%
14	Internet	fdocuments.in	0%
15	Internet	jurnal.poltekapp.ac.id	0%
16	Internet	link.springer.com	0%
17	Internet	oxfordjournals.org	0%
18	Internet	sciencebring.com	0%
19	Publication	anton priyo nugroho. "DETERMINANT DISONANSI KOGNITIFNASABAH BANK SYA...	0%
20	Internet	researchportal.northumbria.ac.uk	0%
21	Internet	www.coursehero.com	0%
22	Student papers	Staffordshire University	0%
23	Publication	Rahmat Husein Lubis, Hikam Hulwanullah. "Analysis of Sharia Business Unit Spin...	0%
24	Publication	Karim Ginena, Azhar Hamid. " The Roots, Characteristics, and Objectives of and t...	0%

25	Internet	www.ijfans.org	0%
26	Publication	"Disability in Judaism, Christianity, and Islam", Springer Science and Business Me...	0%
27	Publication	Kim, Sung Hun, Bong Joo Kang, Byung Gil Choi, Jae Jung Choi, Ji Hye Lee, Byung Jo...	0%
28	Internet	archive.cm.mahidol.ac.th	0%
29	Internet	ijrpr.com	0%
30	Internet	core.ac.uk	0%
31	Internet	www.ijrte.org	0%
32	Publication	Dhanjoo N. Ghista. "Cardiology Science and Technology", CRC Press, 2019	0%
33	Publication	Priti Srinivas Sajja, Rajendra Akerkar. "Intelligent Technologies for Web Applicati...	0%
34	Publication	Zhenlong Li, Qunying Huang, Christopher T. Emrich. "Social Sensing and Big Data ...	0%
35	Internet	dokumen.pub	0%
36	Internet	e-journal.staima-alhikam.ac.id	0%
37	Internet	honors.libraries.psu.edu	0%
38	Internet	ijicc.net	0%

39

Publication

Souheila Kaabachi, Hassan Obeid. "Determinants of Islamic banking adoption in ... 0%

User Sentiment Analysis Towards Islamic Banking Applications in Indonesia

Article History (filled by Journal Manager)

Received:	xxxx	Revised:	xxxx	Accepted:	xxxx
-----------	------	----------	------	-----------	------

<p>Corresponding Author:</p>	<p>Abstract</p>
	<p>This study aims to analyze user sentiment towards Islamic banking applications in Indonesia, focusing on Islamic banking applications that have the lowest ratings on Google Playstore. The analysis was conducted to understand perceptions, satisfaction, and factors that influence user experience towards both applications in the context of Islamic economics. The research method used is a quantitative approach with sentiment analysis techniques on user reviews taken from Google Playstore. Data was collected by scraping user reviews and analyzed using the Natural Language Processing (NLP) method to identify positive and negative sentiments. In addition, descriptive analysis was used to explore the main themes that emerged in the user reviews. The results showed that the trust factor was the main contributor to positive sentiment, reaching 45.16% of the total positive sentiment. The feature factor was also significant, contributing 27.90%, while the Sharia aspect factor contributed 6.29%. The technical and service factors contributed 11.61% and 5.97%, respectively. These findings indicate that trust in the application, including security and integrity, as well as relevant features, is an essential element in shaping positive user sentiment. This study provides valuable insights for Islamic banking application developers and related parties to understand user needs and expectations. In addition, these findings highlight the importance of improving aspects of trust and application features to increase user satisfaction and loyalty. These findings contribute to the literature on Islamic economics and Islamic banking app development in the digital era and provide practical guidance to improve application performance in the Indonesian digital banking market.</p> <p>Keywords: <i>Islamic Economics; Islamic Banking; Sentiment Analysis; User Reviews; Google Playstore</i></p>

How to cite:

First Author, Second Author. (Year). Type the paper title. *Journal of Islamic Economic and Business Research*, Volume. X No. (X), XX– XX. DOI ()

I. Introduction

Islamic banking has grown significantly over the past few decades, not only in Indonesia but also globally. The principles of Islamic finance, rooted in Shariah law, have gained widespread acceptance as an alternative to conventional banking systems that rely heavily on interest-based transactions (riba) (Bashir & Gorton, 2023; Kadi, 2023; Lum, 2021). In regions such as the Middle East, South Asia, and Southeast Asia, the demand for Islamic banking products has increased in response to growing awareness of the ethical and moral considerations that underpin Islamic financial systems (Hassan et al., 2021). Islamic banking in Indonesia has experienced significant development in recent years, driven by increasing public awareness of Islamic economic principles and the growth of a sizeable Muslim population (Adekoya, 2022; Nursaid et al., 2023; Rehman et al., 2021). In an effort to provide financial services in accordance with Islamic principles, various banks in Indonesia have developed digital banking applications based on Islamic principles (Rahmayati, 2021; Satria et al., 2021). However, several Islamic banking applications have relatively low ratings on the Google Play store, reflecting negative perceptions from users (Alrizq & Alghamdi, 2024; Dey et al., 2023). This raises the question of what factors cause low user satisfaction with these applications.

Islamic banking has excellent potential for growth in Indonesia, given that the majority of the population is Muslim (Hasan & Putri, 2021; Nurhayati et al., 2022). However, the successful implementation of Islamic banking in a digital context still faces significant challenges. Issues such as lack of features that meet user needs, less intuitive application interfaces, and other technical issues are often the main reasons for low application ratings (Khalajzadeh et al., 2023; Lee & Chen, 2022). Therefore, it is essential to understand better user perceptions of Islamic banking applications, especially in terms of positive and negative sentiments reflected in user reviews on Google Playstore.

Most previous studies on Islamic banking have focused on the analysis of policies and marketing strategies or studies on the level of consumer adoption and satisfaction in general (Jahan & Shahria, 2022; Kala Kamdjoug et al., 2021; Shahid et al., 2022). However, few studies have specifically highlighted the analysis of user sentiment towards Islamic banking applications with low ratings on digital platforms. This study fills this gap by highlighting user sentiment towards Islamic banking applications with low ratings on Google Playstore. Thus, this study provides a deeper understanding of user perception and satisfaction in the context of Islamic business in the digital era.

This study aims to analyze user sentiment towards Islamic banking applications in Indonesia, focusing only on applications with the lowest ratings. This study seeks to identify factors that influence these applications' low ratings and understand the patterns of user sentiment that emerge from reviews on Google Playstore. In the context of Islamic economics, it is essential to understand how digital technologies such as banking applications can facilitate transactions in accordance with Shariah principles and how users respond to such applications.

Islamic banking is not only a financial service that is free of riba (interest), maisir (gambling), and gharar (uncertainty) but also a system that aims to meet the economic needs of Muslims based on the principles of justice, transparency, and shared prosperity. Therefore, it is important to explore how users evaluate existing Shariah banking applications, especially those with the lowest ratings on the Google Play store.

The Qur'an, as the primary source of law and guidance for Muslims, encourages people to reflect and study the signs of Allah's greatness through observation, research, and

Title of article

First author last name, Second Author last name, ...

Page: xx-xx

contemplation. Allah says in the Qur'an: "In the creation of the heavens and the earth, and the alternation of night and day, there are indeed Signs for men of understanding. (Those who remember Allah while standing, sitting, or lying down, and reflect on the creation of the heavens and the earth (and say) Our Lord! Thou didst not create all this in vain. Glory be to Thee. Protect us from the punishment of the Fire. (Q.S. Ali 'Imran/3:190-191) This verse emphasizes the importance of reflection, investigation, and observation to find the truth and gain a deeper understanding of the universe and the laws that govern human life. In the context of this study, such reflection can be applied to understand how financial technology, such as Islamic banking applications, can be used to improve the welfare of humanity while adhering to the principles of Shari'ah..

Theoretically, this study enriches the literature on Islamic banking in the digital era, especially those related to the analysis of user sentiment towards Islamic banking applications. This study also develops an understanding of how user perceptions of Islamic banking applications can affect the success and sustainability of these services. The results of this study can be used by application developers and Islamic banks to improve the quality of their digital services, understand user needs and expectations, and identify areas that need improvement in order to be more competitive in the digital banking market.

II. Literature Review

2.1. Background Theory

In the context of Islamic economics, Islamic banking operates based on Islamic principles that prohibit riba (interest), gharar (uncertainty), maysir (gambling), and transactions related to illicit goods or services (Arfaizar et al., 2024; Shahariman et al., 2022; Wan Ismail et al., 2020). Islamic banking aims to achieve economic justice and social welfare by implementing profit and loss sharing (PLS)-based principles such as mudharabah (business partnership) and musyarakah (equity participation) (Faisal et al., 2021; Fitria Yustiardi et al., 2020; Muhammad et al., 2020). The application of these principles requires a deep understanding of how digital applications can facilitate sharia-compliant banking transactions, including in meeting the diverse needs of users in the Islamic banking market (Usman et al., 2022).

Islamic economics emphasizes the principles of fairness, transparency, and social responsibility in all economic transactions (Zulhildi, 2024). In the context of Islamic banking, these principles are implemented through contracts such as mudharabah, musyarakah, murabahah, and ijarah that replace the prohibited interest system (Bakti et al., 2022). Islamic banking applications must ensure that all transactions conducted through their platforms meet these principles and comply with sharia law (Islam, 2024).

Sentiment analysis is a method for determining a user's attitude, opinion, or emotion toward an object, service, or product based on user-generated textual data, such as reviews, comments, or social media posts (Singh et al., 2020). Sentiment analysis is often used in marketing research, politics, and other fields to understand how users feel or think about a particular topic (Birjali et al., 2021). In the context of digital banking, sentiment analysis can provide deeper insights into users' satisfaction with a banking application, including the features they like or complain about (Asali, 2021).

To perform sentiment analysis, Natural Language Processing (NLP) techniques are used to automatically extract and process text from big data. NLP is a branch of artificial intelligence

Title of article

First author last name, Second Author last name, ...

Page: xx-xx

(AI) that focuses on the interaction between computers and human language (Fanni et al., 2023). NLP uses techniques such as tokenization, part-of-speech tagging, stemming, lemmatization, and named entity recognition to understand the context and meaning of unstructured text (Budianto et al., 2022). One of the most commonly used tools for NLP is the Natural Language Toolkit (NLTK), a Python-based library that provides a variety of functions for natural language processing, including sentiment analysis (Agustina & Putri, 2024).

Natural Language Toolkit (NLTK) is a software library used to process text in natural language using various NLP techniques. NLTK provides functions that allow researchers to perform tokenization, stemming, lemmatization, text classification, and sentiment analysis. In sentiment analysis, NLTK can be used to build lexicon-based models or machine learning-based models that are able to classify text sentiment into positive or negative categories (Elbagir & Yang, 2019; George et al., 2022).

Lexicon-based sentiment analysis is a method that uses a list of words or phrases that have been labeled with certain sentiment values (Machová et al., 2020). This method identifies words in the text that have positive or negative connotations and calculates a total sentiment score to determine the general attitude of the text. Meanwhile, machine learning-based methods use models trained on sentiment annotation datasets to predict the sentiment of new texts.

In this study, sentiment analysis will be used to assess user perceptions of two low-rated Islamic banking applications on the Google Playstore. The use of NLP and NLTK techniques will enable this research to identify patterns of user sentiment, complaints and needs, as well as to evaluate the extent to which this application meets sharia principles and user expectations.

2.2. Previous Studies

Several previous studies have explored the factors influencing the adoption and user satisfaction of Islamic banking applications. For instance, Febriandika et al. (2023), in their study *"Determinants of Consumer Adoption of Islamic Mobile Banking Services in Indonesia,"* found that perceived utility, internet connection quality, consumer awareness, and bank reputation had a significant positive impact on customers' willingness to use Islamic banking services (Febriandika et al., 2023).

Another study by Yusfiarto (2021), *"The Relationship Between M-Banking Service Quality and Loyalty: Evidence in Indonesian Islamic Banking,"* found that higher mobile banking service quality leads to greater customer loyalty, both in terms of attitude and behavior. This occurs when customers are satisfied with the system's quality. Such satisfaction can be achieved when the quality dimensions characteristic of the system are effectively presented by Islamic banking services (Yusfiarto, 2021).

Although there have been several studies on the factors that influence user adoption and satisfaction with Islamic banking apps, studies that specifically highlight low-rated apps on Google Playstore are still rare. Studies that deeply involve user sentiment and the technical challenges they experience in the context of low-rated Islamic banking apps are scarce. Therefore, this study attempts to fill the gap by analyzing user reviews of 2 Islamic banking apps, both of which have low ratings on Google Playstore of 3.3 stars.

2.3. Conceptual Framework

The conceptual framework of this study aims to identify factors that influence user sentiment towards low-rated Islamic banking apps. The theories underlying the conceptual framework of this study are:

1. Technology Acceptance Model (TAM):
Explains how users accept and use technology, where perceived usefulness and perceived ease of use are important factors(Mohd Amir et al., 2020).
2. ServQual Model:
3. This theory can be used to assess service quality by highlighting factors such as agility, responsiveness, assurance, and empathy that are relevant to the elements of "trust" and "service". (Sugiarto & Octaviana, 2021).
4. Islamic Economics and Shariah Principles:
This study incorporates Shariah compliance as a unique factor that can influence user sentiment, reflecting the app's alignment with the core principles of Islamic banking: avoiding riba (interest), maisir (gambling), and gharar (uncertainty)(Kuyateh, 2022).
5. Natural Language Processing (NLP) and Sentiment Analysis:
This study uses NLP techniques (specifically NLTK and VADER) to extract insights from user reviews. NLP helps identify positive, negative sentiments while the VADER tool is particularly useful for analyzing the sentiment behind social media texts or customer reviews(Elbagir & Yang, 2019).

Based on the theories explained, this study focuses on three main elements: (1) Overall user satisfaction. This conceptual model will use Natural Language Processing (NLP) techniques to analyze user reviews on Google Playstore and identify the sentiments underlying their perceptions and satisfaction, (2) User perceptions of app quality (interface, features, trust, service, shariah and technical aspects). The conceptual framework of this study aims to identify factors that influence user sentiment towards low-rated Islamic banking apps. The conceptual framework image can be seen in the following image:

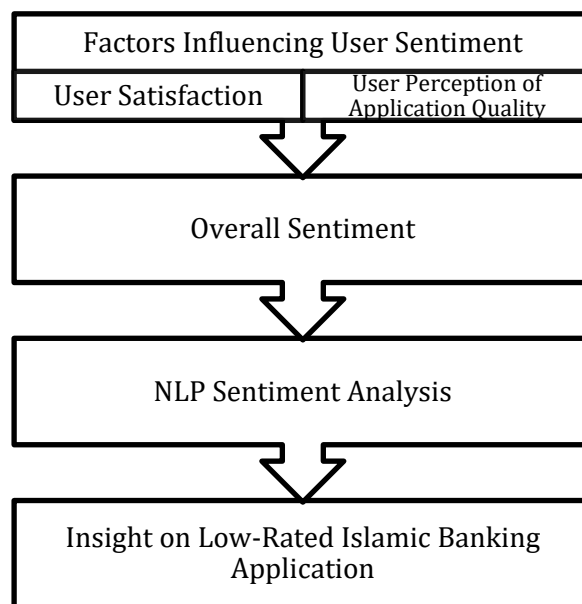


Figure 1. Conceptual Framework

III. Methodology

The research method used is a quantitative approach with sentiment analysis techniques on user reviews taken from Google Playstore. Data were collected through scraping user reviews and analyzed using the Natural Language Processing (NLP) method to identify positive and negative sentiments. In addition, descriptive analysis was used to explore the main themes that emerged in user reviews. The hypothesis in this study is that user reviews for Islamic banking applications with low ratings will show significant negative sentiment. This study aims to test this hypothesis by analyzing review sentiment and identifying factors that influence user assessments. Model development in this study involves the use of Natural Language Processing (NLP) techniques for sentiment analysis. The model development process includes the following steps (Bordoloi & Biswas, 2023; Palomino, 2022):

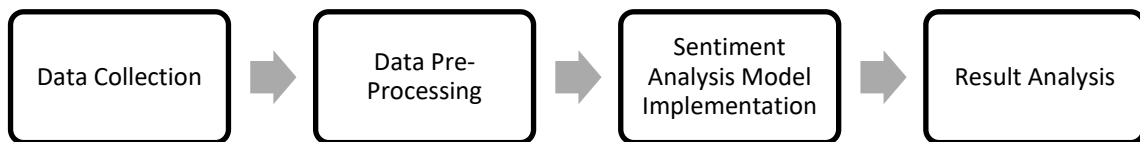


Figure 2. Research Framework

3.1. Data Collection

The data in this study came from user reviews on Google Playstore for two Islamic banking applications with the lowest ratings. Data collection was carried out using the scraping technique using the Google Collab tool. This data was selected because low ratings indicate potential problems or user dissatisfaction that need to be explored further. The user reviews taken include comments posted in the last two years, ensuring the relevance and recency of the data. This review data will provide information on user sentiment as well as specific complaints or compliments related to the application. The selection of data from Google Playstore is based on the availability of large and diverse data and ease of accessibility. Google Playstore is a platform that is often used by users to provide feedback on applications, so it is representative for analyzing user sentiment towards the application in question. This data will be processed to identify sentiment patterns and assess the quality and shortcomings of the two applications.

3.2. Data Pre-Processing

Text data obtained from scraping will go through a pre-processing process which includes cleaning the text from irrelevant elements such as punctuation, numbers, and special characters, as well as tokenization, stemming, and lemmatization to prepare the data for sentiment analysis.

3.3. Sentiment Analysis Model Implementation

The sentiment analysis model will be implemented using NLP techniques with the help of Natural Language Toolkit (NLTK). The methods used include lexicon-based analysis and machine learning-based models. The dictionary-based analysis uses Sentiment Intensity Analyzer from NLTK to identify positive and negative sentiments.

Title of article

First author last name, Second Author last name, ...

Page: xx-xx

3.4. Result Analysis

The model will be evaluated using metrics such as accuracy, precision, recall, and F1-score to assess the performance of sentiment analysis. Cross-validation will be applied to ensure the model generalizes to previously unseen data.

IV. Results and Analysis

4.1. Data Collection

The data collected consists of user reviews for 2 Islamic Banking applications with the lowest rating of 3.3 from Google Playstore. The number of reviews collected for each application is as follows:

Table 1. Amount of Data

Application 1	Application 2
1,567 data	4,103 data

Table 2. Sample Data of Application 1

userName	score	at	content
User 1	1	2024-07-12 19:23:10	This application was initially very helpful, but after changing devices, facial verification continued to fail with a notification that appeared "An Error Occurred". Even though the data entered was all correct. It kept happening, until now it still can't verify the face. So it is very detrimental to customers who really need M banking.
User 2	1	2024-08-31 05:33:51	It's complicated just to register... how do you want to get the code... tell me to SMS first. Just about to send an SMS, I'm back to the start menu. Finally, fill in the data again, send another SMS, go back to the beginning again... I've tried 15 times, only to waste time sending SMS. Apk is not clear. I really regret downloading this apk... 1 star is too good for this apk if it exists I would give it 0.1 star
User 3	1	2024-08-25 09:15:14	I have trouble creating an account online, verification after a successful selfie, a notification appears that the name does not match. Please improve the IT department in reading data. Thank you
User 4	2	2024-08-26 02:33:20	I am very disappointed because I have researched the data several times and then I was asked to log in again because the verification code said that an error had occurred until my credit ran out. I failed 5 times and then contacted CS and they definitely researched it again, in the end I registered again and still couldn't. Please fix it again.

Table 3. Sample Data of Application 2

userName	score	at	content
----------	-------	----	---------

Title of article

First author last name, Second Author last name, ...

Page: xx-xx

User 1	1	2024-07-12 19:23:10	lease remove the location access permission when you first enter the application, it is very annoying, I prefer the previous versions, it is more comfortable and not complicated
User 2	1	2024-08-31 05:33:51	Please update the application, add a feature to mark all read in the inbox, the inbox is so trashy, up to 200 inboxes, I have to open and delete 1/1, and please add another feature to top up e-money, funds and so on 🙏
User 3	1	2024-08-25 09:15:14	How do I do this, the application keeps crashing, after logging in, when I click transfer it immediately crashes, it's been done many times. Should I uninstall it first? Please answer 🙏
User 4	2	2024-08-26 02:33:20	why after inputting the account number and nik the screen is just white, min, I've reinstalled it back and forth, it's the same, how come everything the admin explained in the reply column has been done before. all are stable, the credit has a network, there is a slot on the main card but it's still blank white

Table 4. Grouping Data Based on Rating

Rating	Application 1	Application 2
1	551	1,848
2	89	393
3	78	390
4	56	288
5	793	1,184
Total	1,567	4,103

4.2. Data Pre-Processing

Data Pre-Processing implementation

1. Text Tokenization
The word_tokenize function from the nltk library is used to break the text into words. The text is converted to lowercase (text.lower()) to ensure consistency during processing, so words like "Bank" and "bank" are treated as the same token.
2. Stop Words Removal
Tokens that are not included in the stop words list from nltk.corpus.stopwords are removed. This stop words list is provided by the NLTK library and includes common English words that are often not important for sentiment analysis.
3. Lemmatization
The WordNetLemmatizer function from NLTK is used to convert the filtered tokens to their base form. This helps to equate words that have similar meanings, making the analysis more effective.
4. Token Merging
The lemmatized tokens are recombined into a string using '.join(lemmatized_tokens)'. This creates a pre-processed text that is ready for the next stage of analysis.

4.3. Sentiment Analysis Model Implementation

Title of article

First author last name, Second Author last name, ...

Page: xx-xx

To start sentiment analysis, the VADER sentiment lexicon must first be downloaded. VADER is a sentiment analysis tool developed to assess sentiment in text, especially in the context of social media. This lexicon includes a list of words and phrases that have a clear sentiment assessment. SentimentIntensityAnalyzer is a component of NLTK that is used to provide a sentiment score to text. This analyzer calculates the sentiment polarity value based on the downloaded lexicon. The get_sentiment function is designed to measure sentiment from review text using SentimentIntensityAnalyzer. This function calculates a polarity score consisting of positive and negative values. Based on the positive score, this function determines whether the sentiment is positive (1) or not positive (0).

The number of sentiment analysis labeling results for both applications can be seen in the following table:

Table 5. Result of Sentiment Analysis

Application 1		Application 2	
Positive	Negative	Positive	Negative
178	1,389	442	3,661
11.36%	88.64%	10.77%	89.23%

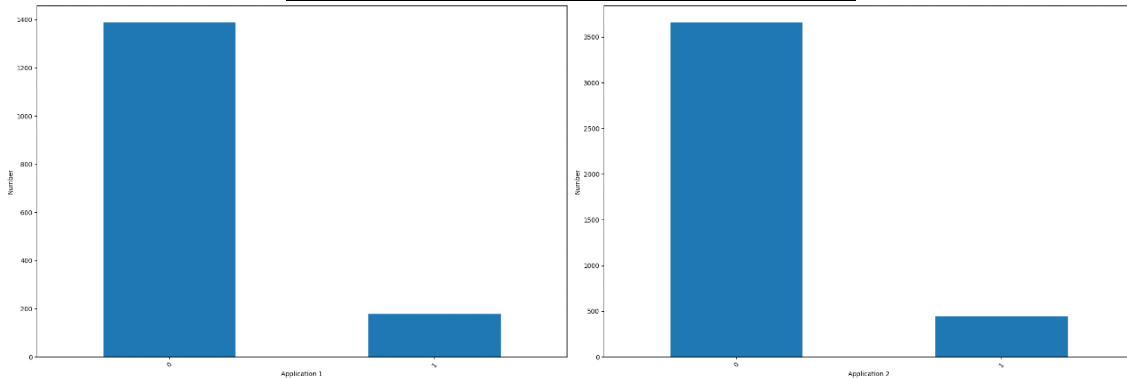


Figure 3. Comparison Chart of Sentiment Analysis of Application 1 and Application 2

4.4. Result Analysis

In addition to using SentimentIntensityAnalyzer to label data based on sentiment, this analysis also uses user ratings as the basis for sentiment labeling. Rating 1-3: Grouped as negative sentiment (0). Rating 4-5: Grouped as positive sentiment (1). The evaluation was carried out using a confusion matrix and other evaluation metrics, namely precision, recall, and f1-score. The results of the confusion matrix can be seen in the following table:

Table 6. Confusion Matrix of Application 1 and Application 2

	Application 1	Application 2
True Negative (TN)	663	2,462
False Positive (FP)	55	169
False Negative (FN)	726	1,199
True Positive (TP)	123	273

Description:

True Negative (TN): Number of negative reviews correctly identified as negative.

False Positive (FP): Number of negative reviews incorrectly identified as positive.

False Negative (FN): Number of positive reviews incorrectly identified as negative.

Title of article

First author last name, Second Author last name, ...

Page: xx-xx

True Positive (TP): Number of positive reviews correctly identified as positive.

After obtaining the confusion matrix results, the model performance was evaluated using evaluation metrics such as precision, recall, and f1-score for both applications with the following results:

Table 7. Confusion Matrix of Application 1 and Application 2

	Application 1				Application 2			
	precision	recall	f1-score	support	precision	recall	f1-score	support
0	0.48	0.92	0.63	718	0.67	0.94	0.78	2,631
1	0.69	0.14	0.24	849	0.62	0.19	0.29	1,472
Accuracy			0.50	1,567			0.67	4,103

Description:

- Precision for Label 0: Proportion of reviews that are truly negative out of all reviews predicted as negative
- Recall for Label 0: Proportion of negative reviews correctly identified out of all negative reviews
- F1-score for Label 1: Harmonic between precision and recall for negative labels.
- Precision for Label 1: Proportion of reviews that are truly positive out of all reviews predicted as positive.
- Recall for Label 1: Proportion of positive reviews correctly identified out of all positive reviews.
- F1-score for Label 1: Harmonic between precision and recall for positive labels. -
- Accuracy: Overall success rate of model prediction.

The evaluation results show that the model has moderate accuracy in classifying user review sentiment. Application 1 shows an accuracy of 50%, indicating that the model has difficulty in correctly identifying positive reviews, although it is quite good at identifying negative reviews (92% recall for negative labels). Application 2 shows a better accuracy of 67%. However, the model still shows weakness in correctly identifying positive reviews (19% recall for positive labels).

Overall, these results indicate that the sentiment analysis model based on VADER still has limitations in capturing positive sentiment from user reviews, which may be due to the complexity of the language or the nuances of the context in the reviews provided.

After obtaining the sentiment analysis results, 178 positive sentiments from application 1 and 442 positive sentiments from application 2 were then labeled with categories of factors that influence positive sentiment, namely interface, features, trust, service, sharia aspects, and technical. The results of the category labeling are as follows:

Table 8. Positive Sentiment Analysis Factors

Factor	Application 1	Application 2	Summary	Percentage
Interface	8	11	19	3.06 %
Features	97	76	173	27.90 %
Trust	246	34	280	45.16 %
Services	25	12	37	5.97 %
Shariah	11	28	39	6.29 %
Technical	55	17	72	11.61 %

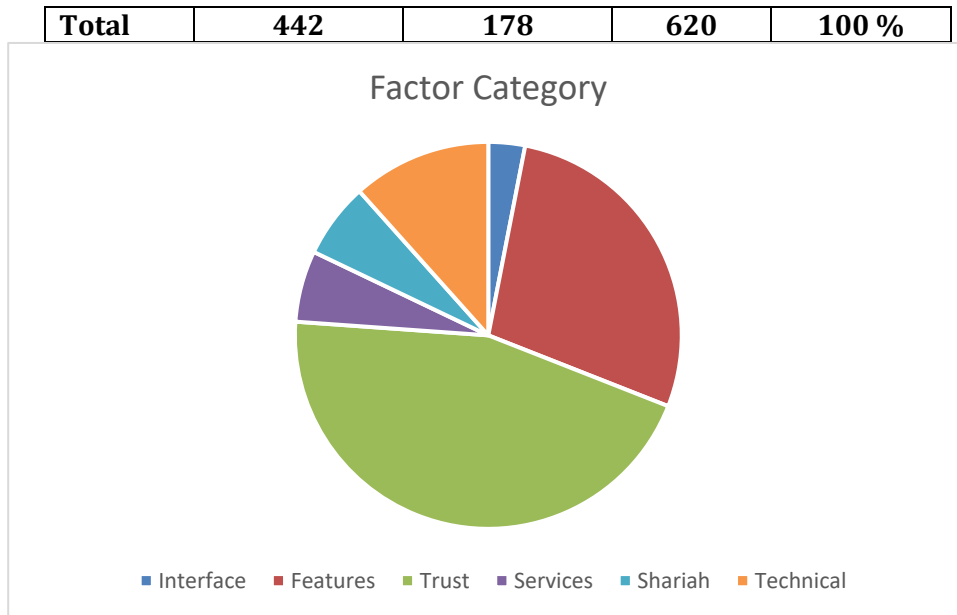


Figure 4. Pie Chart of Positive Sentiment Analysis Factor

From the table and graph above, it can be seen that Trust is the factor that most influences the overall positive sentiment, with the largest contribution from Application 1. Features is also an important factor, standing out as an area with many positive reviews in both applications. Other factors such as interface, service, sharia aspects, and technical have a smaller contribution to the overall positive sentiment.

This table provides insight into what users value most from both applications and helps in identifying areas that need to be improved or maintained to enhance the user experience.

4.5. Discussion

The research findings show that factors that influence user sentiment towards Islamic banking applications include interface, features, trust, services, sharia aspects, and technical aspects. In the context of Islamic economics, the principle of trust and mandate is very important. This is based on QS. An-Nisa verses 58-59, which states: "Indeed, Allah commands you to convey the trust to those entitled to it, and (commands you) when establishing law between people, that you establish it with justice. Indeed, Allah teaches you the best teaching. Indeed, Allah is All-Hearing, All-Seeing" (QS. An-Nisa/4:58-59). This verse emphasizes the importance of honesty, trustworthiness, and justice in every aspect of life, including in financial services such as Islamic banking. In this context, Islamic banking applications must meet standards of fairness and transparency to gain the trust of users.

The results of the positive sentiment analysis of Islamic banking applications show that the factors that influence positive sentiment are diverse, with trust being the most dominant factor. Of the total 620 positive sentiments analyzed, trust contributed 45.16% of the total positive reviews, while features contributed 27.90%. These findings indicate that users consider the security, integrity, and credibility of the application as very important aspects in choosing an Islamic banking application. In the context of Islamic economics, trust is also related to the application's compliance with Islamic principles that guarantee fair and transparent transactions. This confirms that trust is a key element in user perception of Islamic banking applications. Trust, in the perspective of Islamic law, does not only involve

Title of article

First author last name, Second Author last name, ...

Page: xx-xx

material satisfaction, but also spiritual satisfaction. In the Qur'an, Allah SWT emphasizes the importance of trust as a form of trust, as stated in QS. Al-Anfal verse 27: "O you who believe, do not betray Allah and His Messenger (Muhammad) and (also) do not betray the trusts entrusted to you while you know." (QS. Al-Anfal / 8:27) Trust must be an important part of the character of every Muslim. In the context of Islamic banking, trust means that banks must operate with full honesty and transparency. This includes providing clear and non-misleading information about products and services, as well as maintaining the confidentiality and security of customer data. This is consistent with the theory that trust is one of the key factors in the relationship between users and service providers, especially in the context of Islamic financial services. In Islamic economics, features such as ease of zakat transactions, alms, and information about the location of mosques indicate the application's commitment to user needs within the Islamic framework. This study shows the importance of features that are relevant and in accordance with Islamic principles to attract and retain users. Other factors that also need to be considered are technical and service. Despite their relatively small contributions (11.61% and 5.97% respectively), technical factors such as app performance and bugs remain important concerns for users. Discussion of these factors includes the possibility that technical issues may impact user satisfaction even though they are not the primary factor in overall positive sentiment.

With a contribution of 6.29%, the sharia aspect factor suggests that while sharia aspects are important, users may not always feel their impact directly in their experience with the app. This suggests the need for deeper integration of sharia principles into app features and services to enhance user satisfaction and promote sharia values.

The finding that trust is a major factor in forming positive sentiment is consistent with the principles of Shariah (Islamic law) that emphasize the achievement of material and spiritual satisfaction. According to the rules of al-kharaj bi al-daman (income is a reward for the responsibility imposed) and al-ghunm bi al-ghurm (benefit is a reward for the readiness to bear losses), every financial transaction must be carried out with full responsibility and awareness of the potential risks and benefits.

This study provides new insights into the factors that influence positive sentiment in the context of sharia banking apps, focusing on two specific apps. Previous studies may not have paid enough attention to trust as a primary factor, so this finding fills a gap in the literature on sharia banking apps.

The results of this study are in line with related theories and literature that emphasize the importance of trust in banking apps (Zulhilmi, 2024). The finding that Trust is a primary factor in positive sentiment supports this theory and confirms that sharia banking apps should focus on building trust to enhance user satisfaction.

Meanwhile, the emphasis on features is also in line with the expectation that complete and useful application features can improve user experience. This is consistent with the results of other studies showing that innovative and useful features are important elements in technology-based applications.

The results of this study show significant differences compared to several other related studies. For example, research by Febriandika et al. (2023) perception of benefits, internet connection quality, consumer awareness, and bank reputation have a large positive influence on customer tendencies to utilize Islamic banking services (Febriandika et al., 2023).

Title of article

First author last name, Second Author last name, ...

Page: xx-xx

This difference may be due to contextual variables such as differences in research methodology, user demographics, or the approach taken by each application in building relationships with users. In other words, while some studies such as research by Yusfiarto (2021) may find that other factors such as service are the main factors, the results of this study indicate that in the context of Islamic banking applications, trust plays a more dominant role. Overall, these findings contribute to a deeper understanding of the factors that influence positive sentiment in Islamic banking applications and can be used by application developers to focus on the areas that most influence user satisfaction (Yusfiarto, 2021).

The implications of this research extend across multiple domains, particularly within the context of Islamic economics, user experience in digital banking, and the operational strategies of Islamic financial institutions. By analyzing user sentiment towards Islamic banking applications, this study sheds light on key areas that require attention to better align Islamic banking services with the expectations and needs of their users. The study's findings have broad implications for the continued development of Islamic banking in the digital age. By focusing on both technical excellence and adherence to Islamic principles, Islamic banks can enhance user satisfaction, build trust, and foster loyalty among their customers. The insights derived from user sentiment analysis offer valuable guidance for developers, banks, regulators, and academics alike, contributing to the ongoing evolution of Islamic financial services in the digital era.

V. Conclusion and Recommendation

5.1. Conclusion

This study aims to analyze positive user sentiment towards two Islamic banking applications in Indonesia, namely Application 1 and Application 2, with a focus on the factors that influence positive sentiment. Based on the analysis, it was found that the trust factor is the most dominant in influencing positive sentiment, contributing 45.16% of the total positive sentiment. This shows that user trust in the application, including security and integrity of transactions, is very important in the context of Islamic banking applications.

In addition to trust, the feature factor also plays a significant role, contributing 27.90% of the total positive sentiment. This confirms that complete and useful features, such as transaction features and financial services, contribute greatly to user satisfaction. Meanwhile, the sharia aspect factor contributed 6.29%, indicating that the sharia aspect, although important, is not as much as trust and features in influencing positive sentiment. Other findings show that technical and service have relatively small contributions, 11.61% and 5.97% respectively. This shows that although technical and service aspects are important factors, they do not have as big an impact as trust and features in shaping positive user sentiment.

In addition to the main findings on factors influencing positive sentiment, the study also found significant differences between the two apps in terms of the contribution of these factors. Application 1 received mostly positive reviews related to trust, while Application 2 received more attention on features and sharia aspects. This highlights the differences in app development and marketing strategies and their impact on user perception.

Title of article

First author last name, Second Author last name, ...

Page: xx-xx

5.2. Recommendation for Future Research

Based on the findings of this study, several recommendations for future research can be drawn, particularly by acknowledging its limitations. One key limitation is the study's focus on a specific geographic region, which may restrict the generalizability of the results. Therefore, future research could explore user sentiment and trust factors in Islamic banking applications across different cultural and economic contexts, providing a more comprehensive understanding of the factors that influence user satisfaction globally.

Moreover, the current study primarily addressed user sentiment without delving deeply into the specific factors that contribute to building user trust in Islamic banking apps. Future research could investigate aspects such as data security, privacy protection, and bank reputation in greater detail. Understanding these trust factors can provide valuable insights for developers and practitioners aiming to enhance user confidence in their applications.

Another limitation pertains to the lack of comparative analysis between the performance of Islamic banking apps that successfully build trust and those that do not. Future studies could compare these applications to identify best practices and effective strategies that lead to higher user satisfaction and loyalty. Additionally, examining how the implementation of Shariah principles specifically impacts user satisfaction and trust within Islamic banking apps would enrich the current literature and guide improvements in service delivery.

Finally, collaborations between academics and practitioners are encouraged to foster the development of more relevant research. By working together, they can better address the needs of users and identify features that truly resonate with them. This collaboration could also facilitate longitudinal studies that assess the evolution of user sentiment and trust over time, leading to a more nuanced understanding of user engagement in the digital banking landscape.

In summary, future research should build upon these limitations by exploring diverse contexts, investigating trust factors in depth, conducting comparative analyses, and fostering collaborations between academics and practitioners to enhance the understanding and effectiveness of Islamic banking applications.