

**CUSTOMER SEGMENTATION ANALYSIS IN E-COMMERCE  
PLATFORMS USING THE RFM MODEL: A CASE STUDY OF  
E-COMMERCE TRANSACTION DATA (JANUARY 2009 –  
DECEMBER 2011) FROM KAGGLE**

**THESIS**



**OLIVIA**

**2201082007**

**STUDY PROGRAM  
MASTER OF MANAGEMENT  
BAKRIE UNIVERSITY  
JAKARTA  
YEAR 2025**

**CUSTOMER SEGMENTATION ANALYSIS IN E-COMMERCE  
PLATFORMS USING THE RFM MODEL: A CASE STUDY OF  
E-COMMERCE TRANSACTION DATA (JANUARY 2009 –  
DECEMBER 2011) FROM KAGGLE**

**THESIS**

**Submitted as one of the requirements for obtaining a Master of Management  
degree.**



**OLIVIA  
2201082007**

**STUDY PROGRAM  
MASTER OF MANAGEMENT  
BAKRIE UNIVERSITY  
JAKARTA  
YEAR 2025**

**DECLARATION OF ORIGINALITY**

**I hereby declare that this thesis is entirely my own work,  
and all sources cited or referenced have been properly acknowledged.**

**Name : Olivia**

**Student ID : 2201082007**

**Signature :**

A handwritten signature in black ink, appearing to read 'Olivia', written in a cursive style.

**Date : 3 March 2025**

**APPROVAL PAGE**

This thesis is submitted by:

Name: OLIVIA

Student ID: 2201082007

Study Program: Master of Management

Thesis Title: *Customer Segmentation Analysis in E-Commerce Platforms Using the RFM Model: A Case Study of E-Commerce Transaction Data (January 2009 – December 2011) from Kaggle.*

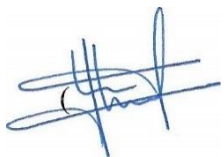
**Has successfully completed the final revision and has been accepted as part of the requirements to proceed with the final thesis defense in fulfillment of the degree of Master of Management at the Master of Management Program – Universitas Bakrie.**

**EXAMINING COMMITTEE**

Supervisor : Jerry Heikal, S.T., M.M., Dr.

 )

Examiner 1 : Arief Bimantoro Suharko., Ph.D.

 )

Examiner 2 : Gunardi Endro, Ph. D



Established in: Jakarta

Date: March 3, 2025

## ACKNOWLEDGMENTS

All praise and gratitude to God Almighty, whose blessings and grace have enabled me to complete this thesis. This thesis is submitted as a requirement to obtain a Master of Management degree at the Master of Management Program, Bakrie University. I acknowledge that without the support and guidance of many individuals, from my academic journey to the completion of this thesis, it would have been extremely difficult to accomplish this work. Therefore, I would like to express my heartfelt gratitude to:

1. Mr. Jerry Heikal, S.T., M.M., Dr., my thesis advisor, for his time, effort, and invaluable guidance in directing me throughout the thesis-writing process.
2. Mr. Arief Bimantoro Suharko, Ph.D., and Mr. Gunardi Endro, Ph.D., as thesis examiners, for their valuable insights and constructive feedback that have helped me improve and refine this thesis.
3. My best friend, Ryan Hagood, for his unwavering moral support and motivation in helping me complete this thesis.
4. My parents and family, who constantly reminded me to rest and take care of myself during this process.
5. My dear friends, Agustina Rahayu Nainggolan, Vivi Cendolita, Papi Sony, Ci Emy, and many others, who have been incredible listeners, motivators, and provided immense support in completing this thesis.

Finally, I pray that God Almighty rewards all those who have supported and assisted me in this journey. May this thesis contribute meaningfully to the advancement of knowledge.

Jakarta, March 3, 2025

Author

**STATEMENT OF PUBLICATION APPROVAL PAGE**

As a member of the academic community at **Universitas Bakrie**,

I, the undersigned:

**Name:** Olivia

**Student ID (NIM):** 2201082007

**Study Program:** Master of Management

**Type of Final Assignment:** Thesis

In the interest of advancing scientific knowledge, I hereby grant **Universitas Bakrie** a **Non-Exclusive Royalty-Free Right** to my academic work titled:

**“Customer Segmentation Analysis in E-Commerce Platforms Using the RFM Model: A Case Study of E-Commerce Transaction Data (January 2009 – December 2011) from Kaggle”** along with any accompanying materials (if necessary). With this **Non-Exclusive Royalty-Free Right**, **Universitas Bakrie** has the authority to store, convert media/formats, manage in a database, preserve, and publish my thesis while ensuring that my name remains credited as the author/creator and copyright holder for academic purposes.

This statement is made truthfully.

**Issued in:** Jakarta

**Date:** March 3, 2025

**Signature,**



**Olivia**

**CUSTOMER SEGMENTATION ANALYSIS IN E-COMMERCE  
PLATFORMS USING THE RFM MODEL: A CASE STUDY OF  
E-COMMERCE TRANSACTION DATA (JANUARY 2009 –  
DECEMBER 2011) FROM KAGGLE**

**Olivia**

---

**ABSTRAK**

This study examines customer segmentation in e-commerce platforms using the Recency, Frequency, and Monetary (RFM) model to optimize marketing strategies and customer retention. A quantitative descriptive approach is applied, analyzing e-commerce transaction data from Kaggle (January 2009 – December 2011). The research involves data preprocessing, RFM scoring, and clustering techniques to classify customers into eight distinct segments, including Brand Royalty, Rising Stars, and Vanishing Buyers. Findings reveal that high-frequency, high-spending customers contribute most to revenue, whereas fading and vanishing buyers require re-engagement efforts. The study recommends tailored marketing campaigns, predictive analytics, and loyalty programs to enhance customer retention. Future research should integrate machine learning and psychographic data to refine segmentation accuracy.

Keywords: E-commerce, RFM Model, Customer Segmentation, Data-Driven Marketing

## TABLE OF CONTENTS

<b>DECLARATION OF ORIGINALITY .....</b>	<b>iii</b>
<b>APPROVAL PAGE.....</b>	<b>iv</b>
<b>ACKNOWLEDGMENTS.....</b>	<b>v</b>
<b>STATEMENT OF PUBLICATION APPROVAL PAGE.....</b>	<b>vii</b>
<b>ABSTRACT .....</b>	<b>vii</b>
<b>TABLE OF CONTENTS .....</b>	<b>viii</b>
<b>LIST OF FIGURES.....</b>	<b>xi</b>
<b>LIST OF TABLES.....</b>	<b>xii</b>
<b>CHAPTER I: INTRODUCTION.....</b>	<b>1</b>
1.1 Background.....	1-4
1.2 Formulation of the problem.....	4
1.3 Research Objectives .....	4
1.4 Benefits of the Research .....	4
1.4.1. Practical Benefits.....	5
1.4.2. Benefits for Academics .....	5
<b>CHAPTER II: LITERATURE REVIEW .....</b>	<b>6</b>
2.1. Theoretical Framework .....	6
2.1.1. E-Commerce .....	6-7
2.1.2. Customer Profiling and Segmentation.....	7
2.1.2.1. Demographic Analysis .....	8
2.1.2.2. Customer Behaviour Analysis .....	9



2.1.3.RFM Model.....	9
2.2. Previous Research .....	10-13
<b>CHAPTER III RESEARCH METHODOLOGY.....</b>	<b>14</b>
3.1. Types and Design of Research .....	14
3.2. Population and Research Sample .....	14
3.2.1. Population.....	14
3.3 Data Types and Sources .....	15
3.4.Data Collection Technique .....	15
3.5. Operational Definition of Variables .....	15
3.6.RFM Attribute Values .....	16
3.7.Data Preprocessing .....	16
3.7.1.Data Cleaning .....	17
3.7.2.Data Transformation.....	17
3.7.3.Data Normalization .....	17
3.8.Customer Characteristics Analysis.....	17
3.9. Phases of Research .....	18
<b>CHAPTER IV: RESULTS AND DISCUSSION .....</b>	<b>19</b>
4.1 Research Results.....	19
4.1.1 Data Collection.....	19-21
4.1.2 Data Processing .....	21
4.1.2.1 Data Input in Microsoft Excel .....	21-22
4.1.2.2 Loading Data into SPSS.....	22
4.1.2.3 Performing RFM Analysis in SPSS .....	23-26

4.1.2.4 Output Interpretation and Grouping Results .....	26
4.1.2.5 Crosstabulation Analysis.....	26-31
4.2 Customer Segmentation Determined by RFM Scores.....	31-33
4.3 Strategy Enhancement Based on RFM Segments. ....	33-37
<b>CHAPTER V: CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>38</b>
5.1 Conclusion.....	40
5.2 Recommendations .....	41
5.2.1 Enhanced Customer Retention Strategies .....	41
5.2.2 Re-engaging at-risk customers.....	41
5.2.3 Expanding the Scope of Customer Segmentation Models .....	42
5.2.4 Future Research Directions .....	42
<b>REFERENCES .....</b>	<b>41-43</b>
<b>ATTACHMENT .....</b>	<b>44</b>

**LIST OF FIGURES**

<b>Figure 1. Consumer Purchase Habits In E-Commerce (2024) .....</b>	<b>2</b>
<b>Figure 2. Sample Structure of the Dataset.....</b>	<b>21</b>
<b>Figure 3. Result of loading sales transaction data into the SPSS Program. ...</b>	<b>23</b>
<b>Figure 4. RFM Analysis Process in SPSS. ....</b>	<b>24</b>
<b>Figure 5. RFM Analysis Process designate pertinent variables in SPSS. ....</b>	<b>24</b>
<b>Figure 6. RFM Analysis Process specify the Number of Bins as 3 for each RFM metric in SPSS.....</b>	<b>25</b>
<b>Figure 8. Frequency Monetary Recency score Crosstabulation.....</b>	<b>27</b>
<b>Figure 9. RFM BIN Count. ....</b>	<b>28</b>
<b>Figure 10. RFM Heat Map. ....</b>	<b>28</b>
<b>Figure 11. Category based on RFM Score .....</b>	<b>29</b>
<b>Figure 12. RFM Analysis of Customer Segments. ....</b>	<b>31</b>

**LIST OF TABLES**

<b>Table 2.1 Previous Research.....</b>	<b>10</b>
<b>Table 3.1 Operational Definition of Variables.....</b>	<b>16</b>