



PROJECT REPORT
WALMART SALES PREDICTION USING TREE AND
RANDOM FOREST

CLEMENTINO ENDRICOUES KEDA SERA
17.K1.0043

Faculty of Computer Science
Soegijapranata Catholic University
2022

APPROVAL AND RATIFICATION PAGE



Judul Tugas Akhir : Walmart Sales Prediction Using Tree and Random Forest

Diajukan oleh : Clementino Endricoues Keda Sera

NIM : 17.K1.0043

Tanggal disetujui : 22 Desember 2022

Telah setuju oleh

Pembimbing : R. Setiawan Aji Nugroho S.T., MCompIT., Ph.D

Penguji 1 : Yonathan Purbo Santosa S.Kom., M.Sc

Penguji 2 : Hironimus Leong S.Kom., M.Kom.

Penguji 3 : R. Setiawan Aji Nugroho S.T., MCompIT., Ph.D

Penguji 4 : Rosita Herawati S.T., M.I.T.

Penguji 5 : Y.b. Dwi Setianto S.T., M.Cs.

Penguji 6 : Yulianto Tejo Putranto S.T., M.T.

Ketua Program Studi : Rosita Herawati S.T., M.I.T.

Dekan : Dr. Bernardinus Harnadi S.T., M.T.

Halaman ini merupakan halaman yang sah dan dapat diverifikasi melalui alamat di bawah ini.

sintak.unika.ac.id/skripsi/verifikasi/?id=17.K1.0043

DECLARATION OF AUTHORSHIP

I, the undersigned:

Name : Clementino Endricoues Keda Sera

ID : 17.K1.0043

declare that this work, titled “Walmart Sales Prediction Using Tree and Random Forest”, and the work presented in it is my own. I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at Soegijapranata Catholic University
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated.
3. Where I have consulted the published work of others, this is always clearly attributed.
4. Where I have quoted from the work of others, the source is always given.
5. Except for such quotations, this work is entirely my own work.
6. I have acknowledged all main sources of help.
7. Where the work is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself.

Semarang, 22 Desember 2022



CLEMENTINO ENDRICOUES KEDA SERA

17.K1.0043

HALAMAN PERNYATAAN PUBLIKASI KARYA ILMIAH UNTUK KEPENTINGAN AKADEMIS

Yang bertanda tangan dibawah ini:

Nama : Clementino Endricoues Keda Sera

Program Studi : Teknik Informatika

Fakultas : Ilmu Komputer

Jenis Karya : Skripsi

Menyetujui untuk memberikan kepada Universitas Katolik Soegijapranata Semarang Hak Bebas Royalti Noneksklusif atas karya ilmiah yang berjudul “WALMART SALES PREDICTION USING TREE AND RANDOM FOREST”. Dengan Hak Bebas Royalti Noneksklusif ini Universitas Katolik Soegijapranata berhak menyimpan, mengalihkan media/formatkan, mengelola dalam bentuk pangkalan data (database), merawat, dan mempublikasikan tugas akhir ini selama tetap mencantumkan nama saya sebagai penulis / pencipta dan sebagai pemilik Hak Cipta.

Demikian pernyataan ini saya buat dengan sebenarnya.

Semarang, 22 Desember 2022

Yang menyatakan



CLEMENTINO ENDRICOUES KEDA SERA

17.K1.0043

ACKNOWLEDGMENT

First, I would like to thank Jesus Christ for giving me health so I can complete this project. I have received a myriad of support, advice, and assistance throughout this document writing. I would like to thank my supervisor Robertus Setiawan Aji Nugroho for formulating this topic.

I would like to thank my family and friends for giving me ceaseless love, support, and advices throughout my study at Soegijapranata Catholic University. You gave me a great escape to rest my mind from my thesis.



ABSTRACT

Products sold in stores are human needs for everyday driving. The business is facing a challenge due to unforeseen demands and runs out of stock sometimes. The collected data will be processed using the Tree and Random Forest algorithm which is processed in the Orange application to predict weekly sales at Walmart. In the Tree and Random Forest, after calculating the data that has been obtained from each of these algorithms, the data is compared with each algorithm to see which score is good. From the test results, the RMSE value for the Random Forest model is 157442 and the Tree is 189694. From these results, it can be concluded that Random Forest is better in terms of testing.

Keywords: Orange, Tree, Random Forest, Product, Algorithm

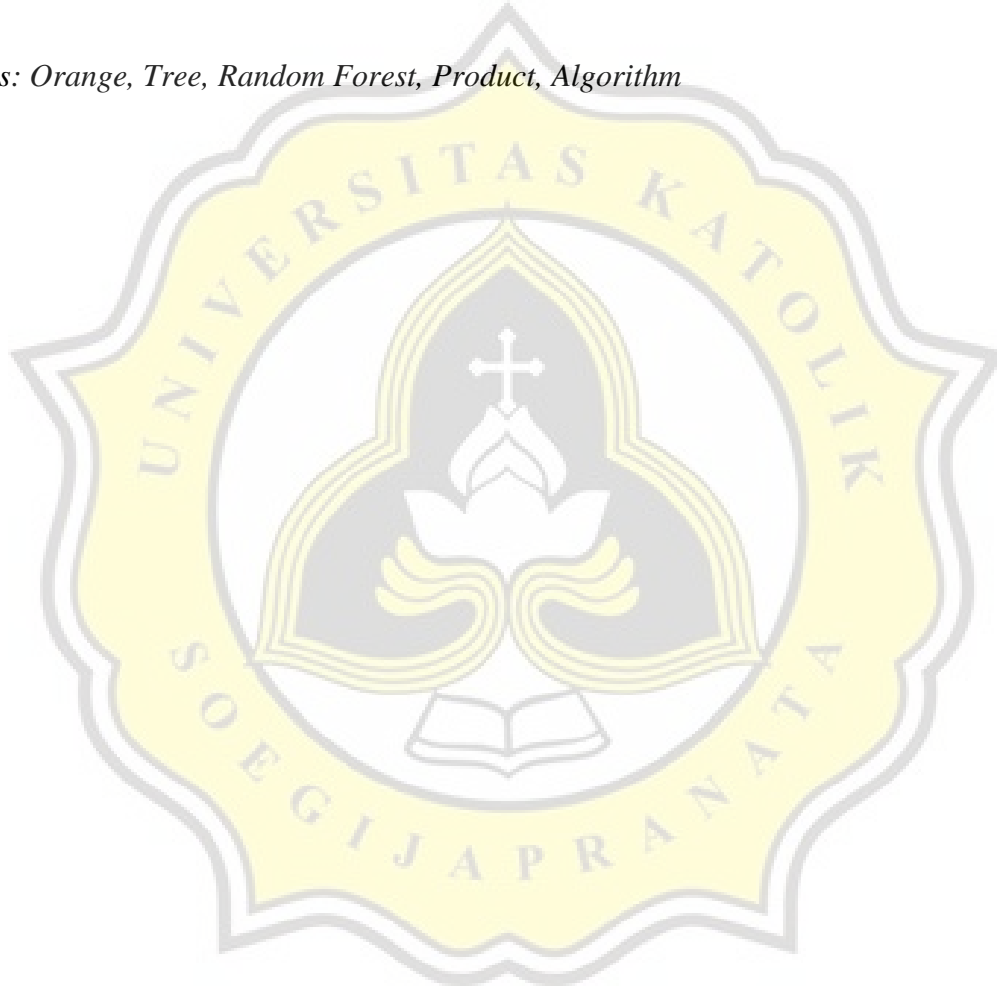


TABLE OF CONTENTS

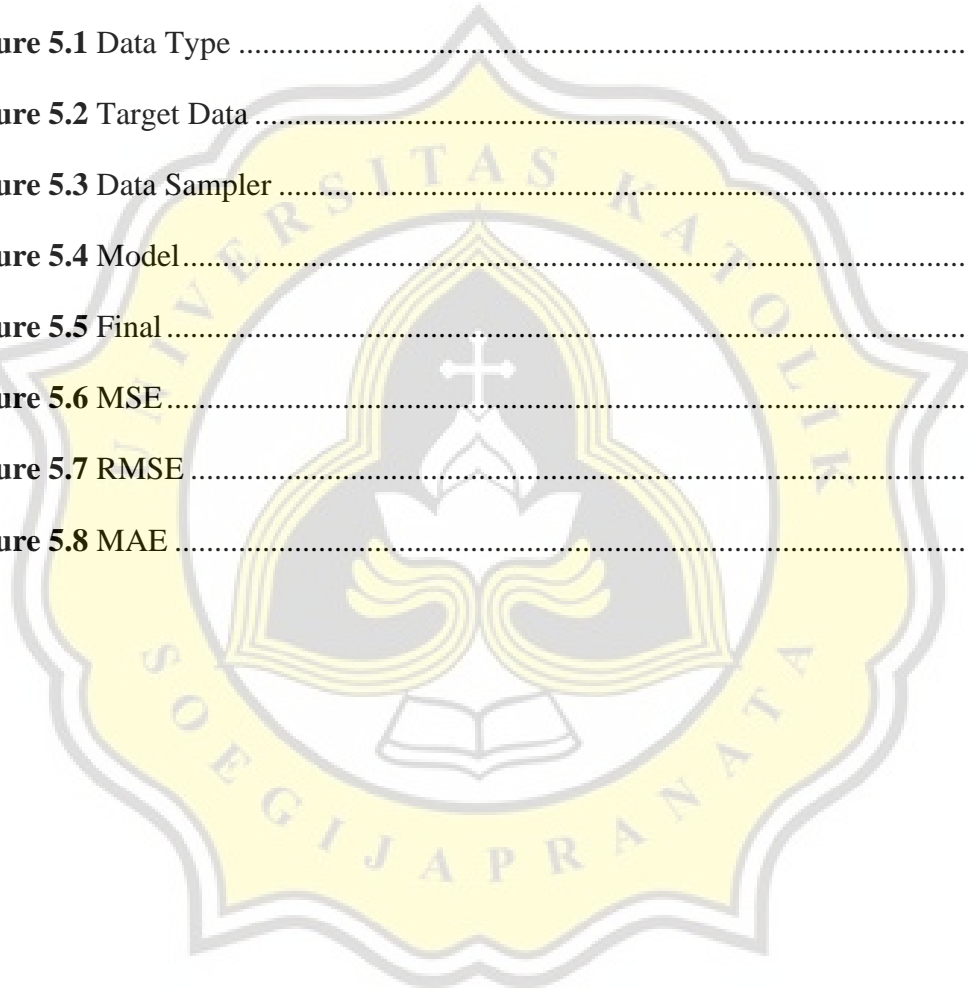
COVER	i
APPROVAL AND RATIFICATION PAGE	ii
DECLARATION OF AUTHORSHIP	iii
HALAMAN PERNYATAAN PUBLIKASI KARYA ILMIAH UNTUK KEPENTINGAN AKADEMIS	iv
ACKNOWLEDGMENT	v
ABSTRACT	vi
TABLE OF CONTENTS	vii
LIST OF FIGURE	ix
LIST OF TABLE	x
CHAPTER 1 INTRODUCTION	1
1.1. Background.....	1
1.2. Problem Formulation	1
1.3. Scope.....	1
1.4. Objective	1
CHAPTER 2 LITERATURE STUDY	2
CHAPTER 3 RESEARCH METHODOLOGY	5
3.1. Data Collection	5
3.2. Program.....	5
3.3. Application and Model.....	6
CHAPTER 4 ANALYSIS AND DESIGN	8
4.1. Analysis.....	8
4.2. Random Forest and Tree	8
4.3. Design	10
4.4. Function	11

CHAPTER 5 IMPLEMENTATION AND RESULTS	12
5.1. Implementation	12
5.2. Results.....	14
CHAPTER 6 CONCLUSION.....	18
REFERENCES.....	19
APPENDIX.....	a



LIST OF FIGURE

Figure 3.1 Orange Application.....	6
Figure 3.2 Random Forest.....	7
Figure 4.1 Random Forest.....	9
Figure 4.1 Flowchart Orange	10
Figure 5.1 Data Type	12
Figure 5.2 Target Data	12
Figure 5.3 Data Sampler	13
Figure 5.4 Model.....	13
Figure 5.5 Final.....	14
Figure 5.6 MSE.....	15
Figure 5.7 RMSE.....	16
Figure 5.8 MAE.....	16



LIST OF TABLE

Table 3.1. Data Sample	5
Table 5.1. Final Result	14
Table 5.2. Final Result	15
Table 5.3. Final Result	15

