



**PREDICTING MPL ID MATCH WINNER THROUGH
PLAYER STATISTICS AND TEAM PERFORMANCE
METRICS: A DATA-DRIVEN ANALYSIS**

THESIS REPORT

**UNIVERSITAS
MERCU BUANA**

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**PROGRAM STUDI TEKNIK INFORMATIKA FAKULTAS
ILMU KOMPUTER UNIVERSITAS MERCU BUANA**

2024

TITLE PAGE



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NAME : Luis Ferdinand

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Submitted as one of the requirements to obtain a bachelor's degree.

**PROGRAM STUDI TEKNIK INFORMATIKA FAKULTAS
ILMU KOMPUTER UNIVERSITAS MERCU BUANA**

2024

DECLARATION PAGE

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Thesis Title : Predicting Mpl Id Match Winner Through Player Statistics and Team Performance Metrics: A Data-Driven Analysis

Hereby declare that this thesis report is my own work and is not plagiarized, and that all sources, whether cited or referenced, have been properly acknowledged. Should it be discovered that there is plagiarism in my thesis report, I am prepared to accept the applicable academic sanctions at Universitas Mercu Buana.



Jakarta, 20 Mei 2024

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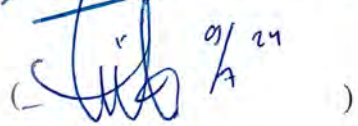
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PREFACE

I offer my gratitude to God Almighty, for His blessings and grace have allowed me to complete this thesis report. This thesis is submitted as part of the requirements for obtaining a Bachelor of Computer Science degree at the Faculty of Computer Science, Mercu Buana University.

I realize that, without the help and guidance of various parties, from the period of my studies until the preparation of this thesis, it would have been very difficult for me to complete this report. Therefore, I would like to express my gratitude to:

1. Prof. Dr. Andi Adriansyah, Rector of Mercu Buana University.
2. Dr. Bambang Jokonowo, S.Si., M.T.I, Dean of the Faculty of Computer Science.
3. Dr. Bagus Priambodo, ST., M.T.I, Head of the Informatics Study Program.
4. Ir. Emil R. Kaburuan, Ph.D., IPM., ASEAN Eng. my thesis supervisor, for providing time, effort, and thoughts to guide me in the preparation of this thesis.
5. Dr. Hadi Santoso, S.Kom., M.Kom, my thesis examiner, for the corrections, guidance, and input provided.
6. And to everyone else who has contributed to this work, as deemed appropriate by the writer, with a brief mention.

Finally, I hope that God Almighty will reward the kindness of all those who have helped. May this thesis report bring benefits to the development of knowledge.

Jakarta, 20 Mei 2024



Luis Ferdinand

STATEMENT OF APPROVAL FOR THE PUBLICATION OF THE FINAL PROJECT FOR ACADEMIC PURPOSES

As an academic community member of Mercu Buana University, I, the undersigned:

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ABSTRAK

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Pembimbing : Ir. Emil R. Kaburuan, Ph.D., IPM., ASEAN Eng.

Penelitian ini bertujuan untuk memprediksi hasil pertandingan di Mobile Legends Professional League (MPL) menggunakan pembelajaran mesin. Studi ini menganalisis statistik pemain dan tim, dengan fokus pada variabel seperti Gold/Game, Damage/Game, KDA, Objective Rating, dan Win Rate. Data dari 12 musim MPL terakhir digunakan, dengan teknik purposive sampling yang menargetkan pertandingan relevan.

Tiga algoritma pembelajaran mesin digunakan: Logistic Regression, Random Forest, dan XGBoost. Analisis Data Eksploratif (EDA) dilakukan untuk mengidentifikasi fitur yang signifikan, diikuti dengan prapemrosesan dan normalisasi data. Tim dikodekan secara numerik untuk pelatihan model. Model dievaluasi menggunakan fungsi best-of-5 series untuk memprediksi hasil pertandingan.

Hasil menunjukkan ONIC sebagai pemenang konsisten di semua model, dengan variasi pada posisi runner-up dan tempat ketiga. Logistic Regression dan XGBoost menempatkan ONIC sebagai pemenang, dengan BTR dan GEEK sebagai runner-up, masing-masing. Model Random Forest memprediksi EVOS sebagai runner-up.

Kesimpulannya, model-model ini menunjukkan potensi pembelajaran mesin dalam memprediksi hasil pertandingan esports, memberikan wawasan berharga bagi tim dan analis MPL. Penelitian di masa depan dapat meningkatkan akurasi dengan memasukkan metrik pemain yang lebih rinci dan mempertimbangkan META (most effective tactics available).

Kata Kunci: Pembelajaran Mesin, MPL, Mobile Legends, Pemodelan Prediktif, Esports

ABSTRACT

Name : Luis Ferdinand
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Study Program : INFORMATICS
Thesis Title : Predicting Mpl Id Match Winner Through Player Statistics and Team Performance Metrics: A Data-Driven Analysis
Supervisor : Ir. Emil R. Kaburuan, Ph.D., IPM., ASEAN Eng.

This research aims to predict match outcomes in the Mobile Legends Professional League (MPL) using machine learning. The study analyzes player and team statistics, focusing on variables such as Gold/Game, Damage/Game, KDA, Objective Rating, and Win Rate. Data from the past 12 MPL seasons were used, with purposive sampling targeting relevant matches.

Three machine learning algorithms were employed: Logistic Regression, Random Forest, and XGBoost. Exploratory Data Analysis (EDA) was conducted to identify significant features, followed by data preprocessing and normalization. Teams were encoded numerically for model training. The models were evaluated using a best-of-5 series function to predict match outcomes.

Results showed ONIC as the consistent winner across all models, with variations in runner-up and third-place positions. Logistic Regression and XGBoost placed ONIC as the winner, with BTR and GEEK as the runner-up, respectively. The Random Forest model predicted EVOS as the runner-up.

In conclusion, the models demonstrate the potential of machine learning in predicting esports match outcomes, providing valuable insights for MPL teams and analysts. Future research can improve accuracy by incorporating more detailed player metrics and considering META (most effective tactics available).

Keywords: Machine Learning, MPL, Mobile Legends, Predictive Modeling, Esports

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