

## PREFACE

This thesis is submitted in partial fulfillment of the requirements for a Master of Informatics Degree in Informatics Study Program. It contains work done from August 2017 to July 2019. Our supervisor on the research has been Ms. Ari Moesriami Barmawi, P.hD.

This work is to the best of my knowledge original, except where acknowledgments and references are made to previous work, and we have done our best to provide references to these sources.

Bandung, July 22, 2019

YUDHA VIKI ALVIONATA