

DEDICATION

This thesis has been completed with the grace of Allah SWT and support from my family. I praise GOD and gratitude for the strength and wisdom bestowed upon me throughout this journey.

I dedicate this work to my beloved parents, Mr. Eko and Mrs. Martha, and to my dear grandma, eyang Tuti Herawati. As well as my dear sister, Ms. Natavia. Also the trigger for me to complete this work, Ms. Diana Laili Putri who has accompanied me since high school.

Finally this thesis is dedicated to all informatics students in the world. I hope that this research may provide valuable contribution in Computer Science.