

## DEDICATION

This thesis is compiled with the support of my family. I praise GOD and thanks to all who have helped, directed, and supported this work. I dedicate the work to my beloved parents

AFRIZAL HASAN and YUSLITA, Specially my beloved husband MUNAWIR SYARKAWI and my beloved boy ALZIO SHAQUILLE SYARKAWI. Thanks to Indonesian Education Scholarship (BPI).

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

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