

GRATITUDE NOTE

The author would like to express gratitude to all parties that have already helped this thesis, either directly or indirectly. This gratitude, the author is express to:

1. Allah SWT, for all the mercy, grace, and guidance in every mistake the author has made.
2. Rasulullah SAW, as a role model that inspires the author in life and tries to be a better person.
3. The author's parents, Mr. (alm.) AKBP Susilowadi S.E., S.H., M.H., and Mrs. Hj. Aminah, S.E., has been educated and brought up the author's sacrifice, struggle, and compassion all the time to achieve a position to be the proud son.
4. The author's brother and sister, Anggi Oktaviani Susilo, SKG. and Yoghi Susilo, have been the author's support system and best friend all the time complain.
5. Dr. Nyoman Bogi Aditya Karna, S.T., MSEE., as the supervisor, it has always been to give support and suggestion all the time needed and responsive in providing solutions and completing administration needed for the author.
6. Mrs. Ratna Mayasari S.T., M.T., as the co-supervisor who has always been to take the time, always gives suggestions and motivation to the author doing this thesis very well of critical writing and data collection methods.
7. Mrs. Raditiana Padmasari, S.T., M.T., as the class lecture that has always been giving guidance, information, motivation, and suggestion to the author during university life.
8. Dr. Kenneth Park, BSc, MSc, PGCert, Ph.D., SFHEA, MCIIOB, MRICS, PMP, KCCM, as the project management lecture at Hanyang International Winter School 2018, South Korea supports and guides the author to be a critical thinker to develop the business plan project. It also allowed the author to present the only group final presentation in front of the NTU and NUS students.

9. Prof. Dong Seong Kim, Ph.D. and Assoc. Prof. Soo Young Shin, Ph.D., as the lecturer at Kumoh Institute of Technology, South Korea, has to introduce the Python programming language and its current implementation in the IoT area.
10. Assoc. Prof. Dr. Eng. Khoirul Anwar, S.T., M. Eng., as PKIP lecture, has always been giving suggestions and guidance as a mentor in doing systematic writing thesis critically using Latex.
11. Mr. Afif Akbar Iskandar, S.T., M.T., as the mentor in Python programming language, takes his time to guide and teach the author to implement suitable data science and machine learning areas for this thesis.
12. The Ministry of Academic and Research HMTT 2018 (Mr. Alfian and Ms. Tiffany) has allowed the author to gain knowledge in organization implementation from essential and become friends to exchange critical ideas in organizational and academic fields.
13. Ministry of KPM and Department of Profession 2019 (Ms. Munni, Mr. Galih, Mr. Irfan, Ms. Widya, Mr. Naufal, Mr. Reza, and Ms. Kia), which has helped the author develop into a better person in the organization from junior to senior staff and become friends to exchange critical ideas.
14. Senior staff of Profession Department HMTT 2019 (Arieq, Rizky, Anggita, Dewi, and Via) has been a family and friends to lamented exchange critical idea enjoying organizational life, and friends in the process of becoming a better person.
15. Department of Profession of HMTT 2020, all of the senior staff of the author's proud (Afif, Dicky, Ruben, Ayu, Rissa, and Zalfa) that has helped the author in a state of joy or sorrow in running the organization to achieve in realization the benefits of professional science for all the undergraduate students of Telecommunication Engineering and become partners in exchange ideas on the difficulties that occur in its implementation.
16. The family of rent house B6/11 Pesona Bali (Fadel, Yeremia, Danis, Tito, Ghozie, and Maul) has never stopped to give motivation and spirit in every condition to the author and always be the family to lamented during college life to enjoy the beautiful life in Bandung.

17. Global Mandiri senior school mate based in Bandung (Rasheed, Sin Euy gun, and Ilham) has helped the author exchange theoretical ideas and playmates during college life in Bandung.
18. The Family of TT-41-INT (Moza, Salsa, Holi, Nofal, and Wawan), also others that cannot mention each of them that helped the authors in the transition time in both academic and non-academic fields at the home university and during student exchanges in Korea, become partners in exchanging ideas to run the class and help the author to become a leader that responsible for the class.
19. MSI division of Basic Physic Laboratory 2019 has helped the author be a more responsible person in work and guide younger assistants to be better.
20. The family of Basic Physic Laboratory 2018-2020 has been the first author's family to learn the organizational basic and define the terms of the family without recognizing the existence of different generations followed by learning the norms of life and good manners also help the author in providing instructions to be able to develop skills, especially in academic and association organization.
21. HMTT representatives cabinet 2020, which is a family forum for the author to run the organization to provide impacts and benefits that can be felt by students of S1 Telecommunication Engineering and become partners in exchanging ideas to become reliable leaders.
22. The author's group friends (Fajri and Hasnah) are dependable partners to exchange ideas for implementation and systematic writing to finish the thesis together.