

## DAFTAR ISI

|  |      |
|--|------|
| LEMBAR PENGESAHAN                              | i    |
| LEMBAR PERNYATAAN ORISINALITAS                 | ii   |
| LEMBAR PERSEMBAHAN                             | iii  |
| ABSTRAK  | iv   |
| ABSTRACT                                       | v    |
| KATA PENGANTAR                                 | vi   |
| UCAPAN TERIMA KASIH                            | vii  |
| DAFTAR ISI                                     | viii |
| DAFTAR ISTILAH                                 | xiii |
| DAFTAR SINGKATAN                               | xiv  |
| BAB I PENDAHULUAN                              |      |
| 1.1 Latar Belakang .....                       | 1    |
| 1.2 Perumusan Masalah.....                     | 1    |
| 1.3 Tujuan.....                                | 2    |
| 1.4 Batasan Masalah.....                       | 2    |
| 1.5 Metodologi Penyelesaian Masalah.....       | 3    |
| 1.6 Sistematika Penulisan TA .....             | 4    |
| BAB II Tinjauan pustaka                        |      |
| 2.1 <i>Intrusion Detection System</i> .....    | 5    |
| 2.2 <i>Distributed Denial Of Service</i> ..... | 5    |

|       |   |    |
|-------|---|----|
| 2.3   | <i>Network Simulator – 3 (NS-3)</i> ..... | 5  |
| 2.4   | <i>Data Mining</i> .....                  | 7  |
| 2.5   | <i>Clustering</i> .....                   | 8  |
| 2.6   | Klasifikasi .....                         | 9  |
| 2.7   | Dataset KDDCup 1999 .....                 | 10 |
| 2.8   | Minkowski Weighted K-Means.....           | 11 |
| 2.8.1 | Minkowski Distance .....                  | 13 |
| 2.8.2 | Feature Weighting .....                   | 14 |
| 2.9   | Decision Tree.....                        | 14 |
| 2.9.1 | Gini Index .....                          | 16 |
| 2.9.2 | Gini Splitting Index .....                | 16 |
| 2.9.3 | Dataset Training .....                    | 17 |
| 2.9.4 | Dataset Testing .....                     | 17 |

### BAB III PERANCANGAN SISTEM

|       |   |    |
|-------|---|----|
| 3.1   | Alur Sistem.....                        | 18 |
| 3.2   | <i>Dataset</i> .....                    | 18 |
| 3.2.1 | Dataset Hasil Pengujian.....            | 18 |
| 3.2.2 | KDDCup 1999.....                        | 19 |
| 3.3   | <i>Minkowski Weighted K-Means</i> ..... | 20 |
| 3.4   | <i>Decision Tree</i> .....              | 22 |
| 3.5   | Parameter Analisis.....                 | 23 |

|                                      |  |           |
|--------------------------------------|--|-----------|
| 3.5.1                                | False Positive Rate.....   | 23        |
| 3.5.2                                | Detection Rate .....   | 24        |
| 3.5.3                                | Accuracy.....  | 24        |
| <b>BAB IV PENGUJIAN DAN ANALISIS</b> |  |           |
| 4.1                                  | Kebutuhan Pengujian .....  | 25        |
| 4.2                                  | Pengujian <i>Accuracy</i> , <i>Detection Rate</i> , dan <i>False Positive Rate</i> ... | 26        |
| 4.2.1                                | Skenario Pertama.....  | 26        |
| 4.2.2                                | Skenario Kedua .....   | 27        |
| 4.2.3                                | Skenario Ketiga .....  | 28        |
| 4.2.4                                | Skenario Keempat .....   | 28        |
| 4.3                                  | Analisis.....  | 29        |
| <b>BAB V KESIMPULAN DAN SARAN</b>    |  |           |
| 5.1                                  | Kesimpulan.....  | 32        |
| 5.2                                  | Saran .....  | 32        |
| <b>DAFTAR PUSTAKA .....</b>          |  | <b>33</b> |