

## DAFTAR ISI

|   | Hlm  |
|---|------|
| HALAMAN JUDUL                             |      |
| LEMBAR PERSETUJUAN                        |      |
| LEMBAR PENGESAHAN                         |      |
| LEMBAR PERNYATAAN KARYA SENDIRI           |      |
| ABSTRACT.....                             | i    |
| ABSTRAK.....                              | ii   |
| KATA PENGANTAR .....                      | iii  |
| DAFTAR ISI.....                           | v    |
| DAFTAR TABEL.....                         | viii |
| DAFTAR GAMBAR .....                       | x    |
| BAB I PENDAHULUAN.....                    | 1    |
| 1.1 Latar Belakang .....                  | 1    |
| 1.3 Tujuan Tugas Akhir.....               | 4    |
| 1.4 Batasan Masalah.....                  | 5    |
| 1.5 Manfaat Penelitian.....               | 5    |
| 1.6 Kerangka Pemikiran.....               | 5    |
| 1.7 Metode Penelitian.....                | 6    |
| 1.7.1 Pengumpulan Data .....              | 6    |
| 1.8 Metode Pengembangan Data Mining ..... | 7    |
| 1.9 Sistematika Penulisan.....            | 7    |
| BAB II TINJAUAN PUSTAKA.....              | 9    |
| 2.1 Tinjauan Pustaka .....                | 9    |
| 2.2.1 Hadits.....                         | 20   |
| 2.2.2 Hadits Mutawatir.....               | 21   |

|  |  |    |
|--|--|----|
| 2.2.3                                  | Data Mining .....  | 21 |
| 2.2.4                                  | <i>Text Mining</i> .....   | 22 |
| 2.2.5                                  | <i>Web Scraping</i> .....  | 22 |
| 2.2.6                                  | <i>Preprocessing</i> .....   | 22 |
| 2.2.7                                  | Term Frequency Inverse Document Frequency .....                      | 23 |
| 2.2.8                                  | <i>Clustering</i> .....  | 24 |
| 2.2.9                                  | K-Medoids .....  | 25 |
| 2.2.10                                 | <i>Cross-Industry Standard Process for Data Mining (CRISP-DM)</i> .. | 29 |
| 2.2.11                                 | UML (Unified Modeling Language).....                                 | 30 |
| 2.2.12                                 | Python .....   | 34 |
| 2.2.13                                 | Black-Box Testing .....  | 35 |
| BAB III ANALISIS DAN PERANCANGAN ..... |  | 36 |
| 3.1                                    | Pemahaman Bisnis ( <i>Business Understanding</i> ).....              | 36 |
| 3.1.1                                  | Analisi Masalah.....   | 36 |
| 3.1.2                                  | Analisis Kebutuhan Fungsional .....                                  | 36 |
| 3.1.3                                  | Analisis kebutuhan Non-Fungsional .....                              | 37 |
| 3.1.4                                  | Arsitektur Sistem.....   | 38 |
| 3.2                                    | Fase dalam pemahaman data ( <i>Data Understanding Phase</i> ) .....  | 40 |
| 3.2.1                                  | <i>Web Scraping</i> .....  | 40 |
| 3.2.2                                  | <i>Text Preprocessing</i> .....                                      | 40 |
| 3.2.2                                  | Analisa Algoritma TF-IDF.....  | 43 |
| 3.2.3                                  | Analisis Algoritma K-Medoids.....                                    | 50 |
| 3.3                                    | Perancangan Sistem.....  | 64 |
| 3.3.1                                  | <i>Use Case Diagram</i> .....  | 64 |
| 3.3.2                                  | <i>Class Diagram</i> .....   | 68 |
| 3.3.3                                  | <i>Squency Diagram</i> .....   | 68 |

|  |  |    |
|--|--|----|
| 3.3.4                                  | <i>Activity Diagram</i> .....              | 71 |
| 3.3.5                                  | Flowchart Sistem.....                      | 75 |
| 3.3.6                                  | Perancangan <i>Interface</i> .....         | 76 |
| 3.3.7                                  | <i>Pseudocode</i> Algoritma K-Medoids..... | 79 |
| BAB IV IMPLEMENTASI DAN PENGUJIAN..... |  | 80 |
| 4.1                                    | Implementasi tahap.....                    | 80 |
| 4.1.1                                  | Persiapan Arsitektur .....                 | 80 |
| 4.1.2                                  | Implementasi Sistem .....                  | 81 |
| 4.2                                    | Pengujian Sistem .....                     | 83 |
| 4.2.1                                  | Pengujian Fungsional Perangkat Lunak.....  | 83 |
| 4.2.2                                  | Implementasi <i>Source Code</i> .....      | 86 |
| 4.2.3                                  | Pengujian <i>Cluster</i> .....             | 88 |
| BAB V PENUTUP.....                     |  | 90 |
| 5.1                                    | Kesimpulan.....                            | 90 |
| 5.2                                    | Saran.....                                 | 90 |
| DAFTAR PUSTAKA .....                   |  | 92 |

