

DAFTAR ISI

| | |
|---|-----|
| ABSTRAK | i |
| ABSTRACT | iii |
| LEMBAR PENGESAHAN | iv |
| LEMBAR PERNYATAAN ORISINALITAS | v |
| KATA PENGANTAR | vi |
| DAFTAR ISI | vii |
| DAFTAR GAMBAR | x |
| DAFTAR TABEL | xi |
| BAB I PENDAHULUAN | 12 |
| I.1 Latar Belakang | 12 |
| I.2 Rumusan Masalah | 14 |
| I.3 Tujuan Penelitian | 14 |
| I.4 Batasan Masalah | 14 |
| I.5 Manfaat Penelitian | 15 |
| I.6 Sistematika Penulisan | 15 |
| BAB II KAJIAN PUSTAKA | 17 |
| II.1 Manajemen Akses | 17 |
| II.1.1 Komponen Utaman Manajemen Akses | 17 |
| II.1.2 Jenis Manajemen Akses | 17 |
| II.2 <i>Application Programming Interface</i> (API) | 18 |
| II.2.1 Kelebihan dan Kekurangan REST API | 19 |
| II.3 Keamanan API | 21 |
| II.3.1 <i>JSON Web Tokens</i> (JWT) | 22 |
| II.3.2 Tiga struktur utama dalam JWT | 22 |
| II.3.3 Cara Kerja JWT | 24 |
| II.3.4 <i>Refresh JSON Web Token</i> (JWT) | 25 |
| II.4 <i>Microservices</i> | 26 |
| II.5 <i>Unified Model Language</i> (UML) | 27 |
| II.5.1 <i>Structural Diagrams</i> | 27 |
| II.5.2 <i>Behavioral Diagrams</i> | 28 |

| | |
|---|----|
| II.6 <i>Waterfall Methodology</i> | 28 |
| II.7 <i>Software Testing</i> | 29 |
| II.7.1 <i>Unit Testing</i> | 31 |
| II.7.2 <i>Functional Testing</i> | 31 |
| II.7.3 <i>Integration Testing</i> | 31 |
| II.7.4 <i>System Testing</i> | 32 |
| II.7.5 Pengujian Keamanan | 32 |
| II.8 Penelitian Terdahulu | 33 |
| BAB III METODOLOGI PENELITIAN..... | 36 |
| III.1 Model Konseptual..... | 36 |
| III.2 Sistematika Penelitian..... | 38 |
| III.2.1 Tahap Pendahuluan | 38 |
| III.2.2 Tahap Pengembangan..... | 39 |
| III.2.3 Tahap Penutup | 39 |
| III.3 Alasan Pemilihan Metode | 39 |
| BAB IV PERANCANGAN | 41 |
| IV.1 Analisa Kebutuhan (<i>Requirement Analysis</i>) | 41 |
| IV.2 Tahap Perancangan..... | 43 |
| IV.2.1 <i>Use Case Diagram</i> | 43 |
| IV.2.2 <i>Entity Relational Diagram</i> | 46 |
| IV.2.3 <i>Class Diagram</i> | 47 |
| IV.2.4 <i>Sequence Diagram</i> | 51 |
| BAB V IMPLEMENTASI DAN PENGUJIAN..... | 57 |
| V.1 Tahap Implementasi..... | 57 |
| V.1.1 Implementasi Layanan API | 57 |
| V.1.2 Implementasi Tampilan Layanan autentikasi dan manajemen akses ... | 62 |
| V.2 Hasil Tahap Pengujian | 70 |
| V.2.1 <i>Functional Testing</i> | 70 |
| V.2.2 Pengujian Keamanan | 75 |
| BAB VI KESIMPULAN dan SARAN | 80 |
| VI.1 Kesimpulan | 80 |
| VI.2 Saran | 81 |

| | |
|----------------------|----|
| DAFTAR PUSTAKA | 82 |
|----------------------|----|