**Contents**

**Abstract 1**

**Acknowledgement 2**

**List of Figures**

**1 Introduction**…………………………………………………………………………………….. **6**

1.1 Background and motivations……………………….…… 7

1.2 Objectives………………………………………………….. 7

1.3 Scope……………………………………………………….. 8

**2 Literature Review**…………………………………………………………………………. **9**

2.1 What is Literature Review ………………………………………… 9

2.2 Related Works ………………………………………………………..9

**3 System Description ………………………………………………10**

3.1 Existing System …………………………………………………….10

3.2 System Proposal ……………………………………………………..10

3.2.1 Server Site ……………………………………………..11

3.2.2 Client Site ………………………………………………….11

**4 Requirement Analysis…………………………11**

4.1 What is the Requirement Analysis? ………...12

4.1.1 Functional Requirement…………12

4.1.2 Non-functional Requirements …………….12

4.1.3 Domain Requirements …………..12

4.2 Functionalities of the System ………………………..13

4.2.1 API Admin Woks ……………………..….13

4.2.2 Developer Works ………….………….……13

4.2.3 User Works ……………………………….13

4.3 Required Tools and Technologies ……………………………14

4.3.1 Spring Boot ………………………………………...14

4.3.2 MySQL …………………...15

4.3.3 Bootstrap ……………………...16

4.3.4 Thyme leaf ………………………….……………....16

4.3.5 HTML ……………………...17

4.3.6 CSS.………………………….……...17

4.3.7 Hibernate ……………………………….………...18

4.3.8 Java ….……………………………...18

**5 System Analysis**

5.1 Why needed? ………………………………………….19

5.2 System Analyst ………………………………………………….19

5.3 Basic Task of System Analyst …………. 20

5.4 Procedural Steps of System Analysis….…………….20

5.5 Techniques and Tools for Requirements Collecting……..20

5.6 User of the System. …………………………………. 21

5.7 System Planning ………………………………. 21

5.7.1 Feasibility Study …………………………….21

5.7.2 Work Plan………………..………………….22

5.8 Adopted Analysis Strategy…………………………….22

**6 System Design………………………………………..22**

6.1 Design Necessity ………………………………………….23

6.2 Database Design ………………………….23

6.2.1 Database Design Process……………………….24

6.2.2 Database Table……………………………….24

6.3 Object Oriented Design…………………….24

6.3.1 Context Diagram ……………………………25

6.3.2 Use Case Design ……………………………………25

6.3.3 Class Diagram…………………………………….26

6.3.4 Sequence Diagram………………………………….28

6.5 User Interface Design……………………………………… 30

6.5.1 Design Flexibility….30

6.6 Programming Patterns. ………………………30

6.6.1 MVT Patterns …..…………………30

6.6.2 Component Interaction Regarding the Analysis…..31

**7 System Development………………………….31**

7.1 Why perform System Development? …….…………………32

7.2 Development Strategy ……………32

7.3 System Environment ……………………………32

7.4 System Development Life Cycle……..………………33

7.5 Implementation of System ………………………36

7.5.1 Spring Boot Framework …….…………36

7.5.2 Goals of Spring Boot………….………………36

7.5.3 How does it work? ……………..…………37

7.5.4 Spring Boot Starter…………………….37

7.5.5 Advantages of Spring Boot……………………39

**8 Testing and Maintenance……………………………….39**

8.1 Testing and maintenance of the System ………..39

8.2 System Testing ….………………………………………..40

8.2.1 System Testing Activities ………………..40

8.2.2 Necessity of System Testing …………………..40

8.3 Maintenance………………………41

8.4 Different Types of Maintenance………………….41

8.4.1 Corrective Maintenance………………………….41

8.4.2 Adaptive Maintenance………………………41

8.4.3 Perfective Maintenance…………………….42

8.5 Necessity of Maintenance ……………….42

**9 Result and Discussion…………………..43**

9.1 Result and Discussion of the System ……………..43

9.1.1 Result ………………………43

9.1.2 Discussion ……………………..45

**10 Conclusion & Future Work …………………..43**

10.1 Project Benefits ……………..43

10.2 Future Work ………………………43

10.3 Personal Achievement ……………………..45

10.4 Conclusion ……………………..45

**Related Works**

**References**

**List of Figures**

1. System Design …………………………
2. Context Diagram………………………………………..
3. Use Case Diagram………………………………………………….
4. Sequence Diagram 1……………………………………
5. Sequence Diagram 2……………………………
6. Sequence Diagram 3……………………………
7. Sequence Diagram 4……………………………………
8. Component Interaction within MVT Patterns…………………
9. Testing Strategy……………