

Laboratory Information Management and Process Control Software for Microbiological Laboratories of the Government Hospitals



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Dissertation submitted to the Faculty of Information Technology, University of Moratuwa, Sri Lanka for the partial fulfillment of the requirements of the Degree of MSc in Information Technology

September 2008

Declaration

I declare that this dissertation does not incorporate, without acknowledgment, any material previously submitted for a Degree or a Diploma in any University and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made in the text. I also hereby give consent for my dissertation, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organization.

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Signature of Student

Date:

Supervised by

Dr. Gamini Wijayarathna

Signature of Supervisor

Date:

Dedication



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I dedicate this thesis to Dr. Gamini Wijayarathna with heart full of gratitude. Without his guidance, support, commitment and his uncommendable patience as the supervisor, the successful completion of this work would not be possible.

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Abstract

Antibiotic Sensitivity Test (ABST) is the laboratory report issued by a microbiology laboratory based on specimens collected from a patient who is suspected to have an infective disease. ABST has the information about the infective organism and the possible antibiotics those can be used to treat the infection concerned. ABST is a crucial investigation since it aids eradication of the infection from the patient as well as assists to prevent emergence of antibiotic resistant organism due to blind treatment with antibiotics. Emergence of antibiotic resistant microorganisms is a global health hazard.

It was a long felt need of the College of Microbiologists; Sri Lanka to have uniform microbiology laboratory information management software to assist the management of antibiotic sensitivity data for monitoring and setting standards in the microbiological laboratory operational process of the government hospitals and investigation laboratories.

The Microbiology Laboratory Information Management software was developed under the guidance and recommendation of the Study Group for the Laboratory Standards of the

College of Microbiologists of Sri Lanka to satisfy the above requirement.

The Microbiology Laboratory Information Management software is a web enabled application which has the facilities to store, manage and authorize results of various antibiotic sensitivity investigations performed by microbiological laboratories. System has the capacity to produce printable laboratory work sheets based on request forms. The system prints receipts for each specimen received and prints ABST when the laboratory process completed. This allows microbiologists to access and perform analysis of ABST resistant pattern data which is available in the database identifying various trends and patterns of drug resistance. Further to these features, system is equipped with a user and configuration management interfaces and job role based user authentication enabling concurrent access to the system through a local area network or the internet.



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Table of Contents

Chapter 1 – Introduction

1.1. Introduction	1
1.1.1 Background & motivation	2
1.1.2 Laboratory information handling in government hospitals	3
1.1.3 Microbiological investigations	5
1.1.3.1 Bacterial culture and microscopic examination	5
1.1.3.2 Fungal culture and microscopic examination	5
1.1.3.3 Antibiotic sensitivity test	5
1.1.4 Microbiological sample collection	5
1.1.5 ABST	6
1.1.5.1 Level of sensitivity/resistance in ABST	7
1.1.6 Reporting in government hospitals and laboratories	7
1.1.6.1 Employment hierarchy	7
1.1.7 Overall information flow	8

1.2. Problems and weaknesses of the existing system	10
1.3. Aims and objectives	10
1.4. Solution	10
Stricture of the dissertation	11
Summary	11

Chapter 2 – Problem domain

2.1 Introduction	12
2.2. Problems and weaknesses of the manual laboratory information management	13
2.3. Comparison of BIKS LIMS with developed system	14
2.4. National Antimicrobial Resistance Monitoring System	14
Summary	15

Chapter 3 – Technology adapted

3.1 Introduction	16
3.2. System analysis and designing	16
3.3. Rational Unified process	17
3.4. Software development Methodology	17
3.5. Web and database technologies	19
3.5.1 Web development languages	19
3.6. Client side form processing and data validation	20
Summary	20

Chapter 4 – Approach to the solution

4.1 Introduction	21
4.2. Major functionalities	21
4.2.1 User authentication and verification	21
4.2.2 Receipt and lab sheet generation	22
4.2.3 Report generation	23
4.2.4 Analysis of ABST pattern	23
4.2.5 Data visualization	23

4.3. Scope of the project	25
4.4. Limitations of the scope	25
4.5. Technology used	25
4.6. Software licensing issues	26
4.7. System architecture	27
4.8. Development risk	28
4.8.1 Organizational risk	28
4.8.2 Product risk	28
4.8.3 Project risk	28
4.9. Alternate solutions	28
4.10. Tangible benefits	29
4.11. Intangible benefits	29
Summary	29

Chapter 5 – Analysis and Design

5.1. Introduction	30
5.1.1 Software requirement	30
5.1.1.1 Mandatory functional requirements	30
5.1.1.2 Optional functional requirements	31
5.1.1.3 Mandatory non functional requirements	31
5.1.1.4 Optional non functional requirements	32
5.1.2 Architectural diagram	33
5.2. Existing system	34
5.3. Developed system	36
5.4. Database design	42
5.5. Graphical user interface design	46
5.5.1 Form validation	48
Summary	49

Chapter 6 – Implementation

6.1. Introduction	50
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6.1.1. System functionality and the file system	51
6.1.1.1 Data exchange between sub systems	53
6.2. Security	54
6.3 Database design	54
6.4 Form processing	55
6.5 Form printing	55
6.6 Dynamic help	56
6.7 Sound like name search	56
6.8 Dynamic charting library	56
Summary	57

Chapter 7 – Evaluation

7.1 Introduction	58
7.2 Software testing	59
7.3 Product evaluation by user	60
7.4 Performance testing	61
7.5 Browser compatibility	61
Summary	61

Chapter 8 – Conclusion & Further work

8.1 Introduction	62
8.2 GIS based mapping of the antibiotic resistance	62
8.3 Genetic algorithm based prediction of antibiotic resistance	63
8.4 Offline data synchronization	63
Summary	63

References	64
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Appendix

Appendix A: Abbreviations	67
Appendix B: Documents used in a microbiology laboratory	68
Appendix C: GNU Public License	75
Appendix D: Usecase Diagrams and Usecase Descriptions	80
Appendix E: Activity Diagrams	96
Appendix F: Sequence Diagrams	109
Appendix G: User Manual	119
Appendix H: Evaluation Form	120
Appendix I: Test Cases	122



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List of Figures

Figure 1 – Existing System	4
Figure 2 – Flow of information and decision making process of existing system	9
Figure 3 – Overview of laboratory information management system	12
Figure 4 – Usecase diagram of the login function	22
Figure 5 – Flow of documents in the proposed system	24
Figure 6 – Distributed system architecture of the system	27
Figure 7 – Architectural diagram of the system	33
Figure 8 – Overview of the manual system	34
Figure 9 – Information flow of the manual system	35
Figure 10- Overview of the proposed system	36

Figure 11- Proposed system model	37
Figure 12 – Activity diagram of the proposed system	38
Figure 13- Class diagram of the proposed system	41
Figure 14- Login process, Sequence diagram	42
Figure 15- Entity Relationship (ER) Diagram	44
Figure 16- Database diagram	45
Figure 17- Login form GUI design	47
Figure 18- Possible LAN configuration of the system	50
Figure 19- Architectural design	51
Figure 20-Form validation with Java scripts	55
Figure 21- Dynamic help text activation	56
Figure 22- Use of Soundex in search options	56
Figure 23- Sample charts developed using PHPlot charting library	57
Figure 24- Login activity diagram	58
Figure 25- Test case for ‘No user name, role, password’	59
Figure 26- Test results for ‘No user name, role, password’	60
Figure 27- Firebug testing tool	61
Figure 28- GIS visualization of antibiotic resistance	62

List of Tables

Table 1 – Comparison of BIKA and the proposed system	14
Table 2 – Comparison of SSADM and UML	16
Table 3 – Comparison of web development languages	19
Table 4 – Associated technical components for the web based system	26
Table 5 – Deployment options for the proposed system	28
Table 6 – Data access for user roles	32
Table 7 – Usecase check list	39
Table 8 – GUI ID for graphical user interface	47
Table 9 – Relationship between sub system and php files	52