UNISZA COUNSELLING MANAGEMENT SYSTEM (UCMS) BY USING RULE BASED

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2018
SUPERVISOR’S DECLARATION

I hereby declare that I have checked this project and, in my opinion, this project is adequate in term of scope and quality for the award of the Bachelor of Science Computer (Software Development)

Signature: ……………………………………………..

Name of Supervisor: Pn Hasni binti Hassan

Position: Lecturer

Date: …………………………………………………
STUDENT'S DECLARATION

I hereby declare that this project paper is the result of my personal research. This dissertation is submitted to the Faculty of Informatics and Computing, University Sultan Zainal Abidin as partial fulfillment of the requirements for the Degree of Bachelor of Computer Science in Software Development. All stated information which has been obtained from other sources is fully referenced.

Signature: ..................................................

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Matric Number: BTAL 15041733

Date: ......................................................
ABSTRACT

Counsellors play a crucial role in improving the health and wellbeing of our society. They help people to talk about their feelings, think about their choices or their behavior, and make positive changes in their lives. Currently, most of counseling authorities do not have a computer-based system to keep information about patients, counsellors and treatments; hence, information is recorded manually. However, in the rapid development of computer technologies, recording all the information manually is not practical since the data management becomes inefficient and time consuming. Therefore, UniSZA Counseling Management System (UCMS) is proposed where users can obtain preliminary information regarding their problems and consequently secure an appointment via the system.

This system has two parts where the first one is answering questionnaire and the second part is securing an appointment for further treatment. Results from the questionnaire will give information regarding initial diagnosis of the problems experienced by the users. Both the system and users can view the results. Consequently, the users can decide whether to proceed in securing an appointment with counsellor or not. In addition, results from questionnaire also are stored in the system for future reference to the counsellor. Counsellor will use the information prior to an appointment.

Rule-based algorithm is proposed for this system which contains a few criteria based on users’ preferences in order to make appointments with the counsellors.
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CHAPTER 1

INTRODUCTION

1.1 PROJECT BACKGROUND

Nowadays, development of computer technologies becomes more sophisticated. Along with the rapid development, many process management have been converted into computerized system. Unfortunately, most of counseling authorities do not have a computer-based system to keep information about patients, counsellors and treatments; hence, information is recorded manually. However, in the rapid development of computer technologies, recording all the information manually is not practical since the data management becomes inefficient and time consuming.
Hence, UniSZA Counselling Management System (UCMS), a web-based application system is proposed where users can obtain preliminary information regarding their problems and consequently secure an appointment with counsellors via the system. UCMS have two parts where the first one is answering questionnaire and the second part is securing an appointment for further treatment. Results from the questionnaire will give information regarding initial diagnosis of the problems experienced by the users. Both the system and users can view the results. As a result, users can decide whether to proceed in securing an appointment with counsellor or not.

Overall, the proposed system is expected to meet its objectives in helping users to identify their problems and consequently make appointments with counsellor and information will be more organized.

1.2 PROBLEM STATEMENT

The UniSZA Counselling Management System (UCMS) is proposed to solve the problems:

- Information is recorded manually where it is inefficient and time consuming
- It is time consuming to manage counseling records.
- The process to book for appointment is still done manually where users need to come to the office or call the office.
1.3 OBJECTIVES

The objectives of UniSZA Counselling Management System (UCMS) are:

- To design an online counselling management system where users can make appointments with counsellors after answering a set of questionnaires.
- To develop UCMS using Rule-Based algorithm.
- To test the functionality of the system in order to ensure the system meet all the requirements

1.4 SCOPE

There are three main actors in UCMS that are users, counsellors and administrator.

I. User

All the users such as students, staffs of UniSZA and lecturers are eligible to use this system. They can register, answer the questionnaire, book for appointments, view results from the questionnaire and view their reports.

II. Counsellors

All counsellors that had been registered by administrator can use the system. Counsellors can view their appointment records, users’ information, users’ results from questionnaire and provide reports about users.

III. Administrator

Administrator controls the whole system and is the manager of the system. Administrator has the authority to access the system so as to register the counsellors, provide questionnaire and set the preferences for the system.
2.1 INTRODUCTION

In this chapter, the topic that will be discussed is the analysis on the existing and proposed system. In the proposed system, how will Rule-Based technique be applied in the system? Besides, the research about the proposed system will be elaborate more in this chapter. The literature review discusses published information in the related area, and sometimes information in a particular subject area within a certain time period.
2.2 PROBLEM ANALYSIS ON CURRENT UNISZA COUNSELLING MANAGEMENT SYSTEM

Currently, most of counseling authorities do not have a computer-based system to keep information about patients, counsellors and treatments; hence, information is recorded manually. Existing systems usually do not provide online booking appointment for users.

2.3 SUMMARY OF LITERATURE REVIEW

<table>
<thead>
<tr>
<th>Year</th>
<th>Title/Author</th>
<th>Methodology/Algorithm</th>
<th>Aims/Objectives</th>
<th>Advantages</th>
<th>Disadvantages</th>
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</thead>
<tbody>
<tr>
<td>2009</td>
<td>Data Encryption in E-Counselling System (DEECS) Athirah Fayyadhah Othman</td>
<td>Data Encryption</td>
<td>To apply symmetric key (secret key) for encrypted memo in order to secure counselling session.</td>
<td>data transmission between student and counsellor are encrypted which means no one else can access or know the content of discussion.</td>
<td>Takes longer time to decrypt the data when recovering all of information</td>
</tr>
<tr>
<td>Year</td>
<td>Title</td>
<td>Method</td>
<td>Description</td>
<td>Limitation</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>--------</td>
<td>-------------</td>
<td>------------</td>
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<tr>
<td>2010</td>
<td>University Course Recommendation System using Personality Test</td>
<td>Rule-Based filtering technique</td>
<td>To recommend a suitable course to student who want to applied and study the degree program using student’s personality test</td>
<td>Limitation in criteria on choosing suitable course on personality test question</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>Online Counselling System</td>
<td>Sorting technique</td>
<td>To access any type of information about the college/university and globally maintain all the information by the university</td>
<td>Difficult to management the all types of information of college or university</td>
<td></td>
</tr>
</tbody>
</table>

Ishank Jain and Jatin Chauhan [2]
CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This chapter will discuss about the project methodology used to build the system. The use of project methodology is to ensure all the processes, techniques, methods, approaches and technologies of the system are well defined. It is a very important phase of any development as it will guide the researchers through all the development periods. In order to have a systematic plan about a project, this phase start with a good understanding especially on users’ requirements.
3.2 JUSTIFICATION OF METHODOLOGY

In this project, iterative model has been used for development of UniSZA Counselling Management System (UCMS). Iterative model focuses on an initial, simplified implementation and become more complex incorporating as well as a broader feature set until the final system is complete. Unlike the other methods, the Iterative model is a cyclical or repeated process until the completion of the system.

The advantage of using Iterative model is that it allows users to build and improve the system step by step. Hence, we can track the defects at early stages. Then, we can also the reliable feedback from users or panel. When presenting the draft and flow of the system to the users for their feedback, we are effectively asking them to imagine how the system will work.

3.3 ITERATIVE MODEL METHODOLOGY

Figure 3.3 shows the methodology that had been used from the beginning until the end of this project.
3.3.1 Planning Phase

Planning is a first phase in this method. In this phase, we need to identify the specific goals of the project. This phase involves a detailed overview of each goal, including the reasons for its selection and the anticipated outcomes of goal-related system. Besides, the title has been agreed to proceed was “UniSZA Counselling Management System “.

3.3.2 Analysis Phase

In the analysis phase, the requirements of the project are being analyzed to set full understanding of the problems in this project. The information related to the system has been gathered from resources such as journal, documentation or website. Based on the information, problem statement is determined.

3.3.3 Design Phase

In the third phase which is design phase, the product requirements were designed as the technical solutions to the problems that already being set out. In order to discover more details of the system Context Diagram, Data Flow Diagram (DFD) Level 0 and 1 and also Entity Relationship Diagram (ERD were developed.

3.3.4 Implementation Phase

The implementation started once the design has been approved. This was the shortest phase in the system implementation because the research and design have been done in advanced. To develop this project, Adobe Dreamweaver CS6 was used to write the coding, XAMPP was used
to create a local web server for testing purposes and phpMyAdmin utilized to handle the administrator of MySQL with the use of a web browser.

3.3.5 Testing Phase

In the testing phase, any bugs were fixed so that the system meets the specified requirements. Then the system needs to be retested if there any bugs or errors.

3.3.6 Deployment Phase

When the system is already stable, the review will be done as the system meets all the goals and requirements in the project plan.

3.3.7 Evaluation Phase

When all the previous phases have been completed, it is time for a thorough evaluation of development. This phase allows the entire team, as well as clients or other parties to examine the effectiveness of the system whether the goals and the requirements were properly aligned and delivered to the appropriate recipients.
3.4 PROJECT REQUIREMENTS

This section will show the list of all software and hardware that involve in the development process:

3.4.1 Software Requirements

- Xampp Server to run MySQL database in phpMyAdministrator for storing the information either for temporary or permanently purpose.
- Notepad++
- Adobe DreamWeaver
- Microsoft Word 2016
- Microsoft Power Point 2016
- Mozzila Firefox
- DrawIO Diagram

3.4.2 Hardware Requirements

- Laptop Acer Aspire E1-472G
- Printer Canon
3.5 DESIGN AND MODELLING

3.5.1 INTRODUCTION

This phase explains the flow and organizations of the system so that the system development may progress smoothly. It also known as conceptual design. Modelling process involves a graphical representation of the functions and processes for the development of a system before the system is developed. It consists of context diagram (CD), data flow diagram (DFD), entity relationship data (ERD) and database.

3.5.2 CONTEXT DIAGRAM

![Context Diagram]

*Figure 3.5.2 Context Diagram*

The context diagram is as the highest modelling level that represents the entire system. In this system, there are three external entities which are user, counsellor and administrator. The user need to give their personal details to the system after they have registered or logged into the system. Once they have logged in, they can answer questionnaire, make appointment, view result of the questionnaire. For counsellor, they can view appointment and view results. The administrator will able to register counsellor, provide questionnaire and also can get the report about all information.
3.5.3 DATA FLOW DIAGRAM LEVEL 0

A data flow diagram (DFD) is a graphical representation of the flow of data on this system. All the processes in DFD are the main processes involved in the UniSZA Counselling Management System. A DFD shows what kind of information will be the input and output of this system and where the data will be stored.

![Data Flow Diagram Level 0](Figure 3.5.3 Data Flow Diagram Level 0)
Figure 3.5.3 represents 8 main processes, 7 main tables of the database and their relationship in overall system. The process begins with the registration of users. Then, the users, counsellors and the administrator need to login to use the system. Users will able to manage their own registration and can make appointment. The users can also answer the questionnaire first and the system will provide user’s result after answering questionnaire to user. Then, the administrator will manage the appointment. The counsellors can view appointment that have been made by the users. The administrator can be able to see reports of user’s information, counsellor’s information and result from questionnaire. In the meantime, administrator able to manage counsellor by registering counsellor.

3.5.3.1 Data Flow Diagram Level 1 Process 5.0: Manage Appointment

![Data Flow Diagram](image)

Figure 3.5.3.1 DFD Level 1 Process 5.0
User can fill the form to make appointment like date for further treatment. Meanwhile the administrator will check the appointment availability whether to approve or reject the appointment make by the user. Users and counsellors can view the appointments that have been made.

### 3.5.3.2 Data Flow Diagram Level 1 Process 6.0: Manage Questionnaire

![Data Flow Diagram](image)

*Figure 3.5.3.2 DFD Level 1 Process 6.0*

This process is done by administrator. Administrator able to add questionnaire related to mental health and delete the questionnaire. Administrator also can update questionnaire and will be stored in database diagnosis.
This process is done by the administrator. The administrator has the authority to register new counsellors by inserting the counsellor’s details in form. Administrator also can delete counsellors’ information.
3.5.4 ENTITY RELATIONSHIP DATA

Entity Relationship Data (ERD) is a specialized graphic that helps organize the data in your project into entities and define the relationships among the entities in a database.

Figure 3.5.4 Entity Relationship Diagram
3.6 DATA DICTIONARY

A database is a collection of information that is organized so that it can be easily be accessed, managed and updated. A database is created named as ucms. There are 9 tables in UniSZA Counselling Management System. The database is shown as below:

3.6.1 Table User

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Data Type</th>
<th>Primary Key (PK) / Foreign Key (FK)</th>
<th>FK Reference Table</th>
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<tbody>
<tr>
<td>username</td>
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<tr>
<td>Password</td>
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3.6.2 Table User

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<thead>
<tr>
<th>Attribute Name</th>
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<td>age</td>
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3.6.3 Table Counsellor
### 3.6.4 Table Admin

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### 3.6.5 Table Questionnaire

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### 3.6.6 Table Result

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### 3.6.7 Table Appointment

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REFERENCES


5. https://kupdf.com/download/online-counselling-system_59a7027bdc0d60de4c568edd_pdf