

**TIMETABLE FOR SCHOOL (TTS)**



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

## BORANG PENGESAHAN STATUS TESIS\*

JUDUL: TIMETABLE FOR SCHOOL (TTS)

SESI PENGAJIAN: 2-2016/2017

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## TIMETABLE FOR SCHOOL (TTS)

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This report is submitted in partial fulfillment of the requirements for the Bachelor of  
Computer Science (Database Management)

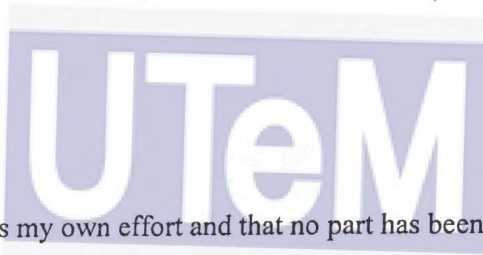
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2017

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## ABSTRACT

In this era of information technology, many activities transform from manual operating into automatic operating. The society manage to save a lot of time with this evolution of technology in daily life. One of the important element that have to be managed is timing. This element must be organized properly to increase the timing flow visibility. Time table for school assigns time-slot and classrooms in a specific time period. The system has to avoid clashes of time-slots and contact hours. Most of the administrative work has been computerized, the time table scheduling is still mostly done manually because its technical difficulties. The manual scheduling of time table requires considerable time and efforts. Teachers hard to arrange and manage the time slot. This is due to the fact that the time table consist of different kind of data. School management system consist of various part of small system. One of the small system may control of attendant system or time table. Time table is important to refer by student and teacher. Time table include the details of arrangement of class and the subject. Different type of level of student have different type of subject. Every class in school also has different time table. Time table is made sure the arrangement is fit together. Each slot will not clash due to the fact that one class can afford to the fix amount of slot. By developing this Time Table for School (TTS), the system able to manage time table systematically. School can manage their time table effectively and efficiently by this system. In conclusion, people manage to analyze the time table through this system as earlier preparation then making better planning in the future.

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## CHAPTER I

### INTRODUCTION



#### 1.1 Introduction

In this era of information technology, many activities transform from manual operating into automatic operating. The society manage to save a lot of time with this evolution of technology in daily life. One of the important element that have to be managed is timing. This element must be organized properly to increase the timing flow visibility. Timetable for school assigns time slots and classes in a specific time period. The system has to avoid clashes of time slots and contact hours.

Most of the administrative work has been computerized, the timetable scheduling is still mostly done manually because the technical difficulties. The manual scheduling of timetable requires considerable time and efforts. Teachers hard to arrange and manage the time slots. This is due to the fact that the timetable consist of different kind of data.

School management system consist of various part of small system. One of the small system may control of attendant system or timetable. Timetable is important to refer by student and teacher. Timetable include the details of arrangement of class and subject. Different type of students have different type of subjects. Every classes in school also have different timetables.

Timetable is made sure the arrangement is fit together. Each session will not clash due to the fact that one class can afford to the fix amount of session. By developing this Timetable for School (TTS), the system able to manage timetable systematically, provide tracking element to manage the timetable and generate the report for timetable.

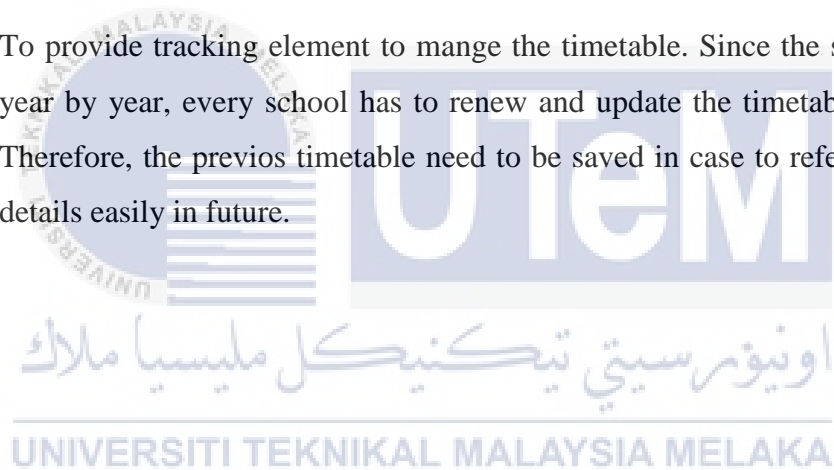


## 1.2 Problem Statements

- i. It is time consuming when doing things manually and requires lots of manual labour for manual record keeping. The time that spent on timetables in school could be spent to another more productive activities which gain more benefits to all members in school.
- ii. Difficulty to manage timetable. Different class has different timetable so every student in a class must refer to a timetable. Such amount of classes in a school then such amount of timetables in a school. Hence, it hard to manage so many timetable.
- iii. Difficulty to search and retrieve records among all files or data of past dozen years. Burden records hard to look back. It is hard to find the details of previous records in diverse data.

### 1.3 Objectives

- i. To improve the efficiency of timetable management system by replacing the existing manual paper based system. Teachers able to use this system to replace paper based system for better time saving. Moreover, teachers can manage and modify data easily. Hence, this system can help teachers manage timetable in short time and efficiency.
- ii. To manage timetable systematically. Different types of subjects may appear in a timetable and the particular subject may appear in different classes. The respective teacher may need to teach a particular subject in different classes. After that, this system helps to manage all items in well order.
- iii. To provide tracking element to manage the timetable. Since the school operate year by year, every school has to renew and update the timetable every year. Therefore, the previous timetable need to be saved in case to refer the previous details easily in future.





## 1.4 Scope

The scope of this project is focus on two major points which are module to be developed and target user.

### 1.4.1 Module to be developed

#### i. Login Module

Login module is used to check whether the user is an authorized person to use the system or not. User must enter the correct username and password to log in to the system and operate the system. This action can prevent the system access by unauthorized user and keep privacy on personal stuffs in the system.

#### ii. Form Module

One of the example of form module in this system is timetable form. This form module allow teacher as a user to insert, edit or delete the details of the selected time slot of timetable in the system.

#### iii. Report Module

Report module is mentioned data are stored in the back end and can be retrieved as reports with filtering options. Display the report in summary form from all timetables and aim for better understanding and analyzation on timetable.

### 1.4.2 Target user

The target user for Timetable for School (TTS) is teacher in school. Teacher in school has the ability to log in to the system by using correct username and security password. Teacher able to manage arrange their own timetable in school through this system. Teacher can insert, edit or delete the time slot by using the subject and class available.

### 1.5 Project Significance

This system has the main target user which is teacher in school. The system provides a user-friendly interface with simple yet familiar user experience for them to manage timetable. The system allows them to retrieve, view and manage the details of time slot in timetable. Teacher can easily retrieve data and key-in the details through the options provided such as subjects and classes. After that, teacher can view, arrange and manage their own timetable in school. Next, teacher choose the time slot to suit for their favour at the form. Furthermore, teacher can direct view the timetable of their own class after the teacher assign as teacher class to that particular class. This system helps to save the work done of labour by using the concept of self-service. This is due to the fact that every teacher has the responsibility to assign their time slots now. This self-service procedure is better than the whole timetable arrangement in charge by one person only.

## 1.6 Expected Output

The expected outputs from this system are listed as following:

- i. The brand new web application will replace the manual operating method in arranging timetable.
- ii. Teachers can view their own timetable and the timetable of class which assign to him or her.
- iii. Teachers able to insert or edit the time slots in their own timetable in school through the subjects and classes available.
- iv. Avoid the clashing between time slots in teacher timetable and class timetable.
- v. Disable teacher from inserting the time slot when the minimum number of beginning slot and minimum number of ending slot do not fullfill.
- vi. Prevent the human error when arranging the time slots in timetable.

## 1.7 Conclusion

Chapter I has introduced the basic idea of the project, Timetable for School (TTS), briefly. Introduction of the project is useful to bring a conceptual idea to user before interact with the system. Hence, user get to know the overall functionality of the system first and coordinate the work with the system effectively later on. This system is developed by using Java Server Page (JSP) as system language and Oracle 11g as database in operating system of Windows. TTS is very useful and convenient in viewing, inserting and updating the database records. Teacher can view and edit the time slots in their own timetable through TTS. In addition, this system is easy to use and increase the data consistency. Problems with data redundancies and human error can be avoided to a very minimum state with a good database design. In a nutshell, teacher can manage their timetable effectively and efficiently by using this system.



## CHAPTER II

### PROJECT METHODOLOGY AND PLANNING



#### 2.1 Introduction

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This chapter discusses the plans and methods to complete this project. There are five stages in database life cycle. Next, the more detail description in every tasks to carry out in developing the project will be discussed.

#### 2.2 Project Methodology

The five stages of database life cycle are database requirements analysis, database design, implementation and loading, testing and evaluation, maintenance and evolution.

### **i. Database Requirements Analysis**

The database requirements analysis is involved collecting of the system demand from users. System demands are important in this stage because the aim for this project is to increase the processing time when user use the system. Therefore, the right and accurate demands from users are required. For instance, teacher will prefer to insert the timetable individually because they can manage their time accordingly. The process of managing the timetable is done manually previously and the system is developed to create better experience in managing the timetable in future. The time slot of every school may not be the same so the system has to create the maximum number of time slots first in order to overcome this problem. In addition, the first slot and last slot in every educational level and every day will be different. Hence, the setting in system should be manipulated by user to update the details on it. With all these precise requirements, jot down all on the paper and analyse it well before go to the next step that is database design.

### **ii. Database Design**

The output of this step is the Entity Relationship Diagram (ERD). This step can call as Database Logical Design and it focusses on the database design as the skeleton of the Timetable for School (TTS) system. Based on the system demands from the step of database requirements analysis, there are some entities strongly needed in the system such as teacher, subject, class, teacher timetable, class timetable and others. Besides that, other entities such as teacher\_subject, class\_subject, subjectteacherclass, schoolslot and many more are needed in the database to complete all the data flow. Next, normalization is carried out to let the database design increase the data integrity. Furthermore, normalization can reduce data redundancy by taking out the attributes which are unnecessary because they contain the repetitive data. This help to eliminate duplicate data in the database.

### iii. Implementation and Loading

This step will create the physical database in the Oracle 11g. First, the Oracle 11g is installed into the operating system. Then, the Oracle SQL Developer is installed too because it helps to generate better interfaces to manipulate the database. Next, the connection between Oracle 11g and Oracle SQL Developer is generated. After that, the schema as 'PRIM' and all the needed tables are created in the Oracle 11g. Data Dictionary Language (DDL) is used to create all tables in the database. DDL is included all the constraints such as primary key, foreign key, check, unique and many more to let all the tables be more informative.

On the other hand, stored procedures, functions, triggers are created in the database through this step too. Stored procedure helps to increase the overall performance in the system because it reduce the processing time in duelling with query from system to database. The system will not need to deal with complex query in the system. Stored procedure store all the necessary queries in the database then the system just call the procedure when user apply an action on system. For instance, teacher want to insert the time slot in their own timetable so the system just call the procedure created to run the query in database.

Trigger is another database object which is useful to general system. It act as powerful object to maintain data integrity and keep the user interface lightweight. Before teacher insert into their timetable, trigger will check the availability of that time slot. If that particular time slot is free then teacher can insert successfully whereas the time slot is filled then trigger will show the error to the teacher so teacher unable to insert into it.

#### iv. Testing and Evaluation

There are two categories in this step for testing and evaluation which are test the database and evaluate database performance with its application program. Some valid and invalid data are inserted into the table in database. Then, look through the data flow and analyse the data in tables so the mistakes or flaw will be detected earlier. Therefore, these flaws can be improved or corrected within the shortest time. For instance, the trigger will try run at this step to ensure it really work in the database. If the invalid data or process is applied to the database, then the trigger should release the error messages. However, the logic and precise data is acceptable by the database then the overall process will update different tables automatically.

On the other hand, it is important to evaluate database performance with its application program. This step is concerned the performance on the connection of system and database. In this evaluation, compare the exact output from system with the stated requirements to know the differences if the differences are exist. Then, implement again the entire process flow within system and database to achieve the desire output.

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#### v. Maintenance and Evolution

The final step is maintenance and evolution which concern on the data maintaining, backup and recovery. All of these are crucial to accomplish because changes may happen anytime. However, all the data should be kept and maintained to prevent the difficulty in operating the system. In this project development, this step has not carry out because it requires lots of time and involves huge process to attain the good result. Hence, this step is not included in this project.