

**MAJOR RECOMMENDATION BASED ON PMR RESULT**

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## **ABSTRACT**

Upon obtaining their PMR's result, most students will meet their school's coordinator level or counsellor to discuss the suitable majoring based on their examination result. Through this system, student only need to include their examination results and this system will issue suitable major decision with their qualification. Apart from that, students can obtain complete information for majoring offered for form four. The objective of this system is to select majoring for students based on PMR results. The students have to enter their PMR results and this system will recommend the best major for them. This system is developed by using Hypertext Preprocessor language (PHP) and MySQL as their design database. This system is designed for Sekolah Menengah Kebangsaan Bukit Baru and has been tested by the school counsellor.

## **ABSTRAK**

Selepas mendapat keputusan PMR, kebanyakan pelajar akan berjumpa dengan penyelarar tingkatan atau kaunselor sekolah mereka untuk membingcangkan hala tuju atau jurusan yang sesuai dengan keputusan peperiksaan mereka. Melalui sistem ini, pelajar hanya perlu memasukkan keputusan peperiksaan mereka dan sistem ini akan mengeluarkan keputusan jurusan yang sesuai dengan kelayakan mereka. Selain itu juga, para pelajar boleh mendapatkan maklumat lengkap bagi jurusan yang ditawarkan semasa di tingkatan empat. Objektif sistem pensyoran jurusan mengikut keputusan PMR ini ialah untuk memberi keputusan jurusan yang boleh dipilih oleh pelajar mengikut keputusan PMR yang mereka perolehi. Para pelajar perlu memasukkan keputusan PMR mereka dan sistem ini akan mensyorkan kepada pelajar jurusan yang terbaik untuk mereka ambil. Sistem ini dibangunkan dengan menggunakan bahasa Hypertext Preprocessor(PHP) dan MySQL sebagai pengkalan datanya. Sistem ini dibangunkan untuk Sekolah Menengah Kebangsaan Bukit Baru dan telah di uji oleh kaunselor sekolah.

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## **ABBREVIATIONS**

<b>PMR</b>	<b>Penilaian Menengah Rendah</b>
<b>SMKBB</b>	<b>Sekolah Menengah Kebangsaan Bukit Baru</b>
<b>PHP</b>	<b>Hypertext Preprocessor</b>
<b>ES</b>	<b>Expert System</b>
<b>DSS</b>	<b>Decision Support System</b>
<b>AI</b>	<b>Artificial Intelligent</b>
<b>DFD</b>	<b>Data Flow Diagram</b>
<b>GUI</b>	<b>Graphical User Interface</b>

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction**

Upon receiving PMR result, most students having difficulty to choose suitable majoring based on their result. Therefore, each school has their own coordinator levels and counsellor to help students if they having problem in return for an advice and opinion to rectify their problem.

Therefore, the Major Recommendation System is developing to solve this issue. Major Recommendation System is a Decision Support System. The function of this system is to control of one or more decision making by providing an organize set of tools to impose structure portion of the decision making situation and to improve the ultimate effectiveness of the results.

The development of this system is to help student for the recommendation of the suitable majoring based on their PMR grades. The system will show the list of subjects that students will learn.

## **1.2 Problem Statement**

There are several problems that have been face by the PMR former student after they get their PMR result. They need to choose what is the suitable majoring that can they take based on their result. They will have problem to choose the majoring.

Besides that, they need to meet the coordinator level or counsellor to discuss their problem on choosing the right majors. Not all the time, the counsellor or coordinator levels are available when the students need them the most.

## **1.3 Objective**

In order to develop the Major Recommendation System based on PMR result, the overall objectives of this system are:

- i. To design the prototype of Major Recommendation System based on PMR result.
- ii. To recommend the suitable majoring for PMR former student.
- iii. To enable the student to get the list of subject of majoring that it need to take.

## **1.4 Scope**

The scopes of this project are:

- i. Develop for Sekolah Menengah Kebangsaan Bukit Baru (SMKBB).
- ii. The users of this system are student and administrator SMKBB.
- iii. This system will recommend the suitable majoring for the student and give the list of subject about the majoring. Then, the student also can reserve the majoring if satisfied with the recommendation. The administrator can update the status of reservation.
- iv. This system is a Decision Support System.



## **1.5 Thesis Organization**

This thesis is divided into 6 chapters and each chapter is devoted to discuss different issue in the project. Below is a summary of the content for each chapter:

i. Chapter 1

Introduction to the project is presented along with the project's problem statement, objectives of the project and the scopes of the project.

ii. Chapter 2

Research and literature review related to the project is presented.

iii. Chapter 3

Project analysis, design and methodology is presented.

iv. Chapter 4

Implementation of the coding of the system is presented in this chapter.

v. Chapter 5

Result from the testing of the system is presented along with the user testing result and the developer testing as well as the discussion on the result.

vi. Chapter 6

Summary of the project is presented.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter will explain about the existing system, algorithm, techniques and the tools that will be used in order to develop this system. For system requirement interview and observation process had been done with the SMKBB's coordinator level 4 and counsellor.

Generally, Major Recommendation System Based on PMR Result will facilitate PMR former student to choose the suitable majoring. This system can help student to find the suitable majoring based on their PMR result and get the list of subject about the majoring.

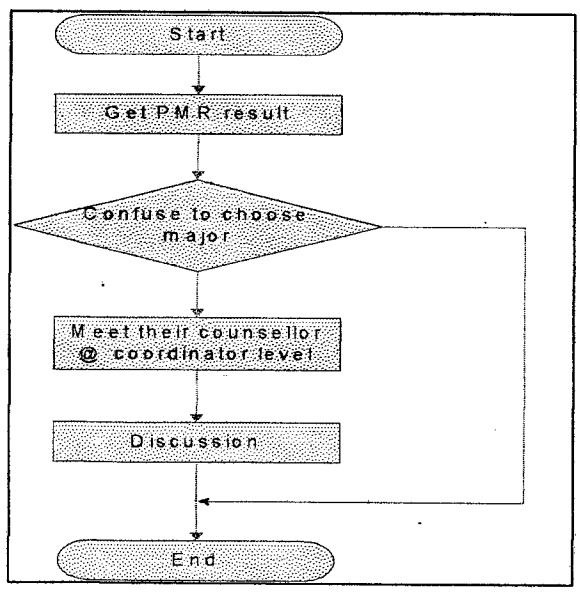
In term of technology, this system will developed using Macromedia Dreamweaver for the interface, PHP for the programming language and MySQL for the database.

## 2.2 Current System

Penilaian Menengah Rendah (PMR) is a Malaysian public examination taken by Form 3 student. It was formerly known as Lower Certificate of Education (LCE) and Sijil Rendah Pelajaran (SRP). The subject in this exam includes Bahasa Malaysia, English, Mathematics, Science, Geography, History, Living Skill and Islamic Studies / Moral [1].

After get the result, mostly students meet the coordinator level or counsellor to discuss about their result and ask at them what the best majoring that can it choose. The counsellor or coordinator level can give their opinion and recommend at the student for the best majoring suitable with their result. Then, the counsellor or coordinator level will be given the list of subject about that majoring will student learn.

Every school will offer more majoring that can PMR former student choose. Furthermore, each majoring has their own condition or procedures that must student pass to choose the majoring. The condition based on PMR result.



**Figure 2.1** Flowchart for student solve their problem

Figure 2.1 shows the flowchart for students solve their problem. After get their PMR result, most student confuse to choose the best majoring to it continue their study. Then, it can meet their counsellor or coordinator level to discuss about their problem. The counsellor or coordinator level can help and give their opinion to the student.

### **2.3 Decision Support System**

Major Recommendation System based on PMR Result is a decision support system because the system will come out with one best decision after considering many rules and procedures that have been fixed by the admin.

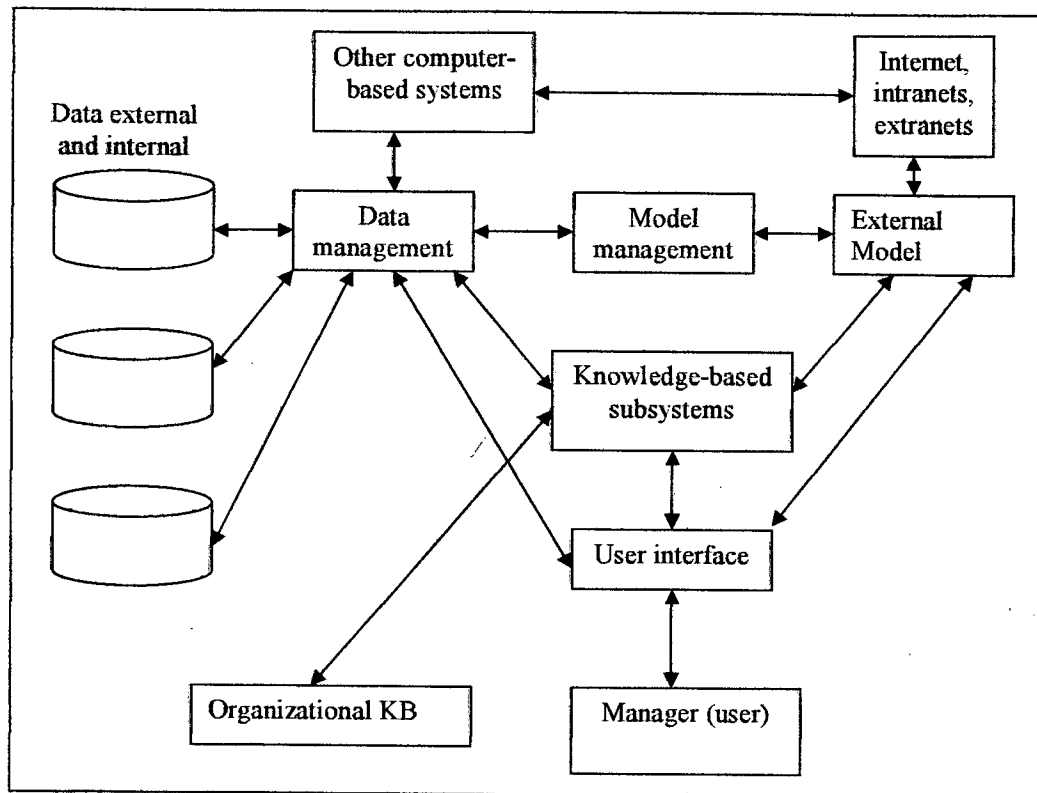
Decision support system is systems and subsystems that help people make decisions based on data that is culled from a wide range of sources [2].

#### **2.3.1 Characteristic of Decision Support System**

Decision Support System (DSS) has several characteristic. That characteristic is:

- i. Performs complex, sophisticated analysis and comparisons using advanced software packages.
- ii. Handles large amounts of data from different sources.
- iii. Provides report and presentation flexibility.
- iv. Offers both textual and graphical orientation.
- v. Supports optimization, satisfying, and heuristic approaches.

### 2.3.2 Decision Support System Architecture



**Figure 2.2** Components of Decision Support System

Figure 2.2 shows the components of decision support systems [3]. Data management subsystem includes a database that contains many data and managed by software called the database management system (DBMS). Model management subsystem is a software package that includes financial, statistical, management science, or any other models that provide appropriate software managements.

User interface is a place for user to communicate with the decision support systems through this subsystem. The web browser will provides a familiar, easy, user friendly and consistent graphical user interface structure for most decision support system.

Knowledge-based management system can support any of the other subsystems in the overall system or act as an independent component. It based on the methods and techniques of AI. The core components that involved are knowledge base and the inference mechanisms. Expert system, case-based reasoning

systems and neural networks is an example of knowledge based system that can be categorized in knowledge-based management system.

**Table 2.1 Common Characteristics of Decision Style Behaviors**

Basic style	Behavior under stress	Motivations	Problem-Solving Strategy	Nature of thought
Directive	Explosive, volatile	Power and status	Policies and procedures	Focused
Analytical	Focuses on rules	Challenge	Analysis and insight	Logical
Conceptual	Erratic, unpredictable	Recognition	Intuition and judgment	Creative
Behavioral	Avoidance	Peer acceptance	Feelings and instincts	Emotional

Table 2.1 shows the common characteristics of decision style behavior [3]. Directive basic style will be used in developing this system. To come out with the decision, all the policies and procedures need to be considered. However, the logical approach can still be used.

### **2.3.3 Advantages and Disadvantages of Decision Support System (DSS)**

#### **2.3.3.1 Advantages**

There are 5 main advantages that user can get by using DSS technique which is:

- i. **Time Savings [4].** Research has demonstrated that all categories of decision support systems reduce decision cycle time, increase employee productivity, and provide more information for decision

making. It also can save the cost by increasing efficiency or eliminating activities.

- ii. **Increased Decision Maker Satisfaction [4].** Decision support system can help reduce frustrations of decision makers by providing the perception that gives better information and ideas.
- iii. **Improved Interpersonal Communication [4].** Improved communication and collaboration between decision makers can be a best result of decision support system. Model-driven in decision support system allows users to share the facts and assumptions. Meanwhile, data-driven decision support system allows the fact-based decision making by creating one version of the truth about company operations available for the managers
- iv. **Increased Organizational Control [4].** Data-driven in decision support system often makes the business transaction data available for performance monitoring. Such system can provide users with an enhanced understanding of business operations, although the financial benefit from increasingly detailed data is not always immediately obvious.
- v. **Targeted Marketing [4].** Decision support system can be used to target a specific customer segment and gain the advantages in meeting the needs in some particular segment. It can help in order to track customers and make it easier to serve a specialized customer group.

### 2.3.3.2 Disadvantages

There are 4 main disadvantages that user must face when using this techniques which is:

- i. **Overemphasis on Decision Making [5].** The focus of building a computerized system is obviously for making a decision. However, overemphasis on decisions and decision making is repeatedly the result. It is crucial to educate managers about the broader context of decision making and when and under what circumstances decision support system should be used.
- ii. **Transfer of Power [5].** Building any form of decision support system may be seen as transferring the decision authority from a human brain to a software program. Decision support system should only be used to improve the decisions. Unfortunately, the system cannot capture all the complexities of human decision. Therefore, the human decision maker should still be a part of the process. The decision makers should always be considered the ultimate authority by accepting or ignoring the analyses and any other recommendations from the system.
- iii. **Unanticipated effects [5].** The implementation of the decision support technology may reduce the skills required to perform a decision task because some of the decision support system tend to overload the decision maker with information, that resulted the decreased of effectiveness in decision-making. The company may also be confronted with a lot of problems in order to developing a system that capable to assisting people in situations that neither the user nor the program can foresee.
- iv. **Obscuring Responsibility [5].** Some users might be deflecting personal responsibility to decision support system. Users may need to be continuously reminded that the computerized decision support system is an intermediary between the people who built the system