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DIETARY ADVISORY SYSTEM

ONG HUEI SEI

This report is submitted in partial fulfillment of the requirements for the Bachelor of Information Technology (Software Development).

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA
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ADMISSION

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DEDICATION

To my beloved parents...

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ABSTRAK

Tesis ini dibahagikan kepada dua bahagian, iaitu, Projek I dan Projek II. Projek I dijalan semasa di Semester Khas selama 8 minggu, manakala Projek II dijalankan pada masa yang sama dengan Semester 7. Sistem yang dibangunkan ialah Sistem Pemakanan Nasihat (*Dietary Advisory System*) untuk kegunaan staf dan pengguna di pusat kecergasan dan pusat kesihatan. Objektif-objektif untuk projek ini adalah untuk membangunakan satu sistem pintar yang akan membantu pengguna membuat pilihan betul atau tepat dan juga memberi informasi kesihatan kepada pengguna tanpa bayaran. Masalah-masalah yang dihadapi adalah sistem yang sedia ada tidak memberi informasi kesihatan kepada pengguna malah ia hanya untuk mendapatkan keuntungan daripada pengguna sahaja. Kepentingan-kepentingan DAS ialah ia dapat membantu pengguna membuat pilihan tepat semasa memilih pelan pemakanan yang sesuai dengan keperluan kesihatan mereka. Pengguna boleh memulakan proses analisa, mencipta menu makanan pilihan sendiri dan mencetak pelan makanan dan menu makanan dengan menggunakan DAS. Bagi sekuriti *Login* dan manipulasi data adalah tanggungjawab admin. Pilihan metodologi yang betul akan memainkan peranan yang penting dalam penghasilan produk perisian yang lengkap dan boleh dipercayai. *A Unified Software Development Process* (USDP) pendekatan dipilih sebagai teknik pembangunan projek dan *Unified Modeling Language* (UML) sebagai alat pembangunan DAS. Skop-skop DAS ialah *Login*, mereka menu makanan, mejawab soalan-soalan, manipulasi data, mencetak pelan makanan dan menu makanan. Kesimpulannya, saya berharap DAS dapat menghasilkan komponen yang berguna supaya pereka-pereka perisian yang lain boleh mencantum komponen-komponen ini dalam sistem penjagaan kesihatan yang lain di masa hadapan untuk terus membawa kepentingan kepada masyarakat.

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ABSTRACT

This thesis is divided into two parts; there are Project I and Project II. Project I will be carried out in Special Semester (8 weeks), while Project II in Semester 7. The system that I'm working on is Dietary Advisory System (DAS) for the staff and user in fitness centre or medical centre. The project objective is to develop a smart intelligence system that will help users to make a right or accurate decision and provide health care information to users without charging any payment. The problem that is mentions here is the existing system does not provide healthy information to the user whereas it aims to gain profits from the users. The DAS significance is that it will helps the users to make an accurate decision on choosing a suitable diet program plans for their health needs The user can start the analysis process, customize their own food menu and print analysis report and food menu report with DAS. The login security and data maintenance is performed by a administrator. The correct choice of methodology plays an essential role for the delivery of reliable and correct software products. A Unified Software Development Process (USDP) approach is choosing as the project development technique and Unified Modeling Language (UML) tool to develop DAS. Scopes areas of DAS are login, customize food menu, answer questionnaires, data manipulation, print diet plan and print food menu. In conclusion, I hope that DAS can provide reusable components so that other software developers can integrate the developed components into other health care system in the future to bring more benefits to the society.

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LIST OF ACRONYMS

DAS	-	Dietary Advisory System
DSS	-	Decision Support System
UML	-	Unified Modeling Language
KUTKM	-	Kolej Universiti Teknikal Kebangsaan Malaysia
OOSE	-	Object-Oriented Software Engineering
USDP	-	Unified Software Development Process
LAN	-	Local Area Network
WAN	-	Wide Area Network
CHESS	-	Comprehensive Health Enhancement Support System
CHSRA	-	Center for Health Systems Research and Analysis
SQL	-	Structured Query Language
RAM	-	Read Access Memory
ERD	-	Entity Relationship Diagram
BMI	-	Body Mass Index
NIC	-	Network Interface Card
PC	-	Personal Computer
PK	-	Primary Key
FK	-	Foreign Key
SDE	-	Software Development Environment
RAD	-	Rapid Application Development
GUI	-	Graphical User Interface
DBMS	-	Database Management System
PSM	-	Projek Sarjana Muda

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CHAPTER I

INTRODUCTION

1.1 Overview

The proposed system is known as Dietary Advisory System (DAS). This system will display a set of questionnaires and required the users to identify or choose, and then the system will help the users to make decision on the most appropriate dietary programs to their individual needs. A healthy food recipe based on the decision that users had made will be display as a result.

Besides that, the system also provide Calories Calculator feature which will helps the users to calculate the amount of food's calories they consumed for particular meals. Dietary Advisory System will include an intelligent feature that will help the users to make decision based on certain criteria or preferences. The proposed system is developing using the Decision Support System (DSS) concept. The purpose of the Dietary Advisory System is to help users who want to prevent weigh gain and to maintain a healthy lifestyle. Furthermore, the system also aims to help users make accurate choices for preferences with more than one diet program plans option.

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The identified problem of the existing system is aims for commercial purpose only and users need to pay for the information of the diet program plan provided. Users will be direct to a set of questionnaires and they need to select the accurate criteria or preferences given. Users will need to purchase the selected program plan at the end of the questioning. Other than that, the existing system is a web-based system for general use and it is not personalized for organization's need to guide users towards a correct way to healthy lifestyle. Moreover, the existing system aims to sell the unnecessary food supplements and diets products. Users may easily influenced by the selling products advertisement displayed on the web portal.

The proposed solutions to solved the above problems are developing a new system that will provide health advises and services to users without any payment and also to introduce an intelligent system that will gives users a comfortable feeling when using it as well as guided them towards a correct way to healthy lifestyle. Finally, the proposed system is developing using the Object-Oriented Software Engineering (OOSE) approach methodology. The methodology is using the Unified Software Development Process (USDP) approach the project development technique and Unified Modeling Language (UML) tool to develop DAS.

1.2 Problem Statements

The existing system in the market which has the similarity with the proposed system such as e-Diets.com and newimagecenter.com are reviewed. From the reviewed result, the conclusion that get is that most of the existing system is aims for the commercial purpose. The existing system will ask user to try their free profile, after that the system will analyze the input from the users and give a result. Normally, he result will suggest the users to try the company diet plan or programs by subscribing as a member or purchased the diet plans. Other than that, users also need to buy the company dietary products or supplements for the better result.

The existing system does not provide healthy information to the user whereas it aims to gain profits from the users. Sometimes, users will easily influenced by the diet products advertisement displayed in every page. The given information will

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attract users to buy the unnecessary diets supplements. Furthermore, the system also does not provide nutrition facts to the users. Users may not know the amount of calories they need to consume for each meal in order to stay in a healthy lifestyle.

Therefore, by developing Dietary Advisory System, users will able to achieve a lot of benefits such as free services or advices on diet information, able to know their personal eating habit, getting to know the calories of variable foods they can choose inside the system and so forth. The system is focusing on the dietary aspect only, others developers can integrate or combine this part into other health care system in the future to bring more benefits to the society.

1.3 Objective

- To develop a smart intelligence system that will help users to make a right or accurate decision

  The existing system is a web-based system for general use and it is not personalized for organization's need to guide users towards a correct way to healthy lifestyle. Therefore, by developing the Dietary Advisory System, users tends to identify, select, and choose the diet programs plans most appropriate to their individual needs.

- To provide health care information to users without charging any payment

  The existing system is for commercial purpose and users need to pay for the information provided. The system enables users to decide on the suitable dietary programs and let them print the result from the questionnaires that is the food recipe without charging any payment.

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- To focus on optimize the users food choices, not on selling unnecessary diets supplements

  The Dietary Advisory System will ensure that users will able to get the nutrients they need by eating real foods and not through expensive nutritional supplements. Users can print the food recipe from the diet program plan after they have completing the displayed preferences.

- To provide the users a quick and easy way to analyze the amount and quantity of nutrients they consume

  The proposed system will feature a function call Calories Calculator which will brings benefits to users who are interested in managing a proper diet for their lifestyle. All they need to do is choose the combination of the foods from the given list and system will calculate and display the amount of calories for those certain foods to users.

1.4 Scopes

Generally, the system is tending to the users who want to lose weight, maintain the current weight and to gain weight to stay in a healthy lifestyle. The scopes of the system are described as follow:-

(a) Administration Controlling

The controlling is handled by the administrator to protect the system from unauthorized user to enter to the system. This is to protect the accessibility of the system. The flow of the controlling is as describes in the following:-

- Administrator can login to the system to perform all activity while user cannot perform the maintenance activity
- Administrator and users can change password and retrieve password here in case they forget their password

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(b) Questionnaires Analysis

This is where the analysis of the suitable diet plan for the user based on the preferences user answer on the questionnaires. User need to provide their personal. Then, system will perform a calculation to determine the users Body Mass Index (BMI). Users will inform whether they are belonging to a normal or abnormal healthy level based on the BMI result. After that, system will displayed the available diet program plans for the users to print after analyzing the preferences user has choose earlier. User also can print their personal analysis report at end of the session

(c) Food Menu Customizing

Besides that, system also provides a feature for user to customize the food menu. Users have to select the combination from the given list and system will calculate and display the amount of calories to users. After that, user can print the food menu they have created.

(d) Food Menu Maintenance

Administrator can search the food menu record for modification like add, update and delete records. This is for the maintenance of the old record or the unused food menu.

(e) Database

The DAS database development is the second major emphasis in developing the system. The data that will be kept inside the database is the user analysis result, diet plan, food menu and login information. The database is developed using MySQL server.

(e) Distributed Computing Model

The distributed computing is applied to support the database sharing and information distribution throughout the network environment. The system is applying the Client Server model.

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1.5 Contributed

The system is developing for the general users who aim to prevent weight gain and to live in a healthy lifestyle besides be physically active each day. The system will helps the users to make an accurate decision on choosing a suitable diet program plans for their health needs. The system also make sure the users will achieved their diet goals by introduce them to a healthy foods and not through an unnecessary food supplement or diet pills.

Furthermore, the Dietary Advisory System also aims to provide reusable components so that other developers can make use of the developed components. The system is focusing on the dietary aspect only, others software developers can integrate or combine this part into other health care system in the future to bring more benefits to the society

1.6 Expected Output

At final of this project development, the expected output are all the functions like BMI calculating will calculated the data properly besides able to show users their health status so that they knew their personal health status and the most important part is the diet plan printing. The diet plan is display to users based on the preferences they had chosen in the questionnaires module, the result is correct and user can satisfied with it. The selection is based on the combinations of user's answers on the questionnaires module.

Other than that, DAS system also expected can able to helps user lose weight, maintain weight or gain back healthy weight through the available diet plans. Users will trust the system and keep on using it. Moreover, users also can keep the food menu that printed from the system and used them as a recipe to live in a healthy life.

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1.7 Conclusion

As a conclusion, DAS will bring a lot of benefits to the Health Care Industry as well as to the users' lifestyle. As already mentioned above, the system will helps the users to make an accurate decision on choosing a suitable diet program plans for their health needs. The system also make sure the users will achieved their goals by introduce them to a healthy foods and not through an unnecessary food supplement or diet pills.

Besides that, the system is providing a free service to the society and it also ensures that the users will able to analyze the amount and quality of nutrients they consume in a quick and easy way.

Finally, the Dietary Advisory System is a useful system and the featured component can be reuse or integrated into other health care system by other developers in future so that it can continue to bring benefits to society.

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CHAPTER II

LITERATURE REVIEW

2.1 Introduction

Literature review is significant to be conducted throughout a project development to obtain a better understanding on the system that will be developed. The purpose of the literature review is to assist in identifying the problems where ideas can produce to solve the unresolved problems from the readings or case studies that have been carry out. Subsequently, solutions will discover and develop to solve the identified problems.

Other than that, literature review also means to identify the suitable methodology for the project development. The methods that are useful, relevant and successful from the previous case studies are identified and take into consideration whether can be followed on the project development. Moreover, advantages and disadvantages of the previous case studies can be analyze and examine. A few web portals have been study and review to gather more information to be applied or to be improved in developing the Decision Support System for DAS.
The aspects that will review are:-

(a) System reusability

- analyze and determine whether the existing system components can be enhance or reuse again by other developers

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