FINANCIAL MANAGEMENT SYSTEM:
GOLDEN RULES OF DESIGN IMPLEMENTATION

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ABSTRACT

Many university students have problem with planning their spending. Most of the student got financial support by loan from Perbadanan Tabung Pendidikan Tinggi Nasional (PTPTN) and the loan was given for 1 semester duration. Some of the students already finish the loan before the semester ends and this create a problem as they might not have other source of income to support for the end of semester. Some student started to do small business and some will take loan from friends and family. They did not plan for the loan they get and finish them without them noticing it. The system will divide the money to separate portions to guide the users how much they can use the money and also have saving for future. This system will keep all the student transaction in and out from the pocket. The system can be access through internet from any computer which has internet connection. There are also wap support for small device such as hand phone to ease of inserting the transaction as it occur and commit. The system is updated real time, so student can always watch their financial state. This system developed by adding human heuristics principles in mind so that user can easily familiar with the system as they start using it. This can also reduce user frustration in using new system.

ABSTRAK

Kebanyakan pelajar universiti menghadapi masalah untuk mengatur perbelanjaan mereka. Sesetengah dari mereka mendapat pinjaman dari Perbadanan Tabung Pendidikan Nasional (PTPTN) dan pinjaman diberi untuk jangka masa satu semester. Sebilangan dari pelajar telah menghabiskan pinjaman sebelum habisnya semester. Sesetengah pelajar membuat perniagaan kecil-kecilan dan meminjam wang dari kawan-kawan dan keluarga. Pelajar-pelajar ini tidak merancang agaimana untuk menggunakan wang pinjaman yang mereka dapat dan menghabiskannya dalam masa yang pendek tanpa mereka sedari. Sistem ini akan membahagikan duit pinjaman kepada bahagian-bahagian tertentu bagi membantu pelajar melihat jumlah yang mereka patut gunakan dan mempunyai simpanan untuk masa depan.Sistem ini akan menjaga pengeluaran keluar masuk wang dari uncang mereka. Sistem ini boleh dilayari melalui talian dalam rangkaian dari mana-mana komputer yang mempunyai sambungan talian dalam rangkaian. Terdapat juga sokongan WAP dari alatan yang kecil seperti telefon bimbit untuk memudahkan pengguna memasukkan pengeluaran wang yang berlaku. Sistem ini sentiasa diperbaharui, oleh yang demikian, pelajar boleh selalu memerhati tahap kewangan mereka. Sistem ini dibangunkan dengan mengambil kira prinsip heuristik pengguna supaya pengguna cepat membiasakan diri dengan persekitaran system walaupun baru pertama kali menggunakannya. Ini juga bagi mengelakkan pengguna menjadi bingung ketika menggunakan sistem ini

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LIST OF ABBREVIATIONS

HCI	Human Computer Interaction
RAD	Rapid Application Development
SDLC	Software Development Life Cycle
XP	Extreme Programming
JAD	Joint Application Development
QFD	Quality Function Deployment
PTPTN	Perbadanan Tabung Pendidikan Tinggi Nasional

CHAPTER 1

INTRODUCTION

1.1 Introduction

Financial Planning has been a major issue in Malaysia. Government views these problems as very serious problems. Malaysian citizen are not thoroughly exposed to the financial planning session from a young age. As the results, the spending are not organize and planned well end up been a great challenge when they are going to retire. With just EPF as the source of income is not enough to support Malaysians retirement lifestyle. More than 50% of those who sought Agensi Kaunseling dan Pengurusan Kredit (AKPK) assistance were below the age of 40. Many of them said that they got into financial trouble because they had low level of under-standing of basic financial literacy [1]. Studies made by AKPK done with 80 young working adult graduates in various disciplines, who had been working between 1 – 2 years shown that all these working adults agreed that early personal financial education is important and believe that if they had been taught personal financial education, they would be better able to manage their finances.

As these professionals are so busy with their works, they sometimes got less time to manage their spending and cash flow leading them to spend less than their

income. This financial planning should start from the university onward. Many people think that financial planning is a hassle and that it stops them from doing fun things. Some of them did not know what to plan and what should they buy. As the time passed by, they actual value of the money is drop from its value today. So, a constant review must be done so that the financial planning is adequate by the time.

AKPK has given the 6 steps in financial planning process which is assess current financial situation, develop financial goal, determine action, evaluate alternatives, create financial plans, review financial plan. The most important thing in financial planning is to understand the compounding effects.

1.2   Problem Statement

A questionnaire has been distributed to Universiti Malaysia Pahang (UMP) student. From the feedbacks, it has shown that 71.42% of University Malaysia Pahang students do financial planning for their future but they found out that the manual financial planning is a tedious works which consumes a lot of effort and times. Also, from the finding 22.22% from the respondent does not even know or care about financial planning. In most cases, they don't do the financial planning because of it is a time consuming and hard to do and many don't know how to do it. Many spend their time doing other thing and there are no allocations of time for financial assessment. Before the end of the semester, many students have finished their PTPTN allowance before the semester ends.

From the survey that has been conducted to 63 participant from UMP student, there two major problem that been face by student to do a financial planning:

1)   It is a very time consuming to sit back and keep track all the transaction that has been done for the past 1 month duration.

2)   No or little knowledge to do a financial planning the right way.

This new system should be able to handle this problem by creating an easy to use and user friendly interface.

1.3 Objective

The objectives of this project are:

a)   Assist University Malaysia Pahang students in doing financial planning implementing Human Computer Interaction techniques.

b)   Reduce time in doing financial planning.

1.4 Scope

The scopes of this project are:

a)   User: University Malaysian Pahang students.

b)   System: A web-based system for regular computer's browser and also for mobile's browser.

c)   Modules: There are 3 main modules which are registration, daily transaction and summary. All the three module will help to assist student while they study in UMP.

1.5 Thesis Organization

This thesis is consists of 6 chapters.

Chapter 1 is discussing on introduction to the project which is presented along with the project's problem statement, objectives of the project and the scopes of the project.

Chapter 2 is discussing on literature review which is contained the researches to related articles and sources about the project.

Chapter 3 is discussing on methodology. The project planning, analysis, design, development, testing and specification of hardware and software are presented.

Chapter 4 is briefly explained about the implementation process to build this system. Implementation of the coding of the system is presented in this chapter according to methodology.

Chapter 5 is briefly explained the result and discussion after implementation of the system. The test result from the system is presented along with the user testing result and the developer testing, the advantages and disadvantages of the system, the constraint occur when develop the project, and assumption and future research about the system are presented.

Chapter 6 is briefly explained about the conclusion of the project. The summary of the project is presented.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter will discuss on previous system or research that has been conducted. Comparison of system or research in term of methodology and technique that has been used and also suggestion of technique that best suit the future development. The information gathered is from books, journal, articles, internet and newspapers.

2.2 Case Studies

Many university students have problem with planning their spending. Most of the student got financial support by loan from Perbadanan Tabung Pendidikan Tinggi Nasional (PTPTN) and the loan was given for 1 semester duration. Some of the students already finish the loan before the semester ends and this create a problem as they might not have other source of income to support for the end of semester. Some student started to do small business and some will take loan from friends and family. This problem occurred as many of them did not do any financial planning and lost track of their

spending. Many give excused that it is really hard and time consuming to do a financial assessment. Universiti Malaysia Pahang (UMP) student are lack of interest in financial planning as many of program done by Unit Hal Ehwal Pelajar & Alumni (HEPA) did not get much participation from UMP students. Many students did not kept their spending receipt and just throw it away. They did not know how much they have spent and their current spending status.

2.2.1 Manual system

Manual system is done by using paper with rows and columns to show flow of cash in and out. The papers must be kept for future references and lost of this papers will result in inaccuracy of financial planning. Many people have problem with keeping this papers for future use as result of misplace, forgotten and other reasons.

2.2.1.1 Net Worth

Net worth is a simple method to see where your financial are standing. Cash flow can be calculate using a personal balance sheet that list out your assets and liabilities and show the net worth(spending position) after the total liabilities are deducted from total assets value. Before one does a financial planning, they should do a net worth test first to see their financial state.

Table 2.0: Example of Personal Balance Sheet

Personal Balance Sheet as at 31ˢᵗ December 2006			
ASSETS Properties Motor vehicle(s) Shares Bank accounts Other Investments		LIABILITIES Bank loans Hire purchase Overdrafts Credit card balances	
Total Assets (A)		Total Liabilities (B)	
Net Worth (A-B) =			

2.2.1.2 Cash Flow

A cash flow can be view as the flow of money from pocket which is lifeblood of every individual and business. Whenever ones receive money (income) called a cash inflow. Whenever the money comes out of the pocket (expenses), it is called a cash outflow. In the concept of cash flow, if total income exceeds total expenses it is called a surplus. If total expenses exceed total income, it is deficit. In deficit situation, the expenses are financed by debt. The objective of cash flow planning is to ensure that the individual's cash position is steadied.

Table 2.1: Example of Cash Flow Management

Cash FlowStatement For the Year Ended 31st December 2006			
INCOME		EXPENSES	
Salary		Monthly Commitments	
Bonus		EPF	
Business Income		Income Tax	
Interests		Mortgage repayments	
Rentals		Car loan repayments	
Dividends		Rental payable	
		Insurance premiums	
		Investments (Regular)	
		Household:	
		Groceries	
		Clothing	
		Education fees	
		Medical bills	
		Entertainment	
		Travel	
		Utilities:	
		Electricity	
		Water	
		Telephone	
		Handphone	
		Satellite TV	
		Internet broadband	
		Transportation:	
		Petrol	
		Parking & toll	
		Car maintenance	
Total Income (A)		Total Expenses (B)	
Net Cash Flow (A – B) =			

2.2.1.3 Debts

Debts create liabilities that may hurt the future if improperly managed. It is necessary in daily lives and is useful if it is applied in the proper manner. When abused, it can lead to total broke and insolvency.

Strategies for dealing with your debts:

1. Organize debts

2. Settle debts with highest interest rates first.

3. Negotiate for a better deal.

2.2.1.4 Relationship between cash flow and net worth

The purpose of financial planning is to increase the net worth so that some portion of it can be used for meeting future goals and the balance retained as your legacy for your family or for other purposes. If we have a surplus cash inflow for the month, we can channel them toward the accumulation of funds (assets), effectively increasing out net worth.
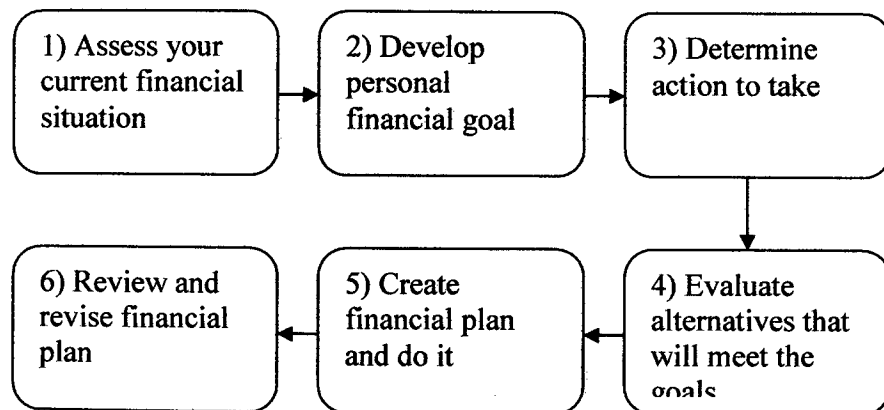

Figure 2.0: Personal Financial Planning Process

2.2.2 Mint.com

Figure 2.1: The interface of mint.com

Mint.com is web-based financial planning (spending tracker) software. A free application that able user to register free and use the system without obligation to pay. The system are connected to major banks in America and credit card company allowing the system to keep track all your spending from credit card and banking automatically. When user first login to the system, they must add their bank account to proceed to all the function and see their net worth. The system is secure as it is verified by VeriSign, a well known internet certified provider. Although you add the bank information into the website, you or anyone else cannot transfer your money from the bank account. All the information is for viewing and analysis purpose only. There are no ways to use the system with out adding bank information. Using the system user will see where they spend their money, understand how their investments are performing, and set up realistic budgets. User can set up email and SMS alerts and they will be automatically updated whenever there's an important change in finances. The system personalized ways to save money, using patent-pending software which analyzes user current spending.
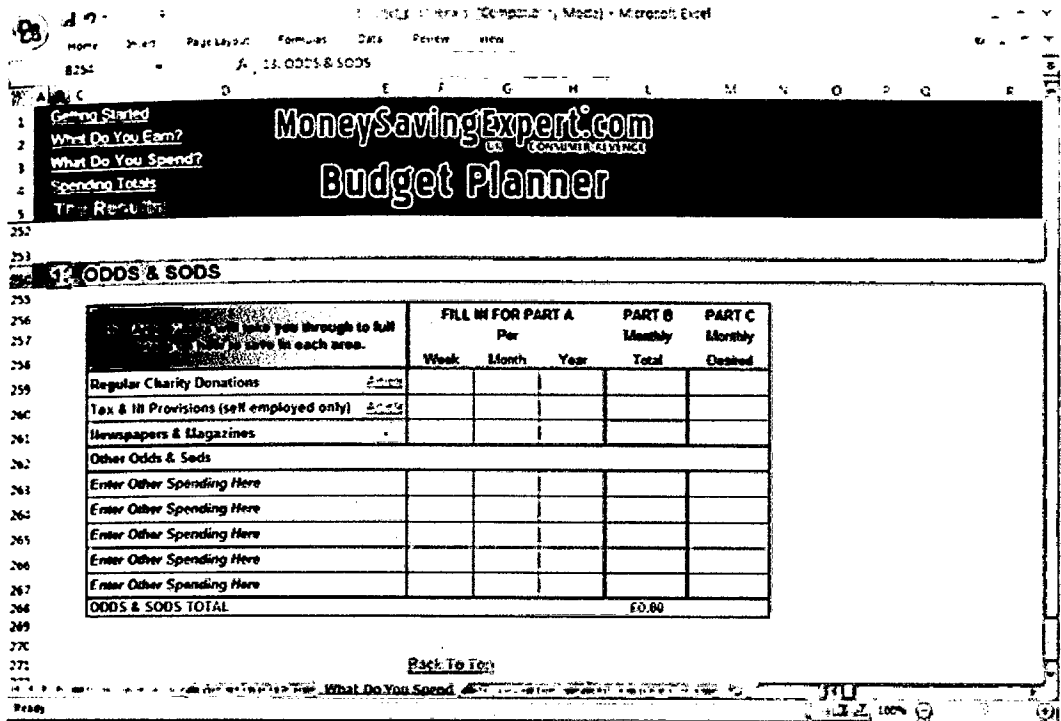
2.2.3   Budget Planner

Figure 2.2: The interface of budget planner

Budget planner is a simple tools using Microsoft office excel to calculate the net worth of person. By filling all the required fill, you can see where are your financial state. First, user has to fill in all their income from the entire source according to the annually, monthly or weekly basis. User can only choose for weekly, monthly or annually income and system will calculate the total income for each source as a monthly basis. After user have insert all the income source, proceed to the next step which is to see how much did user spend. For the spending, it is categorize into 13 categories which suitable for most of regular people can use. User has to fill in the entire necessary column and for each item, user can only choose as weekly, monthly and annually basis. System will show error if user add more than two spending period. After all been filled out, user has to proceed to the next step which is the tools. Here, user can see which category did they spend the most and which spend for less.

Now, user can add how much they want budget on each category and it will be shown in the pie graph. The total income will minus the spending and user net worth can be measured. The problem with this system is it require Microsoft Excel to be installed in the user's computer, the system does not has control over user input data such as integer, character or symbol and the data is for one time use only. If user needs to add new month spending and income, user needs to clear all the previous data.User are not able to add their own category for the spending or income.
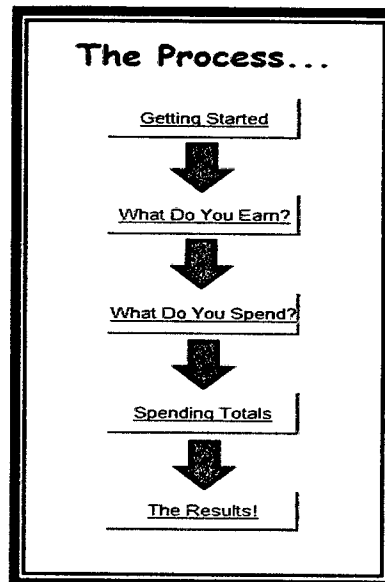

Figure 2.3: Process flow in budget planner software

2.2.4 Summary

From the through analysis of the current system, it can conclude that the current system still need improvement as it lack of error prevention as in the manual system and the budget planner. User might do error that they did not notice. The mint.com website cannot be used by malaysian as they did not have US bank account. The manual system require more effort and hard to do. It does not guide user. All data from previous month has to be analyze back to do current month planning. The budget planner does not allow user to add new category to the calculation.

2.3 Human Computer Interaction (HCI)

Human–computer interaction (HCI) is the study of interaction between people (users) and computers [2]. It is often regarded as the intersection of computer science, behavioral sciences, design and several other fields of study. Interaction between users and computers occurs at the user interface which includes both software and hardware. For example, characters or objects displayed by software on a personal computer's monitor, input received from users via hardware peripherals such as keyboards and mice, and other user interactions with large-scale computerized systems such as aircraft and power plants. The Association for Computing Machinery defines human-computer interaction as "a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them. An important facet of HCI is the securing of user satisfaction (see Computer user satisfaction).

Because human-computer interaction studies a human and a machine in conjunction, it draws from supporting knowledge on both the machine and the human side. On the machine side, techniques in computer graphics, operating systems, programming languages, and development environments are relevant. On the human side, communication theory, graphic and industrial design disciplines, linguistics, social sciences, cognitive psychology, and human factors are relevant. Engineering and design methods are also relevant. Due to the multidisciplinary nature of HCI, people with different backgrounds contribute to its success. HCI is also sometimes referred to as man–machine interaction (MMI) or computer–human interaction (CHI).