

**Financial Helper: Financial Software for Startup Small Medium Entrepreneur and
Novice Investor**

by

Syafirul Ezwan Bin Hishamuddin

Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Technology (Hons)
(Information Communication Technology)

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CERTIFICATION OF APPROVAL

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A project dissertation submitted to the
Information Technology Programme
Universiti Teknologi PETRONAS
in partial fulfillment of the requirement for the
BACHELOR OF TECHNOLOGY (Hons)
(INFORMATION COMMUNICATION TECHNOLOGY)

Approved by,

(Dr. Wan Fatimah Wan Ahmad)

UNIVERSITI TEKNOLOGI PETRONAS
TRONOH, PERAK
JULY 2005
CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in the project, that the originality work is my own except as specified in the references and acknowledgements and that the original work contain herein have not been undertaken or done by unspecified sources or persons.

SYAFIRUL EZWAN BIN HISHAMUDDIN

ABSTRACT

The primary objective of this study is to develop a financial analysis application and is tailored for the use in Malaysia. The target users for the application are the Small Medium Enterprise as well as normal entrepreneurs which possess limited knowledge of financial analysis and calculations. As a second objective this project will also explore the capabilities and extent of Macromedia Flash MX 2004 with Action Script 2.0 as programming tools. There will be two methodology used through out the study: research methodology and design methodology. For the research methodology, questionnaires and evaluation will be used based on current available financial software. For the design methodology, prototyping will be used to create fast-build prototype for evaluation. To gain full understanding on this study, two areas needed to be covered first; financial theories and ActionScript programming including using Macromedia Flash MX 2004 as a design platform. As a conclusion, this study will enhance current financial application and software in three areas: specialization on Malaysian market, direct update from developer's database and attractive graphical user interface (GUI). This project will also try to prove that Macromedia Flash will have a bright future; not only as a presentation wizard and animation tools, but also as a programming tools, breaking the monopoly of previous programming tools (visual basic.net, C++, etc).

ACKNOWLEDGEMENT

My greatest praise to Allah that I have finally finished this report for the Final Year Project. In honesty, I believe that this project is the most challenging, incomparable to all other projects that I had participate before. Faced with unclear path, time constraint and sleepless nights, there were times where I felt that this project it is not worth the effort. Thankfully, I am being blessed by the people around me that never stop to encourage me to continue this difficult task. In this moment of opportunity, I would like to extend my greatest and most sincere gratitude to all of them for the support and motivations that had been given to me.

Beginning my list, I would like to thank my supervisor; Dr. Wan Fatimah Binti Wan Ahmad for all the effort and time spent supervising my involvement in this project. It would be hard for me to finish this daunting task without her understanding and cooperation. A also would like to give my most sincere acknowledgement to all Final Year Project coordinators and to the lectures of University Technology of PETRONAS for their knowledge and advice that truly helps me to improve this project. To my friends, I would not forget your ideas and critiques that help me to develop and finish this task. My highest gratitude would be for my family for their understanding, cooperation, advice and moral support that I needed most to complete this project. Last but not the lease, I give my gratitude to all the people that involves either directly or indirectly with this project.

Once again, to all those that have been mentioned and those who I might forget to mention, thank you for your support and cooperation. May god always be with you.

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ABBREVIATIONS

| | |
|-------------|--|
| ACCA | Association of Chartered Certified Accountants |
| ACP | Average Collection Period |
| APP | Average Payment Period |
| Co. | Company |
| COGS | Cost of Goods Sold |
| EBIT | Earnings before Interest & Tax |
| EBT | Earnings before Interest |
| FRS | Financial Reporting Standards |
| FYP | Final Year Project |
| GUI | Graphical User Interface |
| IFRS | International Financial Reporting Standards |
| IAS | International Accounting Standards |
| IASB | International Accounting Standards Board |
| IASC | International Accounting Standards Council |

| | |
|-------------------|---|
| MASB | Malaysian Accounting Standards Board |
| MASB ED | Malaysian Accounting Standards Board Exposure Draft |
| ROA | Return on Assets |
| ROE | Return on Equity |
| Sdn. Bhd. | Sendirian Berhad (Private Limited) |
| SME / SMEs | Small & Medium Entrepreneur (s) |
| UTP | University Technology of PETRONAS |

CHAPTER 1

INTRODUCTION

1. OVERVIEW

Most people around the globe spent half of their day with one thing in their mind; making money. It does not matter whether a person owns a business or a person works for the people owning businesses; they all share the same stated goal. As the famous quote goes, "*Money makes the world turn around*". And truthfully, it does. What most people do not share in common, however, is the knowledge to manipulate the money. That is what separates normal people from entrepreneurs and investors. An entrepreneur or an investor sees money as an assets; a source to make more money, while normal people sees money as benefits for all their sacrifice and end up spending (read: finishing) the money they have. To spend the money is not a problem, but wouldn't it be nice to use the money to generate more money so that you would not have to work that hard in the future? The solution for the question lies in the ability to manage the money and like all entrepreneurs do; they invest it. And here is where I think financial tools could be a great help in improving our lives and also the reason why I choose this topic for my FYP project. Let us be entrepreneurs ourselves.

Macromedia products; especially Flash, has been my interest for the past years. Starting from doing dynamic presentations, I move on to create simple animations for my own personal enjoyment. Last year I had found another thing that attracts my attention. Macromedia Flash can be used as a programming tool. Unfortunately, in University Technology of PETRONAS, there is limited exposure on the programming side of Flash. Hence, with the opportunity given to me, I choose to combine both topics that interest me; namely financial and Flash, as my project.

1.1. Background of Study

According to Oxford Advance Learner's dictionary (page 420), an 'Entrepreneur' is a person who makes money by starting or running businesses, especially when this involves taking financial risk. While an 'Investor', is a person or an organization that invest money. While both terms seems different in the first place, they actually share the same modus operandi of making money; which is investing their money in new or existing business and make profit from either the earnings, dividends or shares. Although it seems an easy thing to do, there is such thing as risk that must be evaluate before spending millions of ringgit for the stated purpose.

Starting up a business is not an easy task. To be successful, an entrepreneur investing in a new business must be well informed about the company's performance as well as day-to-day operations. Where was the money being spent? How much profit could be generated by spending a certain amount of money in certain areas? How is the company doing previous month? Is it feasible to continue the operations? These are among the questions that must be looked into thoroughly by an entrepreneur to ensure a profitable business. For an investor, the situation is much more chaotic. The stock market is not a straight forward game. What seems to be profitable in the morning could be shocking news in the evening. Without clear information on the trend of the market and most importantly the information on the company performance, an investor would be investing blindly and hard to succeed in making the target profit.

For a large company or those who have huge amount of capital, they could easily solve these problems by paying financial consultants to do the work for them. But how about those who does not have the capability especially those who live around small and medium business? What choice do they have? This is why it is quite beneficial for them to have the knowledge them selves or at the least have some tools to help them in their business.

This study will be focusing on creating financial application to help entrepreneurs and investors to analyze the performance of a company based on the company's accounting

record. To create such application, several things need to be study first. The most important aspect is the financial theories and fundamentals, focusing the study on the Malaysian market. On the developmental aspect of the application, as the application will be developed using new programming tool, the tool itself (Macromedia Flash with ActionScript) will be under the scope of study. Its capabilities, benefits and feasibility will be put under test.

1.2. Problem Statement

1.2.1. Problem Identification

What separates good entrepreneurs and investors from the bad? From general observation, three major problems could be concluded. Capital, knowledge and experience. Capital is the amount of money or assets that could be use to generate or sustain a business. Without capital, a company cannot be run. Capital can be obtain though private funding or bank loans and in any hand, should have been gathered first before starting any king of business. Experience cannot be teach or seek. It comes from countless amount of time conducting a project or activity. Knowledge, however, can be sought and learned.

The only problem is, sometimes the amount of time needed to acquire knowledge to conduct a good business is not enough and exhausting. New entrepreneurs in the small and medium industry tend to lack the knowledge and capabilities to run a good business. Most start up entrepreneurs has the capital needed but spends it unwisely resulting in a loss. Due to their lack of knowledge in analyzing their company's performance, they failed to identify problems and find a solution for it.

1.2.2. Significant of Project

A company performance is measured by its ability not only to sustain itself but also to generate income. The financial factor is the pinnacle in determining both aspects. Thus it is planned that the final product of this project will be able to assist entrepreneurs and investors to analyze a company's performance through its accounting records. Using important ratios and analysis tools, the product can perform performance comparison either for quarterly performance or yearly performance. The product also can generate performance comparison between two companies. A company's flaws and advantage can be seen clearly for further planning and action through these analyses. For an entrepreneur with limited knowledge about financial accounting, this product will be a great help for them to manage their company. And for the investors, this product will provide a capability to analysis companies that have strong financial background to invest into. With both benefits, this product would truly be a gem for them.

1.3. Objectives and Scopes of Study

1.3.1. Objectives

The main objectives of this study are as follows:

- To create a financial application that will be used to help entrepreneurs and investors in analyzing and making decision
 - The application must have a complete analyzing tools for the objective
 - The application must also provide enough data presentation from the analysis
 - The application must provide information on the use of each financial function and calculation
 - The application must also be user friendly and appealing aesthetically
- To create the desired application, a study must be done on the financial and business principle
 - The study must be focusing on the financial aspects that could determine a company's worth and performance.

- The study must also include a research on basic financial accounting principle that will be the main basis of the desired application.

The secondary objectives of this project are as follows:

- To determine whether Macromedia Flash 7 (MX 2004) with ActionScript 2.0 can be used as a programming tools
- To determine the strength, weakness and to what extent the software could be used as a programming tools.

1.3.2. Scopes of Study

As the project objective is mainly to create an application for financial purpose, the scope of study will mostly be about businesses. The scopes of study list will be as follows:

- Financial ratios and analysis
- Financial accounting principles
- ActionScript programming and Macromedia Flash 7 (MX 2004)

CHAPTER 2

LITERATURE REVIEW

“The year 2005 marks the start of a new era in financial reporting globally with the introduction of a common set of measurement and recognition rules that should be adopted in the preparation of annual financial statements. The main objective of creating a single set of international rules – International Financial Reporting Standards (IFRS) – is to ensure convergence of all the different reporting regimes worldwide.

Inevitably, all these new developments would and have already impacted the Malaysian reporting environment with the MASB (Malaysian Accounting Standards) being renamed as FRS (Financial Reporting Standards) beginning 1 January 2005. More than half of the existing MASB are currently undergoing revisions to achieve convergence with the IFRS.

Due to this, it is imperative that preparers and users of financial statements keep themselves up-to-speed with the latest developments in respect of financial reporting. To this end, this seminar attempts to summarize the main and significant areas brought about by the new IFRS already issued and the revisions brought about by the MASB ED Improvements standards.”

ACCA-MAS (2005)

2. OVERVIEW

Every country in the world has a set of accounting standards that they used in every business daily. These set of standards are derived from the former International Accounting Standards but tailored to suit their country's needs. In the year 2000, the United States of America had proposed a plan to integrate all the accounting standards into one standard. The motives were easy and plain to see. Under separate accounting standards, there would be difficulties when dealing with international business. Multinational conglomerates would find the situation as a hassle. The solution is: one standard for all.

Malaysian financial standards are handled by the Malaysian Accounting Standards Board (MASB). Before this, they have set their own standards according to the nation's interest. However, starting from November 2000, Malaysia has joined the IFAD GAAP Convergence Studies which is championed by the United States of America and had started to adopt the International Financial Reporting Standards (IFRS) which replace the previous International Accounting Standards (IAS). In November 2005, MASB had proposed a complete restructure the Malaysian Accounting Standards in accordance to the IFRS

International Accounting Standards (IAS) was issued by the IAS Council (IASC) from 1973 to 2000. The IAS Board (IASB) replaced the IASC in 2001. Since then, the IAS Board has amended some IAS, has proposed to amend other IAS, has proposed to replace some IAS with new International Financial Reporting Standards (IFRS), and has adopted or proposed certain new IFRS on topics for which there was no previous IAS. Through committees, both the IASC and the IASB also have issued Interpretations of Standards. Financial statements may not be described as complying with IFRS unless they comply with all of the requirements of each applicable standard and each applicable interpretation.

2.1. Amendments to the Financial Reporting Act, 1997

Amendments to the Financial Reporting Act, 1997 (the Act) were gazette by Parliament of Malaysia on 31 December 2004 and took effect from 1 January 2005. The amendments, among other thing, allow foreign companies listed on a stock exchange in Malaysia to apply either:

MASB approved accounting standards; or any acceptable international accounting standards issued by accounting standards issuing bodies recognized by MASB under Section 26A of the Act.

The MASB Board, under its powers pursuant to Section 26A of the Act, approved the accounting standards issued by the following standards issuing bodies as acceptable international accounting standards:

- International Accounting Standards Board.
- Financial Accounting Standards Board, United States of America
- Accounting Standards Board, United Kingdom.
- Australian Accounting Standards Board, Australia. .

The amendments do not affect the required compliance with MASB accounting standards by Malaysian companies.

2.2. Software Review

There is a lot of financial system that has been developed in the market today. Some are design for the commercial use and some are custom made according to companies that request them. During my research, several software and applications were found in the mostly in the internet. One of them was designed and focuses more towards accounting reports and analysis. It is called the BNB Software - Financial Analysis version 2.17.

2.2.1. Background of the System

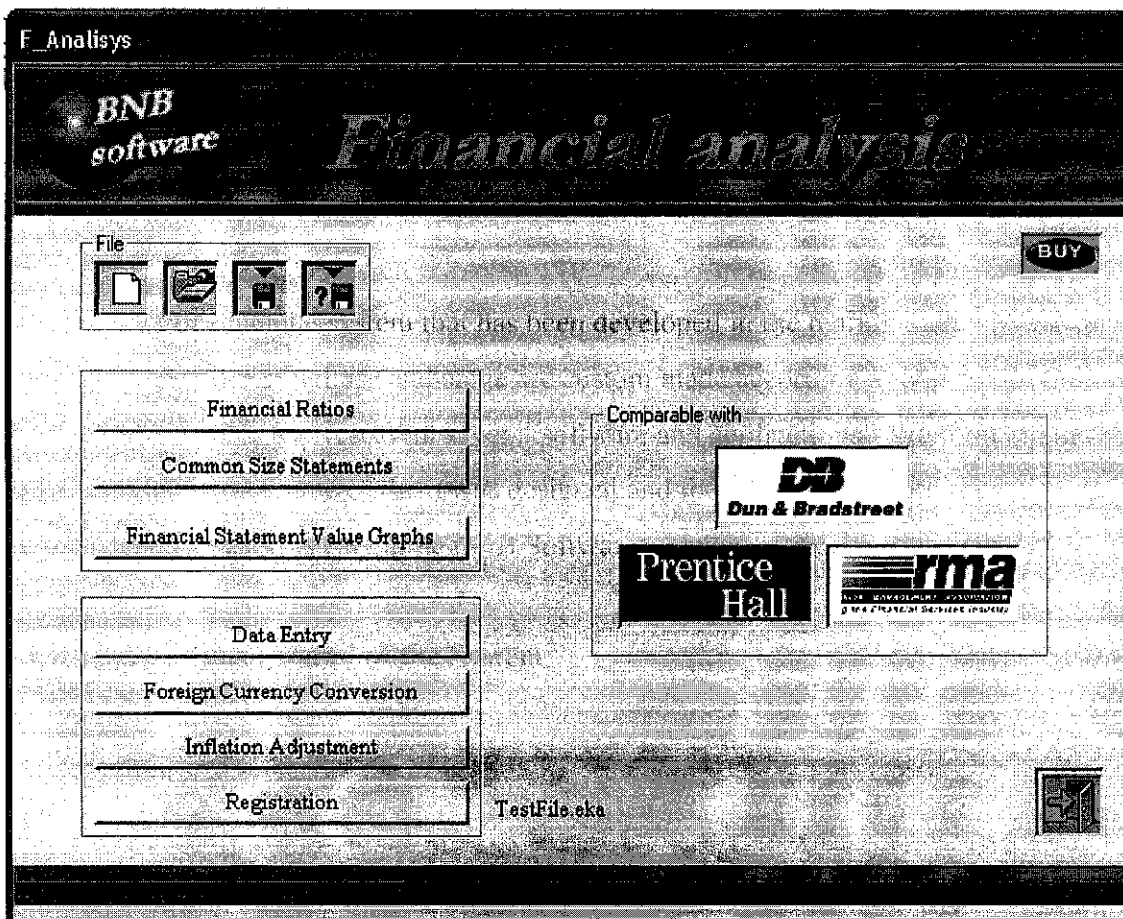


Figure 2.1: Main Page of the BNB Financial Analysis version 2.17

The system was developed by BNB Software in United States of America during the year 1995. It was developed mainly using Visual Basic 6 as its development tool.

Basically, the system contains most of the international standards that were used in the world. However, it also focuses more towards the accounting standards and principle that were being practice in United States of America and nations that were connect to it. The navigation of the system can prove a little bit tedious and not user friendly. There we little documentations for the system and also the system provide information in a way that most novice entrepreneur and investor find it hard to understand.

The most significant thing about the system is that the output of the system can be exported to other Microsoft Office application such as Excel and Words.

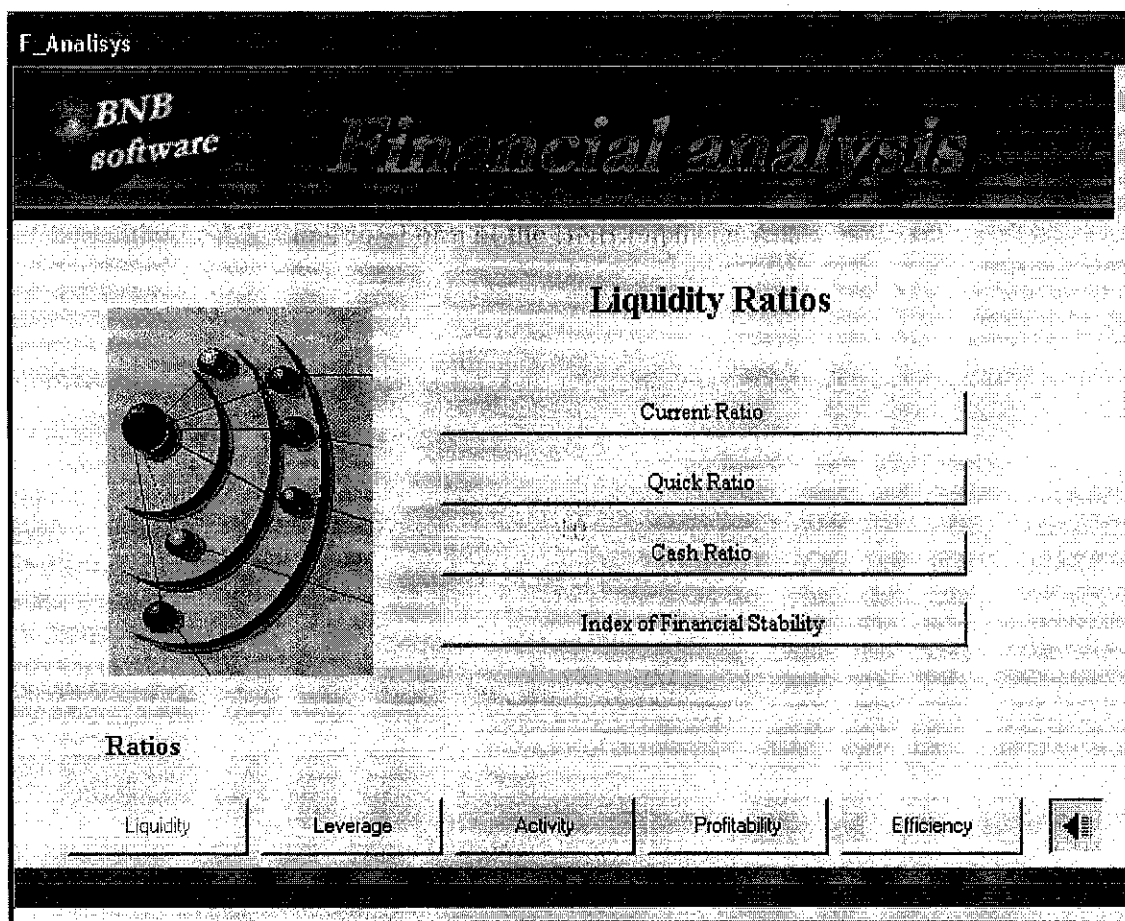


Figure 2.2: Liquidity Form of the BNB Financial Analysis version 2.17

CHAPTER 3

METHODOLOGY

3. OVERVIEW

This part of document will discuss on the methodology that will be used though out the study. This study will be based on two methodology; research methodology and development methodology. Research methodology is basically about the process of obtaining data or information and how the data collected is used in this study. The design methodology will elaborate the steps taken to develop the application. As for the design methodology, this project will use custom prototyping methodology. The details for all the methodology will be discussed in each of its separate sections.

3.1. Research Methodology

To gather the necessary information for the project, I have decided to use several methods that are a norm to any research project and study. The methods used according to frequency are: analysis, survey and questionnaires.

3.1.1. Analysis

According to the BBC English Dictionary, the word 'Analysis' means *a process of considering something in order to understand it or explain what it consist of*. True to the meaning, the method is used through out the study to discover the basic knowledge and foundation of finance. Each aspect of finance is being analyzed to determine how and why does it works so. Among the studied principles are marketing, accounting, financial documentation and financial analysis.

The method is also used on existing financial accounting application and software to determine the gist and the applied theories that are used in it. Further usage of the method includes the study of Malaysia financial standards in compare to international standards.

Besides analyzing the financial past, the method is also used to study the background and essence of Macromedia Flash 7. The study on Macromedia Flash 7 is divided to two sections. The main study is for the programming side which uses ActionScript 2.0 as it programming language. The second section is the study on Flash which is the graphical user's interface (GUI) authoring tool.

3.1.2. Survey and Questionnaires

Questionnaires are used are used to gather information and polarization of data from specific target which is the entrepreneurs and investors. In this study, however, the targeted populations are limited to the student who are taking financial courses, students from the Young Entrepreneurs Club and student who had recently joined the entrepreneurship competition held in UTP. The main advantage of using questionnaire is in its simplicity. It is easy to develop and easy to distribute. The method will ensure less time will be spent on data gathering and more time could be allocated to developing the desired application. In addition, the questionnaires can be easily distributed among the targeted population which will ensure the information to come from various backgrounds of students. Among the important variants includes the demographical information, experience in finance and accounting, knowledge and respondent's opinion on the topic.

Surveys are conducted to gather the macro data for the project. Though survey, information such as the percentage of entrepreneurs (entrepreneurs would be) that is financially savvy could be determine.

3.2. Design Methodology

In this project, the design methodology that will be used is the custom prototyping methodology. The main reason why prototyping is used is because it can easily produce result of the product development. The prototype will be developed in the forms of modules where each module is interrelated with each other. A data change in one module will effects the other modules. By developing the product in modules, it permits a small scale and controllable development. The modules are also easier to be tested and debug. Each module that is being developed will be tested and evaluated before moving to the next module. The diagram below will illustrate the methodology that is used for this project.

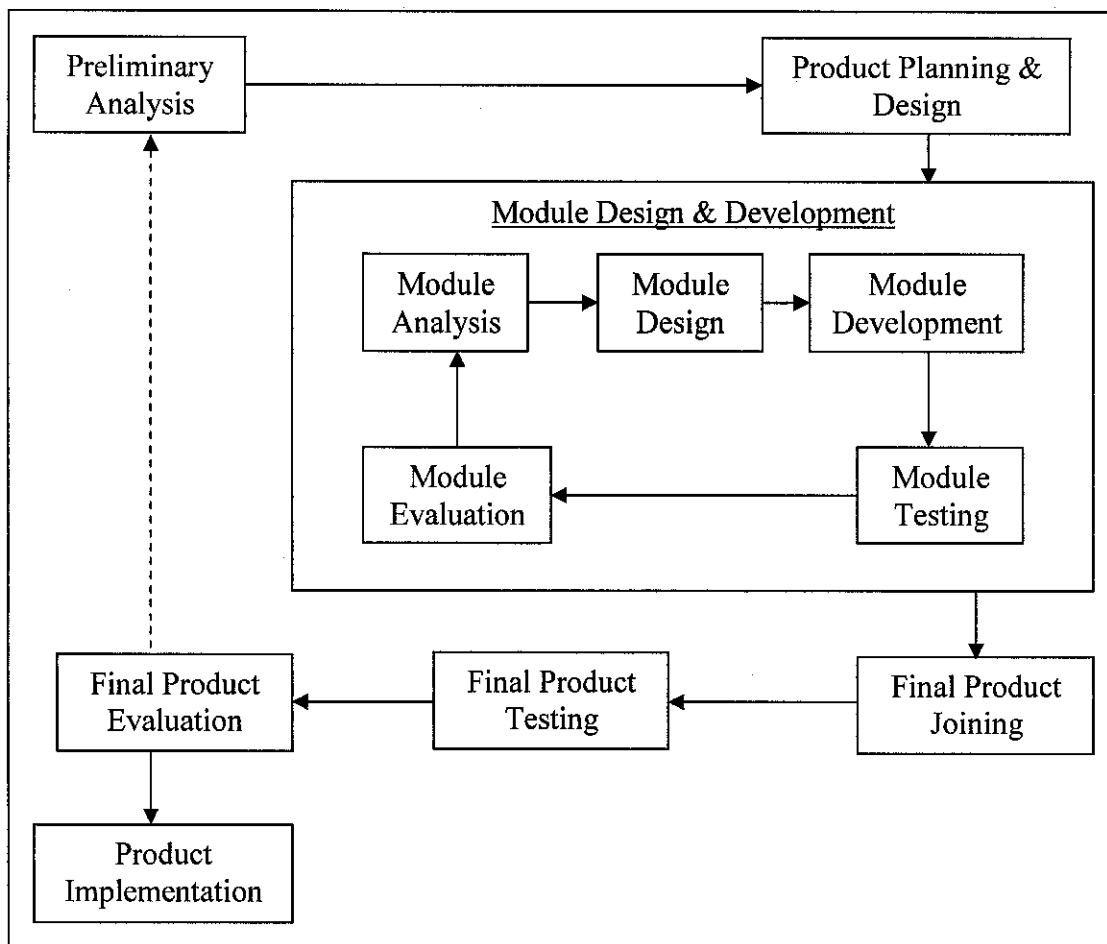


Figure 3.1: Custom Prototyping Methodology that is used in the project

3.2.1. Preliminary Analysis

Preliminary analysis is done to understand what is needed for the project. Among the documents that is analyze are information gathered from the research that has been done earlier. From the analysis, important information is secreted to form a basis of understanding of the product that will be developed. Among the documentations that are summarized from the analysis are:

- Product requirements & specifications
- Software / hardware specifications
- Documentation methods and storage

3.2.1.1.Product Requirements and Specifications

Product specifications need to be determined before the product development. It is an important document that will serve as a guideline for the project planning, design and development. Any changes that are done to the documents will affect the project development entirely. Thus it is important to determine the requirements and specifications thoroughly. From the documents, the product requirements & specifications are determined as follows:

- The product will contains income statement and balance sheet as the accounting tables.
- The accounting tables must be divided yearly and quarterly.
- User will be able to input data in the income statement and balance sheets.
- The application must be able to calculate any input or data automatically
- The application must provide ratio analysis as well as presentation for the analysis
- The product must have enough supporting information to help user understand any accounting concept or understand the application itself.

3.2.1.2. Software and Hardware Specifications

Software / hardware specifications will determine the tools and equipment that will be used to develop the project. Software / hardware limitations and advantage are being analyzed to determine what are the options and possible solutions for the development of the product. From the analysis, the software / hardware specifications are as follows:

- Hardware: Personal computer with processor ranging from Pentium 3 to Pentium 4 software. Graphic accelerator needed for better performance.
- Software: Macromedia Flash 7 (MX 2004), Macromedia Fireworks and Adobe Photoshop 5.0 will be used for the graphical user interface (GUI) design. Macromedia ActionScript 2.0 will be used in conjunction with Flash for the coding.

3.2.1.3. Documentation Methods and Storage

Project documentations are important in any projects. Through documentations, a project can be analyze and reviewed. It is an important document for future development. It also an important document to give a detail description of the project and product to other people. Hard copies will be the main documentation method, while softcopies will be used for storage purpose.

3.2.2. Project Planning and Design

After determining how the project and product is supposed to be, the next step is the Project Planning & Design phase. In this phase, information and data gathered in the preliminary analysis phase will be used as a reference for planning the development of the product as well as the design of the product itself. Two of the main contents of this phase are Project timeline and Product storyboard.

3.2.2.1. Project Timeline

Project timeline needs to be determined to set the milestone and dateline for a particular task. A well planned timeline will ensure a smooth development of the product. The timeline must include several important tasks that needed to be done, its allocated time and relation to other task. The time given for each task must be flexible enough to anticipate any problems that arise. The diagram below and on the next page will represent the timeline that will be use for this project.

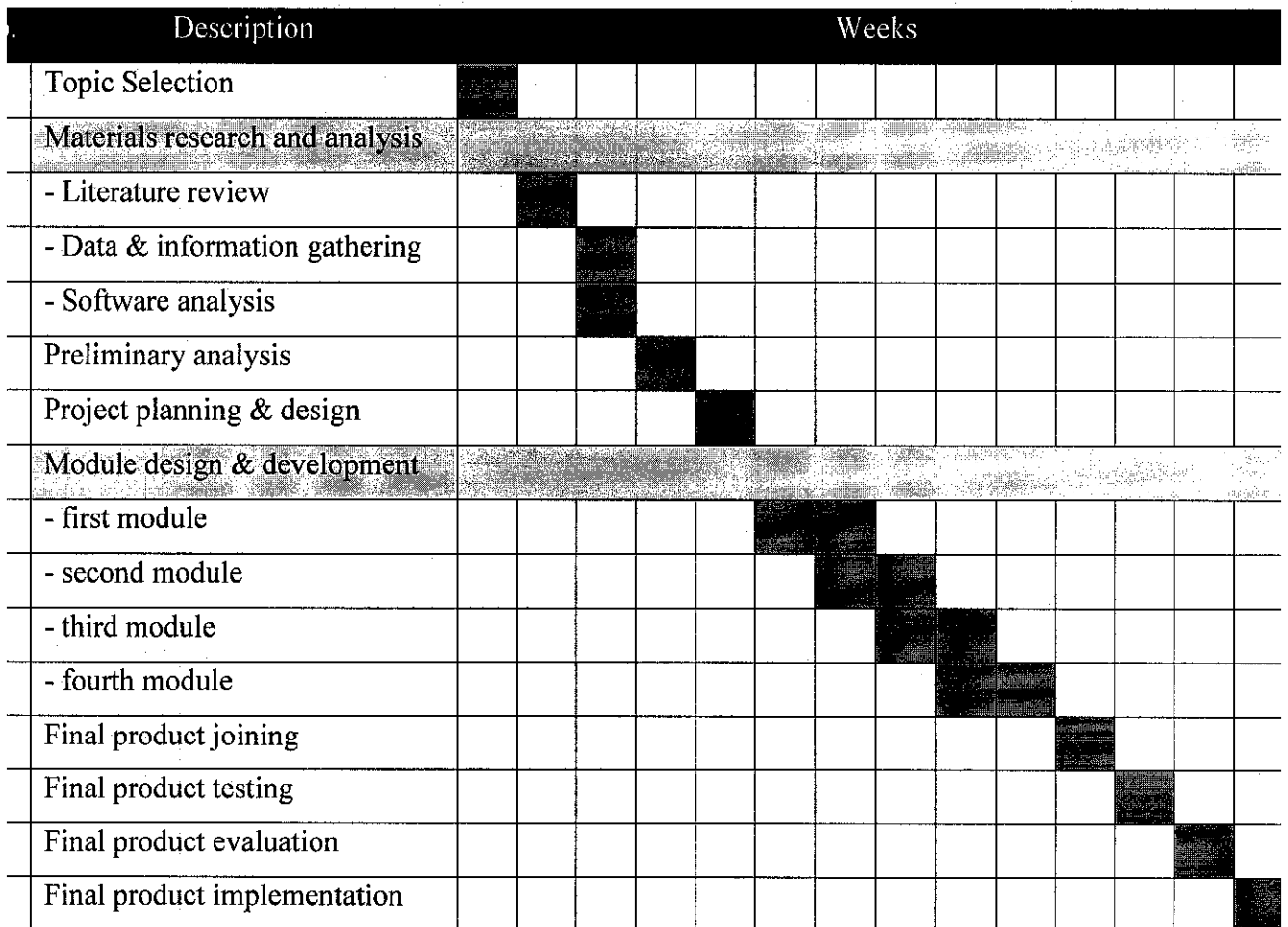


Figure 3.2: Project Timeline

3.2.2.2. Product Story Board

Before starting any development on the product, it is important to design the product before hand. Storyboarding is an important tool for the design phase. It provides basic information and guideline for the development process. It is also a way to get the basic grasp and understand the function of the product. More importantly, an agreed upon story board will be the main reference and the only resource that a developer will look for when developing a project. The story board will be divided into ten sections. The Main Page will describe about the first page the user sees when opening the application. The Accounting Table will describe about forms that user must edit. The Financial Analysis will describe about the ratios that will be used through out the application.

3.2.2.2.1. Main Page

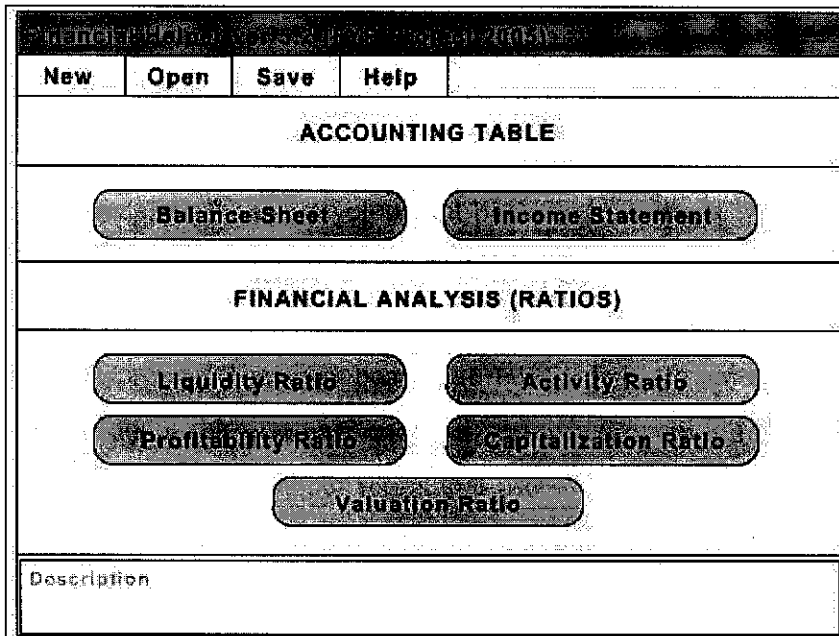


Figure 3.3: Main Page

Main Page description:

When user first enters the application, they will be presented with the main page which consists of several buttons with links and functions. There are 11 buttons that are divided into three sections. The first section contains button 'New', 'Open', 'Save' and 'Help'. When the 'New' button is clicked, the application will load a fresh application without any input from the user. The 'Open' button; when clicked will open up previously saved session. The 'Save' button will save current session. The 'Help' button provide several information about the application including summary about the application and detail information about formulas and principal of financial accounting.

The second section contains buttons with links to the accounting table which must be edited by the user. All data in the accounting table will affect the financial analyses. When clicked, the 'Balance Sheet' button will open up the Balance Sheet form. The 'Income Statement' button will open up the Income Statement form. Both forms are crucial to the application.

The third section of the main page contains five buttons that will link the application with the analyses part of the application. All analysis is an important tool for the objective of this project. The 'Liquidity Ratios' will provide information on the viability of the company. The 'Activity Ratios' provides information and analysis about the company's effectiveness of day-to-day operations. The 'Profitability Ratios' presents information about the money making or losses of the company and quite important to shareholders and investors. The 'Capitalization Ratios' will give information concerning default/bankruptcy risk of the company. The last ratio; the 'Valuation Ratios' measures the direct performance of company's stock. All ratios will be further discussed in the chapter 4.

3.2.2.2. Accounting Tables

3.2.2.2.1. Balance Sheet

| click year for quarterly report | | |
|---------------------------------|------|------|
| ITEMS | 2003 | 2004 |
| Current Assets | | |
| - Cash | | |
| • Cash & Cash Equivalents | | |
| • Marketable Securities | | |
| - Receivables | | |
| • Account Receivables | | |
| • Notes Receivables | | |
| • Related Party Receivables | | |
| • Other Receivables | | |
| • Uncollectable Debt (-) | | |
| - Inventory | | |
| - Accrued Assets | | |
| • Pre-paid Expenses | | |
| • Accrued Revenue | | |
| Fixed Assets | | |
| - Investment | | |

Figure 3.4: Balance Sheet Form

Balance Sheet description:

Balance sheet is an important accounting table used in any financial accounting. It contains items that signify the company's assets and liabilities. In the application, several outputs are automatically calculated based on other input from the user. This is done to limit user errors on calculation. As accuracy is important in financial accounting, it is vital to maintain the form's integrity and reliability.

3.2.2.2.2.Income Statement

| click year for quarterly report | | |
|---------------------------------|------|------|
| ITEMS | 2005 | 2004 |
| Revenue | | |
| Cost of Goods Sold | | |
| - Cost of Product Sold | | |
| - Direct Material Used | | |
| - Direct Labor | | |
| - Factory Overhead | | |
| - Overhead | | |
| - Depreciation | | |
| - Amortization | | |
| - Others | | |
| Operating Expenses | | |
| - Selling Expenses | | |
| - Administrative Expenses | | |
| Gains | | |
| Losses | | |
| Other Revenue | | |

Figure 3.5: Income Statement Form

Income Statement description:

Income statement is another important accounting table in finance. It describes the company's activity and money movements in quarter yearly basis. The calculation from the form will generate the company's net income for the term. As with Balance Sheet form, some outputs are automatically calculated to preserve accounting integrity and reliability.

3.2.2.2.3. Financial Analyses

This section will describe about the forms that will be used in the Financial Analyses section. The description will be about the form that will be developed. Detail description about financial fundamentals concerning the ratios will be discussed later in the chapter 4.

The forms will contain one button and several sub-ratios that make up each stated ratios. The button will open up a graph chart which derives its data from all the sub-ratios. The sub-ratios output will be automatically calculated from the data in both balance sheet form and income statement form.

| LIQUIDITY RATIOS | | |
|------------------|------|------|
| Generate Graph | | |
| Ratios | 2005 | 2004 |
| Working Capital | | |
| Current Ratio | | |
| Quick Ratio | | |
| Acid Test Ratio | | |
| Description | | |

Figure 3.6: Liquidity Ratios Form

| ACTIVITY RATIOS | | |
|-----------------------|------|------|
| Generate Graph | | |
| Ratios | 2005 | 2004 |
| Inventory Turnover | | |
| Receivables Turnover | | |
| Payable Turnover | | |
| Total Assets Turnover | | |
| Description | | |

Figure 3.7: Activity Ratios Form

| Profitability Ratios | | |
|-----------------------------|------|------|
| Generate Graph | | |
| Ratios | 2005 | 2004 |
| Net Profit Margin | | |
| Gross Profit Margin | | |
| Profitability of Operations | | |
| Operating Profit Margin | | |
| Return on Assets | | |
| Basic Earning Power | | |
| Return on Equity | | |
| Description | | |

Figure 3.8: Profitability Ratios Form

| Capitalization Ratios | | |
|-----------------------|------|------|
| Generate Graph | | |
| Ratios | 2005 | 2004 |
| Total Capitalization | | |
| Market Capitalization | | |
| Debt Ratio | | |
| Debt to Equity Ratio | | |
| Description | | |

Figure 3.9: Capitalization Ratios Form

3.2.2.2.4. Graph Charts

In this product, company's performance is being analyzed. Results of the analysis will usually be presented in a comparison form. With that in mind, the best tool to show the user about the data and analysis would be a graphical chart. It is not only simple to understand but it can also clearly show comparison, improvement, a decrease in performance and so on. The graph in the product will be color coded. Sufficient but complete information will be provided as labels and roll over information.

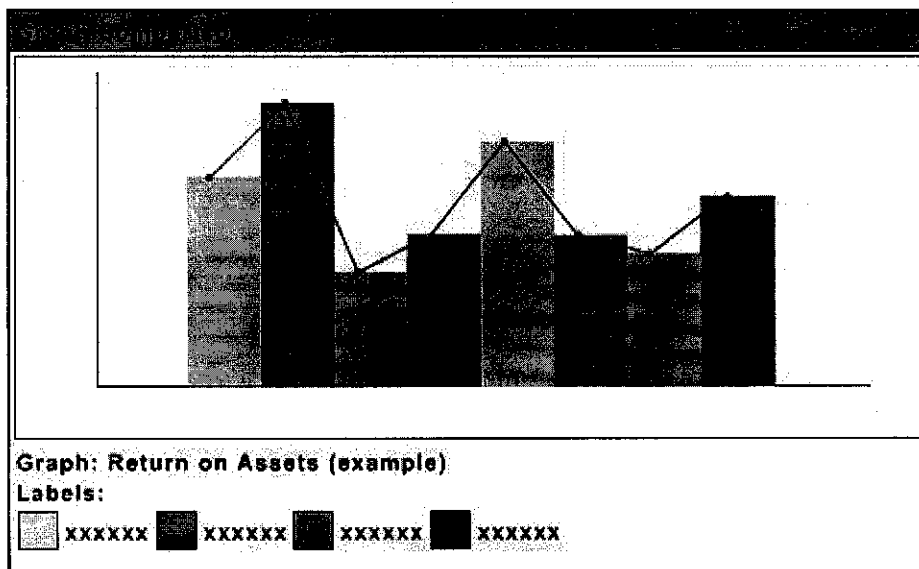


Figure 3.10: Graph & Charts

CHAPTER 4

RESULT, DISCUSSION AND FINDINGS

4. OVERVIEW

In this section of documents, there will be a detail report on the result of research, analysis on current software, development tools and also about the financial system that had been adopted by Malaysian government.

4.1. Result and Discussion on Analyses and Ratios

In any financial system, analysis and ratios are an indication tools that is mainly use to analyze or determine performance of a company. From the research, it is found that there are as many as 33 ratios; comprise of standard ratios and custom ratios, which is used in the financial markets internationally. After analyzing each ratio and most importantly, its use in Malaysia, it is decided that 19 ratios will be used. The ratios would then be divided into 4 groups namely: Liquidity Ratios, Activity Ratios, Profitability Ratios and Capitalization Ratios. Each group will be described further in the sections below.

4.1.1. Liquidity Ratios

Liquidity ratios provide the most basic measure of a company's viability: its liquidity - its ability to pay its bills on time.

In the context of financial analysis, liquidity does not mean the amount of money in hand. It might be true in a strict definition, that money is the only liquid asset. The other Current Assets can only be considered relatively liquid; in that they can be converted to

cash fairly quickly and with minimal transaction costs. However, for an analyst, absolute liquidity does not matter much, but rather with relative liquidity: how much money the company must pay relative to how much money it will collect.

For example, XYZ Sdn. Bhd. has of RM10, 000 in hand and Accounts Payable (unpaid bills to other company) totaling RM150, 000. While this may, at first glance, look unfavorable, if XYZ Sdn. Bhd. also has Accounts Receivable (unpaid bills to the company) of RM150, 000, it is considered liquid because it will likely collect the receivables in time to pay the payables.

The sub-ratios in Liquidity Ratios are:

- Working Capital
- Current Ratio
- Quick Ratio
- Acid Test Ratio

4.1.1.1. Working Capital

$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$

Every statement user should start their financial analysis here. Because, if a company does not have positive working capital, it will have to borrow money, sell assets or default on its obligations. While useful, working capital is a numerical value and thus cannot be used to compare two companies of different sizes. To compare companies, one calculates the Current Ratio.

4.1.1.2.Current Ratio

Current ratio = current assets / current liabilities

Also known as the Working Capital Ratio or Net Current Asset Ratio, the Current Ratio is a proportional expression of Working Capital. Stockholders can use this ratio to evaluate an organization's overall liquidity, and thus its short-term viability. Creditors can also use this ratio, but the Quick and Acid Test Ratios are usually considered better tools for determining whether to grant any company short-term credit.

Generalizations are, by nature, inaccurate. Generally, however, a Current Ratio of 2.5 to 3 (two and a half to three ringgit of Current Assets for every one ringgit of Current Liabilities) is considered optimal. A Current Ratio of less than 2 is often unacceptably low for an industrial company.

The Current Ratio is not, however, an unambiguous measure. For example, a company can have a below-average Current Ratio because it has a shorter than average Conversion Period. Here, the low result may not be a cause for alarm, but rather a signal that management is running operations efficiently.

4.1.1.3.Quick Ratio

Quick ratio = quick assets / current liabilities

Quick assets = current assets - inventory

The Quick Ratio (where Quick Assets are defined as: Current Assets - Inventory) is generally considered by stock holders and creditors, especially trade creditors, as a more accurate measure of core liquidity than the Current Ratio. By backing out inventory, the Quick Ratio shows whether the organization can meet its short-term obligations even if it cannot sell its inventory. This is important because inventory is the least liquid of the Current Assets. In other words, liquidating inventory usually requires substantial Selling

Costs, and the risk that market conditions will change to make inventory un-sellable, or sellable at only a fraction of its reported value, always exists.

While generalizations are, by nature, inaccurate, the Quick Ratio should always exceed 1. Most analysts consider a Quick Ratio of between 1.2 and 1.5 optimal, though higher multiples may exist if the company keeps high levels of Marketable Securities. This measure is also known as the Acid Test Ratio.

4.1.1.4. Acid Test Ratio

Acid test ratio = Defensive assets / current liabilities

Defensive assets = [Cash (money in hand) + cash equivalents + marketable securities + total receivables – related party receivables + accrued assets – pre-paid expenses]

Both the Quick and Acid Test Ratios are more effective measures of a company's core liquidity than the Current Ratio. In our opinion, the Acid Test Ratio is more useful to the credit manager considering granting trade credit to a potential customer, while the Quick Ratio is more useful to the lender or investor looking at the general financial health of a potential borrower or investment. The reason, our Acid Test Ratio uses Defensive Assets (defined as: Cash + Cash Equivalents + Marketable Securities + Total Receivables - Related Party Receivables + Accrued Assets - Pre-Paid Expenses) instead of Quick Assets (defined as: Current Assets - Inventory) to measure liquidity.

This is an important distinction because Defensive Assets should bring in cash that can be used to pay suppliers and employees, while Quick Assets contain certain elements that may not (in the case of Related Party Receivables) or will not (in the case of Pre-Paid Expenses) lead to cash receipts.

4.1.2. Activity Ratios

These are the ratios used to measure the effectiveness of day-to-day operations. Since the effectiveness of day to day operations directly determines the overall performance of a company, these ratios should be calculated by every serious analyst.

The components of Activity Ratios are:

- Inventory Turnover
- Receivables Turnover
- Payable Turnover
- Total Assets Turnover

4.1.2.1. Inventory Turnover

Inventory Turnover (times) = Cost of Goods Sold / inventory

Inventory Turnover (days) = 360 / inventory turnover (times)

This measure, like Receivables Turnover, should be used both as an identifier of trends, and to supplement the Current Ratio (Since it provides a measure of the liquidity of Inventory, key components of that ratio).

A lengthening Inventory Turnover (if one is looking at Inventory Turnover in days) signals that demand for the organization's product is slacking. This may be due to increasing competitive pressure, worsening economic conditions, the lack of new product development, etc. It may also show that the organization is not planning production and/or purchasing effectively, thus allowing Inventory to build up. These are serious problems that require immediate management attention and correction. A decline in inventory Turnover can serve as a useful 'red flag' indicating that a stock should be reexamined.

A shortening Inventory Turnover is also an important signal. It may show that management is running the organization more efficiently: planning production and/or purchasing better, arranging shorter lead times from suppliers, selling more aggressively, etc. However, it may also signal that management is running with dangerously low inventory levels that can lead to inventory shortfalls that not only reduce revenue, but to the potentially loss of regular customers who may seek out more reliable suppliers. It may also signal that the demand for the organization's product has increased which though usually positive, also has serious implications.

As demand for its products increases, an organization (especially manufacturing) will approach capacity. As it approaches capacity, each additional unit sold will contribute less and less to the bottom line (what economists like to call diminishing marginal return). This is because labor costs rise: existing workers work overtime, new workers train. Defects and rework increase: tired and new workers make more mistakes. Production costs rise as more repairs and maintenance must be done to equipment that is being worked harder. Efficiency falls as machinery down-times cut productivity and as workers get in each other's way. Borrowing costs rise as the selling process needs to be funded. Selling and Administrative Expenses also often rise faster than profits.

In total, as production volume goes up, profit margins generally come down. The result is that while an organization may indeed be doing more business, it may make a smaller net profit. This dilemma, in turn, leads to the Achilles heel of the free market, and the bane of every investor, over capacity.

To meet new demand, a company (and companies overall) must add new capacity. New capacity cannot, however, be added incrementally. For example, if demand goes up 50%, the company will likely react by increasing capacity by 100% or more. This is because increasing the capacity of an existing plant by 50% with just new equipment is very difficult, so a whole new plant must be built. Economies of scale dictate that this new plant will not just provide the needed 50% of extra capacity, but will double it, and probably more. Even large companies, for whom a new factory is an incremental

increase, do not always know when to stop. They often keep adding capacity until they have too much (by which time it is too late*) especially if this increased capacity brings down the market price, or if demand attracts new competitors with better or cheaper products. The economy also has a nasty habit of slowing down periodically, and consumers, fickle as they are, often decide they want something different next year. Each of these can cause problems. How big is the problem? That depends on how the company financed the capacity.

If the company expanded using cash reserves or new equity, it will likely just suffer from lower profits (as it covers higher fixed costs) and so probably pay smaller dividends. Its stock's market price will likely fall. On the other hand, if the company expands using debt, the higher fixed costs plus the extra interest payments could well drive it into insolvency or even bankruptcy (where shareholders have only a residual interest).

On the positive side, if the management guesses right, and the market takes the extra production, the company is better off in either case. If it financed the extra capacity with debt, however, it is even better off for the leverage that debt provides.

In total, Inventory Turnover is a key measure to watch, and one that should be included in every serious analysis.

4.1.2.2.Receivables Turnover

Receivables Turnover = operating revenue / total receivables

Average Collection Period (ACP) = 360 / receivables turnover

Receivables Turnover, like Inventory turnover, should be used as an identifier of trends. It is another measure that can be used as a 'red flag'.

Often a major problem for the shareholder trying to evaluate the effectiveness of a company's management is a management that tries to inflate Earnings per Share by recognizing Revenue too aggressively. An increasing ACP is often a signal that something like this may be happening.

This practice is called trade loading which all amount to shipping distributor's excess (and ultimately un-sellable) product to inflate Revenue, and thus Earnings per Share, just before year end.

Auditors will generally weed out the worst cases of systematic abuse, but in isolated cases (if a manager needs to make his or her numbers for the year) no one will notice. Fortunately, isolated cases, as long as they remain isolated, are not a cause for alarm. It is only when there is a pattern of abuse that the analyst should become concerned (see: Business Week, October 12, 1995, Blind Ambition, How the Pursuit of Results Got Out of Hand at Baush & Lomb). The ACP is good for spotting patterns of abuse.

4.1.2.3. Payables Turnover

Account Payable Turnover = $\text{COGS} / \text{account payable}$

Average Payment Period (APP) = $360 / \text{account payable turnover}$

This measure is primarily useful to a credit manager deciding whether to sell to a new customer on invoice or not. It is also useful to the investor because a company with bad payment habits usually has a higher selling process cost and less flexibility. This is because suppliers will refuse to extend it credit, and, if there is ever a shortage, will put it at the end of the list, behind paying customers.

A word of caution however: to provide a truly accurate picture of what a company's payment habits are, a daily average Accounts Payable balance is necessary. Making this calculation with period end data reduces its accuracy considerably, especially since

companies with poor payment habits often pay down their Accounts Payable just prior to the period's end to keep this measure in line.

4.1.2.4. Total Assets Turnover

Total Asset Turnover = total revenue / total assets

The accuracy of Total Asset Turnover may be distorted by an organization's cash management policy. For example, a company using its treasury department as a profit center may have an above average Return on Assets, but only if it engages in high risk financial operations. This is an important issue to look out for because it not only puts the investor at risk, but also negates the benefit of a well thought out portfolio strategy

4.1.3. Profitability Ratios

These measures are useful to equity investors, creditors and bond holders. Equity investors will likely be most interested in the Gross Profit Margin and Operating Profit Margin. Creditors and bond holders, on the other hand, will likely be more interested in Basic Earning Power.

The sub-ratios that make up Profitability Ratios are:

- Net Profit Margin
- Gross Profit
- Gross Profit Margin
- Profitability of Operations
- Operating Profit Margin
- Return on Assets (ROA)
- Basic Earning Power
- Return on Equity (ROE)

4.1.3.1. Net Profit Margin

Net Profit Margin = net income / total revenue

This is a measure of the overall profitability of a given enterprise. It can be used by itself, but is also widely used to compare one company with a benchmark.

An above average profit margin usually indicates that a company is run efficiently and can deal with an economic slow down, an increase in the cost of a key input or a new competitor fairly well. For the investor, a high profit margin means that the company can pay dividends. While this is nice, in and of itself, profitable companies also tend to have stocks whose market prices go up, generating those, always welcome, capital gains.

4.1.3.2. Gross Profit

Gross Profit = Operating Revenue - Cost Of Goods Sold

Gross Profit will not be analyzed in this application because of other ratios that are much more accurate than it. However, Gross Profit is needed in some ratios; hence it is included in this discussion of findings.

Gross Profit is the core measure of a company's profitability. It shows how much profit the company makes from selling the goods or services it produces. If the analyst cannot ascertain Gross Profit, then any further analysis of a company's cost structure is meaningless.

For an example, in comparing two companies XYZ Sdn. Bhd. and ABC Co; both are manufactures with generally comparable operations (same industry, similar size, similar location, and similar product). XYZ has Revenue of 100 and Net Income of 10. ABC has Revenue of 100 and Net income of 10. Which is the better investment?

Obviously this question is impossible to answer from the facts given. However, if we also know that XYZ's gross profit is 40 and ABC's Gross Profit is 60, which is the better investment? It is ABC, of course.

Actually, ABC is the better potential investment. This is because ABC spends 50 (60 - 10) on operating expenses, while XYZ spends only 30 (40 - 10). This means that if both companies are otherwise comparable, ABC is obviously the more efficient producer. Its administration is also considerably less efficient. This means that ABC could be considerably more profitable if it cut its selling and administrative costs, something far easier to do than cutting product costs. This also means, given the right incentive, a takeover threat for example, ABC's management could probably be persuaded to cut operating expenses to XYZ's level, at which point ABC would have a Net Income of 30, not 10, and its stock would triple in value (assuming its Price Earning Ratio remained constant).

If Gross profit is not disclosed, this analysis cannot be performed. If this analysis cannot be performed, shareholders (other companies looking for an acquisition) have no way of knowing that ABC is a better buy (target) than XYZ.

4.1.3.3. Gross Profit Margin

Gross Profit Margin = gross profit / operating revenue

This is Gross Profit expressed as a ratio. As a ratio, it is very useful for comparing two companies, or a company against a benchmark.

4.1.3.4. Profitability of Operations

Profitability of Operations = before tax operating income / operating revenue

This ratio, also known as Profitability of Operations, removes the effects of Gains and Losses, Unusual or Infrequent Items, Other Revenue and Expenses and Income Taxes. The result is a picture of the true profitability of an enterprise's core operations. This is a good measure to use when comparing the profitability of any two companies, or a company against a benchmark.

4.1.3.5. Operating Profit Margin

Operating Profit Margin = after tax operating income / operating revenue

This ratio is very similar to Profitability of Operations. It also removes the effects of Gains and Losses, Unusual or Infrequent Items, Other Revenue and Expenses. However, it includes an estimated tax on operations. This way, it provides a realistic picture of an entity's core operations. Again it is good measure with which to compare any two companies, or a company against a benchmark.

4.1.3.6. Return on Assets (ROA)

ROA = net income / total assets

ROA = net profit margin * total asset turnover

ROA = comprehensive profit margin * total asset turnover

This measure is very useful for comparing a company with a benchmark because it shows how effectively the company uses the total resources at its disposal to generate income. Though related to the Asset Turnover ratios (which are actually one of the two components of this measure), the return ratios are a good indicator of how effectively a company's total operations turn revenue into income.

If ROA is significantly above the benchmark, the company is operating efficiently. If it is significantly below the benchmark, then the company is likely wasting its owners' and creditors' resources on un- or under-productive assets (such as executive recreational facilities, company planes, expensive furnishings and/or an inefficient bureaucracy).

In addition, many analysts feel that ROA is a better measure for evaluating trends in profitability than the profit margin (Net Profit Margin, Gross Profit Margin, etc.). This is because the level of Total Assets does not usually fluctuate as much as the level of Total Revenue leading to trends that are less affected by fluctuations in the economy. Also, many analysts feel that examining ROA, as well as its components, helps the potential investor evaluate the sources of the company's profitability (an analysis pioneered by the DuPont Corporation). This is because a company can be profitable because of high profit margins, which will be shown by a relatively high Profit Margin. It can also be profitable because it uses its assets harder or more efficiently, which will be shown by a relatively high Total Asset Turnover.

And, as if this were not enough, ROA is not only useful by itself, but also can be used along with Return on Equity to evaluate a potential stock purchase or sale from the point of view of risk and the risk premium.

4.1.3.7. Basic Earning Power

Basic Earning Power = Earning before Interest and Tax (EBIT)/ total assets

Basic Earning Power is useful in determining whether a company could be more profitable by being more leveraged.

For example, XYZ Company's Earnings before Interest and Taxes (EBIT) are RM25,000,000. Its total assets are RM100,000,000. Its Basic Earning Power is .25. If XYZ borrowed an additional RM 50,000,000 while maintaining the same efficiency, it would

increase its earnings by RM12, 500, 000. Assuming that its borrowing rate is 10%, its interest expense would increase by RM5, 000, 000 per year bringing earnings before taxes up by RM7, 500, 000. Finally (assuming a 35% tax rate) the company's owners would be better off, seeing Net Income increase by RM4, 875, 000 without any additional investment.

This knowledge is, however, of little use to the investor. This is because the investor probably has little or no influence on the decision to use leverage. This calculation does come into play when deciding to buy or sell stock in a company that is taking on (or paying down) debt, since it gives the investor an idea of whether this will make the company better off and vice-versa.

4.1.3.8. Return on Equity (ROE)

ROE = net income / total equity

The following is a general overview of Return on Equity

Return on Equity is an interesting measure in and of itself. However, to be truly useful it is best combined with Return on Assets. Together these two ratios provide an indirect measure of leverage (of which the Debt to Equity Ratio is a direct measure) and are very useful to the equity investor in evaluating a potential stock purchase or sale from the point of view of risk and the risk premium.

4.1.4. Capitalization Ratios

Capitalization ratios are used by analysts to gauge the default and eventually bankruptcy risk associated with an organization's long-term debt. While the Debt-to-Equity ratio is widely used by every analyst, the remaining capitalization ratios are primarily useful to creditors, bond holders and bond rating agencies.

The components of Capitalization Ratios are:

- Total Capitalization
- Debt Ratio
- Debt to Equity Ratio

4.1.4.1.Total Capitalization

Total Capitalization = total long-term liabilities + total equity

4.1.4.2.Debt Ratio

Debt Ratio = total long-term debt outstanding / total capitalization

This, the Bond Ratio and the Common Stock Ratio are most often used to assess the degree of safety of a corporation's bonds. The (Long-Term) Debt Ratio is used instead (or along with) the Bond Ratio where a significant part of Long-Term Liabilities is made up of loans and/or other forms of debt.

4.1.4.3.Debt to Equity Ratio

Debt to Equity Ratio = total long-term liabilities / total equity

Of the capitalization ratios, Debt to Equity is the most widely used and useful measure. It directly measures the relative importance of Debt and Equity in the organization's capital structure. In other words it is a direct measure of leverage.

A ratio of 1 would mean an organization has one borrowed RM 1 for each RM 1 invested by its owners, while a ratio of 0.5 would mean it has one borrowed ringgit for each RM 2 invested. Usually, the higher the Debt to Equity Ratio the riskier the investment is (for both stock holders and creditors). As a general rule, anything over 0.6 or 0.7 is high

enough. As with most ratios, this measure is most useful when comparing a potential investment with a benchmark.

4.2. Result and Discussion on Development Tools

4.2.1. Background of Macromedia Flash

Flash began as a dream tool to help its developer; Jonathan Gay, in architectural work especially architecture drawing. Gay; being frustrated about the inability to see his drawing in its final form, began writing programs using Apple II Basic. From there, his interest in programming become apparent and he continued creating games using Basic. After a few years he began to create a more advance drawing application named SuperPaint II follwed by SmartSketch; a more advance program build with Java. The SmartSketch is the start for an animation program developed by Gay. An improve version of SmartSketch (renamed Future Splash Animator) and is the most prominent animation software for its time was develop later in 1995. After the success, a company named Macromedia sees the potential of Future Splash Animator and proposes to join up in a partnership relation. Future Splash Animator is later known as Macromedia Flash 1.0. Currently there are 5 main versions of Flash. Jonathan Gay is now the Technology Vice President for Flash and Generator at Macromedia.

4.2.2. Flash as a Programming Tool

Macromedia Flash has evolved main steps further after the introduction of Flash 1.0 with improvements and upgrades could be seen in each later version. However, the most astonishing improvement that had been done to Macromedia Flash is the introduction of object-oriented programming using ActionScript. Beginning from Macromedia Flash 5, the software now gives any user the ability to expand and maximized its potential. Connected through discussion forums available through the World Wide Web, millions of Flash users have joined up their mind and passion to create new custom functions and improve the interactivity that Flash offers.

ActionScript is an ECMAScript-based programming language used for controlling Macromedia Flash movies and applications. ECMAScript is a scripting programming language, standardized by Ecma International in ECMA-262 specification. The language is widely used on the web and is often referred to as JavaScript or JScript, although those two terms have more specific meaning. Since both ActionScript and JavaScript are based on the same ECMAScript syntax, fluency in one easily translates to the other. However, where the client model of JavaScript deals with the structure of browser windows, documents and forms, ActionScript deals with the structure and interactivity of Macromedia Flash movies, which may include animations, audio, text and client-side logic.

ActionScript achieved something resembling its current syntax (retroactively named ActionScript 1.0) in Flash 5, the first version of Flash to be thoroughly programmable. Flash 6 broadened the power of the programming environment by adding many more built-in functions and allowing more programmatic control of movie elements. Flash 7 (MX 2004) introduced ActionScript 2.0, which adds strong typing and object-oriented features such as explicit class declarations, inheritance, interfaces, and encapsulation. ActionScript 1.0 and 2.0 share the same compiled form within Flash SWFs.

Features of the Flash ActionScript implementation that JavaScript programmers may find interesting:

- Everything is designed to be asynchronous; callbacks are ubiquitous, but Event objects do not exist.
- The XML implementation has been solid since Flash 5. Flash can send and receive XML asynchronously.

ActionScript code is frequently written directly in the Flash authoring environment, which offers reference and syntax highlighting. In this case, the source code is saved along with the rest of the movie in a *.fla* file. It is also common for ActionScript code to

be imported from external text files via *#include* statements. In this case, the external files are often given *.as* extensions, but this is not a universal convention.

In ActionScript 2.0 there can be classes, and also, a library item (a movie clip) can be associated with a class. Classes are always written in external text files, and these files must have the *.as* extension. The ActionScript 2.0 compiler, however, is notoriously slow, often taking several minutes to compile around 100 classes.

4.2.3. Limitations

Besides doing this project, there is also a parallel study that is conducted to determine the functionality and limitation of Macromedia Flash 7 (MX 2004) as a programming platform. One major limitation has been found that could create an undesirable situation for the main project development.

It is found that Macromedia Flash 7 does not support direct saving of files from applications that were generated by Flash. With the limited knowledge and limited time on conducting the study, it is found that applications that were created using Flash can only save data and information in it via a server database. The database will then convert the information to any save file format.

The problem is that Financial Helper is a stand alone product. It does not in anyway connected to the internet or any other server side database. Hence, the undesirable situation becomes a major issue for the development of this project. This project might fulfill its objective in terms of testing Flash as a programming tool, but might prove a problem in fulfilling its objective in creating a solid application for the use of startup entrepreneurs and novice investors. It is hoped, that when Flash 8 is release, Macromedia would already solve this dilemma.

4.3. Result of Research on Startup Entrepreneur and Novice Investors

4.3.1. Background of Research

This project is mostly concern about the level of knowledge an entrepreneur and investor has. The hypothesis is that Malaysian businessman or women; especially the startup small & medium entrepreneurs (SME) have an insufficient amount of knowledge to help them in their business. A research had been conducted in order to prove the relevancy of the hypothesis. The research will involve 30 students of University Technology of PETRONAS who had and is currently taking Financial Management as their minor using questionnaires as the data collection method.

One of the main reason involving the students are because a portion of SMEs are actually graduates who has the urge to start a business. These graduates mostly have either studied under business schools or have studied finance and business in their college. A survey on these students will give an idea about the level of knowledge startup SMEs in the real world have.

The questions are divided into 3 categories.

- Racial diversity
- Gender diversity
- Knowledge level
 - Average performance in Financial subjects
 - Ability to handle accounting records
 - Past experience in finance and accounting
 - Ability to assess company's performance
- Respondent opinions

4.3.2. Research Findings

The research findings will be divided into 4 sections; a racial distribution & gender distributions, knowledge level and respondent's opinion on the product.

4.3.3. Racial and Gender Distribution

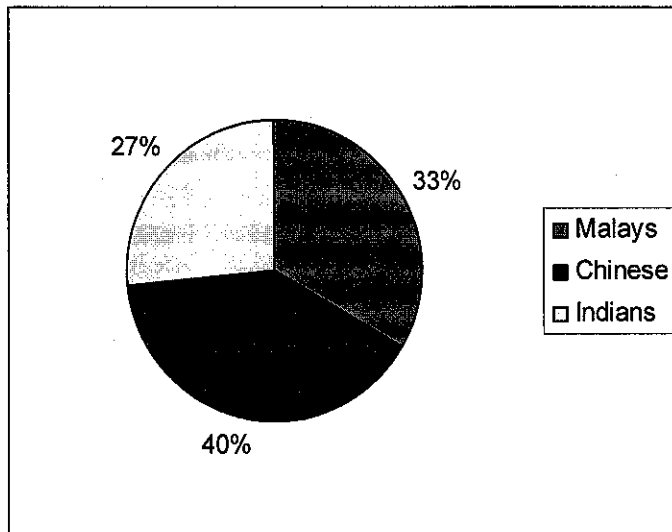


Figure 4.1: Racial Distribution of Subjects

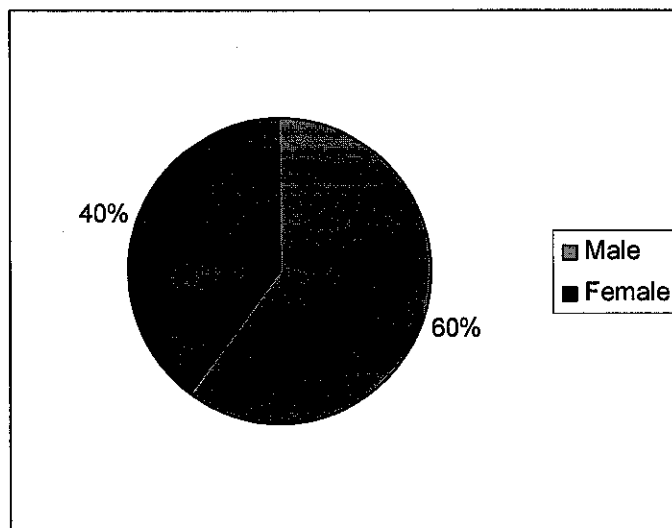


Figure 4.2: Gender Distribution of Subjects

The racial and gender distribution shows the diversity and variant of subjects in the survey. Variants are important in this survey to ensure no tendencies towards any particular side. It can not, however, shows any polarity or connection with the objective of the project.

4.3.4. Knowledge Level

4.3.4.1. Average Performance in Financial Subjects

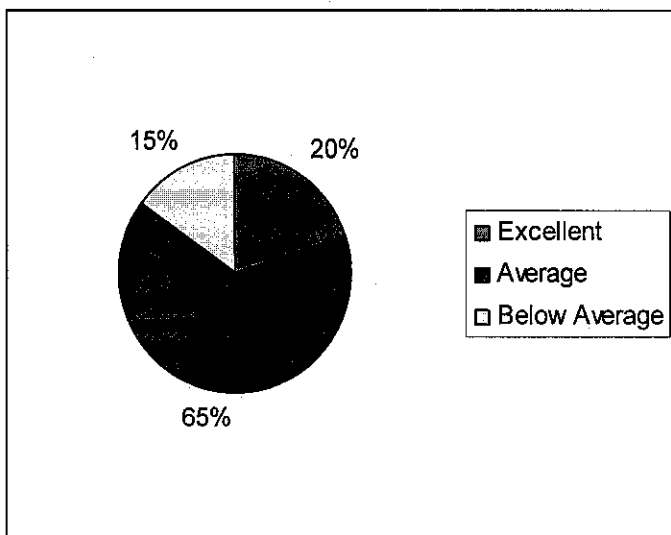


Figure 4.3: Students' Average Performance in Financial Subjects

In this section, the subjects are asked about their average performance in financial subjects. There are 3 subjects in Financial Management minor that relate directly to finance and accounting. The subjects are Business Accounting, Introduction to Finance and International Business & Management. As exam result does reflect the ability of students to comprehend certain subject, it can be concluded that the level of knowledge for UTP students taking financial management courses are mostly on the average.

4.3.4.2. Previous Experience with Finance and Accounting

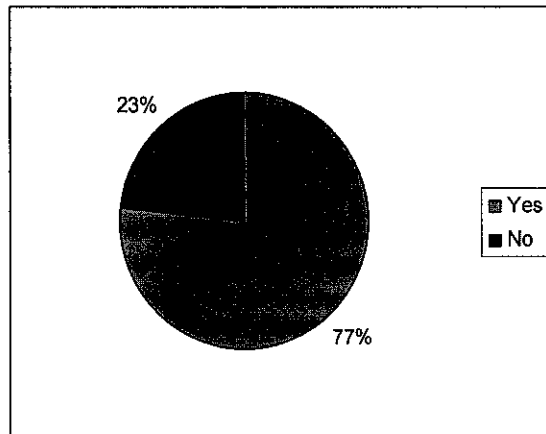


Figure 4.4: Students that had Learned Accounting in Previous Schools

The question that was given in this section tries to discover how many subjects have taken finance or accounting courses before. From the result, it is discovered that among the recipients, only 3 students is currently taking financial subjects without any basic knowledge before. The knowledge that they gain from their previous schools, however, is only the basic principle of financial accounting. In the university, they are exposed to various financial situations and principles that they have not heard about before.

4.3.4.3. Ability to Handle Accounting Records

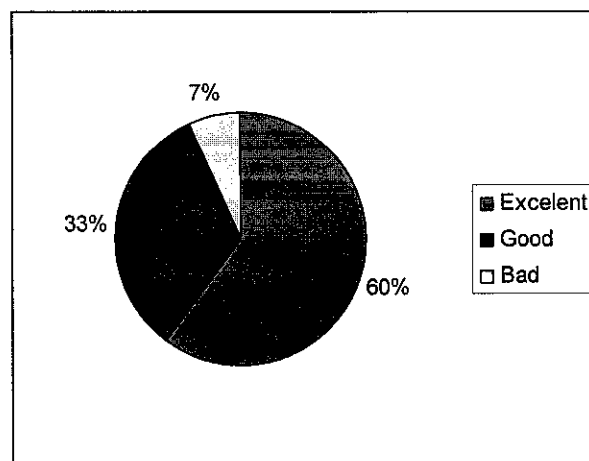


Figure 4.5: Subjects' Ability in Handling Accounting Records

From the data collected through the questionnaires, it can be concluded that majority of the subjects are knowledgeable with accounting records and principle. It is easily understandable as the data are connected with the previous question regarding basic knowledge in accounting.

4.3.4.4.Ability to Assess Company's Performance

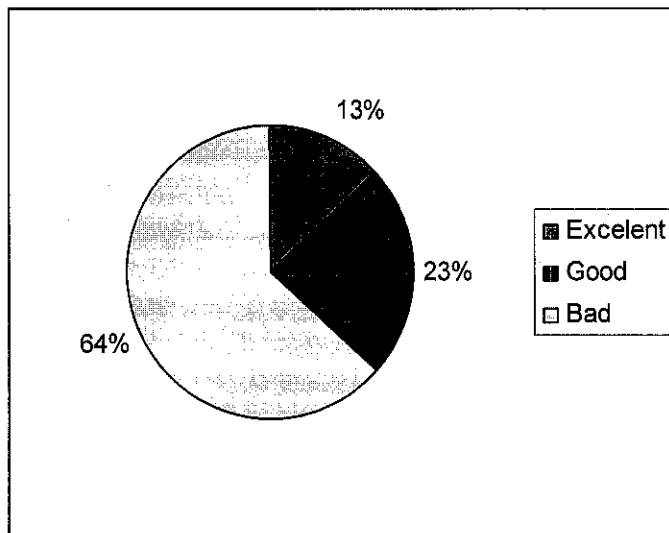


Figure 4.6: Subjects Ability to Assess Company' Performance

In this section, subjects are asked about their ability to assess companies' performance without referring to any learning materials. The numbers of recipients that claim and prove that they are able to do the task are minimal. From the data collected, it can be concluded that most students find it hard to assess companies' performance without referring to books or lecture notes.

4.3.4.5. Respondents Opinion

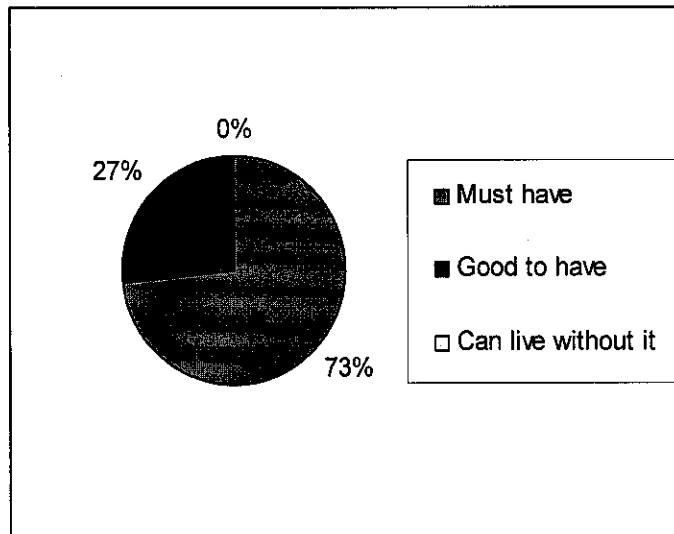


Figure 4.7: Respondents Opinion about the Product

The question asks whether the product can be an assistant to the recipients in their financial and accounting activities. From the result, it is concluded that all recipients accept the usage of such product and would gladly welcome it.

4.4. Result of Project Development

After developing and reviewing the prototypes that were created for this project, several changes had been applied to the system that changed the way it looks. However, the core concept and system is still the same. Below are the images and description about the new Financial Helper version 6.00.01.

4.4.1. Main Page

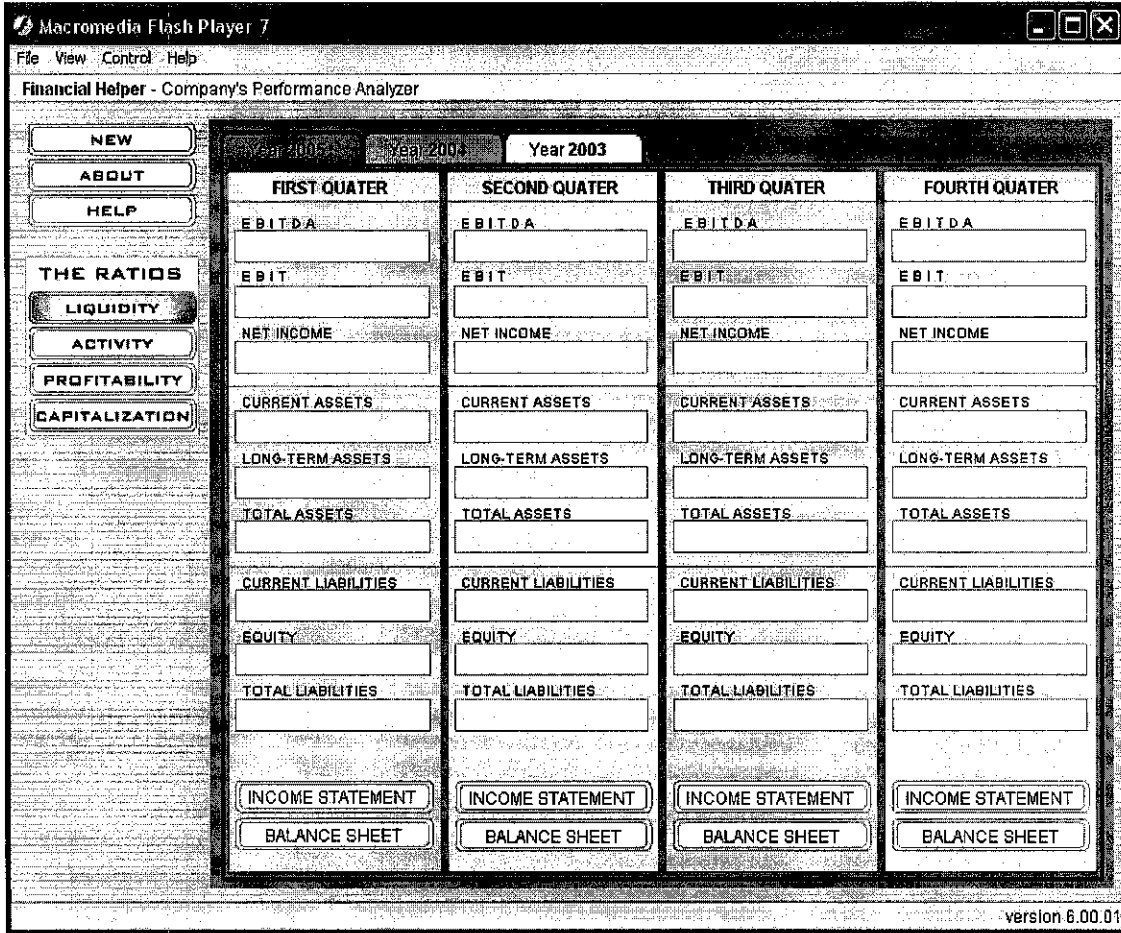


Figure 4.8: Main Page with the Main Information for the Year 2005

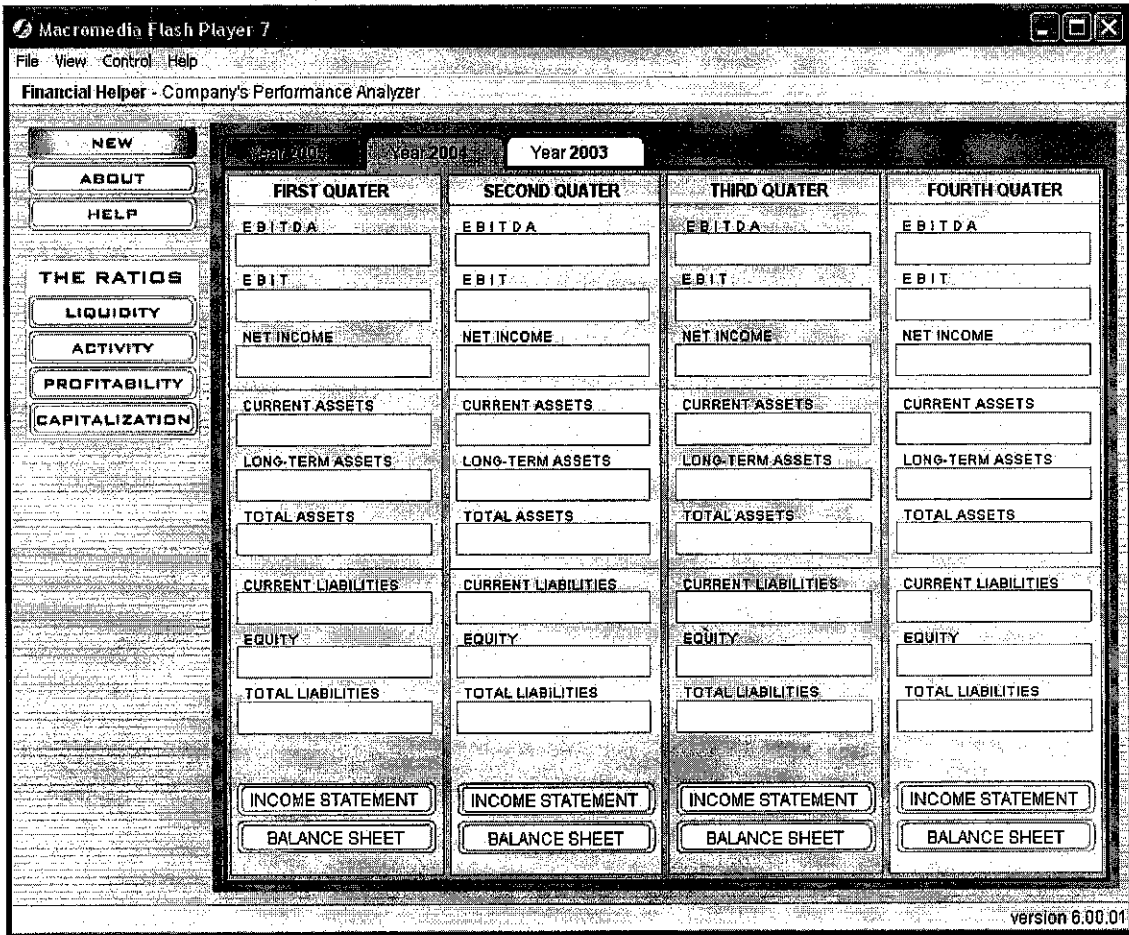


Figure 4.9: Main Page with Main Information for the Year 2004

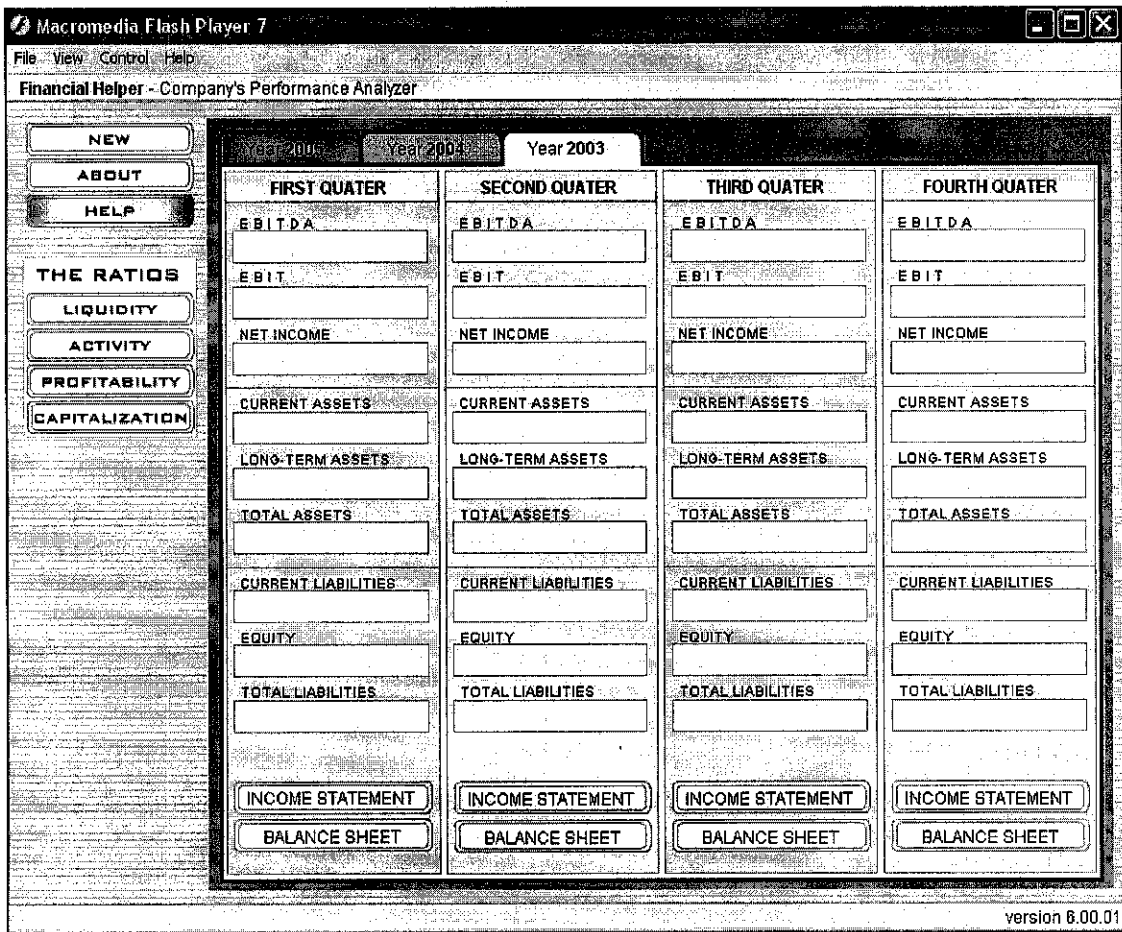


Figure 4.10: Main Page with Main Information for the Year 2003

Main Page description:

The new main page integrates buttons that will link the system to other forms as well as displaying the gist or important items that are used for the system. The forms in the center of the page can be changed according to the year by clicking the year tabs. Each quarter can be edited by accessing the Balance Sheet and Income Statement Form via the buttons that were displayed on the page.

After entering all the necessary data and information in the accounting forms, user can then analyze it by accessing the ratio forms which were link to each respective button on the main page.

4.4.2. Balance Sheet Form

| Balance Sheet Form (First Quarter) | | | |
|------------------------------------|--|-------------------------------|--|
| Current Assets | | Current Liabilities | |
| - Cash | | - Payables | |
| - Cash & Marketable Securities | | - Account Payable | |
| - Other Marketable Securities | | - Payroll / Wages | |
| - Receivables | | - Other Payables & Accruals | |
| - Account Receivables | | Long Term Liabilities | |
| - Note Receivables | | - Loans | |
| - Other Receivables | | - Other Long-term Liabilities | |
| - Uncollected Debt (-) | | Equity | |
| - Inventory | | - Total Common Equity | |
| - Accrued Assets | | - Additional Paid Capital | |
| - Prepaid Expenses | | - Retained Earnings | |
| - Accrued Revenue | | | |
| Fixed Assets | | Suspense Account | |
| - Investment | | | |
| - Property, Plant & Equipment | | | |
| - Land | | | |
| - Structure | | | |
| - Machinery & Equipment | | | |
| - Other PP & E | | | |
| - Accumulated Depreciation (-) | | | |
| - Other Fixed Assets | | | |
| - Other Fixed Assets | | | |
| - Accumulated Depreciation (-) | | | |
| | | | |
| TOTAL ASSETS | | TOTAL LIABILITIES | |

Figure 4.11: Finalized version of the Balance Sheet Form

Balance Sheet description:

The balance sheet contains all the necessary fields that the user must put into. It follows the international accounting record format. However, some data fields (dark input field) are disabled and reserve for auto calculations only. The suspense account was created in order to balance the account in situation where there is an error in accounting record keeping or human errors. However, the amount in the suspense account MUST be dissolve by means of error tracing to ensure the accuracy of accounting data.

4.4.3. Income Statement Form

| Income Statement Form (First Quarter) | | | |
|---------------------------------------|-------|-----------------------------------|--|
| Revenue | | Net on Taxed Item (+/-) | |
| - Cost of Goods Sold (COGS) | | - Discontinued Operations | |
| - Direct Materials Used | | - Income / Losses at Operations | |
| - Direct Labor Used | | - Gains / Losses on Sales of Ops. | |
| - Factory Overhead | | - Extraordinary Items (+/-) | |
| - Fact. Overhead (Cash Charges) | | - Changes in Accounting Method | |
| - Fact. Overhead (Non-cash) | | | |
| - Depreciation | | NET INCOME | |
| - Amortization | | | |
| - Other Non-cash Charges | | | |
| Operating Expenses | | | |
| - Selling Expenses | | | |
| - Administrative Expenses | | | |
| Gains | | | |
| Losses | | | |
| Other Revenue | | | |
| - Interest Received | | | |
| - Other Non-operating Revenue | | | |
| Other Expenses | | | |
| - Interest Paid | | | |
| - Other Non-operating Expenses | | | |
| Income / Loss from Operations (+/-) | | | |
| Income Tax / Refund (+/-) | | | |
| Net Operating Income / Losses (+/-) | | | |
| | cont. | | |

Figure 4.12: Finalized version of the Income Statement Form

Income Statement description:

The income statement contains all the necessary fields that the user must put into. It follows the international accounting record format. However, some data fields (dark input field) are disabled and reserve for auto calculations only.

4.4.4. Ratios and Analyses Form

| PROFITABILITY RATIOS | | | |
|--|------|------|------|
| Click on the buttons to generate graph | | | |
| RATIOS | YEAR | | |
| | 2005 | 2004 | 2003 |
| Net Profit Margin | | | |
| Gross Profit Margin | | | |
| Profitability of Operations | | | |
| Operating Profit Margin | | | |
| Return on Assets | | | |
| Basic Earning Power | | | |
| Return on Equity | | | |

Net Profit Margin = Net Income / Total Revenue
Net Profit Margin is used to measure overall profitability of a company compare to a benchmark: see Help for further details.

Figure 4.13: Finalized version Ratios Forms

Ratios and Analyses forms description:

The forms have not been changed much from the initial design. All the fields in the forms are disabled and can only be changed by changing the accounting data in the accounting tables. Each button in the ratio forms is connected to a graph and chart presentation.

4.4.5. Graph and Charts

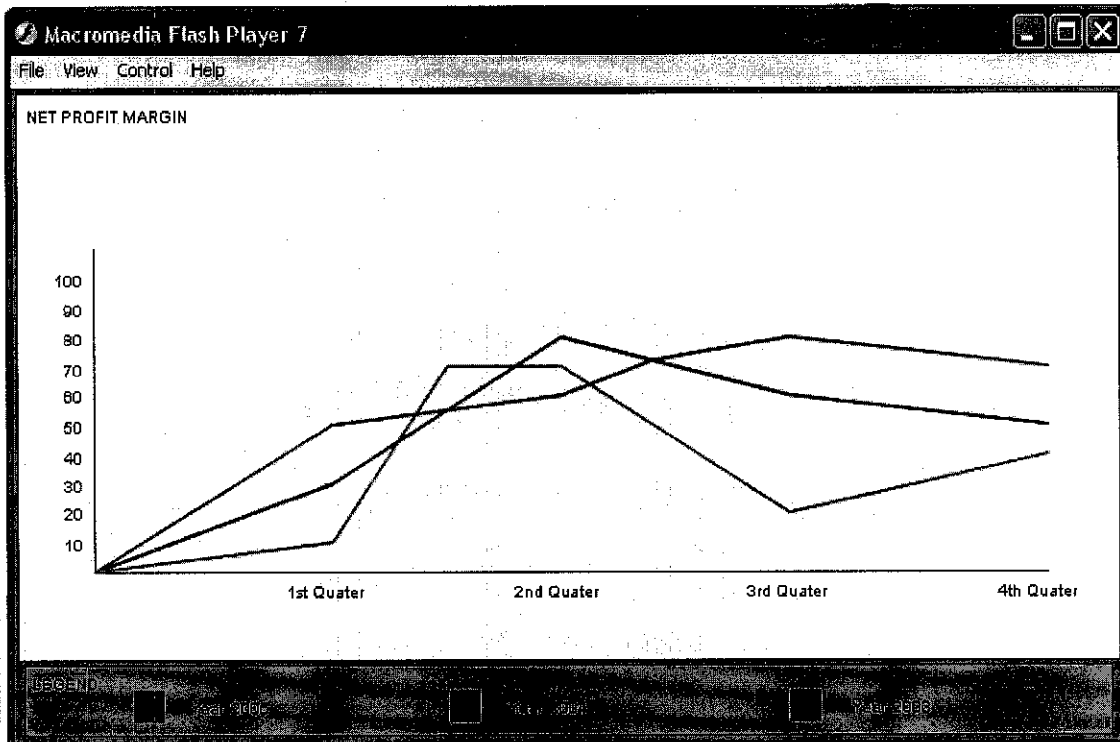


Figure 4.14: Finalized version of the Graph and Charts

Graph and Charts description:

The new charts omit the use of Bar Charts and uses only Line Graph in order to provide a simple yet complete representation of the analysis that had been done. User can open the Help section of the application to learn and understand better about all the analyses and ratios that are used in this application.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5. OVERVIEW

In this part of document, the focus will be on the overall conclusions that can be derived from the previous research and analysis. Another section of this chapter will discuss about the recommendations for future improvements.

5.1. Conclusions

After reviewing and analyzing all the data collected, it can be concluded that the hypothesis of this project can be accepted. As the startup SME can be represented by students taking finance and accounting courses, it is proven that majority of SMEs lacks the knowledge and ability to perform financially. They might have a good grasp in accounting matters but still lacks in the financial theories and analysis part. Financial accounting and financial analysis are a major part in financial management. One might be competent in handling money, but without the ability to handle and assess one's business, the result might be grave.

It is also proven that the product of this project; namely the Financial Helper, can provide valuable assistant for the target users. An automated system can help the user in many aspects. Firstly it can help reduce the time consumption in doing certain task. Secondly, with automated calculations, this application can reduce errors resulted form human factors. In the long run, the Financial Helper can help to reduce work stress that comes from repetition of failures in doing a task correctly.

5.2. Future Recommendations

The product that comes from this study is complete. It has all the necessary options and solutions to achieve the intended objective. However, there can still be rooms for improvements.

Flash is a type of software that evolves. Each year, its producer develops and integrates new functionalities into its core system. These new improvements can sometimes generate new techniques and methods in designing any application using Flash. The software also improves drastically throughout the Web connected Flash community. It is hoped that from these improvements, certain aspect of the Financial Helper application can be improve as well.

Firstly, the current Flash software did not support direct saving and storage of files. The only method of saving files is by transferring into another medium first (such as database) before converting to any save files formats. Another method; saving in a notepad, is only applicable for storing small amount of data. These limitations restrict the capabilities of Financial Helper application. If a new method for storing files is available, it is hoped that the Financial Helper can also be enhance in stated area.

Secondly, this project is only concerned about the standard financial accounting which is practiced in Malaysia. However, a few months back, Malaysian government has also accepted and adopts the Islamic Accounting Standards into its accounting standards. These standards are, however, not connected directly to the Financial Record Standards but rather supplement it. If there is a plan for future improvement for this project, it is recommended for the researcher to expand the analysis capabilities of Financial Helper by including the Islamic Accounting Standards into its calculations and formulas.

Lastly, the values of Financial Helper can be great increase if the application can somehow be linked directly to the Kuala Lumpur Stock Exchange in order to get latest information about company's performance benchmark.

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APPENDICES

APPENDIX 1: QUESTIONNAIRES

Section 1: Students details

Name:

Gender:

Age:

Course:

Section 2: Knowledge level

1) How is your performance in these financial subjects?

Business Accounting:

(a) Excellent (b) Average (c) Below Average

Introduction to Finance:

(a) Excellent (b) Average (c) Below Average

International Business & Management:

(a) Excellent (b) Average (c) Below Average

2) Do you take accounting subjects in your previous school?

(a) Yes (b) No

3) How do well do you perform in account calculations?

(a) Excellent (b) Average (c) Below Average

4) How well can you assess a company performance using formulas, ratios and analysis tools?

- (a) Excellent (b) Average (c) Below Average

5) Analyze and answer the questions below without referring to any learning materials.

XYZ Sdn. Bhd. is closing its accounting period. At the end of the period the company's assets, liabilities and equities are listed as follows:

| | | | |
|-------------------|----------|---------------|----------|
| Cash | RM 5,000 | Loans | RM 9,000 |
| Acc. Receivables | RM 3,600 | Acc. Payables | RM 1,700 |
| Inventory | RM 2,500 | Machinery | RM 4,900 |
| Retained Earnings | RM 1,000 | Common Stock | RM 3,000 |

i. If the general accepted standard of Working Capital ratio is 3, how is the liquidity of the company?

- (a) Acceptable (b) Low

ii. If the company's Net Income value is RM 4,000, what is its Return on Assets?

- (a) 0.25 (b) 0.3 (c) 0.35

iii. If the company's Net Income value is RM 4,000, what is its Return on Equity?

- (a) 0.5 (b) 1.0 (c) 1.5

6) What is the effect of having an application that helps you analyze and manage financial analysis to your work?

- (a) A must have (b) Good to have (c) Can live without it

APPENDIX 2: PARTIAL SOURCE CODE

Notes: All codes are placed in the first frame of the timeline or in the button

Main Form: financialHelper.fla

```
//LoadForms
```

```
//yrA
```

```
loadMovieNum("incStA1.swf",1);  
loadMovieNum("balShtA1.swf",2);  
loadMovieNum("incStA2.swf",3);  
loadMovieNum("balShtA2.swf",4);  
loadMovieNum("incStA3.swf",5);  
loadMovieNum("balShtA3.swf",6);  
loadMovieNum("incStA4.swf",7);  
loadMovieNum("balShtA4.swf",8);
```

```
//yrB
```

```
loadMovieNum("incStB1.swf",9);  
loadMovieNum("balShtB1.swf",10);  
loadMovieNum("incStB2.swf",11);  
loadMovieNum("balShtB2.swf",12);  
loadMovieNum("incStB3.swf",13);  
loadMovieNum("balShtB3.swf",14);  
loadMovieNum("incStB4.swf",15);  
loadMovieNum("balShtB4.swf",16);
```

```
//yrC
```

```
loadMovieNum("incStC1.swf",17);  
loadMovieNum("balShtC1.swf",18);  
loadMovieNum("incStC2.swf",19);  
loadMovieNum("balShtC2.swf",20);  
loadMovieNum("incStC3.swf",21);  
loadMovieNum("balShtC3.swf",22);  
loadMovieNum("incStC4.swf",23);  
loadMovieNum("balShtC4.swf",24);
```



```

//ratios
loadMovieNum("liqRat.swf",30);
loadMovieNum("actRat.swf",31);
loadMovieNum("profRat.swf",32);
loadMovieNum("capRat.swf",33);

//graph
loadMovieNum("lrG.swf",40);
loadMovieNum("arG.swf",41);
loadMovieNum("crG.swf",42);
loadMovieNum("prG.swf",43);

loadMovieNum("help.swf",100);

```

Accounting Form: balShtA1

```

on (press){
//CURRENT ASSETS
//textInput definition
var a1:Number = Number(bAi3_txt.text);
var a2:Number = Number(bAi4_txt.text);
var a3:Number = Number(bAi6_txt.text);
var a4:Number = Number(bAi7_txt.text);
var a5:Number = Number(bAi8_txt.text);
var a6:Number = Number(bAi9_txt.text);
var a7:Number = Number(bAi12_txt.text);
var a8:Number = Number(bAi13_txt.text);

//cash
var total1:Number = a1 + a2;
bAi2_txt.text = total1;

//receivables
var total2:Number = a3+a4+a5-a6;
bAi5_txt.text = total2;

```

```

//accrued assets
var total3:Number = a7+a8;
bAi11_txt.text = total3;

//CurrentAssets
bAi1_txt.text = total1+total2+total3;

//transfer to main page
_level0.yrA_mc.yrAi1_txt.text = bAi1_txt.text;
_level0.caAi = bAi1_txt.text;

//FIXED ASSETS
//textInput definition
var a9:Number = Number(bAi15_txt.text);
var a10:Number = Number(bAi17_txt.text);
var a11:Number = Number(bAi18_txt.text);
var a12:Number = Number(bAi19_txt.text);
var a13:Number = Number(bAi20_txt.text);
var a14:Number = Number(bAi21_txt.text);
var a15:Number = Number(bAi23_txt.text);
var a16:Number = Number(bAi24_txt.text);

//property, plant & equipment
var total4:Number = a10+a11+a12+a13-a14;
bAi16_txt.text = total4;

//other fixed assets
var total5:Number = a15-a16;
bAi22_txt.text = total5;

//FixedAssets
var total6:Number = a9+total4+total5;
bAi14_txt.text = total6;

//transfer to main page
_level0.yrA_mc.yrAi2_txt.text = bAi14_txt.text;

```

```

//TOTAL ASSETS
//textInput definition
var a17:Number = Number(bAi1_txt.text);
var a18:Number = Number(bAi14_txt.text);

//TotalAssets
var total7:Number = a17+a18;
bAi25_txt.text = total7;

//transfer to main page
_level0.yrA_mc.yrAi3_txt.text = bAi25_txt.text;

//CURRENT LIABILITIES
//textInput definition
var a19:Number = Number(bAi28_txt.text);
var a20:Number = Number(bAi29_txt.text);
var a21:Number = Number(bAi30_txt.text);

//payables
var total8:Number = a19+a20+a21;
bAi27_txt.text = total8;

//Current Liabilities
bAi26_txt.text = total8;

//transfer to main page
_level0.yrA_mc.yrAi4_txt.text = bAi26_txt.text;

//LONG-TERM LIABILITIES
//textInput definition
var a22:Number = Number(bAi32_txt.text);
var a23:Number = Number(bAi33_txt.text);

//Long-term Liabilities

```

```

var total9:Number = a22+a23;
bAi31_txt.text = total9;

//transfer to main page
_level0.yrA_mc.yrAi5_txt.text = bAi31_txt.text;

//TOTAL LIABILITIES
//textInput definition
var a24:Number = Number(bAi26_txt.text);
var a25:Number = Number(bAi31_txt.text);

//Total Liabilities
var total10:Number = a24+a25;
bAi34_txt.text = total10;

//transfer to main page
_level0.yrA_mc.yrAi6_txt.text = bAi34_txt.text;

//EQUITY
//textInput definition
var a26:Number = Number(bAi37_txt.text);
var a27:Number = Number(bAi38_txt.text);

//total common equity
var total11:Number = a26+a27;
bAi36_txt.text = total11;

//Equity
bAi35_txt.text = total11;

//transfer to main page
_level0.yrA_mc.yrAi7_txt.text = bAi35_txt.text;

//SUSPENSE ACCOUNT
var total12:Number = total7 - total10 - total11;
bAi39_txt.text = total12;

```

```

//TOTAL LIABILITIES AND EQUITY
//textInput definition
var a28:Number = Number(bAi34_txt.text);
var a29:Number = Number(bAi35_txt.text);
var a30:Number = Number(bAi39_txt.text);

//Total Liabilities & Equity
var total13:Number = a28+a29+a30;
bAi40_txt.text = total13;
}

```

Accounting Form: incStC3

```

on (press){
//Revenue
var a2:Number = Number(iCiii2_txt.text);
var a3:Number = Number(iCiii3_txt.text);
var a4:Number = Number(iCiii4_txt.text);
var a5:Number = Number(iCiii5_txt.text);

var total1:Number = a2+a3+a4+a5;
iCiii1_txt.text = total1;

//transfer to main page
_level0.yrC_mc.yrCiii8_txt.text = iCiii1_txt.text;

//EXPENSES
//factory Overhead
var a12:Number = Number(iCiii12_txt.text);
var a13:Number = Number(iCiii13_txt.text);

var total2:Number = a12+a13;
iCiii11_txt.text = total2;

//Cost of Product Sold

```

```

var a9:Number = Number(iCiii9_txt.text);
var a10:Number = Number(iCiii10_txt.text);
var a11:Number = Number(iCiii11_txt.text);
var a14:Number = Number(iCiii14_txt.text);

var total3:Number = a9+a10+a11+a14;
iCiii8_txt.text = total3;

//Operating Expenses
var a16:Number = Number(iCiii16_txt.text);
var a17:Number = Number(iCiii17_txt.text);

var total4:Number = a16+a17;
iCiii15_txt.text = total4;

//Cost of Goods Sold
iCiii7_txt.text = total3;

//Expenses
var a7:Number = Number(iCiii7_txt.text);
var a15:Number = Number(iCiii15_txt.text);
var a18:Number = Number(iCiii18_txt.text);
var a19:Number = Number(iCiii19_txt.text);

var total5:Number = a7+a15+a18+a19;
iCiii6_txt.text = total5;

//transfer to main page
_level0.yrC_mc.yrCiii9_txt.text = iCiii6_txt.text;

//EBIT
var a1:Number = Number(iCiii1_txt.text);
var a6:Number = Number(iCiii6_txt.text);

var total6:Number = a1-a6;
iCiii20_txt.text = total6;

```

```

//EBT
var a20:Number = Number(iCiii20_txt.text);
var a21:Number = Number(iCiii21_txt.text);

var total7:Number = a20-a21;
iCiii22_txt.text = total7;

//NET INCOME
var a22:Number = Number(iCiii22_txt.text);
var a23:Number = Number(iCiii23_txt.text);

var total8:Number = a22-a23;
iCiii24_txt.text = total8;

//transfer to main page
_level0.yrC_mc.yrCiii10_txt.text = iCiii24_txt.text;

}

```

Graph: arG

```

//VARIABLE DECLARATIONS
var a1:Number = Number();
var a2:Number = Number();
var a3:Number = Number();
var a4:Number = Number();
var a5:Number = Number();
var a6:Number = Number();
var a7:Number = Number();
var a8:Number = Number();
var a9:Number = Number();
var a10:Number = Number();
var a11:Number = Number();
var a12:Number = Number();
var b1:Number = Number();
var b2:Number = Number();
var b3:Number = Number();

```

```
var b4:Number = Number();
var b5:Number = Number();
var b6:Number = Number();
var b7:Number = Number();
var b8:Number = Number();
var b9:Number = Number();
var b10:Number = Number();
var b11:Number = Number();
var b12:Number = Number();
var c1:Number = Number();
var c2:Number = Number();
var c3:Number = Number();
var c4:Number = Number();
var c5:Number = Number();
var c6:Number = Number();
var c7:Number = Number();
var c8:Number = Number();
var c9:Number = Number();
var c10:Number = Number();
var c11:Number = Number();
var c12:Number = Number();
var d1:Number = Number();
var d2:Number = Number();
var d3:Number = Number();
var d4:Number = Number();
var d5:Number = Number();
var d6:Number = Number();
var d7:Number = Number();
var d8:Number = Number();
var d9:Number = Number();
var d10:Number = Number();
var d11:Number = Number();
var d12:Number = Number();

//BUTTON'S LOC
//wewc_mc.yrCia_btn._y = -a1;
wc_mc.yrCib_btn._y = -a2;
```



```
we_mc.yrCic_btn._y = -a3;  
we_mc.yrCid_btn._y = -a4;
```

```
we_mc.yrBia_btn._y = -a5;  
we_mc.yrBib_btn._y = -a6;  
we_mc.yrBic_btn._y = -a7;  
we_mc.yrBid_btn._y = -a8;  
we_mc.yrAia_btn._y = -a9;  
we_mc.yrAib_btn._y = -a10;  
we_mc.yrAic_btn._y = -a11;  
we_mc.yrAid_btn._y = -a12;
```

```
//cr
```

```
cr_mc.yrCiia_btn._y = -b1;  
cr_mc.yrCiib_btn._y = -b2;  
cr_mc.yrCiic_btn._y = -b3;  
cr_mc.yrCiid_btn._y = -b4;  
cr_mc.yrBiia_btn._y = -b5;  
cr_mc.yrBiib_btn._y = -b6;  
cr_mc.yrBiic_btn._y = -b7;  
cr_mc.yrBiid_btn._y = -b8;  
cr_mc.yrAiia_btn._y = -b9;  
cr_mc.yrAiib_btn._y = -b10;  
cr_mc.yrAiic_btn._y = -b11;  
cr_mc.yrAiid_btn._y = -b12;
```

```
//qr
```

```
qr_mc.yrCiiia_btn._y = -c1;  
qr_mc.yrCiiib_btn._y = -c2;  
qr_mc.yrCiiic_btn._y = -c3;  
qr_mc.yrCiiid_btn._y = -c4;  
qr_mc.yrBiiia_btn._y = -c5;  
qr_mc.yrBiiib_btn._y = -c6;  
qr_mc.yrBiiic_btn._y = -c7;  
qr_mc.yrBiiid_btn._y = -c8;  
qr_mc.yrAiiia_btn._y = -c9;  
qr_mc.yrAiiib_btn._y = -c10;
```

```
qr_mc.yrAiiic_btn._y = -c11;  
qr_mc.yrAiiid_btn._y = -c12;
```

```
//atr
```

```
atr_mc.yrCiva_btn._y = -d1;  
atr_mc.yrCivb_btn._y = -d2;  
atr_mc.yrCivc_btn._y = -d3;  
atr_mc.yrCivd_btn._y = -d4;  
atr_mc.yrBiva_btn._y = -d5;  
atr_mc.yrBivb_btn._y = -d6;  
atr_mc.yrBivc_btn._y = -d7;  
atr_mc.yrBivd_btn._y = -d8;
```

```
//GRAPH PLOT
```

```
//QR
```

```
qr_mc.lineStyle(3,0xff7700,100);  
qr_mc.moveTo(45,-c1);  
qr_mc.lineTo(90,-c2);  
qr_mc.lineTo(135,-c3);  
qr_mc.lineTo(180,-c4);  
qr_mc.lineTo(225,-c5);  
qr_mc.lineTo(270,-c6);  
qr_mc.lineTo(315,-c7);  
qr_mc.lineTo(360,-c8);  
qr_mc.lineTo(405,-c9);  
qr_mc.lineTo(450,-c10);  
qr_mc.lineTo(495,-c11);  
qr_mc.lineTo(540,-c12);
```

```
//WC
```

```
wc_mc.lineStyle(3,0xff0000,100);  
wc_mc.moveTo(45,-a1);  
wc_mc.lineTo(90,-a2);  
wc_mc.lineTo(135,-a3);  
wc_mc.lineTo(180,-a4);  
wc_mc.lineTo(225,-a5);  
wc_mc.lineTo(270,-a6);
```

```
wc_mc.lineTo(315,-a7);
wc_mc.lineTo(360,-a8);
wc_mc.lineTo(405,-a9);
wc_mc.lineTo(450,-a10);
wc_mc.lineTo(495,-a11);
wc_mc.lineTo(540,-a12);
```

```
//CR
```

```
cr_mc.lineStyle(3,0x009900,100);
cr_mc.moveTo(45,-b1);
cr_mc.lineTo(90,-b2);
cr_mc.lineTo(135,-b3);
cr_mc.lineTo(180,-b4);
cr_mc.lineTo(225,-b5);
cr_mc.lineTo(270,-b6);
cr_mc.lineTo(315,-b7);
cr_mc.lineTo(360,-b8);
cr_mc.lineTo(405,-b9);
cr_mc.lineTo(450,-b10);
cr_mc.lineTo(495,-b11);
cr_mc.lineTo(540,-b12);
```

```
//ATR
```

```
atr_mc.lineStyle(3,0x0000ff,100);
atr_mc.moveTo(45,-d1);
atr_mc.lineTo(90,-d2);
atr_mc.lineTo(135,-d3);
atr_mc.lineTo(180,-d4);
atr_mc.lineTo(225,-d5);
atr_mc.lineTo(270,-d6);
atr_mc.lineTo(315,-d7);
atr_mc.lineTo(360,-d8);
atr_mc.lineTo(405,-d9);
atr_mc.lineTo(450,-d10);
atr_mc.lineTo(495,-d11);
```

```
atr_mc.lineTo(540,-d12);
```

```
//BTR
```

```
btr_mc.lineStyle(3,0x000000,100);
```

```
btr_mc.moveTo(45,-e1);
```

```
btr_mc.lineTo(90,-e2);
```

```
btr_mc.lineTo(135,-e3);
```

```
btr_mc.lineTo(180,-e4);
```

```
btr_mc.lineTo(225,-e5);
```

```
btr_mc.lineTo(270,-e6);
```

```
btr_mc.lineTo(315,-e7);
```

```
btr_mc.lineTo(360,-e8);
```

```
btr_mc.lineTo(405,-e9);
```

```
btr_mc.lineTo(450,-e10);
```

```
btr_mc.lineTo(495,-e11);
```

```
btr_mc.lineTo(540,-e12);
```

```
//fadings
```

```
atr_mc._alpha = 30;
```

```
qr_mc._alpha = 30;
```

```
wc_mc._alpha = 30;
```

```
cr_mc._alpha = 30;
```

```
btr_mc._alpha = 30;
```