

ONLINE BUSINESS WITH DATA MINING

by

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CERTIFICATION OF APPROVAL

Online Business with Data Mining

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Approved by,



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CERTIFICATION OF ORIGINALITY

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



SITI NURATHIRAH BINTI AHMAD

Abstract

This paper is about how home based business which has become a trend nowadays. This research paper also tells how strong internet can influence and help to boost business into international market. The advantages of doing home based business and internet marketing also being discussed in this paper. The revolution of internet in Malaysia changed businessperson's perception on their marketing plan. The businessperson tends to change their marketing plan and make it suitable and compatible in this technology world. This paper also consists of the problems occurred while doing home based business and internet marketing. In order identify and solve the problems, qualitative research methods will be used in this research paper as well as for the project. Quantitative methods will not being used for this project and research paper. No matter how hard the problem is, there will be light at the end of the tunnel. Revealing the solutions of the home based business and internet marketing's problems will be discussed in this project.

ACKNOWLEDGMENT

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Internet plays an important role in human's daily life nowadays especially in communication ways. People can communicate easily around among themselves within a second. Everything they need, it is all at the end of their fingertips. They do not need to plan their travel route and time because it's all can be done using internet. Clothes, foods, accessories, and even electronic gadgets as well, just by one click on the internet; it will be delivered in front of the doorstep.

This opportunity has been seen by business-minded people who are thinking to enlarge their business throughout the border-less world. The businessmen are trying to find new target market by doing it online. Thus, percentage of business online in Malaysia increased dramatically over the years. They realized how internet and technology can be their opportunity in order to boost up their sales and increased productivity. Unfortunately, they did not aware on how technology, a system can help them increased their production. Internet is a platform for the businessman to market or to place themselves in the industry, but a system will help them strengthen their strategy and being able to compete with their rivals and competitors.

Online Business with Data Mining System will help the owner of the business keep tracking on their sales transaction. Currently, most of the online business owners tend to do it manually and they have to see tons of orders from customers and data in order to analyze their performance of the business. He or she can determine which items are most popular among their products and from the system itself; they can know when the

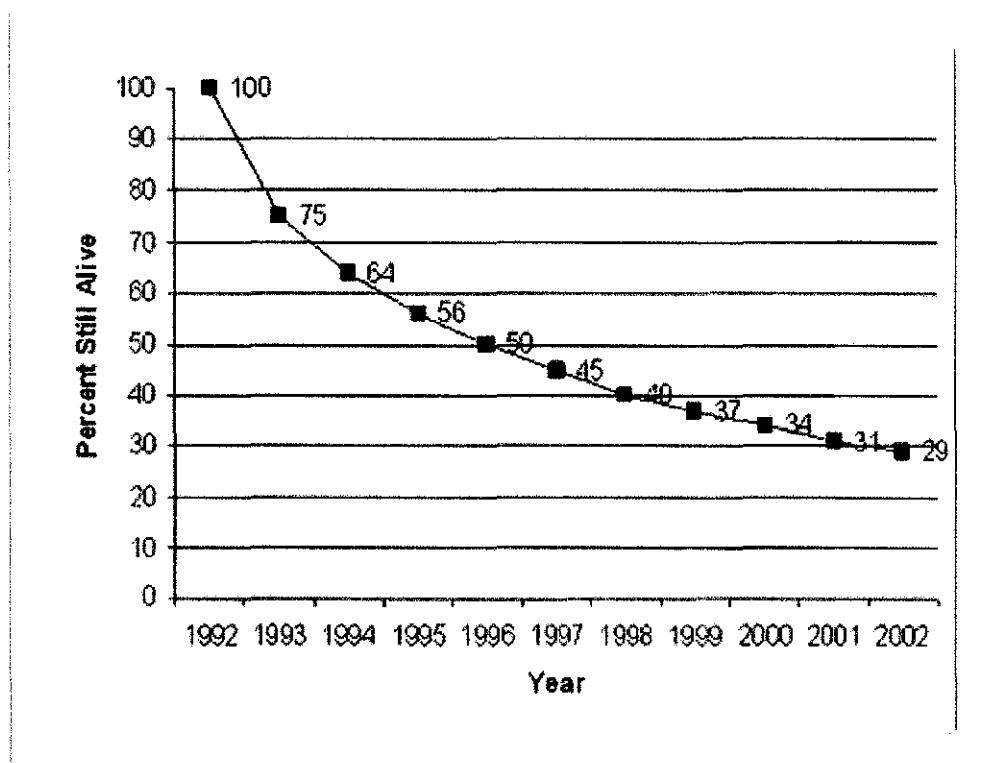
suitable time to reorder the stocks is and when is the time where people viewed the most. By using those simple data can increased their customer relationship with their customers Moreover, the business owner can forecast the movement of his or her business in the future by using the data had been analyzing earlier using the system. It will give a lot of benefits to the sales manager as he or she can keep track the flow and operation of the business.

1.2 PROBLEM STATEMENT

Many rumors said home based business will be successful since it is less capital business in term of starting the business. Shane (2008) had done his studies, on startup business failure rates. On his study, he said almost 50 percent of small business cannot make it to the third year of business. 25 percent meet failure before their first year since they started their business.

On the other hand, Khairi (2006) stated that 85 percent of new business fails within the first five years and only 4 percent will make it big while the rest just be at the survival point. [9]

Figure 1 shows the studies had been done by Shane (2008) on proportion of new businesses founded in 1992 still alive until their tenth years since they started their business.[8]



Why most of online businesses fail? Meyerson, M. et al (2008) said *many online marketers mistakenly leap into action and rush to build their website – without giving the process sufficient time, thought, and planning – enticed by the gobs of money they'll earn and the relatively low cost of entry. They falsely believe that they can create a profitable business even though they lack the vital information and tools necessary to carry them through successfully* [4]. The internet marketers are lack of knowledge of doing business and internet. That is one of the main reasons why online business failed and never lasting.

Most of businessmen have their own website; easy to communicate, take order from the customer. Unfortunately, they failed to know that the best product which demanded the most from the customer. Usually, they are using manually by counting at the number of order and it seems like too hard and too complicated where they have to search and calculate the number of orders. They have to look into tons of papers which contain orders from their customers. It will take a lot of time if they want to calculate all the orders and analyze the data manually. They might have hundreds of orders per day and

having lack of man power to do all the tasks manually. Plus, tendency to produce many errors while analyzing the data manually is high

1.3 OBJECTIVES

The objective of this project is to develop a system that can be used by owner of online business or his or her employees to analyze pattern of sales and data. The business owner or his or her employees can use the system to assist them achieve their company's goals and objective. The system can assist them in term of giving a suggestion and recommendation on what items can be restock and which items are the most popular among their products so they can come out with their own strategy to win their customers' heart. Another objective is to learn more about web application. From the website, all of the customers' profile and the details about the product will be inserted in the database. The system will retrieved the data from the database, analyze the data and send the result to the business owner or his or her employees.

1.4 SCOPE OF STUDY

The research only covers on the revolution of home based business and internet marketing in Malaysia and the world. The research also includes the relationship between home based business and internet marketing, for example how internet can help boost market sales in business. Furthermore, the behavior of online customers also will be discussed in this research in order to learn more about target market characteristic.

The research consists of the characteristics and factors that can influence or contribute to be a successful netpreneur. Besides that, this research also conducts on how to get the right information from the right resources. For example, to get the information on how to be a successful netpreneur, the best way is to interview people whom had been successful in the internet marketing industry.

The research also includes how is technology (website) can influence the target market to buy a product. The design of the website itself can make a browser into a customer. Maximizing the usage of the internet on how to market our product also will be learn in this research. For example, learn how to put the website in the top 5 pages of in the search engine (Google, Yahoo and et cetera). The outcomes of the research will be implemented during the real business started. Using the result had been found during the research, it helps to achieve the objectives of this project.

The research also includes on how the owner of the company can use the website to track the trend of the customers on which product is demanded the most from the customer, most viewed product and which time is the most customer's view the website, so at that time, the businessman can create a special offer at the certain time for the customer.

CHAPTER 2

LITERATURE REVIEW

2.1 HOME BASED BUSINESS

Home based business is become a trend especially for students and women. According to Fong et al. (2000), home based business is described as *a business, which primary activities are carried out from home and it can be of any size or any type as long as the office itself is located in a home* [1]. Basically, home based business is where people turn their home into office or their working area. Before internet is introduced in Malaysia, people already start doing Small Office Home Office (SOHO) instead of rent a shop houses at the targeted areas especially for the women and students. The housewives, usually doing their business in their home and at the same time, they can manage their family. They started to do a business such as baking cakes, becomes a tailor, and doing handicraft accessories and souvenirs (necklace, bangles and et cetera). People less interested to do business because when they heard about business, it means they have to invest a lot of money to start a business. For example, to rent a shop house already cost about RM 5 000 – RM 10 000 per month. That is why people start to do their business in their home. They can save a lot of money and invest it to the products instead of wasting their money to rent a shop houses.

2.2 INTERNET MARKETING

Internet Marketing is also known as digital marketing, web marketing, online marketing, or e-marketing, is the marketing of products or services over the Internet [3]. According to Meyerson (2008), *marketing is everything you do to promote your company* [4]. In Malaysia, since the introduction of the first Internet Service Provider (ISP) JARING back in 1990, and later TMNET in 1996, the growth of Internet usage in Malaysia has been steadily growing [2].

Table 1 indicated the total number of Internet usage in Malaysia from year 2000 until 2010.

| YEAR | Users | Population | % Pen. | Usage Source |
|------|------------|------------|--------|--------------------|
| 2000 | 3,700,000 | 24,645,600 | 15.0 % | <u>ITU</u> |
| 2005 | 10,040,000 | 26,500,699 | 37.9 % | <u>C.I.Almanac</u> |
| 2006 | 11,016,000 | 28,294,120 | 38.9 % | <u>ITU</u> |
| 2007 | 13,528,200 | 28,294,120 | 47.8 % | <u>MCMC</u> |
| 2008 | 15,868,000 | 25,274,133 | 62.8 % | <u>MCMC</u> |
| 2009 | 16,902,600 | 25,715,819 | 65.7 % | <u>ITU</u> |
| 2010 | 16,902,600 | 26,160,256 | 64.6 % | <u>ITU</u> |

Source: Internet World Statistic; Asia [5]

Table 2 is the statistic of internet usage and population statistic for June 20, 2010 for each world regions.

| WORLD INTERNET USAGE AND POPULATION STATISTICS | | | | | | |
|--|----------------------------|---------------------------------------|----------------------------------|----------------------------------|-------------------------|---------------------|
| World Regions | Population (2010 Est.) | Internet Users Dec. 31, 2000 | Internet Users Latest Data | Penetration (% Population) | Growth 2000- 2010 | Users % of Table |
| <u>Africa</u> | 1,013,779,050 | 4,514,400 | 110,931,700 | 10.9 % | 2,357.3 % | 5.6 % |
| <u>Asia</u> | 3,834,792,852 | 114,304,000 | 825,094,396 | 21.5 % | 621.8 % | 42.0 % |
| <u>Europe</u> | 813,319,511 | 105,096,093 | 475,069,448 | 58.4 % | 352.0 % | 24.2 % |
| <u>Middle East</u> | 212,336,924 | 3,284,800 | 63,240,946 | 29.8 % | 1,825.3 % | 3.2 % |
| <u>North America</u> | 344,124,450 | 108,096,800 | 266,224,500 | 77.4 % | 146.3 % | 13.5 % |
| <u>Latin America/Caribbean</u> | 592,556,972 | 18,068,919 | 204,689,836 | 34.5 % | 1,032.8 % | 10.4 % |
| <u>Oceania / Australia</u> | 34,700,201 | 7,620,480 | 21,263,990 | 61.3 % | 179.0 % | 1.1 % |
| WORLD TOTAL | 6,845,609,960 | 360,985,492 | 1,966,514,816 | 28.7 % | 444.8 % | 100.0 % |

Source : Internet World Statistic; World [6]

Technologies had been growing faster each year. Each year, the number of internet usage had been increasing. According to statistics given at Table 1 and Table 2, it is an opportunity to start internet marketing. Matthews and Holden (2007) stated that *more and more people are shopping online and a growing number of businesses are seeing the unique value of advertising on the Web* [7]. The combination of home based business and technologies (for example, internet) is like a perfect combo in the business world in order to gain more profits in business.

2.3 DATA MINING AS TOOLS IN THE WEBSITE

Data mining is the analysis of large observational data sets to find unsuspected relationships and to summarize the data in novel ways that are both understandable and useful for the data owner [15]. According to Wikipedia, data mining is a process of extracting patterns from large data sets by combining methods from statistics and artificial intelligence with database management [16].

In the today e-commerce have been using data mining to increase their business and it is proven by Wall-Mart. Using data mining in their business helps a lot in term of knowing the pattern of customers' behavior. What data mining can do for the business?

1. Automated prediction of trends and behaviors [17]
 - a. Usually, this will help a business in term of knowing the consumers' behavior. The owner of the shop will know what is the most preferable items and the most viewed products, so that they the owner can track the trends of the consumers.
2. Automated discovery of previously unknown patterns [17]
 - a. The data sometimes are mistakenly taken by the owner and will create errors. For example, detecting the false credit card transaction.

Table 3 below is the history of data mining since 1960.

| Evolutionary Step | Business Question | Enabling Technologies | Product Providers | Characteristics |
|--|---|---|---|---|
| Data Collection (1960s) | "What was my total revenue in the last five years?" | Computers, tapes, disks | IBM, CDC | Retrospective, static data delivery |
| Data Access (1980s) | "What were unit sales in New England last March?" | Relational databases (RDBMS), Structured Query Language (SQL), ODBC | Oracle, Sybase, Informix, IBM, Microsoft | Retrospective, dynamic data delivery at record level |
| Data Warehousing & Decision Support (1990s) | "What were unit sales in New England last March? Drill down to Boston." | On-line analytic processing (OLAP), multidimensional databases, data warehouses | Pilot, Comshare, Arbor, Cognos, Microstrategy | Retrospective, dynamic data delivery at multiple levels |
| Data Mining (Emerging Today) | "What's likely to happen to Boston unit sales next month? Why?" | Advanced algorithms, multiprocessor computers, massive databases | Pilot, Lockheed, IBM, SGI, numerous startups (nascent industry) | Prospective, proactive information delivery |

Home based business used to be called "Home enterprise" by American's country. According Spiegel (1999), he said "*A home enterprise is part of great American tradition. Prior to the 1900s, most U.S workers were employed in their homes. These included farmers, store owners who lived above or behind their stores, lawyers, and doctors who used their front rooms for client or patient consultation [10].*" As Spiegel (1999) said, most workers start their job in their home. For example, the grocer will

open their shop in front of their house with their target market is people whom living within the area nearby. Another example is, the kids opened a small stall in front of their house to sell lemonade to earn money as their pocket money to school. Not only the adults can think and start their business in their homes, the kids' age 8 to 12 years old also already have business minded in order to earn money.

After they can attain a lot of profits by doing business at their home, they might be interested to move their business to a better and bigger place with wider target market. At this point, people started to expand their business, opened more branches in a strategic areas. By doing home based business, it gives more advantages to the men and women whom love to work by their own such as [12]:

- Personal Freedom – He or she can fix his or her own time whenever they want. Besides that, they also have a freedom to control the environment for example; they can choose what color they want for their office, depends on their taste.
- Financial Benefits – The money they earn will relate to their performance.
- Tax savings
- Family togetherness – It is suitable for those have a family and want to spend more time with his or her family.
- Reduced Stress
- Job Enrichment – the home-based businessperson is free to learn and perform variety of work-related tasks.
- Increased productivity
- Competitive Advantage – Give lower price product to the customer since there will be no extra charge for pay the store rental.

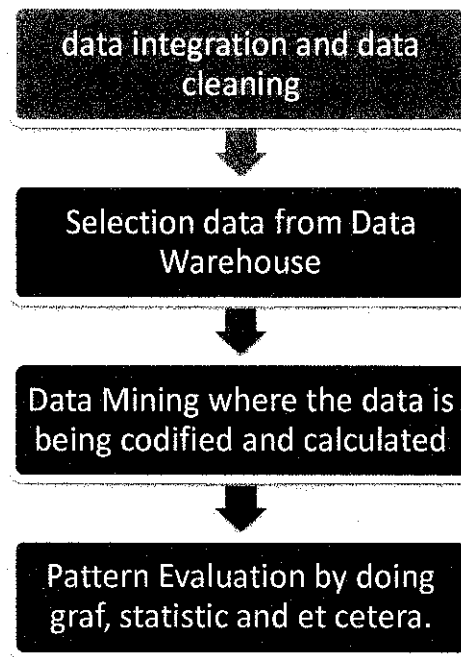
The coming of Internet and World Wide Web (www) has changed a lot in home based business areas. It makes business owners to rethink their opportunities. Bonnett (2000) stated that the growing of internet in the world can give small business owners a greater potential than ever before to [11]:

- Expand their businesses far outside their present boundaries
- Build a customer and prospect base that numbers in the millions
- Provide a much higher and more personal level of customer service without increasing the size of service department proportionately.
- Grow their businesses with a smaller capital investment

With a little help from the internet, up until now, most of small businesses are still on the right track. Internet had been introduced in Malaysia at 1990 where JARING is the first Internet Service Provider (ISP), followed by TMNET on 1996 [2]. Since the internet being introduced, the usage of internet also increasing drastically (Please refer Table 1). Internet is a platform for any business to market their business outside their boundaries. According to Khairi (2006), there are a few advantages of internet business such as [9]:

- Low or even free marketing costs that cover a huge market
- Cost of labor and operation are very low
- Worldwide customer
- Easy and quick way to get feedback from users for marketing research and purposes

Combination data mining and the today's technology which is website will create a lot of benefits to the netpreneur. Netpreneur can detect and study the trend of the customers using data mining and just by clicking on the website.



Data mining provides methods that allow extracting from large data collections unknown relationships among the data items that are useful for decision making [17]. The theory will be used in this project is Association Rule Mining using Market Basket Analysis.

Market Basket Analysis is the related information from the database of purchase transactions and for each transaction a list of purchased item. So, Market Basket Analysis will combine the both data to create another statistic for the user. For example, 60% of people whom buy coca-cola also buy a chocolate. In the database, people whom buying coca-cola will also buy a chocolate. This is where the businessman can track the trend of the consumer behavior.

The task of discovering interesting patterns is part of a larger process supported by data mining systems.

- To continue with mining the data, the data must be extracted from the database or any data resource or known as data warehouse. At this part, it is a compulsory to have a 'clean data'. Clean data is the data is true and the

database did not have any false data that might influence the statistic or might influence any decision-making done by the netpreneur. The task of integrating the data from various data resources or data integration and data cleansing are supported by data warehousing system.

- After getting the 'clean data', then the data will be categorized by the requirement needed by the netpreneur. This task is called data marts.
- Then, this is where the Association Rule Mining take over the process.
 - *Association rules do not represent any sort of causality or correlation between the two items sets [18].*
 - $X \Rightarrow Y$ does not mean X causes Y , so no Causality
 - $X \Rightarrow Y$ can be different from $Y \Rightarrow X$, unlike correlation
- Once the required data done being process, then the others less-needed data will also being process according to the user's importance.

Data mining is useful for Pattern Discovery. The needed data might be hidden somewhere in the database. Data mining will help to answer the questions below after being applied in the customer domain. The questions are :

1. What characterizes frequent buyers?
2. What characterizes customers that are keen on promotions?
3. What characterizes customers making quick purchase decision?
4. What characterizes customers that do not purchase?

CHAPTER 3

METHODOLOGY

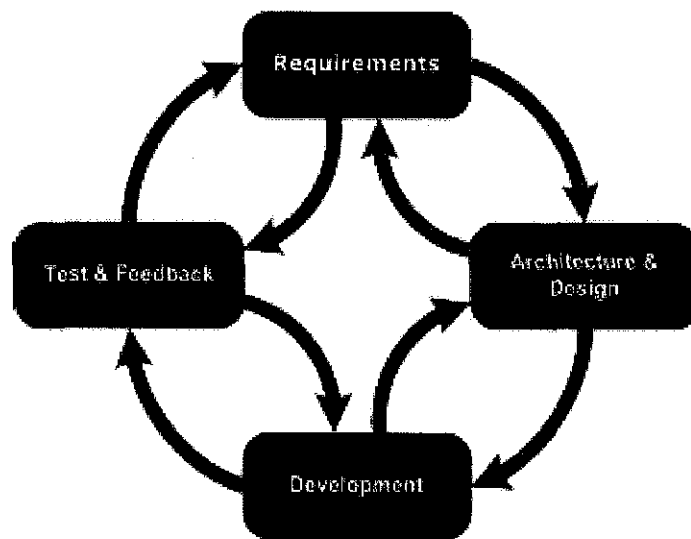


Figure 3 : Agile Methodology

For this project, Agile Methodology will be used in for the web-based application development. According to Wikipedia, Agile methodology is “...a group of software development methodologies based on iterative and incremental development, where requirements and solutions evolve through collaboration between self-organizing, cross-functional teams.” [19]. For the software development, it is the best to use Agile methodology instead of using Waterfall methodology because if any mistakes happened during one of the phase, the risk is not really high compared to Waterfall methodology because can return to the phase before it to fix the problems.

3.1 REQUIREMENTS

3.1.1 The Requirement Analysis

Gathering the data and information about the project will be done during this phase. In this phase, choose the right resources to find the right data and information that will be needed during doing the research process.

In order to get the secondary data (that will leads to Primary data), magazines, books, journals, conferences papers will be used to gather all the data needed. According to Wikipedia, *“Secondary data is data collected by someone other than the user. Common sources of secondary data for social science include censuses, surveys, organizational records and data collected through qualitative methodologies or qualitative research. Primary data, by contrast, are collected by the investigator conducting the research [13].”* For the Primary data, conducting an interview with successful netpreneurs, attending seminars and workshop regarding internet marketing and home based business, interviewing web designer on how to create an interactive web site to attract our customer.

3.1.2 Data Collection Methods

After finalizing the resources for information required in the phase 1, collection data and information for primary data begin to start. Qualitative research methods will be used during phase 2. Qualitative research means a research consists of investigation that *seeks answer to the questions, systematically uses a predefined set of procedures to answer the question, collects evidence, produces findings that were not determined in advance and produces findings that are applicable beyond the immediate boundaries of the study [14].* During this period, an appointment will be made with a few successful netpreneurs to interview them. They can give tips on how to be a successful netpreneur and share their successful stories.

Interviewing a web developer and learning on how to make an interactive website from him or her is part of the activities will be done during this phase in order to assist

Architecture and Design Phase. In order to get most efficient information regarding this project, interviewing and open-ended questionnaires are being choose for this phase.

3.2 ARCHITECTURE AND DESIGN

The goal of the architecture and design phase is to try to identify an architecture that has a good chance of working. The architecture is often defined using free-form diagrams which explore the technical infrastructure, and the major business entities and their relationships. The design is derived in a modeling session, in which issues are explored, until the team is satisfied that they understand what needs to be delivered. [19] During this phase, flow charts that related to the project are being design in order to make sure that the project is being design according to what the owner of the business online needed to help their company achieves their goals and objective.

3.3 DEVELOPMENT

This phase will be designing the website for internet marketing and implement AIDA Concept during the designing the website. The development phase will be guided by milestones or goals. The website and the database for the system will be created according to the information being gain in the Requirement Phase.

3.4 TEST AND FEEDBACK

When the website is done, then it is time to test the project either it meets the targets or not. A few of people who are the owner of online business will be part of this phase where they can test the system and give any comments, criticism or feedback based on their experience.

3.5 TOOLS

- **EwiSoft Website Builder**

EwiSoft Website Builder is tool to create the website and it is easy to use. Time consuming is very high when using this software to create the website.

- **Adobe Photoshop CS3**

By using Photoshop, editing photos and makes the website more attractive can be done.

- **Phone**

It is very useful to make an appointment with the netpreneur, web developer, and suppliers and booking a seat for seminar and workshops.

- **DSLR Camera (Sony Alpha A290)**

Its function is to take pictures of the product and to be uploading it in the website for customer's review.

Camera also being used while doing an interview with successful netpreneurs, as evidence that he or she has been interviewed for this project.

- **Tape Recording**

During the interview session, the tape recording is very useful to record all the conversation with the interviewee. Tape recording can be a checklist for the project data and information, if there is wrong information had been entered in the data collection process.

- **PHP, HTML, SQL and XML language**

This will be used during the website development using combination of database,

CHAPTER 4

RESULT AND DISCUSSION

Data mining will be used to help the netpreneur knows their customers' trend in order to expand their business and learn on how the customer's behavior. With data mining, the end users can easily use it to interpret the data that they wanted.

From the manual based of system, netpreneur can use data mining to calculate and do a statistic based on the question below :

1. What characterizes frequent buyers?
2. What characterizes customers that are keen on promotions?
3. What characterizes customers making quick purchase decision?
4. What characterizes customers that do not purchase?

In order to integrate all the data from all the resources, Association Rule Mining will help a lot to specifies and customize the data according to what the end user want and needed the most.

Using the free software (SQL, XAMPP), it is possible to develop the website using data mining in order to make the netpreneur and the end user's life more easier in the business industry.

This software is a trial version. It has been watermarked with a 'Website Builder' link in the navigation bar.

Please [click here to purchase](#) a registered version to remove the 'Website Builder' link.

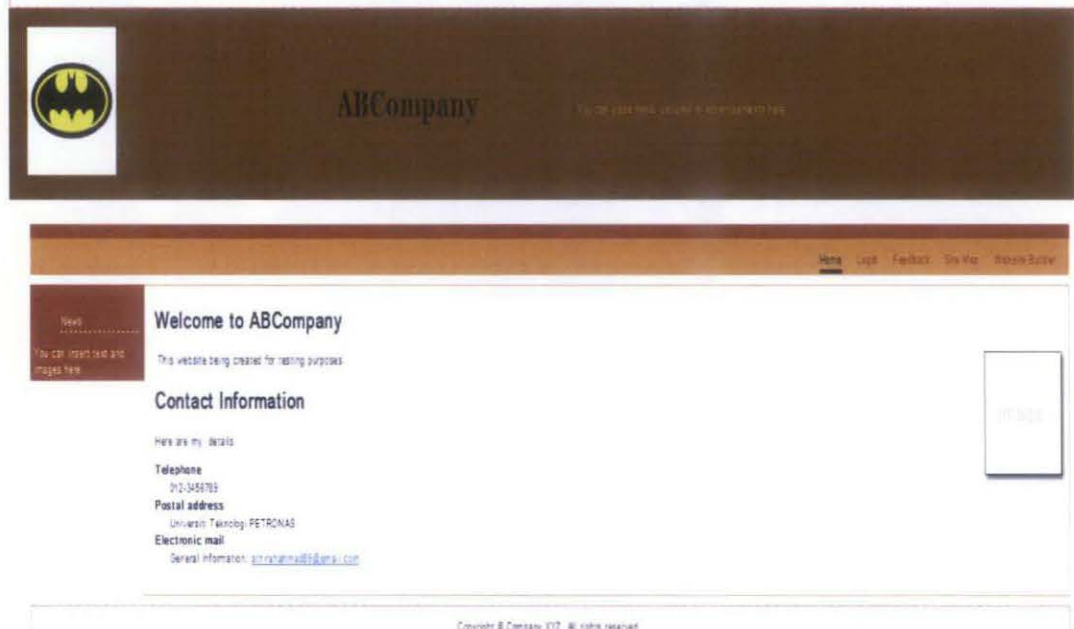


Figure 4 : Homepage

This is the homepage of the website. The customers and admin will view this page before they can proceed to login.

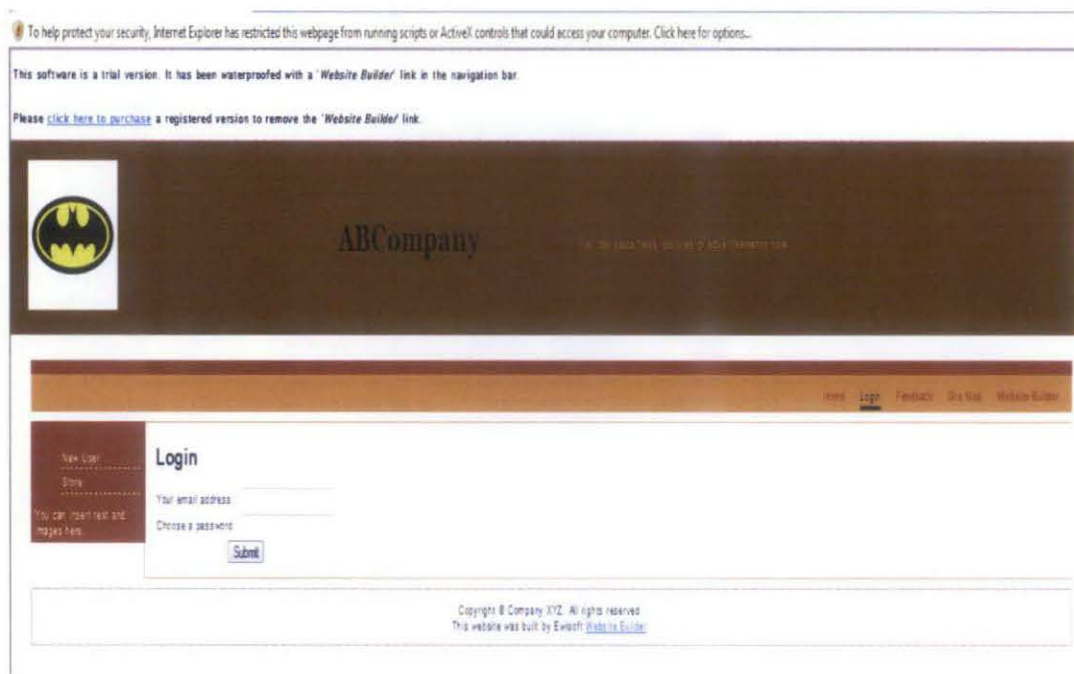


Figure 5 : Login Page

This is the login page where admin or owner of the business and the customers before they can access into catalog page.

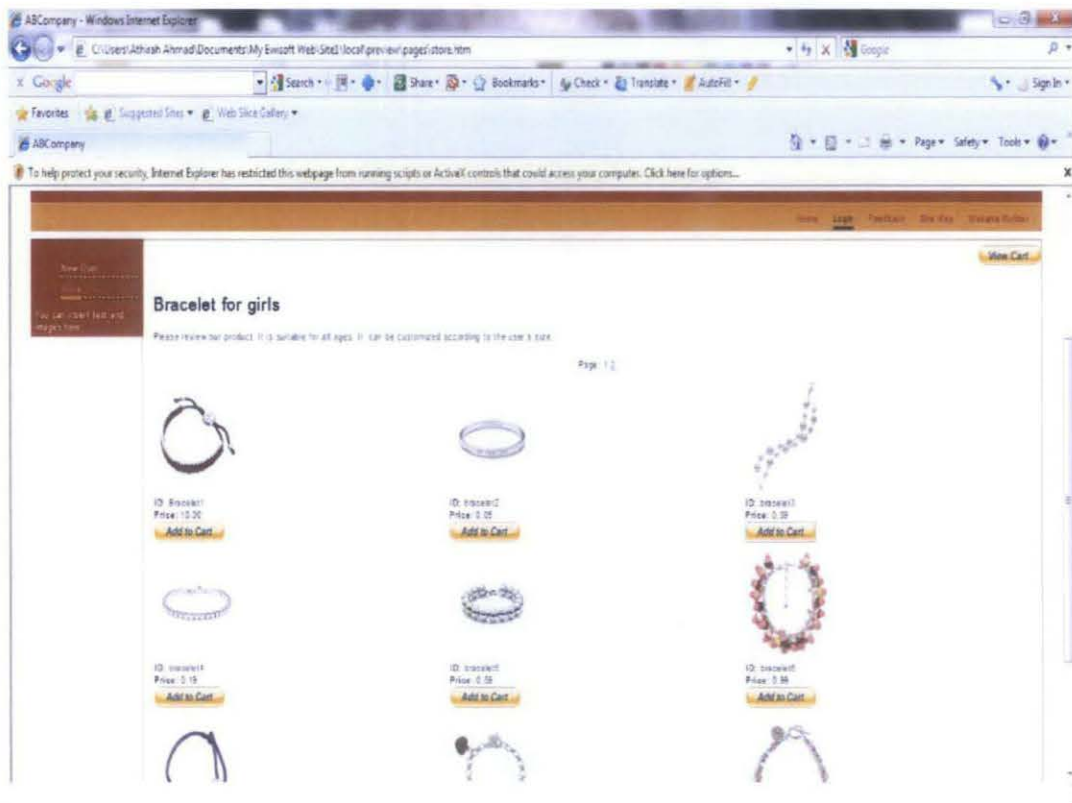


Figure 6 : Catalog

After the customer accessing their profile, they can easily browse into the catalog and choose which one they want to buy.

Reorder Products

Select the products you want to move, then press Up or Down button.

| | ProductID | ProductName | Description | Picture | Price |
|----|------------|------------------------|---|---|-------|
| 1 | bracelet1 | Love | Made from Silver | 7688-onecrown-charity-friendship-bracef | 10.00 |
| 2 | bracelet2 | Simple | Simple style for casual occasion | b2.jpg | 0.05 |
| 3 | bracelet3 | Pearl | Suitable for any formal event or dinner | b3.jpg | 0.09 |
| 4 | bracelet4 | Elegant | Simple yet elegant. Suitable for any events | b4.jpg | 0.19 |
| 5 | bracelet5 | Stylish | Suitable for casual events or when hanging out with friends | b5.jpg | 0.58 |
| 6 | bracelet6 | Cupsake | Sweet yet simple. Suitable for casual events | b6.jpg | 0.99 |
| 7 | bracelet7 | Daisy | Suitable for those whom loves simple designs | b7.jpg | 1.99 |
| 8 | bracelet8 | Link of London | Simple. Suitable for everyday use. | b8.jpg | 5.99 |
| 9 | bracelet9 | Pinky | Made for those whom loves pink colour | b9.jpg | 8.99 |
| 10 | bracelet10 | Made from Tiffany & Co | Simple style for casual occasion | b10.jpg | 19.99 |
| 11 | bracelet11 | Red Ruby | Suitable for formal events or dinners | b11.jpg | 59.99 |
| 12 | bracelet12 | Gold | Suitable for casual events or when hanging out with friends | b12.jpg | 99.99 |

Up Down OK Cancel

Figure 7 : The stock (database)

Only admin of the website can open this page and check which items need to be restock and which does not have to be restock urgently.

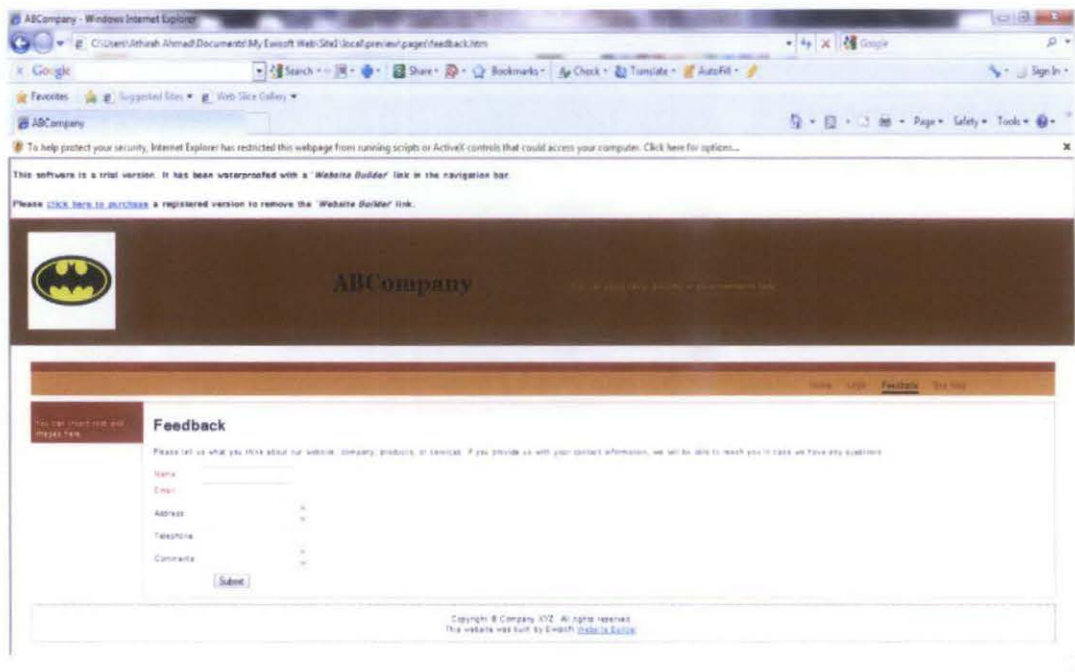


Figure 8 : Feedback Form

Any comments or feedback from the customer, customer can freely write it on feedback form in the website.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

Data mining will help netpreneur a lot in order to gain more profits and adding more communication with the customers. Data mining helps the netpreneur understand more about their consumer's habits and behavior. Using the data being produced by data mining process will help netpreneur to plan on how to catch the consumer's attention and on how to growth their business into international level.

Besides that, this website will help the beginner's netpreneur to know how website and data mining can help them to expand their business and know their target market behavior more and they can study on the consumers and customers' pattern in this business world.

5.2 RECOMMENDATION

Using Association Rule Mining with the Market Basket analysis will help a lot during the development of this project. This is because it is hard to compile all the information and the data over all kind of resources. Association Rule Mining will integrated all the resources and doing a statistic or change the data into the visual designing pattern for example Graff, table, pie chart, and et cetera.

Another recommendation is make the design for the website is more eyes-catching and user friendly interface. It is because easier for the customer to view the website and access it. It is part of the uniqueness of one business if they want to maintain in the industry.

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| No | Task Name | Duration | Start Date | End Date | JANUARY | | | | FEBRUARY | | | | MARCH | | | | | APRIL | | | | MAY | | | | | JUNE | | | | JULY | | | | AUGUST | | | | |
|----|--|----------|------------|------------|---------|----|----|----|----------|----|----|----|-------|----|----|----|----|-------|----|----|----|-----|----|----|----|----|------|----|----|----|------|----|----|----|--------|----|----|----|----|
| | | | | | W1 | W2 | W3 | W4 | W1 | W2 | W3 | W4 | W1 | W2 | W3 | W4 | W5 | W1 | W2 | W3 | W4 | W1 | W2 | W3 | W4 | W5 | W1 | W2 | W3 | W4 | W1 | W2 | W3 | W4 | W1 | W2 | W3 | W4 | W5 |
| 1 | Online Business with Data Mining | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Stage 1 - Proposal and Approval | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Submit Project Proposal | | 02/04/2011 | 02/04/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Approved by Supervisor | 1 week | 02/06/2011 | 02/11/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Stage 2 - Research and Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Phase 1 - The Requirement Process | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Doing research on Internet Marketing | 3 weeks | 13/2/2011 | 13/2/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Doing research on Home Based Business | 3 weeks | 13/2/2011 | 13/2/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Submission of Extended Proposal | | 03/04/2011 | 03/04/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Phase 2 - Architecture and Design | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Doing Feasibility Analysis of the project | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Conduct an interview, with some successful netpreneurs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Attend seminars (if any) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Doing surveys, to get the right target market | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Study on Consumer behaviour | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Proposal defense and Progress Evaluation | 3 weeks | Week 9 | Week 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Submission of Interim Report | 2 weeks | Week 11 | Week 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Phase 3 - Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Learn to create an attractive website | 2 months | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Designing or create a Website | 1 month | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | Phase 4 - Test and Feedback | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | Test the website | 1 month | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | Gather the results | 2 weeks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | Submission of Progress Report | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | Stage 3 - Submission | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | Submission of the project and its result | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |