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## Abstract

This project is aimed at developing Bank Management System for customer. The system is a windows application that can be accessed throughout the organization and outside as well with proper login provided.

The project has been planned to be having the view of distributed architecture, with centralized storage of the database. <sup>2</sup> The application for the storage of the data has been planned. Using the constructs of MySQL and all the user interfaces have been designed using the JAVA. The database connectivity is planned using the “Database” methodology. The standards of security and data protective mechanism have been given a big chance for proper usage. The application takes care of different modules and their

associated reports, which are produced as per the applicable strategies and standards that are put forwarded by the administrative staff.

The entire project has been developed keeping in view of the distributed client server computing technology, in mind The specification has been normalized up to 3NF to eliminate all the anomalies that may arise due to the database transaction that are executed by the general users and the organizational administration. The user interfaces are browser specific to give distributed accessibility for the overall system. The internal database has been selected as MySQL. The basic constructs of table spaces, clusters and indexes have been exploited to provide higher consistency and reliability for the data storage. The MySQL was choice as it provides the constructs of high – level reliability and security. The total front end was dominated using the JAVA JDK 20.0.2 version. At all proper levels high care was taken to check that the system manages the data consistency with proper business rules or validations. The database connectivity was planned using the latest “Database connection” technology provided by MySQL. The authentication was crosschecked at all relevant stages. The user level accessibility has been restricted into two zones namely.

## CHAPTER 1

### Introduction

#### 1.1. Background Of Study

A price comparison website acts as a platform or medium between the consumers and the sellers. It allows consumers to see different lists of prices for the product chosen by user and it helps consumers to make an informed decision about which to choose in order to save money. It also acts as a tool to help consumers increase their price consciousness so that they will not feel cheated by the advertisement from the retailers that claimed they are offering the cheapest price but the reality happened to be otherwise.

Unlike other comparison sites, <https://deal-checker.vercel.app/> (the name of this project) will focus on providing list of prices of home groceries products such as onion, chilies, garlic, potatoes, fish, chicken and others. Due to vast increase of people who are online, PriceWar.com will be a great help for those who are stuck with loads of work in the office and don't have much time to check on the current price of the home groceries products. 1

According to research of Social, Digital and Mobile in Malaysia made by We Are Social, the internet penetration for Malaysia is 59% and the average hours Malaysian netizens spend using the internet every week is 19.8 hours. Meanwhile 21% of Malaysian internet users access the web via mobile devices which means they have internet accessibility anywhere with their smart phones. 77% of Malaysian web users have shared their thoughts on a brand via social media during this research was made in the year 2011. The research shows that how Malaysian people are attached to the internet.

Figure 1: Percentage of Malaysian Population Online (Source: Malaysiacrunch.com, 2011)

Based on the figure above, the statistic is made according to the year 2011, it has clearly shown that more than half 28 of the population in Malaysia is using internet every day and it is believed that the number is increasing from time to time. A survey has been made by Nielsen towards internet users and the results shows 15 that most of the Malaysian internet users spend 20 hours a week online in average. 53% of the respondents go online everyday meanwhile 35% go online on weekly basis. 63% use internet for information, and 94%, which is majority of the internet users, use internet as shopping guideline.

Based on the research made by FRS (Financial Reporting Standards) in the year 2009, it clearly shows that the usage of price comparison website divided into two types of users; those who really searching for the best deal possible and the other one is consumers that

are simply looking for a convenient and time saving way to get a quote. The 'Modern Sophisticate' are serial switchers and more likely to use several comparison websites for research meanwhile the 'Convenience Seekers' are more likely to be loyal to single price comparison site. More people are using price comparison website as their reference to check on the price compared to the users that trusting the website. Please refer the figure below.

Figure 2: 14 More People Are Likely to Use Comparison Sites than Trust Them (Source: FRS – February, 2009)

As what has been mention earlier, a price comparison website act as the medium between customers and retailers so customers can make purchase online for certain retailers that provide such services. On the other words, the price comparison website also has the role to promote the retailer/shop/hypermarket/supermarket to the customers. The pressures on time and money especially in the current economic situation where the living cost increases and there's only little time to do some shopping for household, a price comparison website like PriceWar.com will absolutely become a great help towards consumers. Besides, users nowadays are very comfortable with the internet that it has grown a wider variety of applications from networking and now provide various references for the users.

## 1.2. Problem Statement

Compared to other countries, in Malaysia there is only few prices comparison website that is accessible until now. Most of them is comparing price for hotel's rate, holiday's package, mobile phone and others.

It is important for a web comparison website to return results with the low prices as what

the 11 customers want but accurate results also important so that customers can get what they really want. It also depends on how regular the database is being updated otherwise customers will be confused when they compared it from another site.

Most of the working people do not have time to do shopping for their home groceries. As consumers, they 19 have the right to choose which shop is offering the best price for a certain product that they are interested in. However, to check on price offered by each shop is time consuming and due to limited time that they have, they are not able to compare the prices and end up buying certain product with higher price. Typical mindset of customers nowadays, they see Tesco as the providers for the cheapest product but the reality is, not every product in Tesco offered at the cheapest price. Sometimes, the smaller shop in the neighborhood offers cheaper price.

The 4 other problem that occurs to the retailers/seller side, in order for them to promote their products or if there is any promotion going on, usually they will print out pamphlet to distribute it to the customers. It is costly as they have to produce it in lots of copies and if there is any error in the printed pamphlet, they have to make correction on every copy, which is time consuming, so that customers will not confuse with the pricing. Plus, 4 the catalogue or pamphlets given to customers usually end up being thrown away carelessly and it led to pollution. Therefore, by having catalogue that published online the sellers will be able to save cost and support the green campaign too.

Moreover, for the sellers/retailers who are operating with the small shops, they usually don't have the knowledge to blogging and website to promote their products online. As compared to the big supermarket like Giant or Tesco that have their own website, owners of the small shops found it is hard for them to reach out their customers. They do have the basic knowledge about internet but they do not have the skills to have blog/website for their shops. So, this project will be beneficial for them to get people know about them and their products.



### 1.3. Objectives

The objective of this project is to develop a price comparison website that will have the following functions:

1. To provide customers with a list of price comparison and highlight the cheapest price.
2. To increase price consciousness among consumers.
3. To ensure that the price database is updated regularly so that customers <sup>15</sup> will be able to get accurate results.
4. To provide service for users to find the product's price

### 1.4. Scope Of Study

The scope of study for this PriceWar.com project will be all internet users and it is narrowed down to those who are using internet for business-related purpose, especially in Malaysia. Humanwebsite.com has provided a statistic for the Malaysian online shopping based on the number of internet users and the internet buyers. Refer to the figure below for the comparison of internet users and the internet buyers.

2008

2009

2010

2011

2012

Internet Users

16

16.2

17.5

18.3

18.9

Buying Online

7.4

8.1

8.9

9.7

10.5

Figure 3: Statistics on Malaysian Online Shopping (Source: Malaysiacrunch.com, 2012)

This statistic has been published in the local Chinese newspaper, Oriental Daily News.

Based on the statistic, it shows that the number of internet users increasing every year as well as the internet buyer which means every single of them is the potential visitor of

PriceWar.com. <sup>13</sup> For a price comparison website like <https://deal-checker.vercel.app/>, it only provides with the useful information to the users and it is up to the users to decide which supermarket or shop they should go.

With internet, a price comparison website is accessible anytime and anywhere. The observation made by the author has resulted that people usually go online when they are on the way back from work especially those who are using public transport. Therefore, visiting PriceWar.com can be one of their choices to fill up their free time. They also can share the link of the promotion through social website such as Facebook and Twitter which has the 90% of the Malaysian internet users according to the research made by, We Are Social in December 2011.

Meanwhile for the sellers/retailers, the target will be focusing more on the business that operating at the shop lot. Based on the interview done by the author with some of the owners of the shops, they admit that it will be useful for them if there is service for them to advertise their products on the web for free because they don't have much time and insufficient skills to maintain website/blog on their own.

### 1.5. Significance Of The Project

PriceWar.com act as tool to assist consumers make informed decision before purchasing product by providing the list of prices offered by different retailers/supermarket. Users will use this website as their reference to check on the price of groceries products sold and

promote if there is any promotion going on. It also able to help sellers to promote new product by sending emails to the subscribers about it.

Instead of taking hours and energy to go to each shop just want to check on the price, PriceWar.com offered better solution by getting all the price and users just need to go online and choose which product they want to know and the list of retailers and the price offered will be shown. Users can check it from anywhere, no matter at home or at work, or even in the train while going back from work, <https://deal-checker.vercel.app/> is accessible anytime as long as there is internet connection.

51 or above

6.4

46-50

10.6

41-45

8.8

36-40

16.5

31-35

18

26-30

19

21-25

14.5

21 or below

4.9



Figure 4: Online Consumer by Age Group (Source: Malaysiacrunch.com, 2012)

Based on statistics from Malaysia Crunch's website, most of the consumers who online are contributed by the working adults in the age group of 21 to 40. Meanwhile 60% of online consumers are working as managers or executives and about 13% are students. It shows <sup>15</sup> that most of the working people spend time on the net so a website that provides useful information to help them shopping.

A study was conducted by comScore, co-sponsored by Merchandise Commerce and iProspect, resulted as the following;

- Shoppers usually consulted about four websites for price and feature information (on average)
- Amongst all consumers who are purchasing products <sup>9</sup> offline, roughly two-thirds begin their searches online, using a combination of search website and the retailer's own website.
- 70% of shoppers make purchases within one month of their searching from the internet and one-third of the shoppers buy within one week of starting their searches.

It is clearly shown that online search has clearly become the norm nowadays and most of

the customers out there has become more educated and knows how to use the internet. Therefore, it is significance to develop a system that provides information needed for consumers shopping. The development of PriceWar.com will help consumers to increase their price consciousness, help them making informed decision to save money as well as help the sellers to advertise for free.

## 1 1.6. Feasibility Study

Feasibility study is an analysis of the viability idea. The studies provide thorough analysis of the system. The outcome of the feasibility studies will indicate whether can proceed or not to develop the system.

### 1.6.1 Technical Feasibility

The tools that will use for this system are:

- ☐ NEXT js, Axios, Cheerio
- ☐ Another language such as tailwind

### 1.6.2 Operational Feasibility

This feasibility study mainly concerned whether this system will be used if it is developed and implemented. If this system meets the requirements and needs of customers and sellers, it can be proposed to them to be used in the future.

## CHAPTER 2

### Technologies Used

#### 2.1. 1 Next.js for Dynamic UI:

Description: Next.js, a React framework, is chosen for its ability to create dynamic and server-rendered web applications. Features like server-side rendering (SSR) and efficient client-side routing contribute to a seamless user experience.

##### 2.1.1. Why Next.js:

- React Framework: 29 Next.js is a React framework that simplifies the development of React applications by providing a set of conventions and tools.

- 1 □ Server-Side Rendering (SSR): Next.js supports SSR out of the box, enabling faster page loads by rendering pages on the server and sending the fully rendered page to the client

- Static Site Generation (SSG): It also supports SSG, allowing you to pre-render pages at build time, resulting in highly optimized static assets that can be served by a CDN.

- Automatic Code Splitting: Next.js automatically splits code into small, optimized chunks, which are loaded only when needed. This helps reduce initial loading times and improves performance.

- Routing System: Next.js has a powerful and intuitive routing system that simplifies the creation of dynamic routes and nested routing structures.

- Zero Configuration: Getting started with Next.js is easy, thanks to its zero-configuration setup. You can start building a React application without the need for complex configurations.

- Customizable Head and Document: Next.js provides a customizable































## Sources

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