Design and Implementation of Online Shopping Center

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Abstract. E-commerce web site can promote a trendy way for people to perform shopping for consumer products. Not merely it is convenient, but also it is time-saving, thus consumers can have more time to take care of other things in daily life. E-commerce website can be developed as a shopping center providing services and products for people to do shopping from any places. This web site, or on-line supermarket, integrated of up to one thousand stores, is designed as a one-stop service, so shoppers do not have to visit other sites in order to search for what they are looking for.

The objective of this paper is to develop a web site which provides instant web site package where anyone is able to open his own online store. Providing an easy means to create a store website residing in a shopping center web site, this web site provides a mechanism for store owners to manage their store by themselves using the Content Management System. By using user friendly approach, the web site enables even inexperienced web programming users to create their stores as well as promotes their stores in the market place. Furthermore, the market place is designed by separating products into various categories. Also, it makes shoppers see the products easily in product groups together with their sub categories.

The results of this study show that the developed E-commerce web site provides considerable benefits for both buyers and sellers to do their businesses. Any interested visitors can open their online stores anytime when they think it is the right time. Certainly, shoppers can save traveling expense by choosing their choices of delivery and payment.

KeyWords. E-business; Content Management System; Internet technology

1. Introduction

In the current business around the world, most of organizations tend to expand their market channels towards online market, aiming for increasing income, awareness and reliability. With capability of worldwide connection and convenient access, Internet is the most preferred media used by companies to serve this purpose. Of course, it facilitates online technology which is used to achieve online business development. At present, the growth rate of E-commerce is high due to the expansion of businesses towards online market. So far, online market, especially in Thailand, has been one of the best alternatives used for worldwide merchandise trading. With support of Internet technology, communication devices, such as PDA and full-function mobile phone, etc., can easily access Internet. On top of that, the government of Thailand supports all development of information technology, particularly broad band technology, making Internet to be a main communication media for doing various countrywide businesses. Operating on the Internet, E-commerce is thus more reliable, especially payment gateway – supporting transactions which are the major element of the E-commerce system.

The objectives of this study are to explore online business, concentrating on development of a shopping center. The distinctive feature of this system is providing a convenient, low cost, web site packages for entrepreneurs to open their businesses under the same domain name. Further, with this approach of E-business, it is possible to promote online trading and extend the limit of instant web site service, making possible to be a center of online market in Thailand.

2. The Existing System

E-commerce in Thailand is growing pretty fast, however, there is no standardization for payment system, resulting unreliability of online payment.
There is still another problem following setting up an online store with the web site, the problem of marketing may arise. Another issue, to control the trustworthy of the web site, all shop owners have to register their profiles to the web site, thus it will assure that there is no fraud in online trading on the web site. As the result, the web site will retain its reputation in the market. With this strict rule, the web site can control the quality and trust of its customers. This is very important issue for such a large web site, hosting approximately one thousand online stores. Providing online marketing for the merchandises of those online stores, the web site is designed to include web site package, plaza shopping, and an advertising web board.

3. The Proposed System

The web site, designed as an online shopping center, is separated into two parts: back end and front end parts.

3.1. Back end System.

This part provides facility for each store owner to edit and modify information in his own store. Providing validation check for member and store identification, the back end system can securely protect users’ proprietary information. In addition, all page views employ session variables to deter manually defined variables by users. Applying user friendly approach, and focusing on web programming inexperience, the user can effortlessly manage his back end information. Inside the back end, users can control and view all store information. Beside that, using content management design, the back end part encompasses with these modules: product management, shop information management, web board management, shopping cart management, member management, promotion management, banner management, plaza management, poll management, currency management and article management. The back end components can be organized as shown in Figure 1.

3.2. Front end system.

The front end part, comprising of pages which users can view, is created by using templates so that it can expedite design and loading processes. This part, in the appearance, the main menu is consistent, thus it is easy to use. Considered as the most frequently access when comparing with other parts of the web site, front end pages have to use template, and in turn, saving bandwidth and number of database accesses. For database operation issue, aiming for minimizing number of accesses, it needs just four queries to display all details. Those queries consist of joined SQL statements, which inquire merely main information from the database. The front end design of the web site can be illustrated in Figure 2.
According to the system design mentioned earlier, the shopping center web site, consisting two major components: back end and front end system, was successfully implemented and loaded on the Internet. At the developing stage, after undergoing research and experiment on choices of programs and databases, PHP and MySQL also JavaScript were the major software and database used for developing the entire web site (Ullman, 2004). Furthermore, Microsoft Internet Information Server (IIS), effective and stable plus easy to manage, was chosen as a web server of the web site (Welling et al., 2003). Next, some examples of web pages from the web site can be displayed in Figures 3, 4 and 5.
Figure 4. Back End - Plaza management page

Figure 5. Front End - Shopping online page
5. System Analysis

5.1. Hardware
Operating twenty four hours a day, server has to be constantly monitored especially on its performance. Using hardware monitoring software, it is possible to check performance of the main server components, such as CPU fans, main board voltage and main board temperature. As the result, if any error occurs, the software will immediately send error message to the administrator, as well as terminate that malfunction part. An example of hardware monitoring can be illustrated in Figure 6.

![Figure 6. Hardware monitoring display](image)

Another important hardware component to watch, CPU process is necessary to keep monitoring for its use. Using system task manager software, the CPU process can be monitored in various aspects, such as processes, applications, networking and users. Usually, operating this web site with stable condition, CPU usage of the server should not exceed 60 percents. To maintain server stability, coding errors have to be minimized, plus queries must be well managed. Figure 7 is an example screen of CPU usage.

![Figure 7. CPU usage display](image)
5.2. Software
On the software side, to protect from blank record in database, JavaScript is used to check form validation prior to recording any information into the database. However, for some browsers which are not JavaScript compatible, validation has to be done at the server. For the problem of spam causing damage to the web site, the system solves it by recording IP address of those who post the topic more than ten consecutive times. Another technical problem, causing low server performance, is when database is not properly closed following finish using, and when variables are not eliminated to release memory to the system. Further monitoring, all processes running under the web site, such as member profile and online store information, have to be constantly checked.

6. Conclusion and Recommendation
From this study, a shopping center web site, providing online market and web site package under the same domain, is successfully implemented. Using principle of content management, online market provides all functions which customers need for conducting online shopping. Further, the web site package service, well known among online store owners, is convenient and flexible for any potential users. For web site development, mostly using open source software, the cost of development is inexpensive, thus provided services are likewise relatively low price – suitable for countrywide online market. This web site also promotes e-commerce and online marketing on the Internet, complying with the information technology policy of the Thai government. Regarding to system performance, implementing various techniques on web design together with database management and other additional services, the web site is quite responsive. Moreover, to obtain the highest system performance, it utilizes full options of both hardware and operating system software. With all mentioned techniques, the web site operates with low resource consumption at its massive size.

Further development, this web site will expand e-commerce business to cover most of available Internet devices and technology, such as mobile phone, mobile payment, wireless application protocol and pocket personal computer.

7. References
E-Commerce web site, www.marketathome.com