6.0 SYSTEM EVALUATIONS AND CONCLUSIONS

6.1 Strengths

6.1.1 Simple and Easy to Maintain
Due to the simplicity of the web application development, it can be maintained by anyone with minimal experience in using Active Server Pages and Microsoft Access (databases). This is especially important for a company that has no prior experience in managing a DBMS and fresh programmers.

6.1.2 Low Cost of Ownership
The system is easy to deploy, manage and upgrade as technology evolves. This is achieved through application level programming interface that supports various development needs. Microsoft Access 2000 was choosing to be the database of this project because the cost is reasonable and easy to use. It is suitable for developing the small and medium system.

6.1.3 High Level of Upgrade
The system can be easily upgraded. The database initially created using Microsoft Access 2000 can be migrated to the Microsoft SQL Server 7.0 easily using the Access Upsizing Wizard.
6.1.4 Navigation of the System

Users can navigate the system easily. This is because the navigation buttons and icons in the system are user friendly and easy to understand.

6.2 Limitations

6.2.1 Stability

The system maybe unstable once we upload it onto the web. Usually, the stability of the system is affected by the stability of the database. Therefore, Microsoft SQL Server 2000 or DB2 is encouraged to use for system database. It is because there are more stable.

6.2.2 Low Recoverability of Stored Data

Due to the integrated nature of the Microsoft databases files (.mdb), if the database file is corrupted, it is usually difficult to recover the stored data.

6.2.3 Manual Backup of Database

There is no automatic backup mechanism for the .mdb file and backup would have to be done manually.
6.2.4 Storage Capability

Microsoft Access has a limit on the amount of data that can be stored in the database. Once the records exceeded a certain quantity, new records cannot be stored anymore. The capability will be low when the workloads increase.

6.2.5 Interface Design

Interface designs in this system are not attractive and static. But, the major purpose of application development of this system is to make the system more user-friendly. Therefore, the animation factor has been neglected.

6.2.6 Security

Even though the system only can be accessed using User ID and Password, but the security of the data transactions and steps to prevent system hacking have been neglected. This is because the lack of securities software and equipments and the duration of developing this system is short.

6.3 Future Enhancements to Upgrade the Quality of the System

The applications of the system are prototype that can be upgraded to the new functions and securities features as below:
6.3.1 Security Features

Online security is a major concern for those who are contemplating online payment. This is likely due to the high profile website hackings and online security breaches that occasionally make the news headlines.

If an organization really wants to use this system, I suggest that they have to deal with the service provider regarding the security features in the web site. Most service providers will try to allay our fears by explaining the measures they take to protect transactions.

All Internet service providers use Secure Socket Layer (SSL) technology, which encrypts (scrambles) data so only certain people can read it. Some providers also use Secure Electronic Transaction (SET) technology as an added security measure.

A secure connection is very important whenever for any transaction online. Depending on what the browser that is use, either a closed padlock icon (Internet Explorer) or a key icon (Netscape Navigator) at the bottom of the web page.

This indicates that the transaction is being encrypted, and the users should not worry about someone else eavesdropping on his account. Besides that, the Internet service
provider should be using high-end encryption. For example, 128-bit encryption. To check this out, refer to the text next to the padlock or key icon. It should be "RC4-128". (Kalakota, Ravi & Whinston A, 1996)

Nevertheless, evaluating the security of the website is beyond the scope of this project.

6.3.2 Designing and Deploying Web-Enabled Applications: A Changing Architecture for Changing Needs

With many forces influencing how the Internet behaves and operates, utilizing global network in the same way as it is used in private network presents many challenges. To transform the global network into a reliable application platform, the original architecture of the web must be enhanced to meet the needs that were taken for granted when developing traditional applications. The enhanced architecture to develop and deploy the Web-enabled applications can be seen in Figure 70. (Poo Kuan Hoong, 2000)
Figure 70: The evolution of Web architecture to support the basic needs of a Web-enabled application
The Web-based architecture represents a shift back to the server-centric deployment model. This model enables a centralized deployment and distribution mechanism without relying on individual client configurations. Furthermore, the server-centric model also enables a central connection point to external resources, such as in-house data stores like Microsoft Exchange, Lotus Notes, or own custom-built proprietary data systems.

6.3.3 Good Quality of Performance Database Server

The database that has been used in the system is Microsoft Access 2000. It is advisable to use a good quality of performance database such as SQL Server or Oracle that has good security features.

6.3.4 Stable Web Server

Microsoft 2000 Server can be used as a web server because it has the good security features and stable if compare with Microsoft Window 98.

6.3.5 Implement Firewall

Implementation of firewall can avoid the system hacking and viruses attack to the system. The leak of information after system hacking will affect the reliability of the system from the users. The lost of data after virus attack is a cost to the UM administrators as well as the students.
6.3.6 Cisco

Cisco is good because it contents switching solutions ensuring secure and fast online course registration. Cisco 11000 Series Content Services Switch (CSS) and the Cisco 11000 Series Secure Content Accelerator (SCA) can enhance the performance of online course registration application, guaranteeing 100 percent server availability and ensuring secure and successful online registration.

Cisco provides a hardware/firmware solution that is able to handle a higher volume of users. The Cisco CSS 11000 Series also provides automatic fail over between servers for increased availability as well as denial-of-service protection for increased security. The flexibility and simplicity in configuring the hardware are the advantages of using Cisco.

6.4 Conclusion

E-commerce is a fast moving area internationally in terms of opportunities and technologies. It is predominantly leads by industry and user sector with Government playing a catalytic role providing pro-active and facilitating support and critical inputs for growth.
In addition, the Internet is radically changing the way consumers shop for goods and services. Credit providers, and especially retailers, are more than willing to satisfy their appetite to buy whatever they need, whenever they need it, without leaving the comfort of office or home. Unfortunately, the Internet is also opening up fresh vistas for a new generation of technologically savvy criminals to steal with greater anonymity, and sending creditors and merchants scrambling to find new products and technologies to protect themselves — and their customers — from fraud. Therefore, to help combat crime in cyberspace, the credit fraud prevention industries have to provide a number of new products and marketing those tools to credit and retail businesses.

Finally, I wish the objectives of this project can be achieved and the system will greatly improve the operational performance in course registration and fees payment by postgraduate students and operational performance of the related tasks by UM administrators. The use of this system could be also expanded to whole UM students.
GLOSSARY

Data Flow Diagram (DFD)
A type of graphical representation of flows and data processes in a system. In their original state DFD depicts the broadest possible overview of the system's inputs, processes, and output, in which correspond to data movement in the system.

Entity-Relationship Model
A detailed logical representation of entities, attributes, and relationship for a company.

Open Database Connectivity (ODBC)
A standard protocol for database servers. If a database has an ODBC driver which is used to connect to ODBC-compliant data sources.

ActiveX Data Objects (ADO)
A set of ActiveX components designed to access ODBC data.

OLEDB
A specification that defines a set of standard interfaces for accessing data. The ActiveX Data Objects (ADO) implement the OLEDB standard.
Data Definition Language (DDL)

Used by the DBMS to physically establish record types, fields, and structural relationships. Additionally, the DDL defines views of the database. Views restrict the portion of a database that may be used or accessed by different users and programs. DDLs record the definitions in a permanent data repository.

Data Manipulation Language (DML)

Used to create, read, update and delete records in the database and to navigate between different records and types of records—for example, from a customer record to the order records for that customer. The DBMS and DML hide the details concerning how records are organized and allocate to the disk.