Chapter 8: Conclusion

8.1 Project Strengths

This project has proposed a new way of Microsoft Excel data automation. It makes use of the Object-Oriented programming language, Java to represent the Microsoft Excel Application object, WorkSheet object, WorkBook object and the Range object. A native Dynamic Link Library (DLL) that bridges the Java classes to the elements provided in Excel has been used to develop this project. This DLL must be presented in the Windows System folder for accessing Microsoft Excel elements, which are constructed in C++ language.

Furthermore, the OODA System for Microsoft Excel Files provides a mechanism for users to segregate an Excel document into several sub-files and also to combine a few Excel documents into one file. This functionality reduces the "cut/copy & paste" feature used in manipulating data contained in an Excel document. This has reduced the time needed for completing the tasks compared to manually cut/copy and paste the data.

Finally, this project uses the existing web browsers as the container of user interface. Existing web browsers such as Internet Explorer and Netscape Communicator are widely used nowadays. Therefore, users will feel more convenient and easier to interface with this system. This has been realised by using the Tomcat Web Server application that serves as the Java Servlet Container.

8.2 Project Limitation

There are a few limitations of the OODA System for Microsoft Excel Files developed. Hence, it is important to make a review of the current implementation of the system and it is a part of system development life cycle that can't be avoided. Below is the list of limitations:

i. The system is only supported by Windows platform.

ii. This system only works fine with Microsoft Excel 1995, 1997, 2000 and XP. Versions earlier than Microsoft Excel 1995 have not yet been tested.

iii. The system only supports up to seven Excel files for segregating purpose.

iv. The system only supports up to five Excel files for combining purpose.

v. Limitation on hardware resources. The system was developed and tested only on a Windows OS installed computer. No machine equipped with operating systems such as Linux, Unix and Solaris is tested.

vi. Lack of time to cover other elements in Microsoft Excel program. There are other elements which this system doesn't covered. The elements are Chart, PivotTable, Filter, Shape, OLEObjects and others. (Refer to Appendix E for a complete view of all the elements provided in Microsoft Excel program)

With the limitations identified, a better approach could be taken to produce an enhanced version of the OODA System for Microsoft Excel Files. There are still many object elements that Microsoft Excel provides that should be studied and automated in the system. Hopefully, this system can be enhanced and therefore provides a faster way of manipulating large number of Microsoft Excel documents to any user.

8.3 Suggestion

A few suggestions are made here to enhance and increase the value/usability of OODA System for Microsoft Excel Files. The suggestions are shown below:

i. Expand the system to work on different operating system platforms. Currently this system only works on Windows platform. With Microsoft Office Mac OS version, this system shall need to be modified in order to be used smoothly.

ii. Expand the system to support other spreadsheet application such as Lotus 1-2-3 and IBM Star Office which are installed on Windows platform.

iii. Modify the system especially in handling I/O methods invocation. This is important if the system needs to support Lotus 1-2-3 or IBM Start Office running under Unix, Linux or Solaris OS platform.

iv. Allow users to highlight on any data cells in an Excel document and duplicate the data within the range of cells (by selecting a command from the right-click pop-up menu). The system will automatically generate a new file containing the duplicated data.

v. Make an installation program (setup.exe file) to enable user to install the OODA System for Microsoft Excel Files at any workstation.

8.4 Conclusion

As a conclusion, the OODA System for Microsoft Excel Files has introduced a new way of manipulating spreadsheet data. Nowadays, the usage of Microsoft Excel is so wide. Most of the office documents are kept in Excel format (*.xls). Therefore, the creation of this system will help the users to shorten their time spent in handling large volume of Excel documents.

Furthermore, the system developed in Java language is object-oriented and can be extended or inherited in future system enhancement. This is the main reason for choosing Java language as the development programming language. Besides that, Java has been classified as a platform-independent programming language by Sun MicroSystems, Inc (About Java Technology, 2000). Hence, the system migration from Windows platform to other operating system platforms such as Linux could be executed easily. Current system development process is now encouraging the "develop once, use anywhere" trend.

Lastly, this project has also presented some suggestions and project limitations. Hopefully, a more complete Object-Oriented Data Automation System could be achieved for manipulating all data contained in Microsoft Excel files. In future, all objects provided by Microsoft Excel program should be accessible from a Java written program. Each of the objects such as the Chart, OLEObjects and PivotTable should be able to be represented by a Java class file.