SmartOrganizer

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ABSTRACT

SmartOrganizer is a computerized organizer that aims to assist busy people in time management. In the era of Information Technology, time is accounted for money. It is important that executives keep track of their tight schedules and manage their workloads efficiently. Even students nowadays need organizers to manage their daily task indirectly in the form of personal timetable. Thus, time management is needed in order to promote productivity.

However, conventional manual Personal Information Manager (PIM) have a few disadvantages compare to *SmartOrganizer*. With *SmartOrganizer*, a smart agent can act as a reminder, which can remind its user of incoming events or Special Day at a frequency of once every 2 weeks, once every week, once a day, once every hour and so on. The smart agent also acts as an alarm clock, which may trigger certain task.

The system is consisting of 5 key features: Calendar, Task, Notepad, Planner, and Contact. Users can use this system to store records of daily task, events, contacts, and thoughts. Furthermore, these key features can be instantly access with a colorful toolbar to enhance the application user-friendliness.

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CHAPTER 1: INTRODUCTION

<u>Chapter 1: Introduction</u>

This is the first chapter of my thesis. It reviews the roles taken by the computer and the importance of time management. Thus, relating how a Personal Information Manager shall benefit its user by combining the both aspects. Later, the chapter has briefly describes the definition, objectives, and scope of the project. At the end of this chapter is a brief review of each chapter in this thesis.

1.1   Computers of today

The role of computer is more pervasive today than it has ever been. Computers are increasingly being used in practically every area of human endeavor. For example, they are used in accounting and personal management, supermarket and banking transactions, city traffic signals control, manufacturing, weather forecasting, surgery and medication, military warfare, telecommunications and space exploration. Some of these application are non real-time application such as accounting and human resource management function while others are real-time application – application which use computers to monitor and control devices or instrument such as ATM machine, traffic lights, trains, air crafts, robots and even spaceship.

To one degree or another, most organizations today depend on computers to perform their day-to-day business transactions. Some organization (such as counseling organization) may still be able to operate (albeit in a degree mode) if they are denied access to computers. Others, however, will find it extremely difficult to operate without computers. Airlines and banks for example, use computers extensively to support plane ticket reservations and banking transactions respectively. Imagine the chaos and the frustration that will ensue if they are denied access to computers. Another example is competitors may outperform a firm because it looses the competitive edge in efficient cost and time management that could be done with computers.

Whether we like it or not, our lives are being influenced to one degree or another by computers. The way we do things and the way things are done for us is undergoing a rapid change and we really have no choice in the matter but to accept it.

1.2   *Importance of Time Management*

Once there was a French writer and philosopher Voltaire from the 18th-century poses a question regarding time in his book, *Zadig: A Mystery of Fate*. In this book, the Grand Magi asks Zadig, "What, of all things in the world, is the longest and the shortest, the swiftest and the slowest, the most divisible and the most extended, the most neglected and the most regretted, without which nothing can be done, which devours all that is little and enlivens all that is great?"

"Time," Zadig immediately replies. [1]

Most of us today share with Voltaire the awareness that time is one thing we just can't get enough of. If you are a student in a college, thinking of finishing all the assignments of a semester, you probably already know that time is one of your most precious commodities. For instance, how many times have you cried, "If only there were more hours in the day?" If so, you are certainly far from alone. Just look at the myriad products -- date books, filing systems and computer software -- that have been devised to help people manage time. But as much as we try to capture it, time is also one of our most vague and elusive commodities. It can be every bit as difficult to work with and conquer as it is to pinpoint.

In our daily campus life, the time factor is so strong that if you don't use it to your advantage, it will work against you. Time could swallow you up if you don't know how to work with it. That's not to say you should be afraid of time; rather, you should be aware of its importance and develop some of the proven techniques of time management.

Although time management is not a cure-all -- mastering it will not in itself ensure that the other areas of your life always run smoothly -- it has been proven that gaining control on your time will aid greatly in the area of personal well being. If you're happy and excited about what you're doing, others will find that they are, too.

As you continue to gain control over time, and thereby temperament, you will find yourself increasingly freed of the typical restraints that hold people back. Gaining control over your time is the prime way of feeling that your day is your own, that you

are in control of all the elements rather than being controlled by other people, by luck or by fate.

1.3   Role of Organizer

Realizing the importance of time and its influence on our daily life is definitely the first step in conquering time and establishing a time-management system for us. However, with the help of time management tools, these can be achieved in a far more efficient manner. These tools as mentioned are daily planner, diary, and organizer.

Organizer is the most commonly used tool by business people. These organizers that was been carry with them most of the time, keep their client details, appointments, meeting schedules, and daily log. It is an essential tool for them in time management.

1.4   Objectives

SmartOrganizer is aimed to assist people who have tight schedules and heavy workloads with a *smart agent*. The smart agent provides an easier way to manage schedules, arrange meetings, managing contacts, and also remind important dates or events.

1.5   Project Scope

The system will be written as a standalone program. It will cover all the basic functions of an organizer or agenda planner for academician. Physically, data input will be through keyboard and mouse.

The system should provide the following: -

1. A smart reminder keeps a list of important dates that need to be remembered. An important date might be a birthday, wedding date or a special day to be reminded of.
2. Daily schedulers where the user can make appointments, switching among different calendar display, setting alarms and mark Public Holidays date for that current year.
3. Graphical view on task which had been schedule by the user.

4. Summary reports on past, present, and future events, which was planned by the user.

5. Smart user interface, which carries the attributes like self-descriptiveness, error tolerance, completeness and storage efficiency.

1.6 Relevance and Significance

1.6.1 Relevance

Apart of being an undergraduates in the Faculty of Computer Science and Information Technology, University Malaya, I came to realize that life in campus is full of workloads in the forms of assignments, projects, presentations and so on. Certainly, time management plays an important role in order to accomplish all the tasks given. One of the tools I used for my time management exercises is my handy agenda planner. I carried it with me most of the time and it helps to remind me of appointments and tasks that I need to accomplish. However, it has its advantages and disadvantages. Then came the idea of *SmartOrganizer*, which utilize the technology of computers. The usage of computers has increased dramatically for the past few years. People are spending more time on computers than reading newspaper. Thus, having a computerized organizer will not be any obstacle. Furthermore, computerized organizer has certain advantage over conventional manual organizer, which will make it a better tool.

1.6.2 Significance

There is a variety of similar software available in the current market. However this software have a few advantages and disadvantages of their own. It will be discuss in later chapter as product review.

1.7 Project Management

For my project, I have chosen The Waterfall Model as the basis for the software development model with a simple modification. This model is chosen based on the nature of my project, which demands a systematic, sequential approach to software development that begins at the system analysis phase and progresses through system design, implementation and testing. However, the documentation phase will occupy throughout the development of the system.

Figure 1-1 illustrates the modified waterfall model for software engineering.
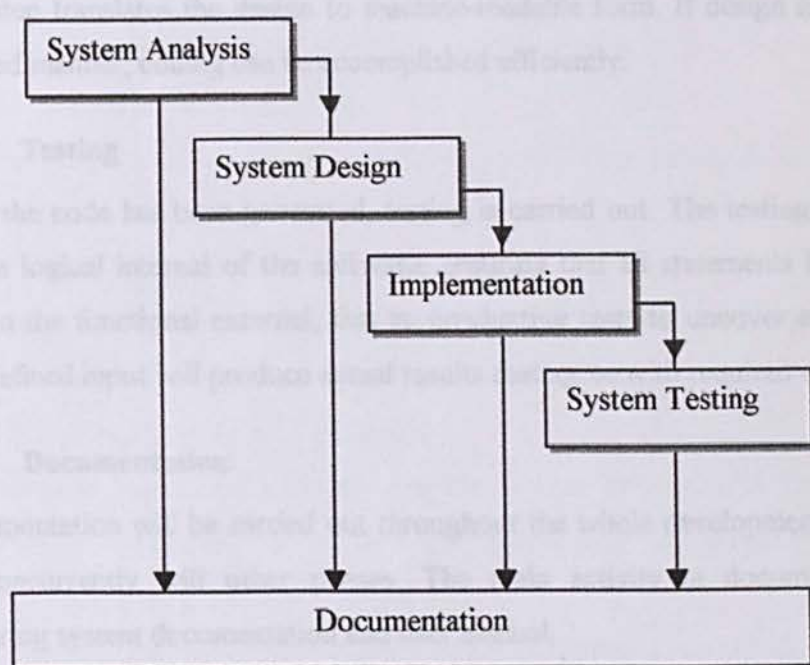
Figure 1-1: The Modified Waterfall Model

1.8   Project Schedule

Project schedule for developing *SmartOrganizer* is divided into five phases as listed below:

1.8.1   System Analysis

Understanding the nature of the required system and the information domain for the software. The information gathering activities include the following:

1. Conducting a survey
2. Analysis of similar software such as Lotus Organizer and MS Outlook.

1.8.2   System Design

For the software design phases, it focuses on the designing of database structure, software architecture, procedural detail and user interface design.

1.8.3   System Implementation

This step translates the design to machine-readable form. If design is performed in a detailed manner, coding can be accomplished efficiently.

1.8.4   Testing

Once the code has been generated, testing is carried out. The testing process focuses on the logical internal of the software, ensuring that all statements have been tested and on the functional external, that is, conducting tests to uncover errors and ensure that defined input will produce actual results that agree with required results.

1.8.5   Documentation

Documentation will be carried out throughout the whole development process. It will go concurrently will other phases. The main activity in documentation will be preparing system documentation and user manual.

The project schedule for developing **SmartOrganizer** is shown in Figure 1-2.
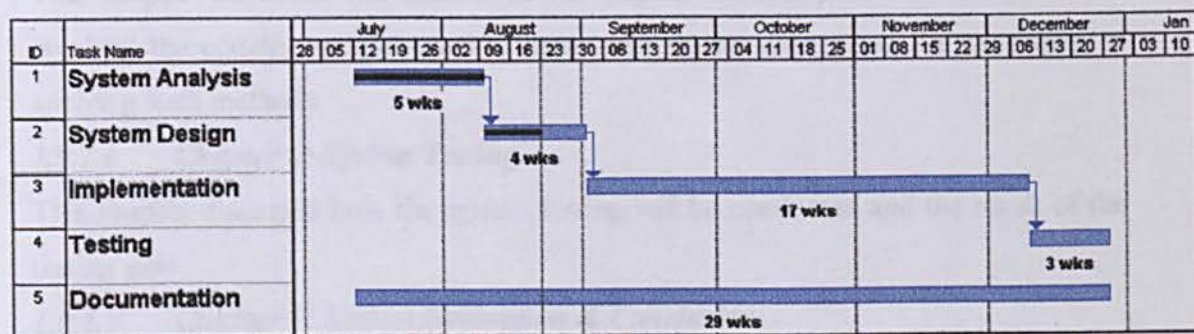
*Figure 1-2: Estimate Project Schedule for **SmartOrganizer***

1.9 Outline of the chapters

Below are the overviews of all the chapters in this thesis.

1.9.1.1 Chapter 1: Introduction

The first chapter discussed about the objectives, scope, relevance and significance of the project.

1.9.1.2 Chapter 2: Literature Review

Facts, data, and techniques that had been used or found are reviewed in this chapter. It also reviewed the strength and weaknesses of the similar system available.

1.9.1.3 Chapter 3: System Analysis

This chapter determines and analyzes the system requirements for the project. It discussed the techniques that had been used in outlining the system requirements.

1.9.1.4 Chapter 4: System Design

This chapter discusses the system design in three separate views; data design, architecture design and user interface design as the solution for the system.

1.9.1.5 Chapter 5: Implementation

This chapter discussed the outline of the implementation plan for the system. It involved the coding methods used in implementing the system and the advantage of applying such methods.

1.9.1.6 Chapter 6: System Testing

This chapter discussed how the system testing will be conducted and the result of the testing plan.

1.9.1.7 Chapter 7: System Evaluation & Conclusion

This will be the final chapter of the thesis. The system evaluation will be discussed in this chapter.

1.9.1.8 Appendix A: Glossary

Explain some of the names and terms that were bolded in this proposal.

1.9.1.9 Appendix B: Questionnaire Design

Layout of the questionnaire design that was distributed for collecting data essential to the system requirements.

1.9.1.10 Appendix C: User Guide

Operating manual on how to use the system.

CHAPTER 2: LITERATURE REVIEW

Chapter 2: Literature Reviews

Chapter 2 will summarize the findings that had been made from the literature survey. It also covers the analysis and synthesis of the project itself.

2.1 Benefit of using computers

Computers nowadays are being used in our daily activities are becoming part of our life. It performs complex calculations, entertainment, telecommunication, and also manage our busy schedules. It was been use in corporate offices, hypermarkets, universities and also in home. Among the benefit of using computers are:

2.1.1 Accuracy

Computers are less prone to error than human. They can process a task with overwhelm accuracy and precision. Unlike human that will get tire computers can operate 24 hours a day, 365 days a year without complaining has over-work.

2.1.2 Speed

Nowadays, a standard computer can process 400 millions of instruction per second. It took just a fraction of a second to make a decision. That is faster than the time taken by human to get the same job done.

2.1.3 Retrieval of Information

Computers can retrieve information easily and efficiently by searching through a database that contains thousands and millions of records. All you have to do is to specify a few parameters and the processor will do the matching and sorting job.

2.1.4 Handling complex problem

Computer can handle complex problem when equip with the right tools in the form of software and hardware. It can calculate a series of complex figures without making a mistake. Only human makes mistake when inputting the wrong data.

2.2   *Review on organizer*

Organizer is a Personal Information Manager (PIM). Like its name suggested, it is a type of software application designed to help users organize random bits of information. Although the category is fuzzy, most PIMs enable user to enter various kinds of textual notes like reminders, lists, dates and to links these bits of information together in useful ways.[2] Many PIMs also include calendar, scheduling, and calculator programs.

Computerized organizer is the solution and an efficient way to help a busy person in accomplishing multiple task every day such as attending meetings, having appointments with clients, contacting associates and so on. It can store records of daily task, events, contacts and thoughts in a well-organized form.

Besides, a computerized organizer eliminates some of the following shortcomings of a manual recording organizer:

♦ **Lack of the capability to retrieve records easily.**
There is always a problem when retrieving information from the manual recording organizer because users need to flip through pages to look for information. Though, computerized organizer has the ability to sort and retrieve information with just a few clicks of a button.

♦ **Lack of the flexibility in modifying existing records.**
Records in computerized organizers can be edited easily by keyboard input or mouse rather than using pen or pencils which can be quite a mess. For example, a simple correction might need user to cross out a few line of sentence, which would turn out to be messy.

♦ **Limited space or room for recording such as our daily tasks and thoughts**
When all the pages are used, user needs to refill their organizers with re-filler. Unlike computerized organizers, the number of records depends on the amount of free hard disk space and it only occupies a fraction of it.

♦ **Unable to forewarn the upcoming events.**

Manual recording organizer does not have the device to remind its user of upcoming events. Computerized organizers can be equipped with a smart device that can signal or alert user of upcoming events. For example, a message box can be popup automatically whenever the user working with his/her computer.

2.2.1   PIM of today

Since 1994, PIM are not so personal anymore. Recognizing that few people in today's workplace work alone, software developers are adding group-collaboration features to PIMs (personal information managers). Even companies that have released PIMs for the first-time PC user say their strategic goal is to enable users on a network to share information. Officials at Polaris Software, developer of *PackRat and Advantage*, a new PIM for novice users, say both will be network capable within the next 12 to 18 months. [3]

Most of the well-known PIMs supports information interchange between PIM schedulers such as Microsoft Outlook and Lotus Organizer. Both product support group scheduling, calendar, and to-do functions, but lack personal address books. Though, other capabilities such as sharing of schedules, phone books, and outlines over **MAPI-**, VIM-, or MHS-based E-mail systems are also supported.

The director of product marketing for Lotus Organizer, Barbara Baird has says that modern PIMs must address the fact that one person's schedule can impact other people in the office. "You need the 'PIMness' for yourself," she says. "But a lot of your workday involves a lot of other people."

Viewing the facts from above, it is not surprising that some of the PIMs come in two versions, which is the standalone version and workgroup version. The standalone version are targeted for personal usage in a small business or home office while the workgroup version target the corporate offices where teamwork plays an important role.

2.2.2 Web-based PIM

Before the introduction of Internet to the public, the Internet was solely used by the military as a defense system. Then, the Internet began to use as a communication medium in universities and governments. A few decades later, the commercial sectors too begin to embrace the Internet as part of their commercial activities. However, as the function of the Internet grows, on-line experiences by the audience and users are beginning more integrated and enhanced. Apart of it is the existence of Web-based services. Examples are Web-based e-mail service like Hotmail, Mailcity, Rocketmail, Web-based bookstore like Amazon, Macmillan Computer Publishing, and Web-based PIM like eCal, Day-Time and so on.

These Web-based PIM delivers the solution for the Internet community that seeks "sticky" applications so that they will not leave one site to visit another. Some of these Web-based PIM has features such as feature-rich calendar, schedule and event management just like a normal PIM but more appealing to the Internet community.

It's no secret that most people use calendars to plan their lives. However, a static on-line calendar does not suffice anymore. Web-based PIM harnesses the universal power and resources of the Internet to deliver global content to the users - that includes an entire network of calendars, sports, news, entertainment and more. These events can be integrated into personal, group and community calendars that are updated continuously.

Furthermore, corporate offices and universities can also utilize Web-based PIM to share information that can enable better and efficient scheduling and resource management, which can promote workgroup activities. However, there are still more about Web-based PIM.

2.3   Review on Rapid Application Development (RAD) tools

RAD is a programming system that enables programmers to quickly build working programs.[3] In general, RAD systems provide a number of tools to help build graphical user interfaces that would normally take a large development effort. Two of the most popular RAD systems for Windows are Visual Basic from Microsoft Corp. and Powerbuilder from Sybase Inc.

Historically, RAD systems emphasize on reducing development time, sometimes at the expense of generating efficient executable code. Nowadays, though, many RAD systems produce extremely fast code. Conversely, many traditional programming environments now come with a number of visual tools to aid development. Therefore, the line between RAD systems and other development environments has become blurred.

In my literature survey for programming languages, I had make comparison for the leading Rapid Application Development (RAD) tools for Windows95 and Windows98. The product evaluated were:

1.   Visual Basic 6.0
2.   PowerBuilder 6.0

2.3.1   Visual Basic 6.0

A programming language and environment developed by Microsoft. Based on the BASIC language, Visual Basic was one of the first products to provide a graphical programming environment and a paint metaphor for developing user interfaces. Instead of worrying about syntax details, the Visual Basic programmer can add a substantial amount of code simply by dragging and dropping controls, such as buttons and dialog boxes, and then defining their appearance and behavior.

Although not a true object-oriented programming language in the strictest sense, Visual Basic nevertheless has an object-oriented philosophy. It is sometimes called an *event-driven* language because each object can react to different events such as a mouse click.

Since its launch in 1990, the Visual Basic approach has become the norm for programming languages. Now there are visual environments for many programming languages, including C, C++, Pascal, and Java.

2.3.2 PowerBuilder 6.0

One of the leading client/server development environments. PowerBuilder supports all the leading platforms -- including Windows 95, Windows NT, UNIX and Mac OS. Its integrated development environment (IDE) makes it relatively easy to develop and deploy sophisticated client/server applications.

2.4 RAD Evaluation

During the evaluation process, I had set 3 criteria to evaluate the product. Among the 3 criteria are:

1. Usability/ Productivity
2. Performance
3. Functionality

2.4.1 Usability/Productivity

When I first tried on Visual Basic (VB), I was amaze on how fast I pick up by creating my first form in an hour. Visual Basic gives a complete control within the development environment. It is also simple to use for creating database application with its drag-and-drop database tools. Modification, editing, debugging can be done without losing control with VB.

However, for PowerBuilder (PB), its much-vaunted DataWindows was a bit tedious and tire compare to the drag-drop tools of VB. I was expose to PB during my industrial training and was quite familiar with it. There are certain features that PB lack of like for example putting an icon is the system taskbar (tray).

2.4.2 Performance

VB programming emphasizes **ODBC** (Open DataBase Connectivity) and **ADO** (ActiveX Data Objects) database access. Its application is much faster in client/server compare to PB. PowerBuilder is in a class all by itself when it comes to performance. It is slow in client/server, slower in three-tier development, and absolutely glacial in

2.5   Similar product in the market

Currently, there is a lot of Personal Information Manager software available in the market. Among the most popular PIM are Microsoft Outlook, Lotus Organizer, and Day-Timer. Day-Timer is a little bit different as it is Web-based while others are Window-based but all are functionally same as PIM. We will take a look to see the features and limitation for each of them.

2.5.1   Microsoft Outlooks 97

Microsoft Outlooks 97 is one of the software for the information-manager block from the software giant, Microsoft Corp. It is one of the components for Microsoft Office1997, which was widely used in offices and homes. It also comes as a part with Microsoft Exchange. Outlook is available in standalone or workgroup version. In standalone version, Outlook serves as an e-mail tool for making contacts to clients and colleague. It integrates your personal and workgroup e-mail automatically with appointments, contacts and tasks. Like others Office applications, Outlook is closely integrated with each other. One of the interesting features of Outlook is its automatic journal entry for the Office applications usage. It keeps tracks and timeline of how often an office document is used. However, it is still a work in progress, being as a first-release product. However, it requires Exchange Server for workgroup use.

2.5.1.1   Features
Below are the features of Microsoft Outlooks 97:

i)   Well-designed interface for each module (contact, calendar, and so on).
Outlooks have a very modular interface where you view one module at a time. The modules can be access quickly by just clicking on its icons that are in the taskbar.

ii)   Drag-and-drop interactivity between modules.
Like all the Office applications, Outlook inherits the drag-and-drop interactivity. This enhances the interactivity between modules. You can just drag a file from a module and drop it in another module. For example, storing contacts, appointments, and to-do items in a folder system can be done by just you simply drag the message to an open contact record.

web applications. The **ISAPI (Internet Server API)** connection simply doesn't work, which compounds the performance problems. PB 6.0 offers no noticeable performance improvements over PB 5.0.**[NSTL]**

2.4.3 Functionality

In terms of functionality, VB shines in several important areas. Its debugger is superior in many ways. It can easily step through COM calls and into SQL Server stored procedures. Only Visual Basic allows debugging **IIS** applications without registry hacks.

Visual Basic carries the strongest bundle of "pack-ins". The Enterprise package bundles development versions of Source Safe, SQL Server 6.5, SNA Server, Microsoft Transaction Server, Microsoft Repository, Visual Modeler, and Microsoft Message Queuing server. Visual Basic provides interfaces to **CICS**, IMS, AS/400, and **VSAM** data sources in addition to the standard relational database interfaces.

The PowerBuilder pack-ins (primarily ObjectCycle and SQL Anywhere) are not compelling. PowerBuilder supports native access to Lotus Notes databases in additional to traditional **SQL** data sources. However, PowerBuilder was the only product to offer support for executing code on Unix platforms, but either Visual Basic or Delphi can support Web applications on any platform that supports a browser. PowerBuilder offers meager support for web site development.

iii)   Simplifies tasks for e-mailing message.

Originally, Outlooks serves as an e-mail tool. So it quiet obvious that it emphasize in e-mailing task. E-mail message can be sent and retrieved by a click of a button.

iv)   Automatic history logging.

This is an interesting feature of Outlook as it can automatically add e-mail that you send, tasks you assign, meetings, and phone calls to a contact's history. These linked items are available both in the Journal tab of the contact's record and in the built-in Journal folder, which collects journal entries for all contacts and acts as a history log. Additionally, Outlook also logs all the usage of all Offices applications. You can even view what documents you have worked with during the last few weeks!

v)   Scheduling capabilities for workgroup

For group scheduling with Exchange, Outlook finds available time for all workgroup invitees and sends e-mail asking them to accept, decline, or tentatively accept attendance. Similarly, you can assign tasks to others, and if they are workgroup members, they can respond by accepting or declining. It also sends e-mail meeting and task notifications to workgroup nonmembers, but unlike Sidekick, it has no response mechanism in those cases.

vi)   Able to integrate with any MAPI

Outlook integrates with any **MAPI** service providers. You can attach files to contacts and activities or add them to e-mail messages via drag-and-drop from Outlook's Explorer window.

2.5.1.2   *Limitations*

Though MS Outlooks does have a few limitations despite being the new release application of the Office family.

i)   No built-in mail-merge capabilities.

Although Word can recognize the Outlook Address Book as a mergeable type of data, Outlook indicates that you must go to Word to mail-merge only in the help section. (Outlook doesn't work with any other word processors.)

ii)   Too many popup windows

It is very weird to have popup windows for you to type the message when you want to send e-mail to someone. When there are too many windows, users might tend to mix up which window is replying which e-mails. It should be closely built-in without having to open a different window.

iii)   Limited integration with other word processors other than MS Word.

Though it integrates properly with Offices applications such as MS Word, however proves to lack of ability to integrate with other word processors like Ami Pro from Lotus.

iv)   Searching is powerful but can be cumbersome

Outlook provides a powerful search tool when you need to look for keywords in e-mail message or searching the details for your contact. Accessing someone's record is done quickly by typing that person's name in the contact list. However, to search on any other field or to frame Boolean queries, you must use a separate interface that resembles Windows 95's Find dialog box.

v)   Occupy a considerable amount of hard disk space

Though it provide the automatic history logging, however it may prove to be a nuisance cause it will take up a lot of space from you hard drive as the log file is getting bigger and bigger.

vi)   Unable to perform workgroup without Exchange

Though in workgroup version, Outlooks need Microsoft Exchange Server in order to perform workgroup-scheduling capabilities.

vii)   Synchronization of Outlook databases is a long process

Outlook's reliance on Exchange Server has shortcomings. Most notably, travelers must use Exchange Server for file synchronization. That means standalone users who travel cannot synchronize their Outlook databases when they return unless they copy a potentially very large Exchange database folder file (.PST file) manually.

2.5.2   Lotus Organizer 97 GS

Lotus Organizer 97 GS, a product of Lotus Development Corporation is one of the products for information managers that integrate with workgroup. Its workgroup capability includes scheduling meetings and booking meeting resources. It ties nicely with Lotus Notes 4.51, which enable users to use Organizer as the front end to Note's workgroup calendaring scheduling features. However, as a standalone program, Organizer comes with more limited workgroup features. Lotus Organizer 97 GS earns high marks for innovation by integrating tightly with Notes.

2.5.2.1   Features

Below are the features of Lotus Organizer 97 GS:

i)   Importing and Exporting data

Existing data or database can be switch to the more sophisticated Organizer by just importing. Among the data formats that can be import or export are dBase II through IV, Windows Cardfile, and ASCII. In ASCII format, fields are separated by commas and delimited by quotes, and records are separated by a carriage return (CR/LF). It is also knows as *Comma Separated Values* or *CSV* format.**[Judi 1997]**

ii)   Easy interface, which consists of a planner-book metaphor with, tabbed sections.

The work area of the Organizer window is easy to work with and was designed to look like a loose-leaf organizer book with tabs for various sections: Calendar, To Do, Address, Notebook, Planner, and Anniversary. All these tabs are easily accessible by clicking on the appropriate tab.

iii)   Automatically filling in Company Addresses

This feature is useful when several contacts are from the same company and they all share the same address or similar phone numbers. When the user have type the Company Name, the Organizer will display a dialog box if it finds the same company name in another record and fill up the Address and Phone fields from the other record. This saves typing time and possible typos.

iv)   SmartIcon, which enable user to link just about anything.

One of the most innovative features of Lotus Organizer is its SmartIcon. It acts as a jump or link for instance access. For example, users can create link between an appointment entry in Calendar, the Address for the person to be met with, and the Notepad description of the meeting.

2.5.2.2   *Limitations*

Below are the limitations of Lotus Organizer 97 GS:

i)   Unable to perform scheduling without Notes.

Lack of few basic information management features such as history files associated with contacts, automated tasks, and mail-merge other than with Word Pro.

ii)   Lack of consolidated way of displaying information.

Though some users may wish that Organizer had a more consolidated way of displaying information, like automatic report generation.

iii)   Lack of few basic PIM functions

Organizer still lack of few basic information management features such as history files associated with contacts, automated tasks, and mail-merge other than with Word Pro.

iv)   Lack of database management capabilities

Organizer does not come with database management capabilities such as backup databases, and restoring database.

2.5.3   Day-Timer Digital

Unlike the Window-based Microsoft Outlook and Lotus Organizer, Day-Timer Digital is a Web-based PIM service from Day-Timer Inc. The service can be located in Day-Timer web site, which is *http://digital.daytimer.com*. Though still new, Day-Timer already provides a number of features for its on-line users. Day-Timer still lacks the workgroup features although further improvements have been promised. However, it may be the next important Web-based service after Web-based e-mail and Web-based shopping.

2.5.3.1   Features

Among the features of Day-Timer are:

i)   **Two calendars in on**

Day-Timer is not just a personal calendar. It is also an online events-tracking service, bringing users the latest information about public events happening in their local area, across the U.S, and, soon, internationally. By just selecting the favorite events and they are automatically delivered to your desktop! All your business and social planning needs are in one place.

ii)   **Helpful reminders**

Day-Timer has an automatic reminder that can be found in the daily calendar and via email messages. User can also receive updates about event changes and cancellations. Additional, user can save time with convenient links to top Web sites for shopping and planning--right when they need them.

iii)   **Anytime, anywhere**

Day-Timer can be access from any computer with Internet access. This is good news to users who keep losing their organizer or don't like to carry things with them.

iv)   **Personalize it**

Day-Timer also allows users to create a personal profile that makes their calendar their very own. Only the events that they want to track are delivered to their respective calendar. There are just a few quick steps to set up your profile, and you can change it at any time.

v)   **Easy to use**

Like other PIMs, Day-Timer allows events to be add, modify, and delete with the click of a button. Calendars can be view in daily, weekly, and monthly formats. User also can easily create a to-do list, schedule automatic reminders and also e-mail events to a friend.

vi)   It 's FREE!

Like Web-based e-mail service provider, Hotmail, Day-Timer is free for all registered users. Users just have to fill in their details and no other charges will be included.

vii)   Allows easy synchronization for databases

Since all the users will login into a same Web site, workgroups will share the same databases and synchronization is much easier as users does not need to copy potentially large database folders into their hard drive. All updates can be post or view via Internet by other members of the workgroup easily.

2.5.3.2   *Limitations*

Though, Day-Timer does have its limitations such as:

i)   Strictly for Internet community

Unfortunately, computer users without Internet access can not access Day-Timer. This means that only those people who use the Internet will benefit from its service. Moreover, users must constantly online in order to receive the automatic reminder and e-mail messages.

ii)   Performance depend on connection speed

Performance of Day-Timer was largely affected when the Internet connection speed is slow. Users may have to wait several minutes for a page to refresh while Window-based PIM like MS Outlook acts instantly. Users usually do not have the patient for the page to be loaded.

iii)   Still customize for U.S. users at the moment

Most of the public events reminded were held in U.S. itself. So it is useless for Asian users to use the event reminder service because they are not in U.S. Though, improvement have been suggested to include all events around the globe, Day-Timer still are targeted for U.S. users for the moment.

CHAPTER 3:
SYSTEM ANALYSIS

Chapter 3: System Analysis

System analysis involves all the activities to determine the system functional requirements. It covers from the fact-finding techniques that had been applied, summarizing the data that had been produced, determining the requirement specifications, and describing the new system.

3.1   Fact finding techniques

Defining user requirements requires an understanding of how the system works and what its problem is.[Shari 1998] In order to develop such an understanding, I have exercise a few fact-finding techniques for collecting data. These include questionnaire, research, and Internet surfing.

3.1.1   Research

I had conducted research based on the current technology, techniques and tools available. This includes examine the function of the currently available product, identifying the ideas incorporate into the product, finding the limitations of the products, knowing the programming techniques used by software developers, and comparing the software development tools advantages and disadvantages.

3.1.2   Internet surfing

As any modern day undergraduate would do, I had utilized the World Wide Web to obtain information related to my project. These information comes in the form of Web publishing, benchmark report, product information, and also newsletter from programmers and developer all over the globe. The information obtain are semi effective for in-depth searches or solutions. Though, the Web searching process also yields other information as well. For example, I had came across many types of similar software application related to my project. The interface from these applications had become the fundamental design for the *SmartOrganizer* interface.

3.1.3   Questionnaire

Questionnaire is useful for gathering numerical data or getting relatively simple opinions from a number of people. However, they are not very effective for in-depth searches or solutions. Though, questionnaires have been distributed to collect the user

suggestions and views on the features that will be incorporated in the *SmartOrganizer*.

3.1.3.1   *Questionnaire Design*

The design and layout of the questionnaire is finalized after a brief discussion with my supervisor. Closed questionnaire is chosen to control the frame of reference by presenting the respondents with specific responses from which to choose. This format is appropriate for eliciting the view from the respondent. The standardized question formats generally yield more reliable and accurate data, since completing questionnaires may not have high priority among the respondents. The design of the questionnaire is attached in Appendix B.

3.1.3.2   *The respondents*

The questionnaires were widely distributed to the potential user of *SmartOrganizer*. Based on the scope of the project, the respondents were those still studying in universities, college and even schools. The wide distribution ensures greater anonymity for respondents, which can lead to more honest responses.

3.1.3.3 Questionnaire Result

After collecting back the questionnaires, the data is summarized and analyzed to determine those features that should be incorporated into the system. There are a total of 150 respondents for this questionnaire session. The summarized questionnaire result is shown in the Table 3-1 and categorized by their faculties.

Table 3-1: Summaries of the questionnaire result

	Managing Personal Information	Contact Management	Task Management	Notepad
FSKTM	32	30	35	27
FEA	16	17	25	17
FS	27	21	27	19
FMD	23	20	19	16
FASS	24	23	21	23
FE	15	15	16	14
KDU	2	2	2	1
Total	139	128	145	117

Legend

FSKTM   - Faculty of Computer Science and Information Technology

FEA   - Faculty of Economics and Business Administration

FS   - Faculty of Science

FMD   - Faculty of Medical and Dentistry

FASS   - Faculty of Arts and Social Science

FE   - Faculty of Engineering

KDU   - Kolej Damansara Utama

3.1.3.4   *Data Analysis*

Data collected should be analyzed before synthesis can be conducted. Below are the analysis results.

3.1.3.4.1   *User Requirements on Overall SmartOrganizer Features*

The respondent's views on the overall *SmartOrganizer* features are illustrated in Figure 3-1 below.
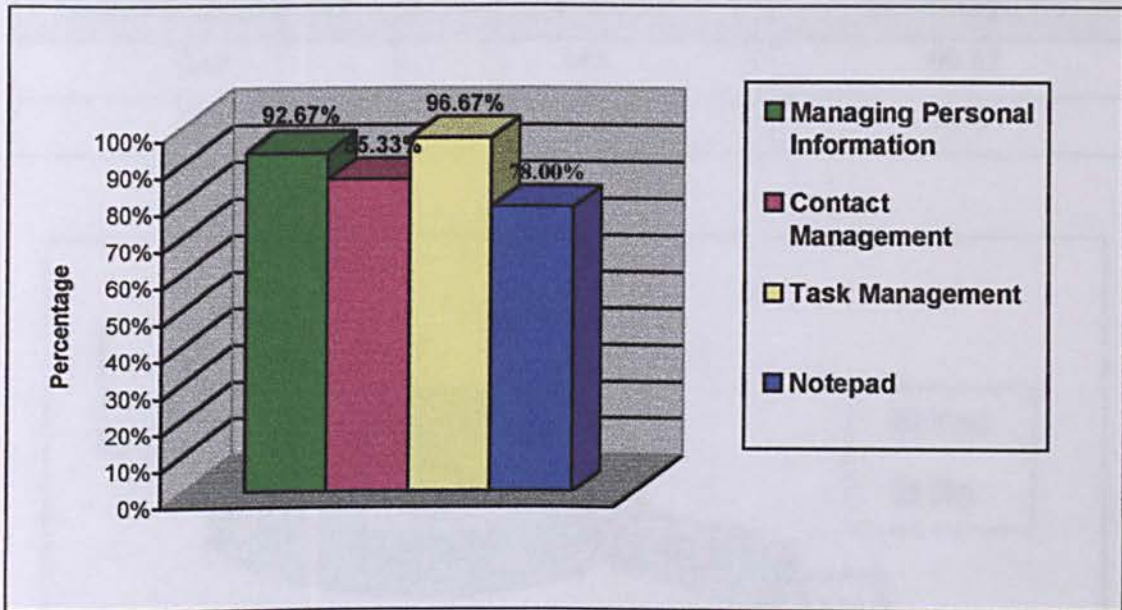

Figure 3-1: The Overall Result on the SmartOrganizer features

Among the four features that is presented in the questionnaires, the Task Management feature gains the highest percentage (96.67%). This is followed by the managing personal data feature (92.67%), contact management feature (85.33%), and lastly is the notepad feature, which is 78%.

One of the reasons why the Task Management is highly preferred feature is the respondent need a proper and better method of organizing the forthcoming important events that they can prioritize and categorize. With the help of a smart agent in *SmartOrganizer*, the user can even be reminded of the upcoming events.

3.1.3.4.2 Computer Literacy of The Respondents

The statistic reveals that most of the students nowadays are computer literate. Many of the academicians need to use computer to complete their assignment or projects. Moreover, computers nowadays are easily available and serve as need for all students in education, entertainment and communications.

Table 3-2: Statistical result on the respondent's computer literature

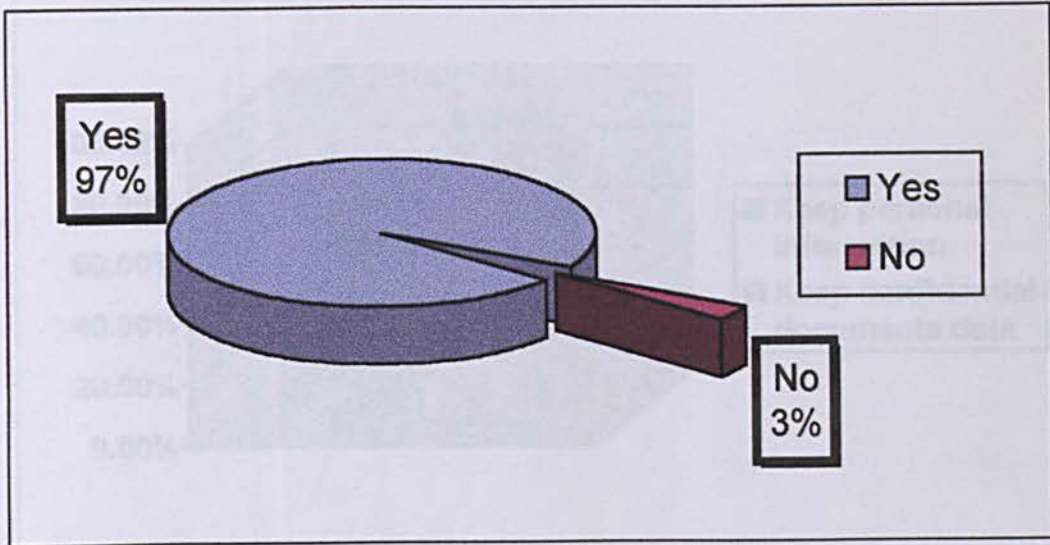| Computer Knowledge	Total	Percentage(%)
Yes	145	96.67
No	5	3.33

Figure 3-2: Percentage of respondents that are computer literature

3.1.3.4.3 *Managing Personal Information*

Statistically have shown that both features in the Managing Personal Information module had been included into the *SmartOrganizer* specification. This is due to the individual features that had achieved 50% and above of respondent agreement.

Table 3-3: Statistic on Managing Personal Information features

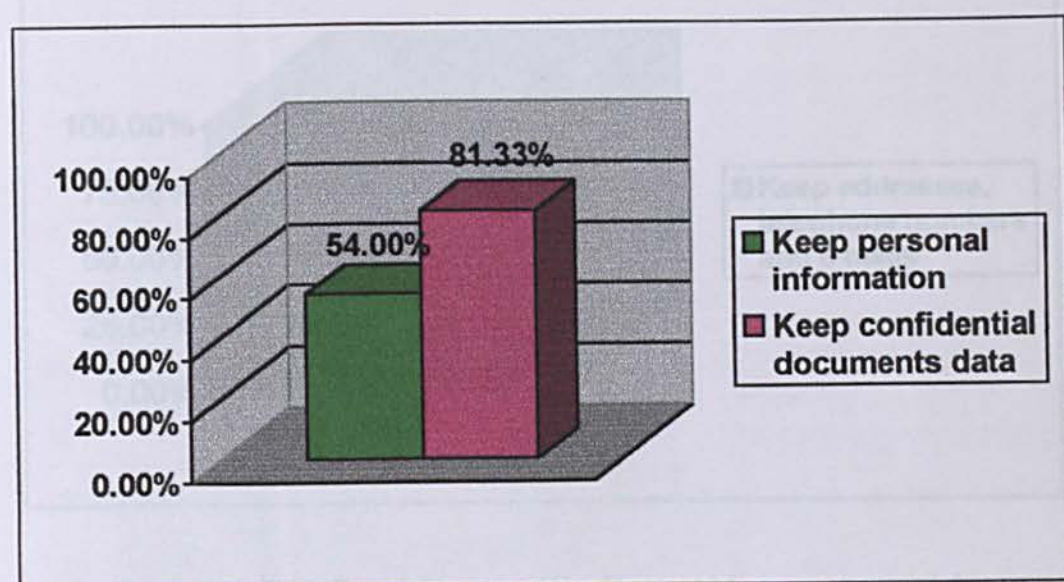| Managing Personal Information Features	Total	Percentage(%)
Keep personal information	81	54.00
Keep confidential documents data	122	81.33

Figure 3-3: Respondent's views agree on Managing Personal Information Features

3.1.3.4.4   Contact Management

Contact Management module had achieved more than 71% of respondent agreement that featured to keep the addresses, telephone numbers and e-mails.

Table 3-4: Statistic on Contact Management features

Contact Management Feature	Total	Percentage(%)
Keep addresses, telephone numbers and e-mails	107	71.33
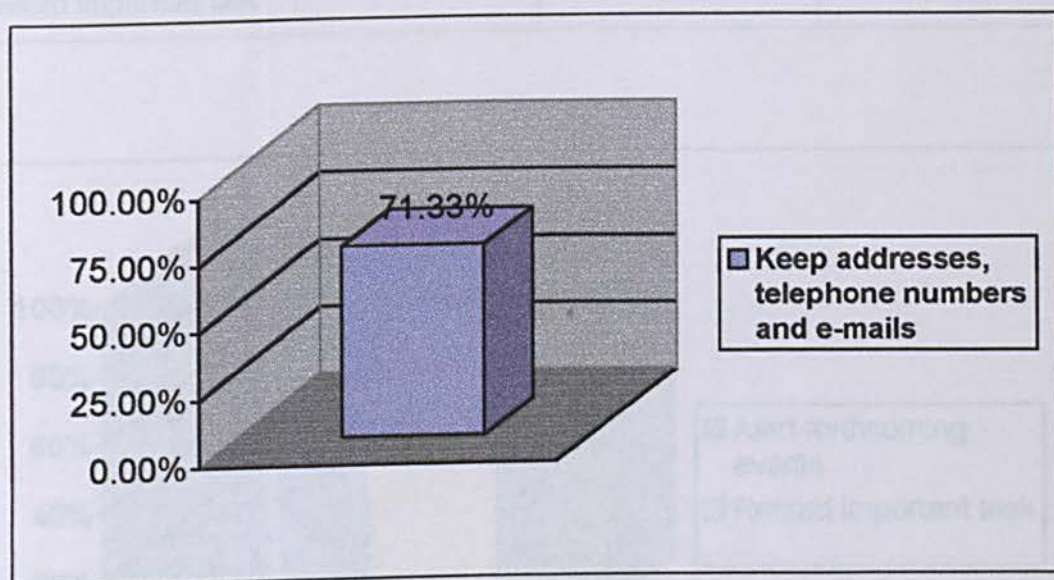
Figure 3-4: User Requirements on the Contact Management module

3.1.3.4.5   Task Management

Task Management module received the highest response from respondents, as they were aware the important of managing their task effectively. This further deduces that the *SmartOrganizer* specification should have the Task Management module.

Table 3-5: Opinion of respondent on the Task Management feature

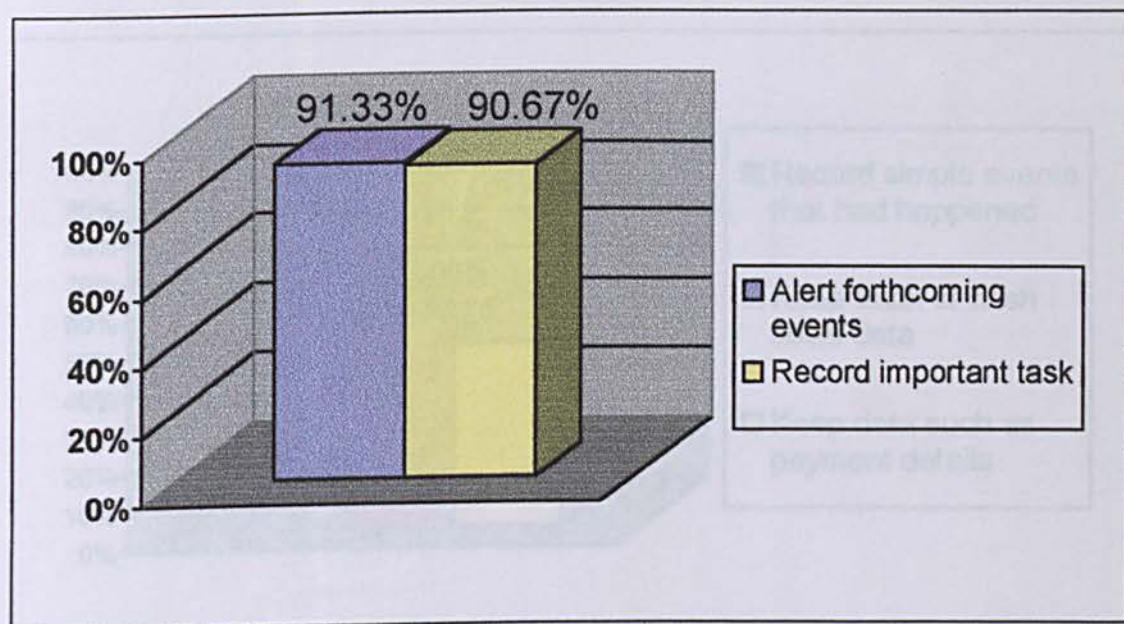| Task Management Features	Total	Percentage(%)
Alert forthcoming events	137	91.33
Record important task	136	90.67

Figure 3-5: User Requirements on the Task Management module

3.1.3.5 Notepad

Notepad module has a mixed reaction from respondent, as they do not see the importance of having a notepad. However, the module will still be included into the system.

Table 3-6: Statistic on Notepad feature

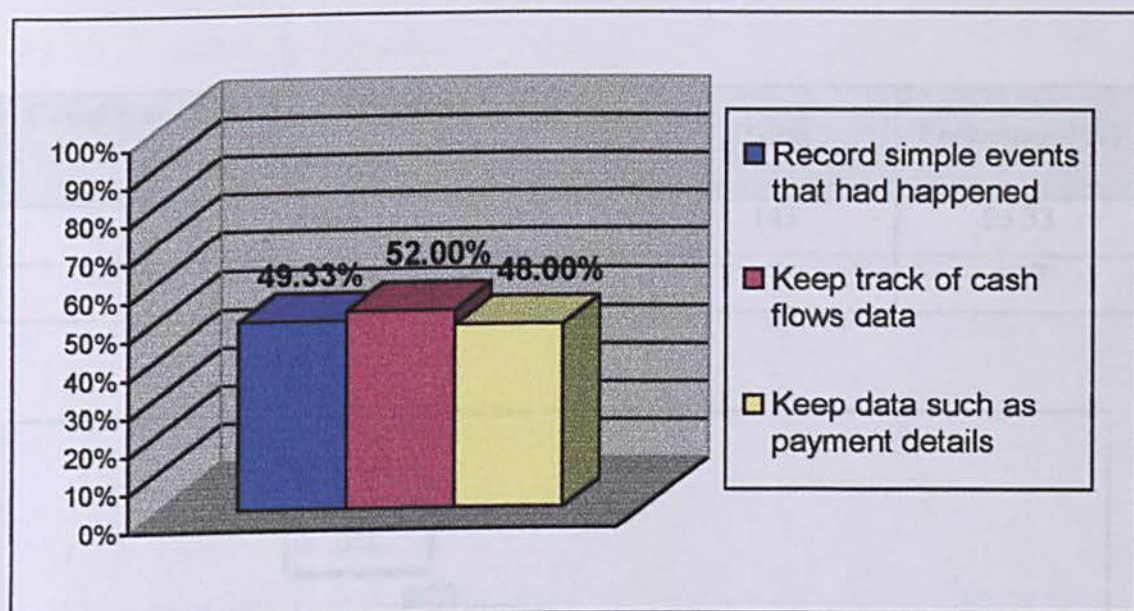| Notepad Features	Total	Percentage(%)
Record simple events that had happened	74	49.33
Keep track of cash flows data	78	52.00
Keep data such as payment details	72	48.00

Figure 3-6: User Requirements on Notepad features

3.1.3.6 *System Feasibility*

Statistic also reveals that the **SmartOrganizer** is feasible to be implemented. About 95.33% of the respondents strongly supported the use of **SmartOrganizer** would be able to manage their daily task. Following are some of the underlying reasons that is given by the respondent:

✎ An alert device will forewarn them well in advances as to the important event from time to time.

✎ It is more convenient where all the features required to record address, daily task are integrated into one single system, compact and more organized.

✎ Easily maintain tasks, appointments, important dates records.

*Table 3-7: Opinion of respondents as to the ability of **SmartOrganizer** manages the daily task.*

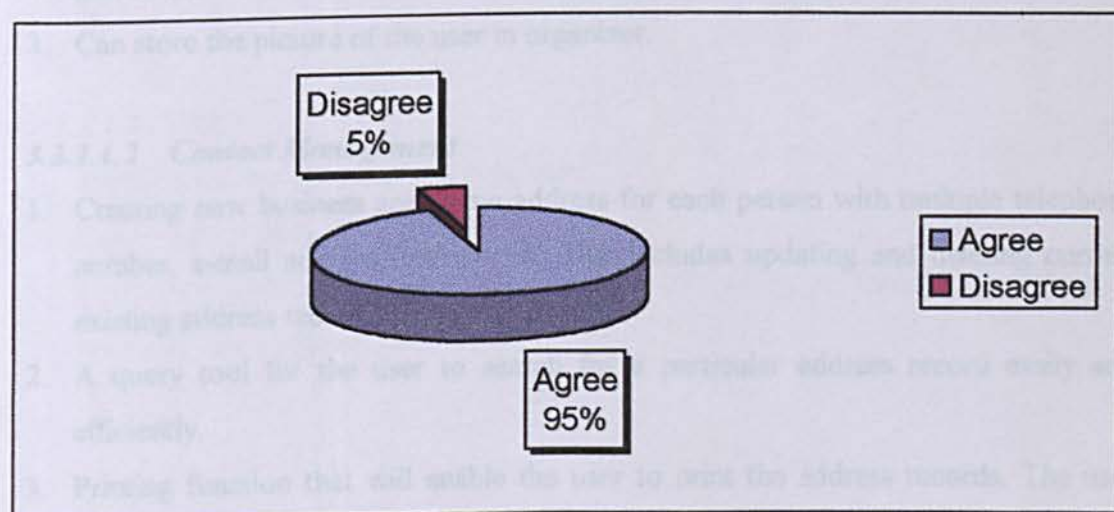| Capability of the *SmartOrganizer* to manage daily task.	Total	Percentage(%)
Agree	143	95.33
Disagree	7	4.67

Figure 3-7: Respondent's opinions on diary feasibility in managing their task.

3.2   Requirement definition

"… a system which have the diary features and need to have its own intelligence. To create an intelligent agent which can act when one of the situation occurs." (Translated from Bahasa Melayu – "Sistem mempunyai ciri-ciri diari dan perlu mempunyai kepintaran sendiri. Mewujudkan satu agen pintar yang bertindak apabila satu-satu keadaan dicapai.")

3.3   Requirement specification

3.3.1   Functional requirement analysis

Functional requirements describe an interaction between the system and its environment. **[IBM 1974]**

3.3.1.1   Module Specification

Below are the specifications for each module

3.3.1.1.1   Managing Personal Information Module

1. Keep personal information such as name, date of birth, address, and etc.
2. Keep confidential documents data such as IC no, passport no, Birth Certificate no, and so on.
3. Can store the picture of the user in organizer.

3.3.1.1.2   Contact Management

1. Creating new business and home address for each person with multiple telephone number, e-mail address, and so on. This includes updating and deleting current existing address records.
2. A query tool for the user to search for a particular address record easily and efficiently.
3. Printing function that will enable the user to print the address records. The user has the option to print details of the address records, or either select between the home or business contact address list.
4. Sorting the address records according to alphabetical order.

3.3.1.1.3   Task Management

The Task Management module will be divided into two main sections which consist of

1. Daily Scheduler
2. Reminder

Daily Scheduler

1. An entry mode for the user to create tentative tasks for a certain date, update and delete the existing task on a particular date.
2. Sort user daily tasks according to the daily, monthly or quarterly view.
3. Display a calendar year chart.
4. The user can set priority and categorize the assigned task. Beside, the user can customize the priorities and categories according to their own preferences.

Reminder

1. Entry modes where the user can enter the details of the important date and modify previous records and delete existing records.
2. A function that facilitates the user to create repeating occurrence of the event categorizes the dates.
3. An alarm device to forewarn the user in advances as to the upcoming event or date.

3.3.1.1.4   Notepad

1. Record simple events that had happened.
2. Keep track of cash flows data.
3. Keep data such as payment details for the electricity & water bills, insurance premium, licensing and fees.

3.3.2 Nonfunctional requirement

Nonfunctional requirements are implicit functionality or characteristics. It describes a restriction on the system that limits our choices for constructing a solution to the problem. Some of the few issues to be considered when developing any software are:

1. Security
2. Database Maintenance

3.3.2.1 *Security*

In order to prevent unauthorized access, a password feature will be included. User of the *SmartOrganizer* will be prompt to enter their login name and password as an authentication checking procedure. The password should able to be changed at instance by the user.

3.3.2.2 *Database Maintenance*

Database maintenance is a vital function for every database system to ensure database integrity and availability. The database maintenance consist of the following feature.

3.3.2.2.1 *Repair Database*

The database structure might be severe corrupted and repairing the database is the best solution. It is also an important part of administering a database system.

3.3.2.2.2 *Compact Database*

Compact database will remove waste empty spaces in the database. This will improve the disk space utilities.

3.4 Consideration of programming tools

In my literature survey for programming languages, I had make comparison for the leading Rapid Application Development (RAD) tools for Windows95 and Windows98. The product evaluated were:

1. Visual Basic 6.0
2. PowerBuilder 6.0

However, I had chosen Visual Basic as the programming tool to develop *SmartOrganizer* based on its considerable advantages over PowerBuilder in terms of usability, performance and functionality.

3.5   System requirements

3.5.1   Development environment

a)   Hardware Requirements

During the development of system, the hardware requirements are:

- ✓ An IBM compatible personal computer with an 80486 or higher processor
- ✓ A hard disk space with 4 MB for 16 bit drivers.
- ✓ At least 4MB of random-access memory (RAM)

b)   Software Requirements

The software requirements to develop *SmartOrganizer* are:

- ✓ Microsoft Visual Basic 6.0 (User Interface and Processing)
- ✓ Microsoft Access 97 (Database)
- ✓ Windows 98 (Operating System)

3.5.2   Runtime environment

a)   Hardware Requirements

The hardware requirements are:

- ✓ An IBM compatible personal computer with an 80486 or higher processor
- ✓ A hard disk space with 4 MB for 16 bit drivers.
- ✓ At least 4MB of random-access memory (RAM)

b)   Software Requirements

The software requirements to run *SmartOrganizer* are:

- ✓ Windows 98 (Operating System)

CHAPTER 4: SYSTEM DESIGN

Chapter 4: System Design

Design is the creative process for transforming the problem into a solution. It is the place where quality is fostered in software development. Design is the outcome of the synthesizing process. It provides us with representatives of software that can be assessed for quality. Design is the only way to accurately translate user requirements into a finished software product or system.

Without design, we risk building an unstable system that will turn out to be a failure. Unstable system often will fail when small changes are made and may be difficult to test.

4.1   Design techniques

To design a system is to determine a set of components and intercomponent interfaces that satisfy a specified set of requirements [DeMarco, 1982]. This mean that every design technique should involves some kind of decomposition: starting with a high-level depiction of the system's key elements and creating lower-level looks at how the system's features and functions will fit together. In designing the system, I had applied the **Modular Decomposition** approach. This approach involves construction of system by assigning functions to components, which is suitable to the system. The system, which consists of 5 different features, can be broken into components or modules and will perform its required task modularly. This will reduces complexity, facilitates changes (a critical aspect of software maintainability) and results in easier implementation by encouraging parallel development of different parts of a system.

4.2   Data Design

Data design transform the information domain module created during analysis into the data structure that will be required to implement the software.

Relational Database model is chosen as the database model in SmartOrganiser.

The reason for choosing relational database as the underlying implementation model is listed as the following:

1. Relational database model provides very powerful and flexible query capability that is the Structural Query Language (SQL) which makes the information retrieval and queries process much more efficient.

2. Relational database model leads to structural and data independence, which makes data design process simpler and the final system easy to maintain. The physical path to access the database is of no concern to the developer.

3. Moreover, Relational Database Management System contains many facilities that make it easy to design and generate reports. Therefore, reports such as the monthly financial status report, task list, addresses list and list of reminders can be generated easily.

4.2.1   Data Design Process

To begin the relational design, required entities such as person, place and so on will be defined. The data design process focuses on the data modeling and normalization steps.

4.2.1.1   *Data modeling*

Data modeling is the first steps in database design serving as a bridge between real world object and the database model that resides in the system. The most common data model is known as the E-R model (Entity-Relationship model). E-R model is used to represent relatively simple abstraction of the SmartOrganiser system.

There are three main components in E-R model, which are entities, relation and attributes. Entities can be an object, event, and so on. In this instance, these entities consist of the daily task, important data, alarm, incomes, expenses, notes and so on. Attributes are associated with the characteristics of the entity. For example, the task entity attributes will be the task data, task description, priority, category and others. Relationship is an associate between two entities.

4.2.1.2   *Normalizing tables*

During the data modeling process, the tables are also normalized up to Boyce Codd Normal Form (BCNF). Normalization is a technique used to design tables in which data redundancies are minimized. From a structural point of perspective, higher

normal form is better than the lower form because higher normal form yields relatively fewer data redundancies in the database. Normalization is part of the data design process to make sure that proposed entities meet the required normal form before the table structure is created. Normalization process may yield additional entities and attributes to be integrated into E-R diagram. Therefore, it is difficult to separate normalization process from E-R modeling process. It should be used concurrently.

4.2.2 The Database Structure

SmartOrganizer database is developed using Microsoft Access. The database is accessed using Visual Basic as the front-end tools where the user can perform various actions such as insert, update, view and delete records.

There are 8 different tables in *SmartOrganizer* database. The data are kept in individual tables that represent different entities. These entities consist of daily task details; important data details, plans details, address entries details, personal profile details, financial details and notes details. The names of all tables and the data store are listed in Table 4-1.

Table 4-1: List of all the tables in SmartOrganizer database

Table Name	Description
H000_AddressBook	Store the details of all the address records
H010_ReminderSystem	Keep the details of the reminder including reminder description, time to remind and so on.
H020_DailySchedule	Store details of the daily tasks.
H030_ImportantDate	Store all the important date for the year.
H040_Notepad	Store the details of the notes created.
S000_SystemLogin	Store the user login password.
S010_CategoryCodes	Store the codes and description for task category.
S020_AlarmSound	Store the description and path of the alarm sound.
S030_PersonalInfo	Storing the user personal details.

4.2.3 Data dictionary

The following tables have been normalized up to Boyce-Codd Normal Form.

a)   Table of address details – H000_AddressBook

This table stores all the address details. The table structure is shown in Table 4-2.

Table 4-2: Table structure of H000_AddressBook

Field Name	Field Type	Key	Description
AddressID	Long	✓	ID for the address record
Name	Text		Name of the contact
HomePhone	Text		Home telephone no.
AddEmail	Text		E-mail address
Title	Text		Title for the person
OffAdd	Text		Company Address
JobTitle	Text		Job title
Department	Text		Department of the person
OffTel	Text		Company telephone no.
OffFaxTel	Text		Facsimile no.
HomeAdd	Text		Home address
MobilePhone	Text		Mobile phone no.
PagerNo	Text		Pager no.
Gender	Text(1)		Gender of the person
Birthdate	Date		Birthdate of the person
OwnNotes	Text		Notes about the person
WWWOff	Text		Company web site address.
WWWHome	Text		Contact web site address

b) **Table of the alarm details – H010_ReminderSystem**

This table stores all the alarm details. The table structure is shown in Table 4-3.

Table 4-3: Table structure of H010_ReminderSystem

Field Name	Field Type	Key	Description
DateTimeIn	Date/Time	✓	Record input time
DateTimeSet	Date/Time		Date to fire the alarm.
ReminderType	Text(1)		Type of Reminder
Reminded flag	Boolean		Reminded flag

c) **Table of daily task details – H020_DailySchedule**

This table stores all the daily task details. The table structure is shown in Table 4-4.

Table 4-4: Table structure of H020_DailySchedule

Field Name	Field Type	Key	Description
DateTimeIn	Date/Time	✓	Date and time of record input
Priority	Integer		Task priority
Subject	Text(50)		Task Subject
Desc	Text(255)		Task Description
StartDate	Date/Time		Begin date for task
DueDate	Date/Time		Due date for task
Percentage	Integer		Percent completion of the task
ReminderSet	Boolean		Reminder set flag
DoneFlag	Boolean		Task status
AdvTime	Integer		Advance time unit
AdvType	Text(1)		Advance time type.
SoundNo	Integer		Sound number code.

d)   Table of daily task details – H030_DailyEvent

This table stores all the important date details. The table structure is shown in Table 4-5.

Table 4-5: Table structure of H030_DailyEvent

Field Name	Field Type	Key	Description
DateTimeIn	Date/Time	✓	Date and time of record input
DateTimeSet	Date		Date and time of record set
EndDateTime	Date		End date and time of record
ReminderSet	Boolean		Flag to indicate whether alarm is set for the task
Subject	Text		Subject of the event
Desc	Text		Important date description
ReminderSet	Boolean		Reminder flag
AdvTime	Integer		Advance time unit
AdvType	Text(1)		Advance time type.
SoundNo	Integer		Sound Number code.

e)   Table of Notepad details – H050_Notepad

Field Name	Field Type	Key	Description
DateTimeIn	Date/Time	✓	Date and time of record input
Subject	Text(50)		Subject
Desc	Memo		Description

f)   Table of system login details – S000_SystemLogin

This table stores all the system login details. The table structure is shown Table 4-6

Table 4-6: Table structure of S000_SystemLogin

Field Name	Field Type	Key	Description
UserID	Text(10)	✓	User ID
Password	Text(10)	✓	Password
UserName	Text		User Name
Picture	Text		Picture path of the user photo.

g)   Table of category codes details – S010_CategoryCodes

This table stores all the category codes used in the task. The table structure is shown Table 4-7

Table 4-7: Table structure for S010_CategoryCodes

Field Name	Field Type	Key	Description
CatCode	Text(5)	✓	Code for the category
Desc	Text		Category description

h)   table of alarm sound details – S020_AlarmSound

This table stores all the alarm sound details. The table structure is shown Table 4-8

Table 4-8: Table structure for S020_AlarmSound

Field Name	Field Type	Key	Description
SoundNo	Text(5)	✓	SoundCode
Location	Text		Location for the sound

4.3   Architecture Design

Architecture design defines the relationship among major structural components. In addition, architectural design built the program structure and data structure, defining interfaces that enable data to flow throughout the program. The architectural design fundamentals should lead to modularity as stated in the chapter 4.1 Design techniques. A modular design reduces complexity, facilitates change (a critical aspect of software maintainability) and results in easier implementation by encouraging parallel development of different parts of a system.

To achieve modular design, the fundamental notes below have been followed during the process of designing.

4.3.1   Functional Independence

Each module addresses a specific subfunction of requirements and has a simple interface when viewed from other parts of the program structure. Independent modules are easier to maintain because secondary effects by design or code modification are limited, error propagation is reduced, and reusable module is possible.

4.3.2   High Cohesiveness and Low Coupling

Each module should perform a single task within a software procedure, requiring little interaction with procedures being performed in other parts of program. Stated simply, a cohesive module should do just one thing. In software design, we should look for the lower possible coupling. Simple connectivity among modules results in software that is easier to understand and less prone to a "ripple effect" caused when error occurs at one location and propagates through a system. **[IBM 1974]**

4.3.3 Program Hierarchy Chart

SmartOrganizer is constructed by a collection of independent but interacting modules. The following figures show those modules in hierarchy charts.
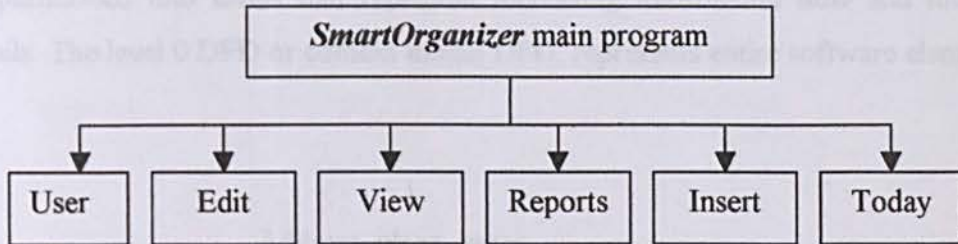
Figure 4-1: SmartOrganizer main program hierarchy chart
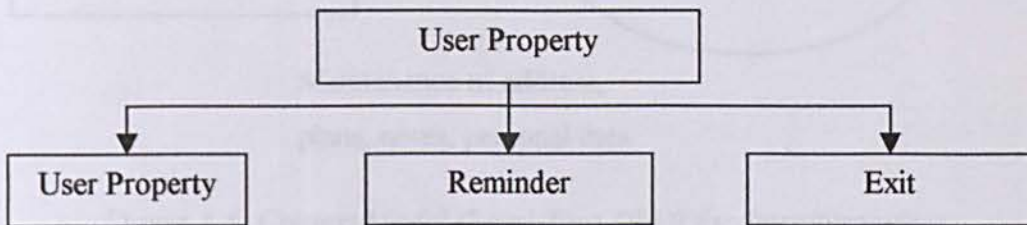
Figure 4-2: User module hierarchy chart
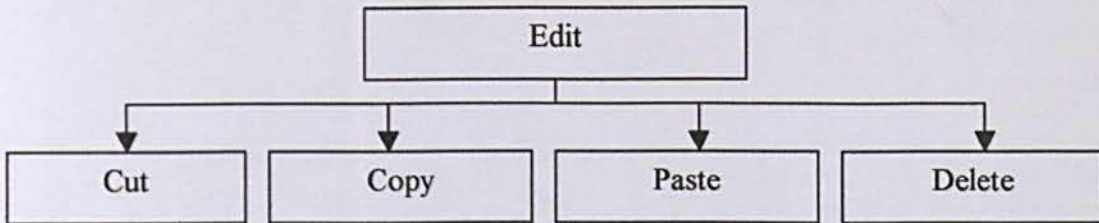
Figure 4-3: Edit module hierarchy chart
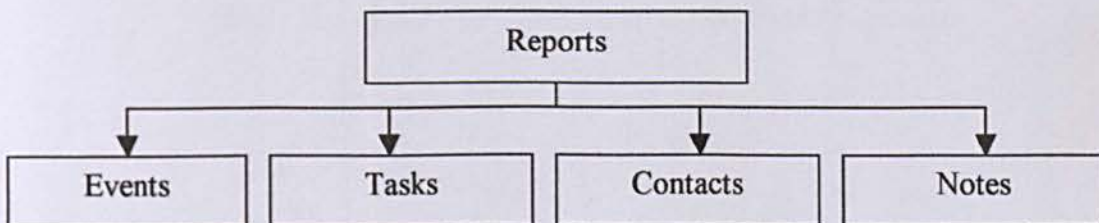
Figure 4-4: Reports module hierarchy chart

4.3.4 Data Flow Diagram

This data flow diagram (DFD) is a graphical technique that depicts information flow and the transforms that are applied as data move from input to output. The data flow diagram is used to represent the system at any level of abstraction. In fact, DFDs may be partitioned into levels that represent increasing information flow and functional details. The level 0 DFD or context model DFD, represents entire software element.

Address, plans, notes, personal data

SmartOrganizer owner ⟶ **SmartOrganizer**

Maintenance of address, plans, notes, personal data
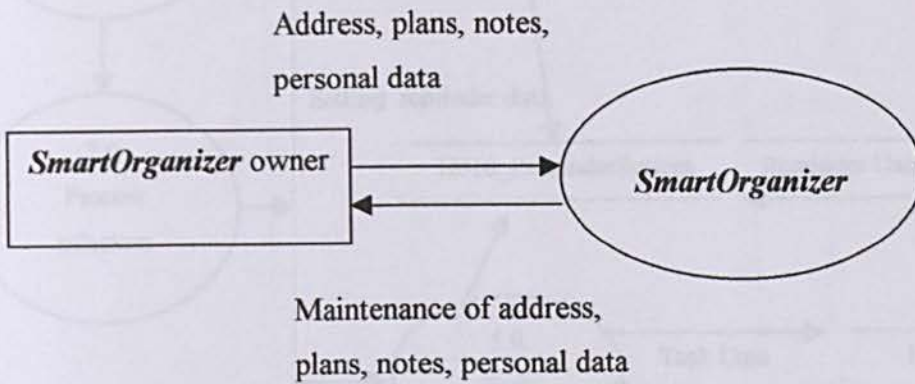
Figure 4-5: Context Model (Level Zero DFD) for SmartOrganizer
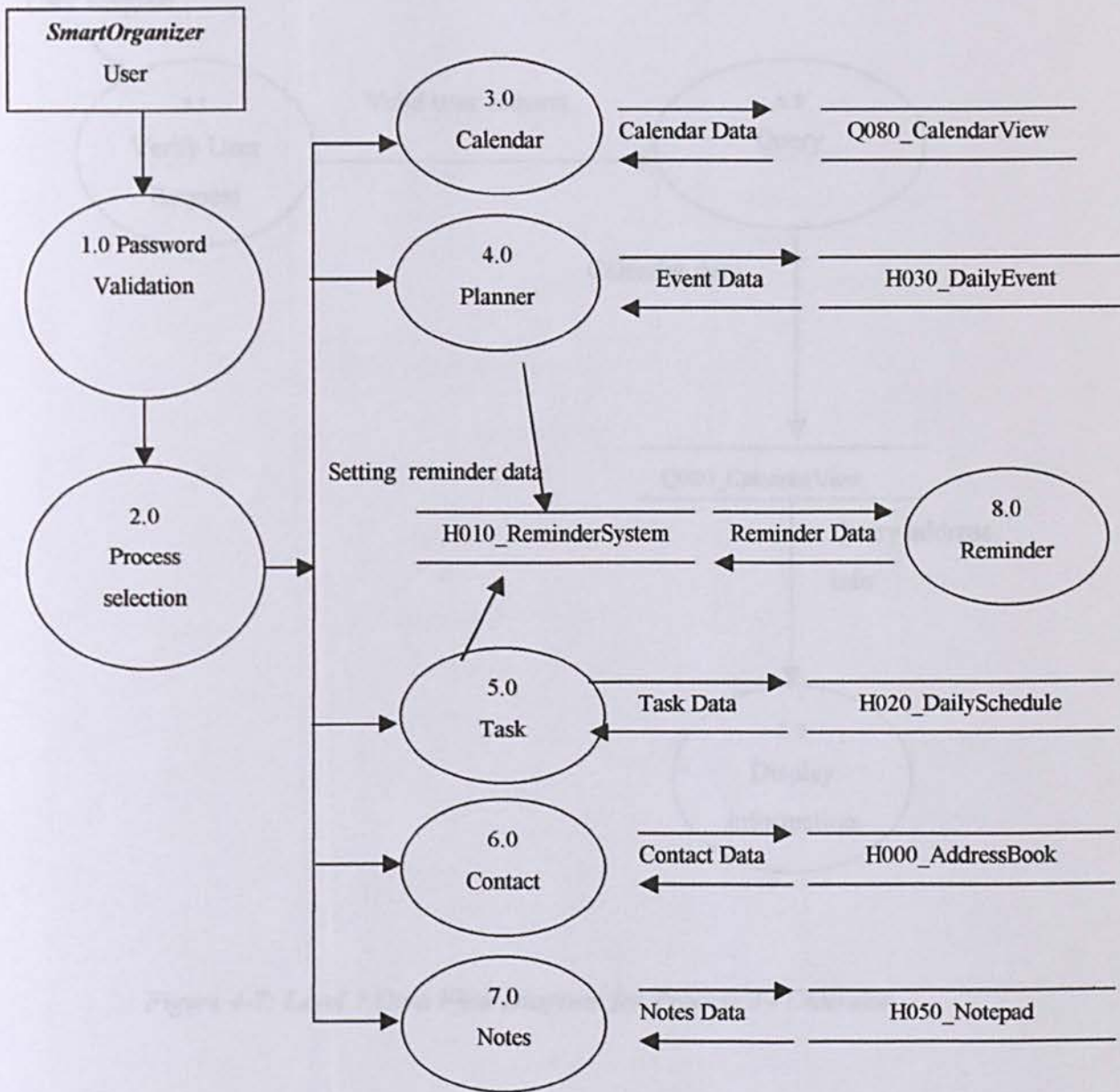
*Figure 4-6: Level 1 Data Flow Diagram for **SmartOrganizer***

User Request
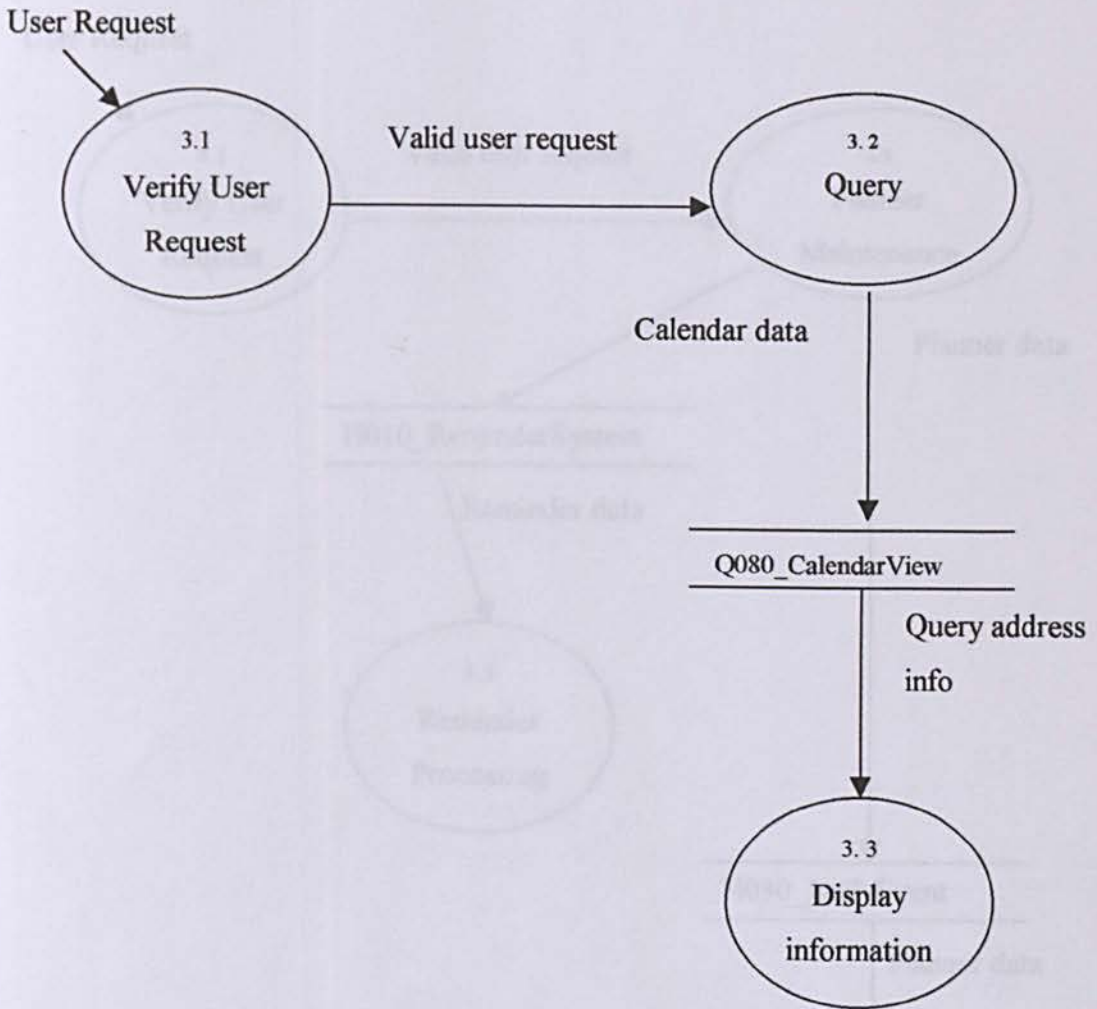
Figure 4-7: Level 2 Data Flow Diagram for Process 3 - Calendar
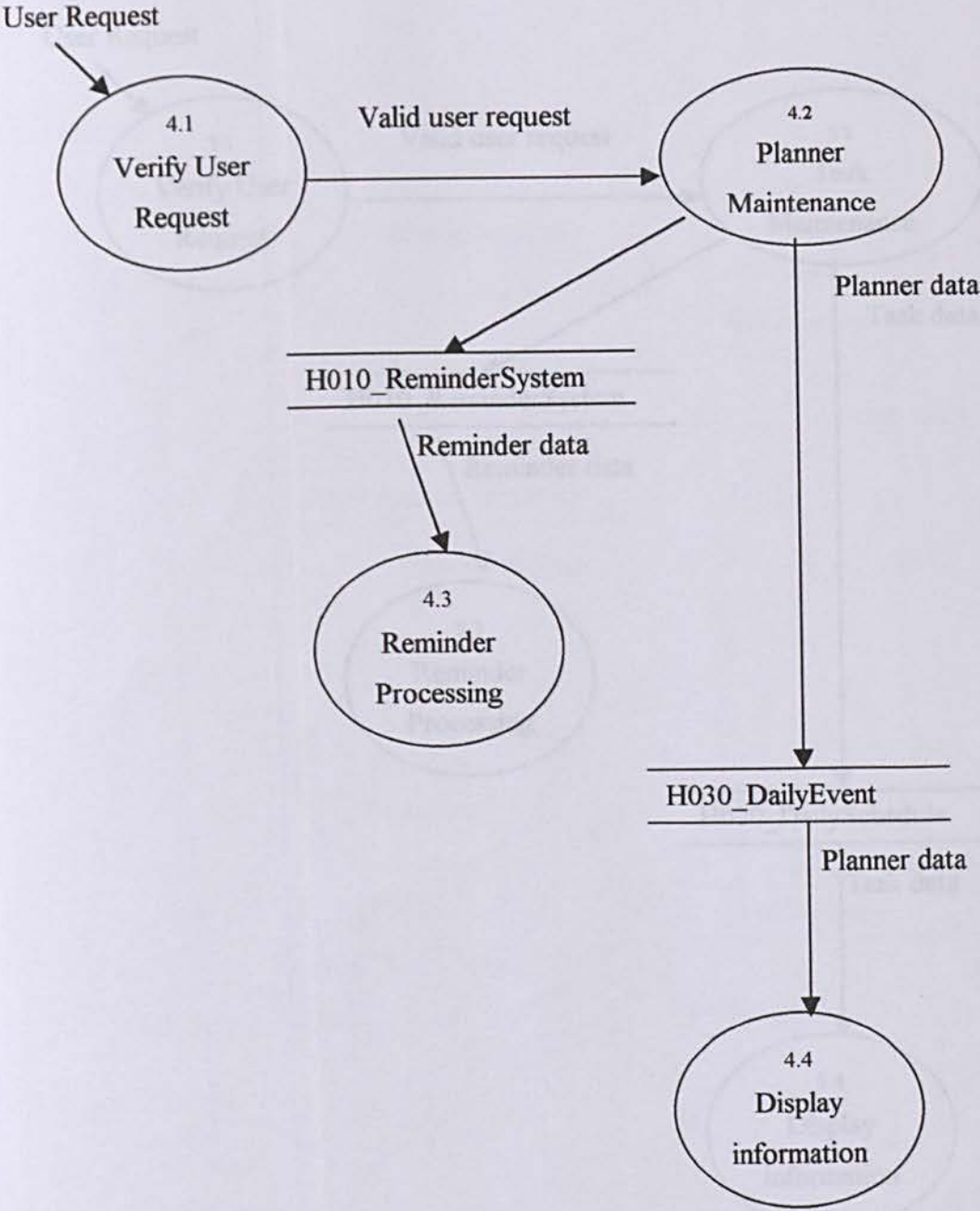
Figure 4-8: Level 2 Data Flow Diagram for Process 4 - Planner
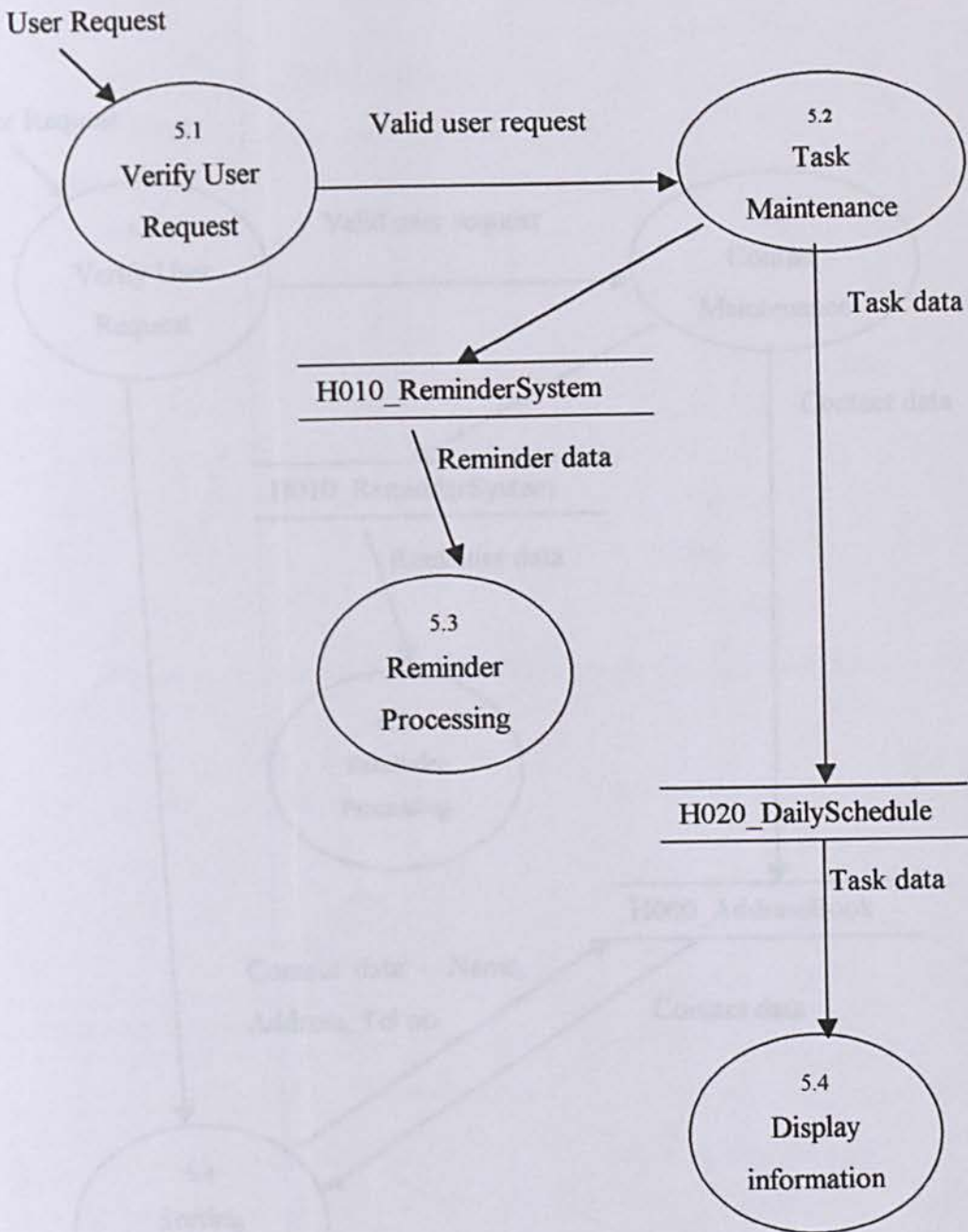
Figure 4-9: Level 2 Data Flow Diagram for Process 5 - Task

User Request

6.1
Verify User
Request

Valid user request

6.2
Contact
Maintenance

H010_ReminderSystem

Contact data

Reminder data

6.3
Reminder
Processing

H000_AddressBook

Contact data – Name,
Address, Tel no

Contact data

6.4
Sorting

6.5
Display
information
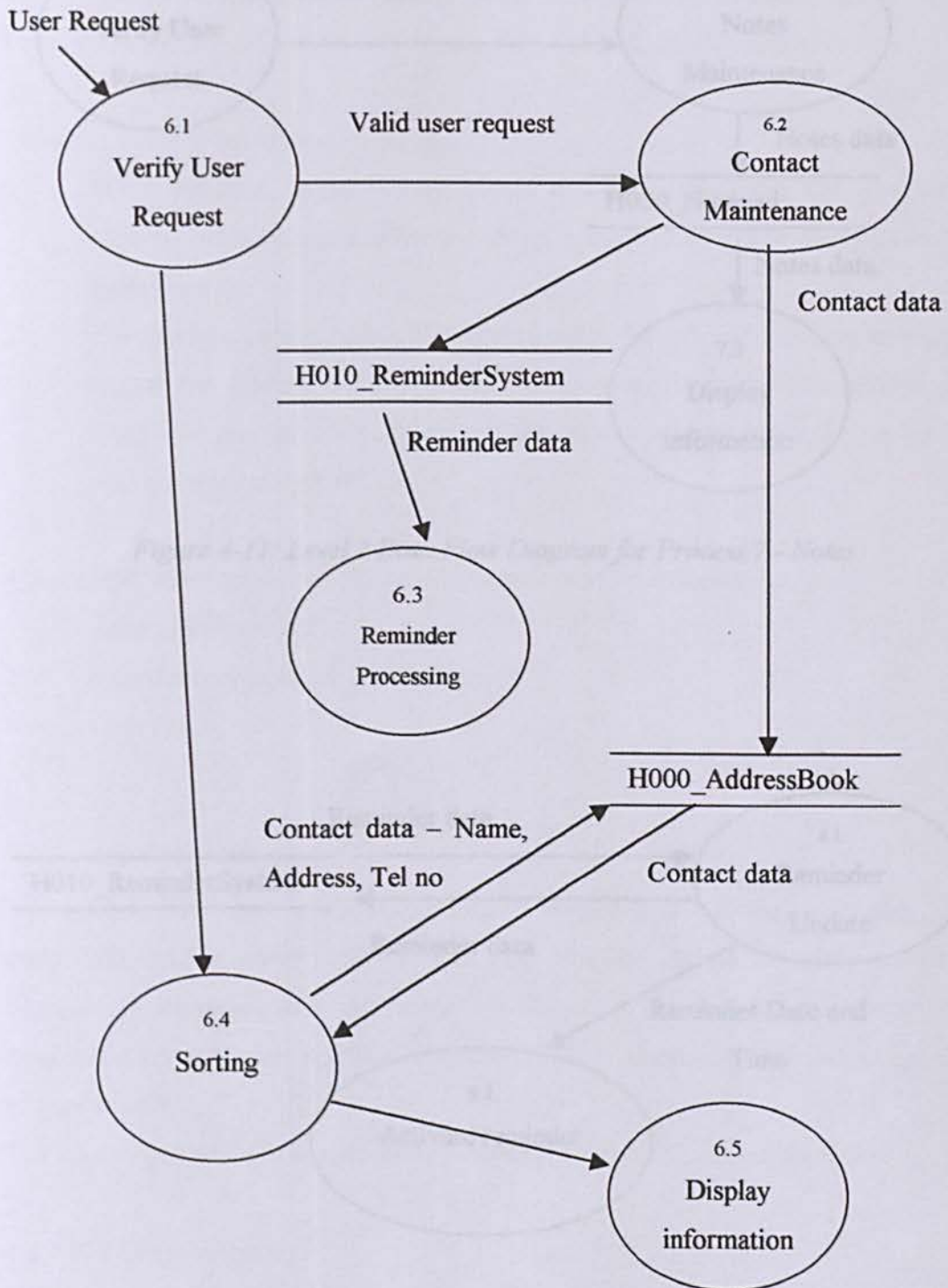
Figure 4-10: Level 2 Data Flow Diagram for Process 6 - Contact

User Request
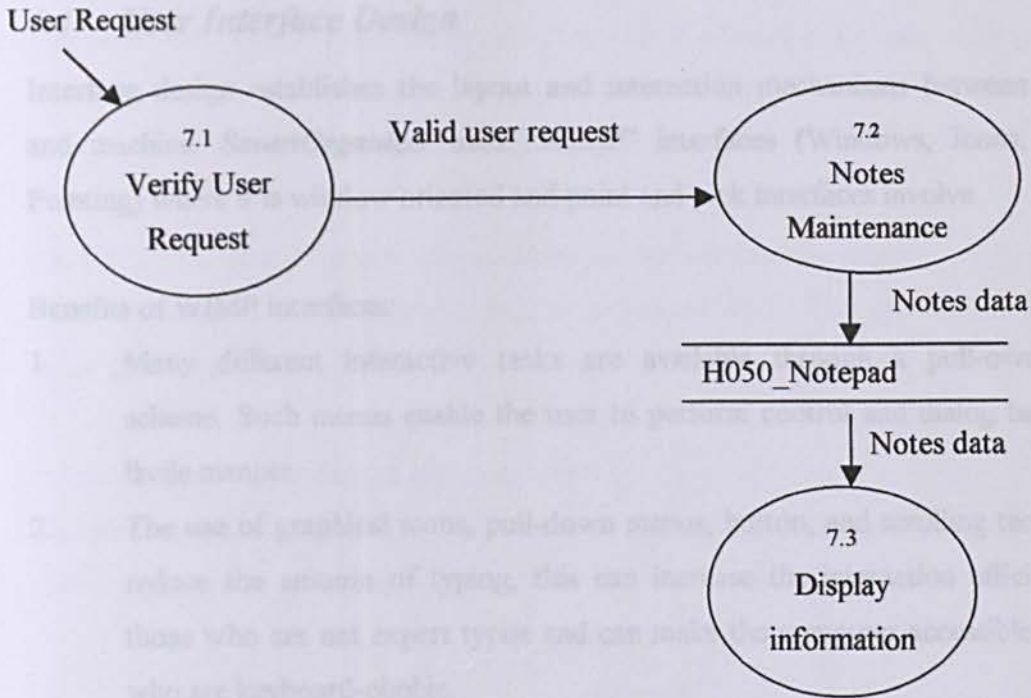
Figure 4-11: Level 2 Data Flow Diagram for Process 7 - Notes
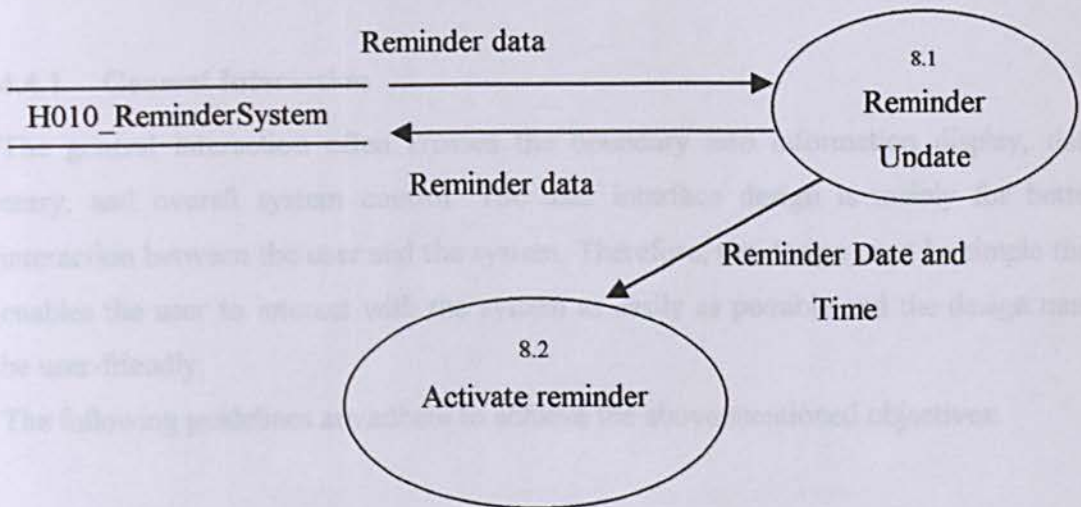
Figure 4-12: Level 2 Data Flow Diagram. Process 8 - Reminder

4.4   User Interface Design

Interface design establishes the layout and interaction mechanisms between human and machine. *SmartOrganizer* uses "WIMP" interfaces (Windows, Icons, Menu, Pointing) where it is window oriented and point and pick interfaces involve.

Benefits of WIMP interfaces:

1.   Many different interactive tasks are available through a pull-own menu scheme. Such menus enable the user to perform control and dialog tasks in a facile manner.

2.   The use of graphical icons, pull-down menus, button, and scrolling techniques reduce the amount of typing, this can increase the interaction efficiency of those who are not expert typist and can make the computer accessible to user who are keyboard-phobic.

There are three categories of Human Communication Interface design:

1.   General Interaction

2.   Information Display & Printed Output

3.   Data Input

4.4.1   General Interaction

The general interaction often crosses the boundary into information display, data entry, and overall system control. The user interface design is mainly for better interaction between the user and the system. Therefore, the design must be simple that enables the user to interact with the system as easily as possible and the design must be user-friendly.

The following guidelines are adhere to achieve the above mentioned objectives:

4.4.1.1   Be consistent

the screen layout, menu selection and data display is consistent throughout the system to avoid user confusion.

4.4.1.2   Ask for verification for any non-trivial actions.

The user will verify against request that will produces significant changes. For examples,. If the user requests the deletion of a record, then to verify the user actions, "Do you want to delete the record?" should appear.

4.4.1.3   Use simple action verb or short phases to name command

All the command is labeled with simple and short verb. This is to avoid lengthy command name to be remembered by the user.

4.4.1.4   Display messages and comments

The messages serve to indicate the status of processing. If error has been detected, then it request user to select an action.

4.4.2   Information Display and Printed Output

4.4.2.1   Information Display

The information display in the system will be in list form with the appropriate column heading for each fields. The information display in the list form.
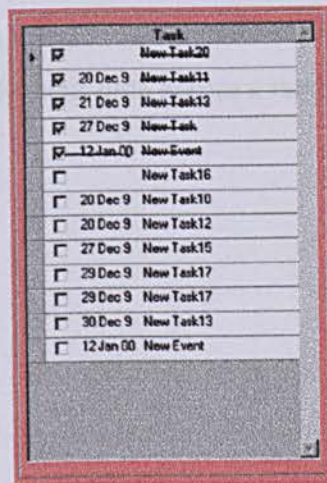
Figure 4-13: Information display in a list form

4.4.2.2   Printed Output

Reports on daily task, events, notes and contacts and so on can be generated to aid user for time management purposes and to monitor their monthly financial status. The generated reports have a standized layout with the following attributes:

- Headings

All outputs must have a title to inform the user as to what they are working with. The headings will e presented at center of the upper portion of the report.

- Page number and date

Dates printed on the reports will inform the user the date on which it was prepaed besides, the page number provides a quick reference for the users who work with data found at various locations throughout the report.

- Column headings and data details

The column headings will orient the user to the contents for each of the column in the reports. The data will be displayed below each of these column headings

4.4.3   Data input

To minimize the number of input actions required by the user, features or controls such as the combo box, option and check box are used widely throughout the system. By using mouse, the user can select from predefined set of inputs and by clicking the check box, the user can quickly input data across a range of value.

CHAPTER 5: IMPLEMENTATION

Chapter 5: Implementation

The implementation step translates a detail design representation of software into a program language realization.

5.1   Choosing the programming language

Meek [**Meek 1980**] suggest a general philosophy when a programming language must be chosen:

"... the art of choosing a language is to start with the problem, decide what its requirements are, and their relative importance, since it will probably be impossible to satisfy them all equally well (with a single language) ... languages should be measured against a list of requirements..."

Among the criteria that were applied during the selection of the programming language are:

- Availability of development tools
- Environment in which the software will execute
- Knowledge of the software development tools
- Nature of the system to be developed

5.2   Coding style

SmartOrganizer is developed by using an "architectural approach" which consists of 3 different layers which is the user interfaces layer, data layer and transaction layer. A layered paradigm has many benefits that help meet objectives in application development. The following is the short list:

- **Maintainability**

Code is organized in a recognized manner and the task-oriented code is centrally located.

- **Reusability**

Task-oriented code is easily developed for reuse, specifically for tasks that cross application boundaries.

- **Simplicity**

Modular design removes the use of "spaghetti code" and fosters elegance, not "hacks".

- **Testability**

Modules can be tested easily. Modularization breaks up the code coverage task into smaller, manageable units.

- **Speed**

Modular code can safely be optimized without affecting the calling procedures.

5.2.1 User Interface Layer

The user interface (UI) layer. Is the only portion of the application responsive to user interaction. It is where all data is presented to the user via window objects. The UI layer is also there where all inputs or modifications to data are made via window objects. The UI layer include all "event handlers" or "events". These are subroutines that are called upon in response to some user interaction (click, mouse move), during change in status of a window object (form resize, lost focus), or as call-back procedures (VBSQL0-Error, Timer). It also includes those procedures that either fill controls with data or retrieve data from controls.

In short, the UI layer performs the following:

- Displaying all application data or information via window objects
- Responding to the changing states of window objects
- Initiating all user requests

5.2.2 Data Layer

The data layer supplies all data to the UI layer for display in window objects, and all data to the transaction layer. The layer includes any routine that will perform operations on an application's data. Its responsibilities should include operations such as the following:

- Validating the data in the structures
- Formatting of data for display in the UI layer
- Formatting of data for use in the transaction layer
- Sorting the data in arrays or structures

5.2.3 Transaction Layer

The transaction layer uses the data layer as its application data repository and transfers or manipulates all data to and from an external data source. The transaction layer includes operations such as the following:

- Initiation of building of all queries
- Handling violation of external access rules
- Controlling of all transactional logic

5.3   *Program Optimization*

Program optimization is a process of improving the efficiency of the system. *SmartOrganizer* system is a Graphical User Interface based program. The speed at which information appears on the screen often gives user an impression on how well the program will perform. Therefore, this process is advisable to be carried out. There are two ways in doing so, the first one is to <u>increase</u> the execution speed of the program and second one is to decrease the amount of memory the program needs to run.

5.3.1   Increasing execution speed

Some of the steps taken to increase the execution speed are as follows:

- Avoid using variant data types. Because the variant data type requires additional internal program standards to identify the information being stored.
- Minimized the amount of program initialization (inside Form_Load event procedure), the form will be forced to appear before the startup code is executed. This makes the user perceive that the program is running faster.
- Use image control whenever displaying bitmap (BMP) image in the program.

5.3.2   Decreasing program size

The steps taken to reduce the program size are:

- Reviewing codes for unused variables, constant and "dead code" and remove it from the program codes.
- Assigning the string variable to a zero-length string, if it is no longer needed.

CHAPTER 6:
SYSTEM TESTING

6.1 Testing Strategies

Chapter 6: System Testing

Testing is carried out to meet the following objectives:

- To uncover errors in the software
- To demonstrate that software functions appear to be working according to specification and that performance requirement appear to have been met.

In addition, data collected as testing is conducted provide as good indication of software quality as a whole. In general, the testing will uncover the types if errors noted below:

- Errors occur during the database connectivity
- Errors in adding, updating and deleting the database records
- Logical errors

6.1   Testing Strategies

Three types of testing involved in this phase are:

- Unit testing
- Module testing
- Integration testing

6.1.1   Unit Testing

In unit testing, each unit procedure is tested and checked for the following:

- Each unit accepts the required input and provides the needed output
- Logical decision flow
- Boundary conditions ensuring that the module operates properly at boundaries established to limit or restrict processing.
- Error management paths to determine the correct path for the program to follow when an error occurs.

In these instances, the unit is the subrountine where the event driven cde is kept.

6.1.2   Module Testing

This type of testing is to test the integration of all the units. It also checks on the interfacing between each of these units.

6.1.3   Integration Testing

This testing will check on the interfacing between modules and to test the integration of modules. In addition, it wills checks that the functions specific are provided. The bottom – up approach is used in the integration testing. In this approach, each module is tested individually before it is integrated. Modularity design enables the module to be tested without propagating the errors to other module. For example, the modules for this system such as daily scheduler and important date are tested individually before they are integrated to the main program. Then, in the main program these two modules are tested together.

CHAPTER 7: SYSTEM EVALUATION & CONCLUSION

Chapter 7: System Evaluation and Conclusion

This chapter consists of two parts. The first part will discuss mainly on the system evaluation. Evaluation method will highlight the problems encountered, system strengths, system limitations and future enhancements. The second part will be the conclusion of the whole project.

7.1 *Problems Encountered and Solutions*

During the development of the project, several problems have been encountered and below are lost of them.

1.   Implementing the 'smart' agent

   In my system specification, the system should have a 'smart' agent to activate the alarm function. Thus, the smart agent should be able to respond differently for different input that it has received. Thus, logically programming is quite difficult to implement.

7.2 *System Strengths*

SmartOrganizer demonstrated the following strength:

1. Provide reporting function

   In *SmartOrganizer* system, the user can generate a few types of reports for his/her own references. The reporting functions are available almost in every module. Reports that can be produced by this system are such as daily task list, event list, reminder list, contact list and etc.

2. Sorts information display

   All the display information for this system is sorted according into different tab views for ease the user interaction. The user need not undergo all the troubles to search for a particular record. For instance, the records in the contact will be sorted according to name, address, or telephone number.

3. Yearly planner display

   The yearly planner display in Calendar tab is able to display the event of the year in a convenient manner. User can easily be notify of the current event or task ahead.

4. Reminder system can be run without opening the organizer system.

7.3 System Limitations

Several limitations were spotted from the system and below are the lists of them:

1. The function to mark the task completed from the task display list was not included.

2. The application may take longer time to startup, which was cause by the process of loading a few bottleneck modules. These modules were crucial for the system to run.

3. Lack of drag-and-drop features to increase user friendliness of the system.

7.4 Future Enhancements

Facing the limitations of the system, a set of enhancement steps of feature has been proposed. They are:

1. Use of Third Party jet engine alternatives for faster or complex data access such as the Andsor Database Engine, Bridgit, CodeBasic 5.1, etc. **[VBJ 1995]**

2. Use of multimedia to give better sound and visual effect, currently the alarm system is implemented by using the PC sound only.

3. Providing functions to mark the planner or calendar chart with the daily task or events.

4. Integrating with e-mail tools.

7.5   *Conclusion*

In conclusion, I feel SmartOrganizer system has achieved most of its objectives. The system has successfully integrated 5 main features for the user in managing their time and workload.

However, like any other software application, *SmartOrganizer* is not escapable from its limitations. Fortunately, all these can be overcome in time to come, by making the necessary future enhancements like implementing an e-mail tools, using a third party jet alternativies to reduce the time taken to retrieve database records and using multimedia to improve the sound and visual effects.

For the past seven months of my system development, I had learned many things and gained much amount of knowledge. Such knowledge is essential in developing future systems. Furthermore, it also gives me an opportunity to learn a new programming language, which is Visual Basic. Throughout the system development period, I have been trained to plan well in each step and phase to determine the right strategies that will be taken in each respective phase.

Moreover, I have learned to be better in time management, which has helped me in allocating time smartly and wisely. Time management is an important factor in the system development. Any failure in the time management will cause the system to be delivered late and not performing as what it is expected.

Last but not least, I have discovered that there is room for improvement for my skills in programming and requirement analysis. I hope I can sharpen these skills in the near future.

a) ADO (ActiveX Data Objects)

Microsoft's newest high-level interface for data objects. ADO is designed to eventually replace Data Access Objects (DAO) and Remote Data Objects (RDO). Unlike RDO and DAO, which are designed only for accessing relational databases, ADO is more general and can be used to access all sorts of different types of data, including web pages, spreadsheets, and other types of documents. Together with OLE DB and ODBC, ADO is one of the main components of Microsoft's Universal Data Access (UDA) specification, which is designed to provide a consistent way of accessing data regardless of how the data are structured.

b) API (Application Program Interface)

API is a set of routines, protocols, and tools for building software applications. A good API makes it easier to develop a program by providing all the building blocks. A programmer puts the blocks together.

Most operating environments, such as MS-Windows, provide an API so that programmers can write applications consistent with the operating environment. Although APIs are designed for programmers, they are ultimately good for users because they guarantee that all programs using a common API will have similar interfaces. This makes it easier for users to learn new programs.

c) CICS (Customer Information Control System)

CICS is a TP monitor from IBM that was originally developed to provide transaction processing for IBM mainframes. It controls the interaction between applications and users and lets programmers develop screen displays without detailed knowledge of the terminals being used. It is also available on non-mainframe platforms including the RS/6000, AS/400 and OS/2-based PCs.

d) DBMS (Database Management System)

Collection of programs that enable you to store, modify, and extract information from a database. There are many different types of DBMSs, ranging from small systems that run on personal computers to huge systems that run on mainframes. The following are examples of database applications:

APPENDIX A: GLOSSARY

ADO (ActiveX Data Objects)

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DBMS (DataBase Management System)

Collections of programs that enable you to store, modify, and extract information from a database. There are many different types of DBMSs, ranging from small systems that run on personal computers to huge systems that run on mainframes. The following are examples of database applications:

- computerized library systems
- automated teller machines
- flight reservation systems
- computerized parts inventory systems

From a technical standpoint, DBMSs can differ widely. The terms *relational, network, flat,* and hierarchical all refer to the way a DBMS organizes information internally. The internal organization can affect how quickly and flexibly you can extract information.

Requests for information from a database are made in the form of a query, which is a stylized question. For example, the query

SELECT ALL WHERE NAME = "SMITH" AND AGE > 35

requests all records in which the NAME field is SMITH and the AGE field is greater than 35. The set of rules for constructing queries is known as a query language. Different DBMSs support different query languages, although there is a semi-standardized query language called SQL *(structured query language)*. Sophisticated languages for managing database systems are called fourth-generation languages, or *4GLs* for short.

The information from a database can be presented in a variety of formats. Most DBMSs include a report writer *program* that enables you to output data in the form of a report. Many DBMSs also include a graphics component that enables you to output information in the form of graphs and charts.

⸆ IDE

A programming environment integrated into an application. For example, Microsoft Office applications support various versions of the BASIC programming language. You can develop a WordBasic application while running Microsoft Word.

⸆ ISAPI (Internet Server API)

Short for Internet Server API, an API for Microsoft's IIS (Internet Information Server) Web server. ISAPI enables programmers to develop Web-based applications that run much faster than conventional CGI programs because they're more tightly integrated with the Web server. In addition to IIS, several Web servers from companies other than Microsoft support ISAPI.

IIS

Short for Internet Information Server, Microsoft's Web server that runs on Windows NT platforms. In fact, IIS comes bundled with Windows NT 4.0. Because IIS is tightly integrated with the operating system, it is relatively easy to administer. However, currently IIS is available only for the Windows NT platform, whereas Netscape's Web servers run on all major platforms, including Windows NT, OS/2 and UNIX.

MAPI (Messaging Application Programming Interface)

A system built into Microsoft Windows that enables different e-mail applications to work together to distribute mail. As long as both applications are *MAPI-enabled*, they can share mail messages with each other.

ODBC (Open DataBase Connectivity)

Standard database access method developed by Microsoft Corporation. The goal of ODBC is to make it possible to access any data from any application, regardless of which database management system (DBMS) is handling the data. ODBC manages this by inserting a middle layer, called a database driver, between an application and the DBMS. The purpose of this layer is to translate the application's data queries into commands that the DBMS understands. For this to work, both the application and the DBMS must be ODBC-compliant -- that is, the application must be capable of issuing ODBC commands and the DBMS must be capable of responding to them. Since version 2.0, the standard supports SAG SQL.

SQL (Structured Query Language)

Pronounced either "see-kwell" or as separate letters. SQL is a standardized query language for requesting information from a database. The original version called SEQUEL (structured English query language) was designed by an IBM research center in 1974 and 1975. SQL was first introduced as a commercial database system in 1979 by Oracle Corporation. Historically, SQL has been the favourite query language for database management systems running on minicomputers and mainframes. Increasingly, however, SQL is being supported by PC database systems because it supports distributed databases (databases that are spread out over several

computer systems). This enables several users on a local-area network to access the same database simultaneously.

Although there are different dialects of SQL, it is nevertheless the closest thing to a standard query language that currently exists. In 1986, ANSI approved a rudimentary version of SQL as the official standard, but most versions of SQL since then have included many extensions to the ANSI standard. In 1991, ANSI updated the standard. The new standard is known as SAG SQL.

□ **VSAM (Virtual Storage Access Method)**

It is a file management system used on IBM mainframes. VSAM speeds up access to data in files by using an inverted index (called a B+tree) of all records added to each file. Many legacy software systems use VSAM to implement database systems (called data sets), though modern relational DBMSs are more efficient and flexible.

APPENDIX B: QUESTIONNAIRE DESIGN

APPENDIX B: QUESTIONNAIRE DESIGN

Questionnaire
A survey on Computerized Organizer

Instructions:

☐ Tick the relevant answer in the box

___ Fill in the appropriate information or answer

Faculty:_____

Year   :_____

1. Do you have an organizer with you?

☐ Yes   ☐ No

2. Are you familiar in using PCs?

☐ Yes   ☐ No

3. Do you use any Personal Information Manager (PIM) software?

☐ Yes   ☐ No

4. If Yes, select the product below:

☐ MS Outlook 97   ☐ Lotus Organizer 97

☐ Digita Organizer   ☐ Student Organizer

Others: _____

5. Do you think that a smart organizer will be able to manage your daily task?

☐ Yes   Reason:_____

☐ No   Reason:_____

6. Which of the following tasks will you like your PIM to perform?

☐ Managing Personal Information   ☐ Contact Management

☐ Task Management   ☐ Notepad

7. What are the features that you will like to incorporate into your organizer.

7.1   Managing Personal Information

☐ Keep personal information such as name, date of birth, address, and etc.

☐ Keep confidential documents data such as IC no, passport no, Birth Certificate no, and so on.

Other suggestion:

_____

_____

7.2   Contact Management

☐ Keep addresses, telephone numbers and e-mails of friends, relatives, and etc.

Other suggestion:

_____

_____

7.3   Task Management

☐ Alert forthcoming events that will occupy one/more full days such as vacations, meetings, lectures, and etc.

☐ Record important task to be accomplishes appointments, schedule calls and so on.

Other suggestion:

_____

7.4   Notepad

☐ Record simple events that had happened.

☐ Keep track of cash flows data.

☐ Keep data such as payment details for the electricity & water bills, insurance premium, licensing and fees.

Other suggestion:

_____

6.0   Other comments

_____

_____

Contents

APPENDIX C:
USER GUIDE

APPENDIX C: USER GUIDE

Contents

Chapter 1: Getting Started with *SmartOrganizer*

This chapter will introduce the basic operation that you will be normally used in *SmartOrganizer*.

1.1 Installing SmartOrganizer

To install *SmartOrganizer* onto your hard disk

- Start Microsoft windows
- Insert *SmartOrganizer* setup disk 1into the selected floppy disk drive.
- Select menu file form Program Manager and choose Run command
- Type a:\setup (type b:\setup if you are installing from drive B)
- Follow the on-screen instruction to install *SmartOrganizer* on yoyur computer system. After the installation, the setup process will create a program group and the icon to startup *SmartOrganizer* system.

## 1.2 Starting up from your Hard Drive

Once you have installed *SmartOrganizer* in your hard disk:

- Starts Microsoft Windows
- Click on the *SmartOrganizer* icon in the *SmartOrganizer* program group.
- A system login dialog box will appears where you need to enter your login name and password. The figure below illustrates the Login Console.
- Click OK to proceed.
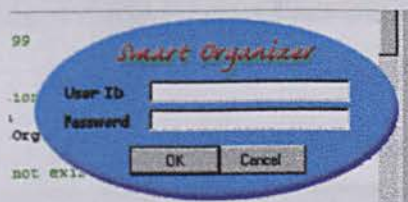
If the correct password and user login name are given, you will proceed to the *SmartOrganizer* system, or else you will be prompt again to enter your login ID and password.

1.3   *SmartOrganizer Workspace*
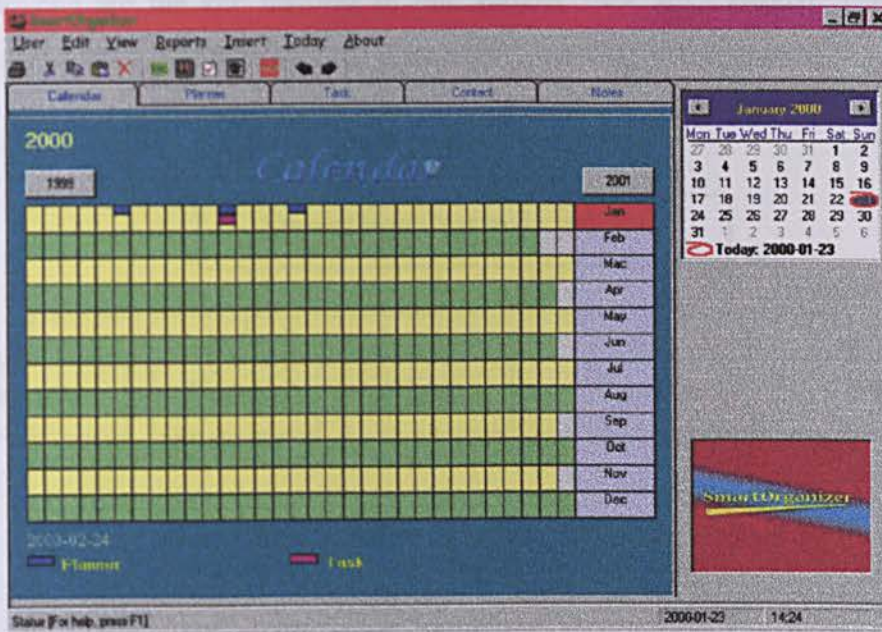
Menu Bar

Menu Bar will facilitate the user in selecting from the available commands. To activate or select a particular command from the menu bar. Press the Alt key and the underlined character on the MenuBar. The corresponding drop down menu will be display.

Tool Bar

There are several push buttons that enable you an easier access to the commands.
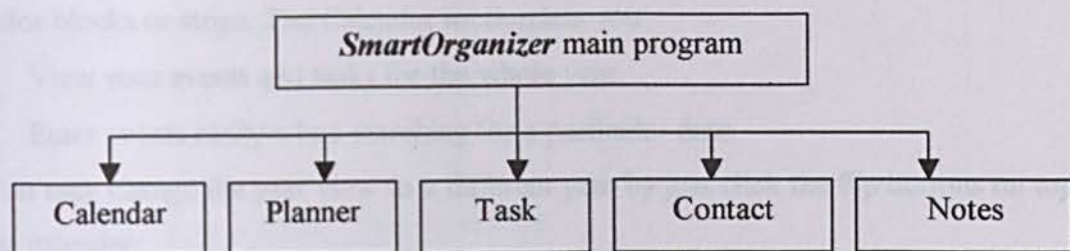

Tab

The tabs will display all the information in tabular and also enhance easy accessibility..

1.4 The Key Features in SmartOrganizer

The following are the key features in this system, they are Calendar, Planner, Task, Contact and Notes. The figure below illustrates *SmartOrganizer* features.


```
                 ┌─────────────────────────────────┐
                 │  SmartOrganizer main program    │
                 └─────────────────────────────────┘
        ┌────────────┬──────────┬──────────┬──────────┐
        ▼            ▼          ▼          ▼          ▼
  ┌──────────┐ ┌──────────┐ ┌────────┐ ┌──────────┐ ┌──────────┐
  │ Calendar │ │ Planner  │ │  Task  │ │ Contact  │ │  Notes   │
  └──────────┘ └──────────┘ └────────┘ └──────────┘ └──────────┘
```

Chapter 2: Familiarizing with the sections

2.1 Calendar

The calendar looks like a wall chart where you can view events or tasks indicated by color blocks or strips. The Calendar section lets you

- View your events and tasks for the whole year.
- Enter events easily when searching for a particular date.

You may change the year view to a different year by just click the flip buttons on top of the calendar.

To invoke Calendar:

- Select the Calendar Tab; or
- Click the ⬛ icon on the toolbar.
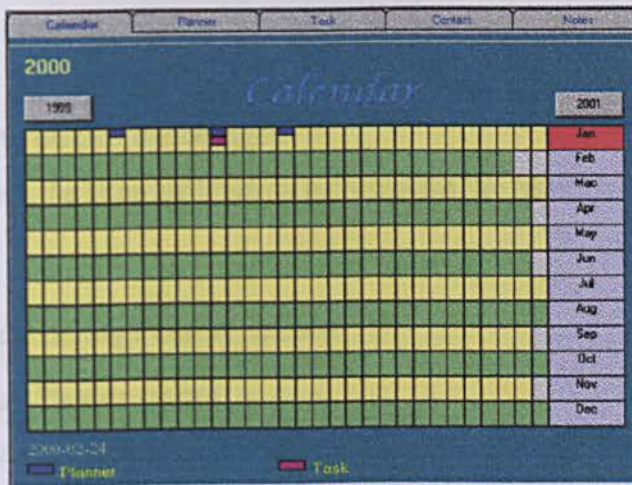
2.2 Planner

The Planner helps you to schedule and prepare for events that take places all day or for more than one day. With Planner, you can

- Designate blocks of time for a particular activity, such as a vacation, an off-site meeting, or a conference.
- View events by week.

To invoke Planner:

- Select the Planner Tab; or
- Click the ⬛ icon on the toolbar.

2.2.1 Inserting a New Event record

To create a new event:

1. On the Planner section, click the [AddNew] button.
2. The Planner Info Tab will be refresh. Fill in the necessary information in the Info Tab.
3. You may set the date and time in your event.
4. Click [Save] button to save the record.

2.2.2 Editing an existing Planner record

1. Select the record that you want to edit. The Info Tab will shows the information for the record that you have selected.
2. Click on the "Subject" box. You will notice that the [AddNew] button has changed to [Save]. This mean you are in edit mode.
3. Edit the Planner record.
4. Click [Save] to save the changes; or
5. Click [Cancel] to discard the changes.

Notes: You can click the [Refresh] button is to refresh the records.

2.2.3 Deleting an existing Planner record

To delete an existing Planner record

1. Select the record from the Planner list
2. Click [Delete] button the delete the current record.

Notes: You can also delete the record by just clicking on the delete from menu.

2.2.4 Setting the reminder

You can set the reminder by just clicking the Reminder tab from the info tab. Then proceed with the steps below.

1. Make sure that you are in **Edit mode** first.
2. Click on the "Remind me" check box.
3. Fill up the time in advance and sound that you want to be reminded.
4. Click the [Save] button to save.

2.3　Task

You can use Task to manage your tie and view your task list at a glance.

With Task, you can:

- Schedule and change appointments and meetings
- Prioritize the task.

To invoke Task:

- Select the Task Tab; or
- Click the ☑ icon on the toolbar.

2.3.1　Inserting a New Task record

To create a new task:

1. On the Task section, click the [AddNew] button.
2. The Task Info Tab will be refresh. Fill in the necessary information in the Info Tab.
3. You may set the date and time in your event.
4. Click [Save] button to save the record.

2.3.2　Editing an existing Task record

1. Select the record that you want to edit. The Info Tab will shows the information for the record that you have selected.
2. Click on the "Subject" box. You will notice that the [AddNew] button has changed to [Save]. This mean you are in edit mode.
3. Edit the Task record.
4. Click [Save] to save the changes; or
5. Click [Cancel] to discard the changes.

Notes: You can click the [Refresh] button is to refresh the records.

2.3.3　Deleting an existing Task record

To delete an existing Task record

1. Select the record from the Task list
2. Click [Delete] button the delete the current record.

Notes: You can also delete the record by just clicking on the delete from menu.

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You can set the reminder by just clicking the Reminder tab from the info tab. Then proceed with the steps below.

5. Make sure that you are in **Edit mode** first.
6. Click on the "Remind me" check box.
7. Fill up the time in advance and sound that you want to be reminded.
8. Click the [Save] button to save.

2.4　*Contact*

The Contact section lets you

- Sort your records by alphabetical order for names, address and tel no
- Keep records of your business contact, friends and relatives.

To invoke Contact:

- Select the Contact Tab; or
- Click the 　▣　　　icon on the toolbar.

Notes: The reminder will automate remind its user when the contact's birth date was fill in.

2.4.1　Inserting a New Contact record

To create a new contact:

1. On the Contact section, click the [AddNew] button.
2. The Contact Info Tab will be refresh. Fill in the necessary information in the Info Tab.
3. You may set the date and time in your event.
4. Click [Save] button to save the record.

2.4.2　Editing an existing Contact record

1. Select the record that you want to edit. The Info Tab will shows the information for the record that you have selected.
2. Click on any boxes in the info tab. You will notice that the [AddNew] button has changed to [Save]. This mean you are in edit mode.

3. Edit the Contact record.

4. Click [Save] to save the changes; or

5. Click [Cancel] to discard the changes.

Notes: You can click the [Refresh] button is to refresh the records.

2.4.3   Deleting an existing Contact record

To delete an existing Contact record

1. Select the record from the Contact list

2. Click [Delete] button the delete the current record.

Notes: You can also delete the record by just clicking on the delete from menu.

2.5   *Notes*

Notes let you:

- Create, update and delete your notes.

To invoke Notes, select the Notes Tab

2.5.1   Inserting a New Notes record

To create a new notes:

1. On the Notes section, click the [AddNew] button.

2. The Notes details will be refresh. Fill in the necessary information in the detail tab.

3. Click [Save] button to save the record.

2.5.2   Editing an existing Notes record

1. Select the record that you want to edit. The Info Tab will shows the information for the record that you have selected.

2. Click on the "Subject" box. You will notice that the [AddNew] button has changed to [Save]. This mean you are in edit mode.

3. Edit the Notes record.

4. Click [Save] to save the changes; or

5. Click [Cancel] to discard the changes.

Notes: You can click the [Refresh] button is to refresh the records.

2.5.3 Deleting an existing Notes record

To delete an existing Notes record

1. Select the record from the Notes list

2. Click [Delete] button the delete the current record.

Notes: You can also delete the record by just clicking on the delete from menu.
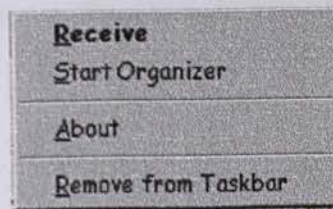
Chapter 3: Using the Reminder

You can view reminder system, which is actually located in the system tray. The figure below illustrates the reminder.
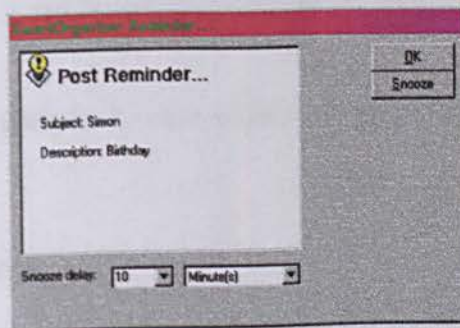

If the alarm were activate, the reminder will sound the alarm and the icon will blink as shown below.

To activate the reminder, just right-click on the icon. You will be prompt with a menu box as shown below.
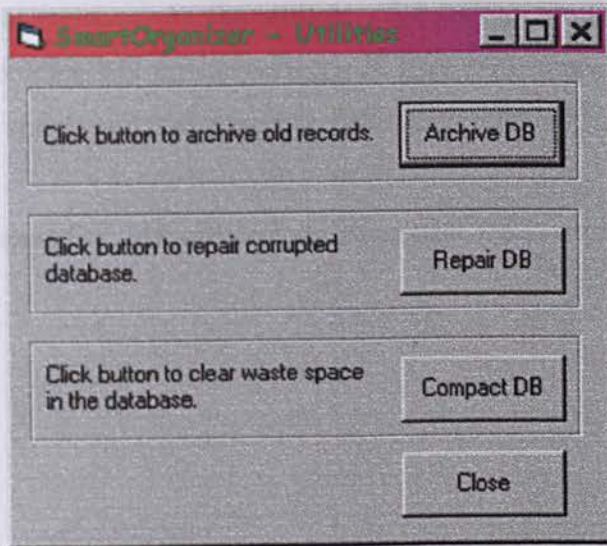

Click the **Receive** to view the message. The Reminder will look similar as below to the user what the reminder was about.

Chapter 4: Using the Utilities

SmartOrganizer provide utilities for user to archive, repair and compact the database. Below illustrate the Utilities interface.

Notes: You have to shut down *SmartOrganizer* system before you can use the SmartOrganizer Utilities.

4.1   Archive Database

As the number of records in the database increase, the performance of the system may deteriorate, as more and more records have to be retrieved. To improve the situation and keep the system at optimal performance, old and unwanted records should be archived. The process of archive is to move those unwanted records from the active tables to archive table so it can be referred later on.

To archive the database, click the [Archive DB] button and proceed.

4.2   Repair Database

If the database gets corrupted during processing of a transaction or power failure, the database can be repaired to correct these errors. Database also gets corrupted when its index key has been corrupted too.

To activate the repair database, click on the [Repair DB] button.

4.3 Compact DB

During the deletion of the records from the database, the database will fill with empty spaces in the physical memory. As the number of deletion increase, so do the number of empty spaces too. This will create wastage in hard disk spaces. Compact DB is to remove these empty spaces and make the database more efficient in spaces utilities.

To activate the Compact DB, just click on the [Compact DB] button.

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