COLLEGE OF INFORMATION TECHNOLOGY
UNIVERSITI TENAGA NASIONAL

KINDERGARTEN MANAGEMENT SYSTEM

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PROJECT TITLE : **KINDERGARTEN MANAGEMENT SYSTEM**

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① Web databases
② School management and organization

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DECLARATION

I hereby declare that this report, submitted to University Tenaga Nasional as a partial fulfillment of the requirements for the Bachelor of Information Technology has not been submitted as an exercise for a degree at any other university. I also certify that the work described here is entirely my own except for excerpts and summaries whose sources are appropriately cited in the references.

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24th April 2009

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ABSTRACT

Kindergarten Management System is uniquely designed for user which administrators of Kindergarten to manage it better and efficiently. This system will ensure user to have a better control of the management and avoiding any problems that appear when managing kindergarten manually.

This system basically will help user in recording all transactions from taking attendance, record payment, record student information and so on from on paper base to computerize based. By using this computerize system, user will have the advantages such as no more missing logbook which is used to keep all the records. Avoiding miscalculation of payment received and made since the system would be able to automatically generate calculation for the users.

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ABBREVIATION

DFD - Data Flow Diagram

ERD – Entity Relationship Diagram

HTML – Hyper Text Markup Language

GUI – Graphical User Interface

DBMS – Database Management System

CHAPTER 1

Introduction

1.1 Problem Statement

In the current systems for kindergarten, there are few things that seemed to be a problem when it needs to be done manually. Some of the tasks are taking the attendance of the students, planning the activities of the students, keeping information record of the students and so on. When it comes to keeping all the records, it would be a bit difficult here. All the information recorded on the paper and this paper needs to be kept safe. It is difficult in searching for any particular information because teachers need to go through all the pages available. They also need to separately keep this record in terms of years and so on. It will take time and some effort to do so. Payment transaction also will cause some problem to administrator such as they need to record and always check for the payment made and received. As a human, chances of making mistakes always there. Therefore, any calculation for the payment transactions must be carefully made and checked.

1.2 Project Description

This project is about developing a system that will be used by the administrator of the kindergarten in running the tasks needed. This system will enhance the manual system

where all the information will be safely stored in the computer and it will be much easier in retrieving all the information stored. This system will also allow the user to perform student registration tasks. The information about the new students will be recorded by user and will be saved automatically in the database. User will be able to retrieve the information anytime they wanted to and easier for them to update the information as if there are any information need to be changed. User will not need to manually separate by categories of the information anymore since the system will automatically perform the task.

1.3 Objectives

The objectives of this project as for below:

- To allow user to have better and safer information stored
- To allow user to reach student's information easier and faster
- To ensure payment record stored correctly
- To enable user to plan out activities throughout the year

1.4 Scope

The scope of this project is divided into two categories:

1.4.1 User Scope

There are three categories of users that will be able to use this Kindergarten Management System. They are Administrators of the kindergarten, Teachers and Parents of the students. Each of these users will have limitation of system functionality based on their category.

They would be able to use all the system's functionality to keep track the record of payment made and received, student's attendance and so on. Moreover the system will include the calendar so that easier for them to plan out any coming activities.

1.4.2 System Scope

The Kindergarten Management System will consist:

i) Login

Only authorized personnel would be able to login

ii) Student registration

Allowed user to perform enrollment of new students

iii) Activities calendar

User will be able to plan out any coming activities that would be carried out.

iv) Payment Record

Allow user to store all payment made and received.

v) Student's Information

Allow user to easily retrieve student's information

vi) Student's Timetable

Allow user to view student's class and teacher in charged.

vii) Kindergarten News

Allow parents to view news about the kindergarten

viii) Homework list

Allow parents to view any pending homework for their children

1.5 Expected Outcome

The outcome of the project is a fully functioning web based system that will enhance the operation of current manual systems in kindergarten management. It will consist a complete User Interface and functions that will be used in handling all relevant task for managing kindergarten.

1.6 System Requirements

1.6.1 Language

- JavaScript
- HTML
- PHP

1.6.2 Applications

- Adobe Dreamweaver CS3
- Adobe Photoshop
- Adobe Flash CS3
- Wamp5

1.7 Timeline

No	Activity	Date	Duration
1	Propose Project Title	14/07/2008 – 18/07/2008	5 Days
2	Initial Report	21/07/2008 – 25/07/2008	5 Days
3	Project Planning & Study Study Existing Similar System Study Student Management Collect information	26/07/2008 – 14/08/2008	20 Days

4	Preparation Draft Report	15/08/2008 – 21/09/2008	38 Days
5	Submission Draft Report	22/09/2008 – 28/09/2008	7 Days
6	Project Presentation	29/09/2007 – 2/11/2007	4 Days
7	Prepare Final Report	3/11/2007 – 15/11/2007	13 Days
8	Submission of Final Report	8/11/2007	-

1.8 Conclusion

The Kindergarten management system will enhance the current manual management system and provide a better record for users view and operate with. This system will also simply reduce cost and time spent in order to keep all the records and manage student's information.

CHAPTER 2

Research and Literature Review

2.1 Introduction

Literature review is a background study about the knowledge of the project title or any particular topic which will be used to develop this project. The purpose of this chapter is to get a better understanding on the development tools and get better understanding about this project as well. It will help to obtain new ideas and information in developing the system.

2.2 Research methodologies

Research methodologies need to be determined in order to collect data. It is about collecting the data needed for the development and analysis of the data. There are two main types of research methodologies which are qualitative and quantitative research methodologies.

2.2.1 Quantitative Research

Quantitative research involves those methodologies, such as surveys, structured interviews and some others. In this chapter, we will focus on two of the methods only which are as follow:

i) Survey

This methodology has few methods in obtaining the information such as observation, interview or questionnaire. By doing the survey, we can come out with the better idea and result. Survey can be done in many ways as mentioned earlier, but people usually just do the survey by distributing the questionnaires or conducting the interview session. From this kind of survey, we can gather a lot of information from a large number of people.

The advantages of survey are:-

- It is a cost effective since it wont cost much
- It can be done from distance for instance using mail, email of telephone
- High reliability is easier to be obtained

The disadvantages of survey are:-

- It might be hard for participants to recall information or to tell the truth
- It depends on honesty, memory, and ability to respond

ii) Questionnaire

This is the most common methodology and widely being used. It is about distributing a set of questions to people to be answered, therefore, it must contain clear questions, simple but understandable to avoid any confusion since the researcher probably will not be present to explain what was meant by any one particular question. The questionnaire should be designed to fulfill a specific research objective. It should be brief and the sequence of the questions must be well sorted.

The advantages of questionnaires are:-

- Responses are gathered in a standardized form, so it will be more objective
- It is a time effective method because it usually can be done quickly
- Potential information could be obtain from portion of group

The disadvantages of questionnaires are:-

- Participants might misunderstood the questions
- Participants might answer inappropriate when completing the questionnaires takes too long

2.2.2 Qualitative Research

Qualitative researchers typically rely on these methods for gathering information: Interview and observation.

i. Interview

Interview may be held in few ways such as structured, semi-structured, unstructured, in conversational. This methodology involves the researcher and the interviewee in a one-to-one situation for gathering information. The researcher may interview several people at different times using the same interview question schedule.

The advantages of interview are:-

- Supplementary information can be obtained
- Participants able to understand exactly the questions asked
- Interviewers have the flexibility to use their knowledge, expertise, and interpersonal skills to explore interesting or unexpected ideas raised by participants

The disadvantages of interview are:-

- Analyzing and interpreting qualitative interviews is much more time-consuming
- It might depends on personalities, moods and surroundings

ii. Observation

Observation is about the way of researcher collecting information by observing the the individuals. This method aim to gain a close familiarity with a given group of individuals. The researcher might be joining a group or observe any participant in order to study and collect the information. It is better not obviously known by the participant that they are being observed so that the participant will act naturally.

The advantages of observation are:-

- Allow researchers to identify patterns of behavior on participants
- It can produces more in-depth, comprehensive information

The disadvantages of observation are:-

- Participants might not act naturally if he happens to know being observed
- Time consuming in analyzing the observation

2.3 Software Development Methodologies

In developing the system, there are several types of development methodologies that can be used. Each of the methodology has its own steps and methods. Below are some reviews that had been made among those selected methodologies.

2.3.1 Waterfall model

There are many software development designed and used during development process of a system or system. One of the well known models is Waterfall Model. Waterfall approach was first Process Model to be introduced and followed widely in Software Engineering to ensure success of the project. **Figure 2.1** illustrated the model where stages of processes are arranged as cascading from one process to another. [7]

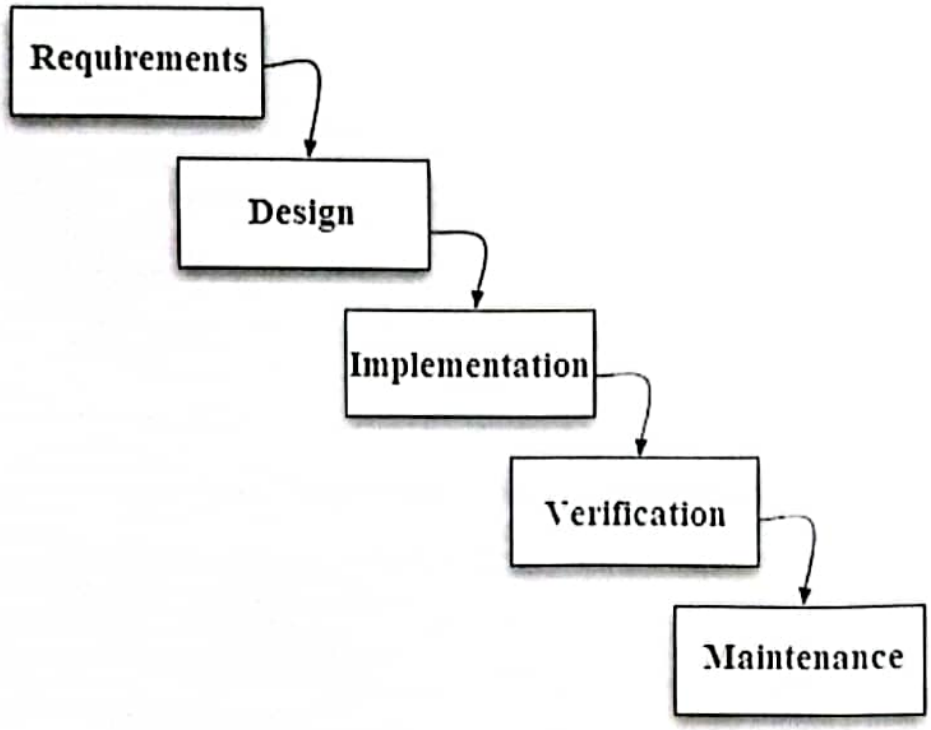

Figure 2.1 waterfall model

The process of development will go through one stage to another without skipping any steps in each stage. This means, the earlier stage must be totally completed first before we able to continue or proceed to the next stages. The development is seen as flowing downwards through the stages which are requirements analysis, design, implementation, testing, verification, and maintenance. This model maintains that one should move to the next phase only when current phase is completed and perfected. Phases of development in the waterfall model are discrete, and there is no jumping

back and forth or overlap between them. It also provides an orderly sequence of development steps to ensure the adequacy of documentation and design reviews to ensure the quality, reliability, and maintainability of the developed software.

Below is the principal stages of the model map onto fundamental development activities:-

i) Requirement

In this stage, all the needs, requirement information, constraints and goals are being collected form the users of the system that going to be developed. They are then defined in detail and served as a system specification.

ii) Design

The design stage will involves the designing of the product itself based on requirement and needs that collected from the user. It establishes overall system structure. Software design also involves designing the interfaces and system behavior.

iii) Implementation

During this stage, the software design is translated and implemented into the working system. This stage will involve the cooperation of both system analyst and the programmer.

iv) Verification

In verification stage, all the program units will be verified and tested to ensure that the complete system meets the software requirements. After this stage the software will be delivered to the customer.

v) **Maintenance**

The system is installed and put into practical use. Maintenance involves correcting errors that were not discovered in earlier stages, improving the implementation of system units and enhancing the system's services as new requirements are discovered.

The advantages of waterfall model are:-

- Defined milestones will allow client and developer see the progress of development
- Documentation driven, where documentation is produced at every stage
- Good progress tracking due to clear development stages
- Implemented in sequential order will allow the process to be done properly

The disadvantages of waterfall model are:-

- No insight on how each activity transforms from one stage to another.
- Client only can see the product after only coding phases. It might result in product does not meet client needs
- Design flaws only discovered in Testing phase

2.3.2 V-Model

The V-Shaped life cycle is a sequential path of execution of processes. Each phase must be completed before the next phase begins. Testing is emphasized in this model more so than the waterfall model though. The testing procedures are developed early in the life cycle before any coding is done, during each of the phases preceding implementation.

Requirements begin the life cycle model just like the waterfall model. Before development is started, a system test plan is created. The test plan focuses on meeting the functionality specified in the requirements gathering.

The high-level design phase focuses on system architecture and design. An integration test plan is created in this phase as well in order to test the pieces of the software systems ability to work together.

The low-level design phase is where the actual software components are designed, and unit tests are created in this phase as well.

The implementation phase is, again, where all coding takes place. Once coding is complete, the path of execution continues up the right side of the V where the test plans developed earlier are now put to use. [1] See **Figure 2.2** for details.

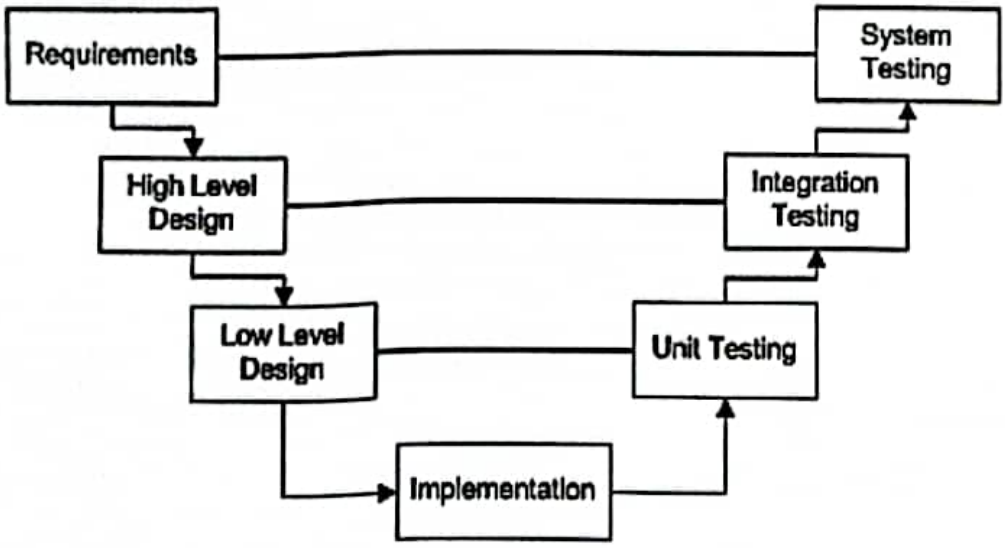

Figure 2.2 V-model

The advantages of V model are:-

- Defect may be found in early stages
- Reduces the cost for fixing since defect may be found in early stages
- Ability to deliver quality product because testing involves in every stages

The disadvantages of V model are:-

- It might takes a lot of time since it requires review in each stages

2.3.3 Spiral Model

The spiral model, also known as the spiral lifecycle model, is a systems development lifecycle model used in information technology. This model of development combines the features of the prototyping model and the waterfall model. The spiral model is intended for large, expensive, and complicated projects. **Figure 2.3** explain on how this spiral model works.

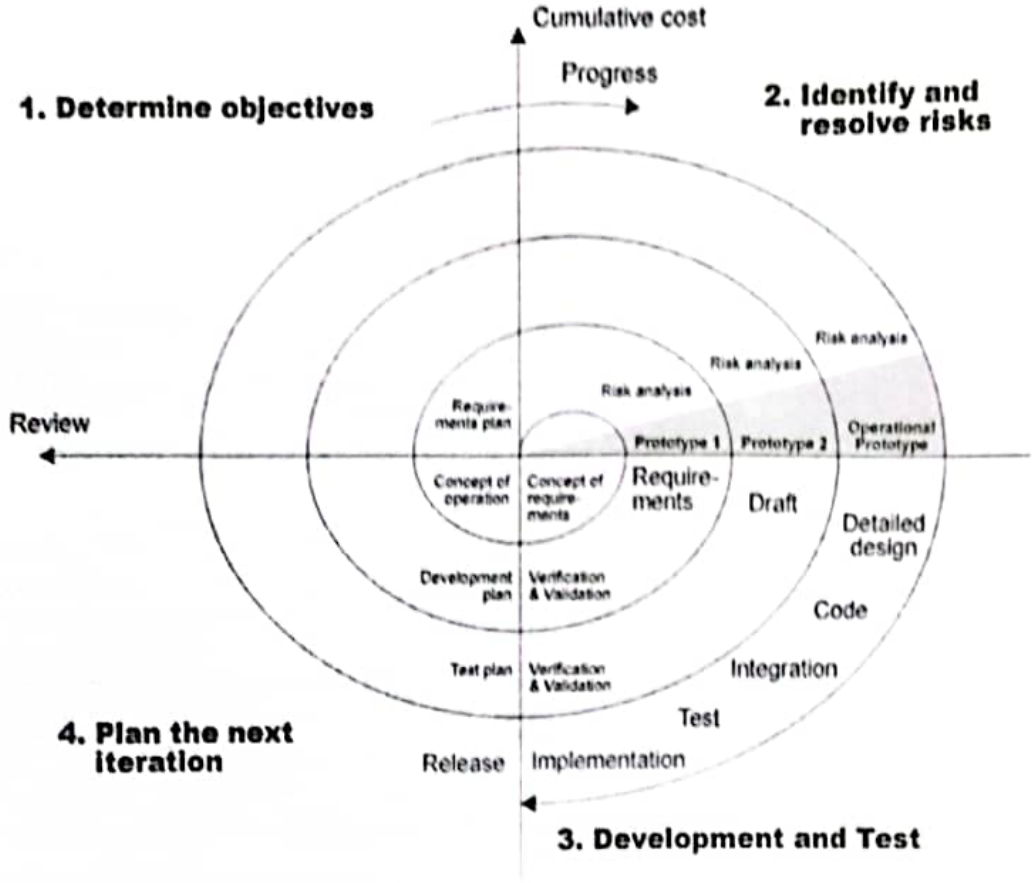

Figure 2.3 Spiral model

Steps involved in Spiral Model:

i) The new system requirements are defined in as much detail as possible.

ii) Design is created for the new system.

iii) Producing the first prototype based on the design

iv) Producing second prototype which evolved by procedures below:

- Evaluating the first prototype in terms of its strengths, weaknesses, and risks
- Defining the requirements of the second prototype;
- Planning and designing the second prototype;
- Constructing and testing the second prototype.

The advantages of Spiral model are:-

- Offers quality products since several prototyping will be produced
- User can be given some of the functionality before the entire system is completed
- Participation of users in almost every stages

The disadvantages of Spiral model are:-

- Complex and relatively difficult to follow strictly
- Applicable to only large systems

2.4 Literature Reviews on Topics Related To the Project

Literature review is the one of the critical phase when it comes to project documentation. This is the phase where information relating to the project being designed is gathered. Lack of literature review may result in poor quality of the system, longer time to design and develops, resource wastage, and worse overall system failure.

2.4.1 Management System

Nowadays, there are so many manual system has been transformed into computerized management system. Management System is a framework of tasks and rules that will ensure the user of the system would be able to perform the manual job in easier and faster manner in achieving the goals. It helps user to minimize the workload and manpower in performing tasks while improving the productivity. The system will help user to reduce their work and keep their record and transactions safe compared to the legacy systems. Compared to manual system, user might face so many problems such

as miscalculation, missing information, difficulties in updating information and so on. So, to overcome these kinds of problems, management system has been used instead. It helps user from the need to duplicate the same data in the different section of data recorded. By using file-based system, it will take much time of the clerk to store data inventory. Furthermore it will cause business process in inadequate and slower. Users do not need to store data manually using file manual since all the data storing will be done by the computerized system. The computerized system will backup the data inventory stored and also generate a report to audit the inventory.

Examples of Management Systems:

i) School Management Systems by EduSwift

(http://www.eduswift.com/school_management_software.htm)

Young generation is the future. A strong educational foundation equipped with a sound value system ensures development of open-minded global citizens securing the future for everyone. That's why we say that the Education System practically forms the backbone of every nation.

With advanced technology available today, it can play a crucial role in streamlining education-related processes to promote camaraderie among students, teachers, parents and the school staff.

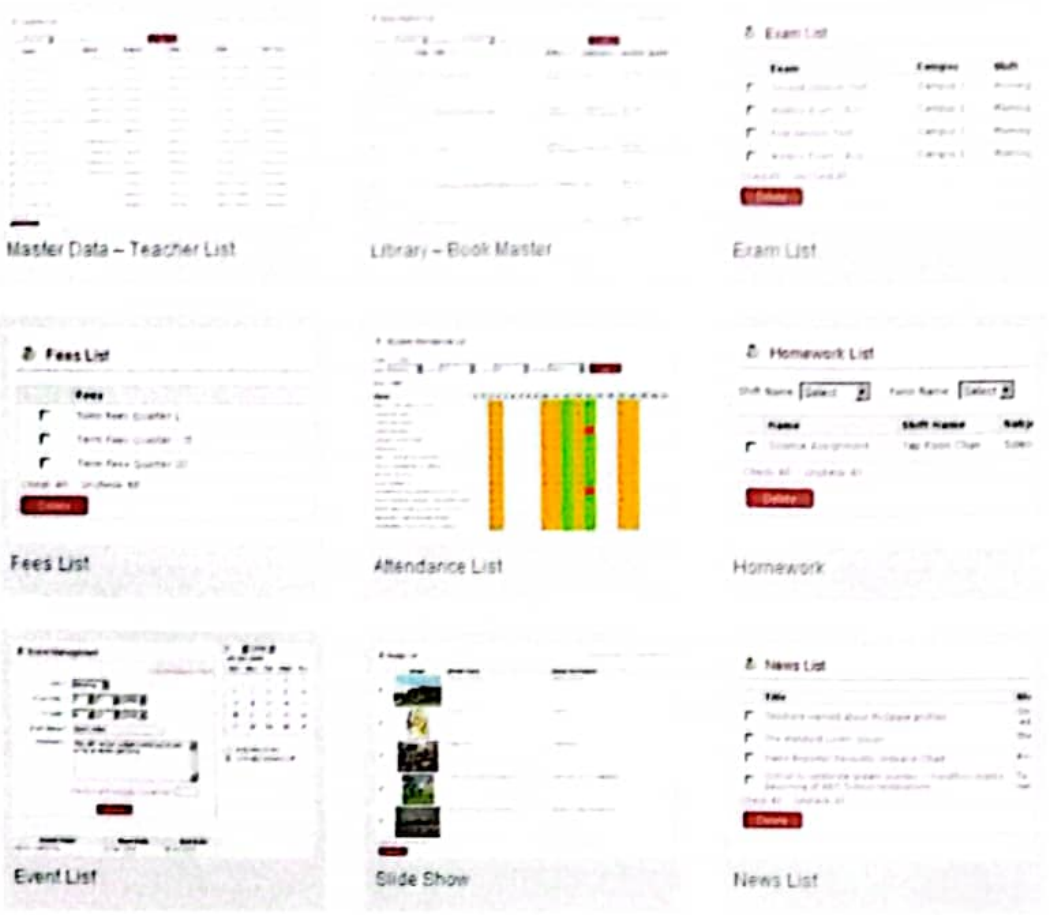

Figure 2.4 shows the screenshots of School Management System

EduSwift - School Management Software is the Next Generation tool to prepare the next generations. It is a complete school management system with all backend administration functions of the school and powerful online community to bring parents, teachers, and students on the common interactive platform. [2]

ii) Bifrost Inventory Management

(http://www.100inventory.com/index.html)

Bifrost Inventory Management is an easy-to-use tool. The user-friendly interface let you easily and quickly organizes the household possessions. Bifrost Inventory Management record and store the details of the personal property. It lists name,

category of item, status of item, description and much more. The category and status are renamed able and can add or remove entries of them. It allows user to import image files created using other applications.

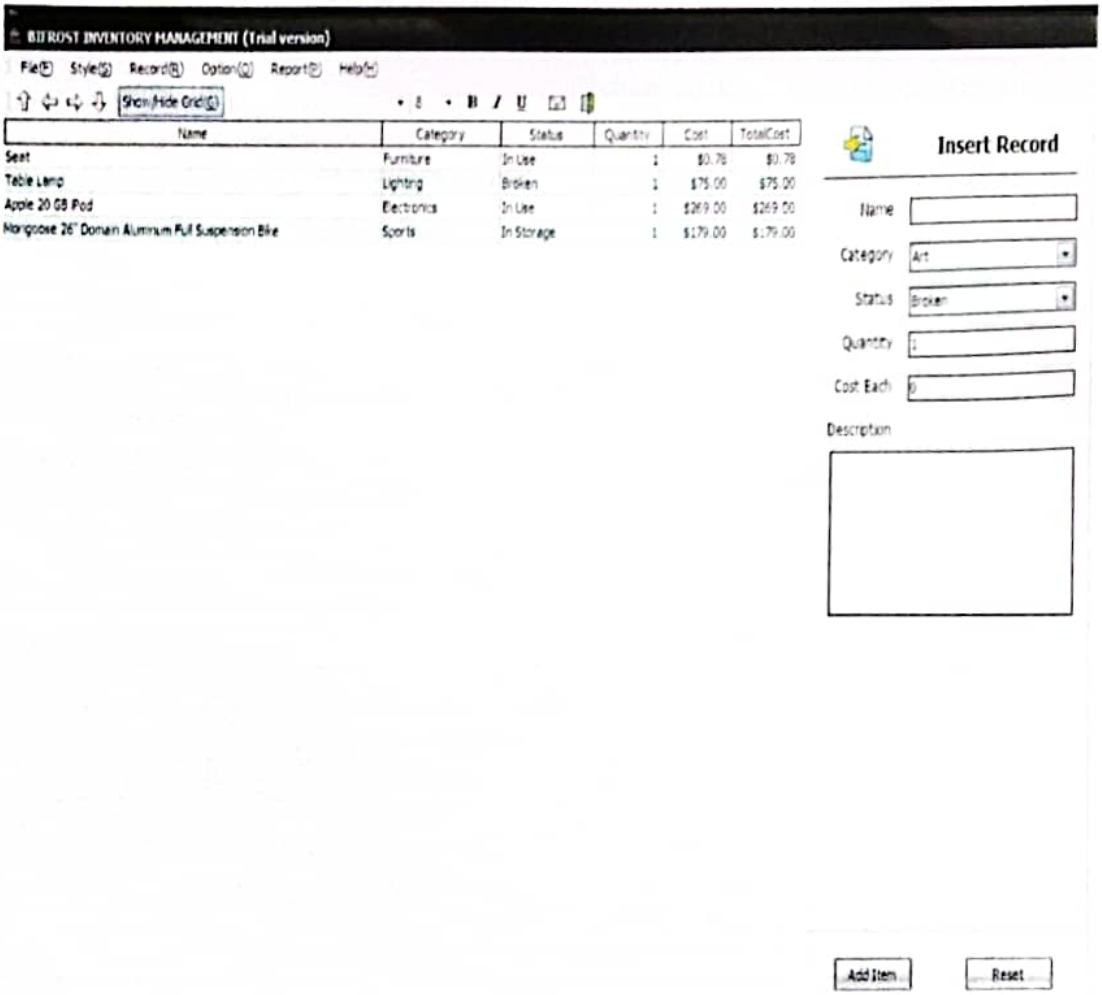

Figure 2.5 Shows the screenshots of Bifrost Inventory Management

Quickly access the data: Table Viewer allows user to view data in rows and columns. Standard Record Viewers allows user to easily enter, modify, and find data. User can change the style of table such as font name, size and so on. This program also allows user to create standard reports with details on each item, user can list details group by category or status. User also can export the data to a text file. [3]

iii) Customers Order Management System

(http://www.sierrasoftltd.com/av4pages/Default.aspx)

This Customer Order Management System for Cosmetics Sales Consultants & Representatives stores customer demographic information such as name, address, phone numbers, comments, provides easy customer order entry with automatic fill of description, shade, size and amount based on catalog number, keeps customer prior order history by campaign and year.

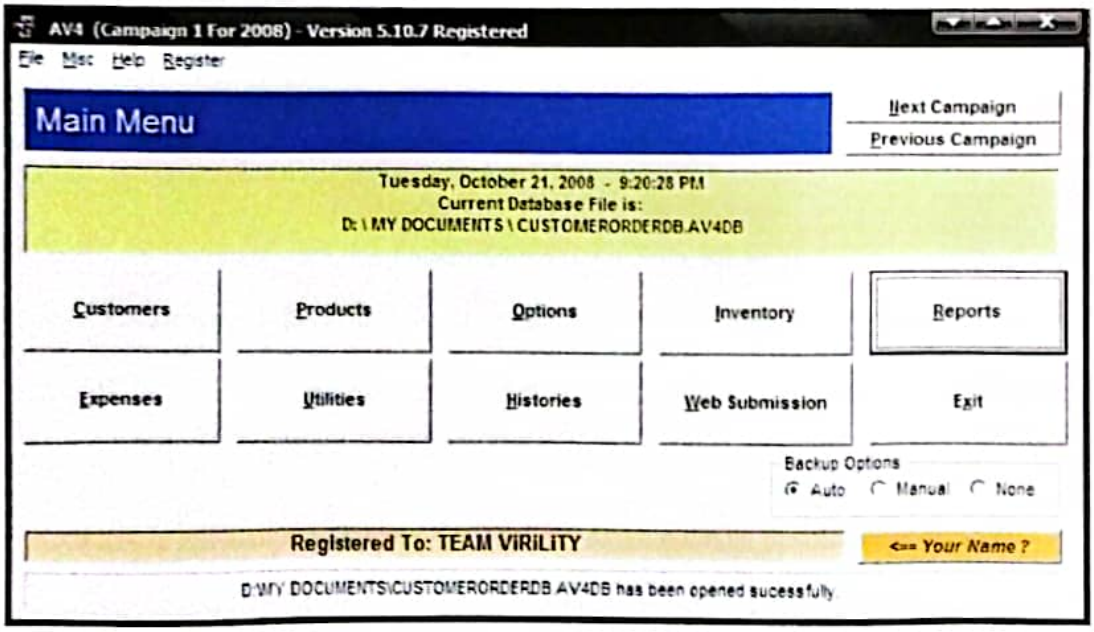

Figure 2.6 Shows screenshot of the Customers Management System

Users can view order history by customer, search order history to find who ordered a particular product, view campaign summary by customer. The program provides options for two tax rates, processing charge and discounts, invoice customization. [4]

2.4.2 Kindergarten Manual Management

Kindergarten Management is about managing the kindergarten where the teacher or administrator needs to perform the registration for student, keeping record of all transaction for the payment made and received. They also need to take down the attendance of the student everyday, keeping record of the information about the students such as the address, parents name, contact no, and so on. Most of the kindergarten nowadays are still handled and managed manually. It means all the information about student, classroom, teacher and other information are being recorded by written on the paper. This has manual system has few difficulties identified. Firstly, when all information has been written or recorded on the paper, searching for any particular information will of course take some time. User might need to go through all document before found the information needed. Secondly, when the information needed to be updated, it must be quite complex task if the information needed to be updated in few places. For example, if user wanted to make correction to the name of student, they need to change it in attendance document, background information document, and other document where the name of the student involved. It is quite inconvenience for the user since a small problem needs a difficult solution. The other one is when it comes to registration part. In student registration, parents need to fill up the registration form and submit to admin. The staff then will copy all the information need into the attendance document, payment document, background information document and other related documents as well. Payment made by parent will be recorded in the payment document where all the calculation done by the staff. There are possibilities where the calculation goes wrong and the information of the payment become invalid.

2.5 Tools and Software

Nowadays, there are a lot of related tools and software that can be used in developing the website. This section contains the list of all the tools and software that can be used to develop it. In developing this system, few tools and software has been selected as below:

2.5.1 Adobe Dreamweaver CS3

This Adobe will be used in developing this system's interface and the structure as well. It is very useful in process arrangement of the system and links.

2.5.2 Adobe Photoshop

Photoshop has been chosen as a tool in developing this system because it can be used in designing the button and banners for instance more attractive and will be very useful for me.

2.5.3 Adobe Flash

Adobe Flash will help me in designing flash object to be inserted in the system as well.

CHAPTER 3

Analysis

3.0 Overview

In this chapter, research had done in previous chapter will be break into smaller portions to highlight few things to get a better understanding of the information. This chapter will focus on the development methodologies and research methodologies that will be used in this project development. The advantages and disadvantages of those manner will be highlighted and will provide the reason why particular development methodology and research methodology has been chosen for this project.

3.1 Development Methodology of Choice

In the previous chapter, several development methodologies have been studied. All details about each particular development methodology have been reviewed. Comparison of the advantages and disadvantages of those three methodologies are shown in the table below. Based on the research and details reviewed, Waterfall model has been chosen as the development methodology for this project. See **Table 3.1** for the comparison.

Table 3.1 Methodologies' Advantages and Disadvantages Comparison

Development Methodology	Advantages	Disadvantages
Waterfall Model	• Defined milestones will allow client and developer see the progress of development • Documentation driven, where documentation is produced at every stage • Good progress tracking due to clear development stages • Implemented in sequential order will allow the process to be done properly	• No insight on how each activity transforms from one stage to another. • Client only can see the product after only coding phases. It might result in product does not meet client needs • Design flaws only discovered in Testing phase
V-Model	• Defect may be found in early stages • Reduces the cost for fixing since defect may be found in	• It might takes a lot of time since it requires review in each stages

	early stages • Ability to deliver quality product because testing involves in every stages	
Spiral Model	• Offers quality products since several prototyping will be produced • User can be given some of the functionality before the entire system is completed • Participation of users in almost every stages	• Complex and relatively difficult to follow strictly • Applicable to only large systems

From the fine research that has been done, and the comparison that have been made, finally the software development methodology of choice is Waterfall Model. This model was chosen because of it is the most suitable and reliable to be used in developing this project. Furthermore, it is a model where developer and user both can see the progress of the development by referring to the milestones established earlier. It is also because it flowing steadily downwards through each phase and the developer can go back to the previous phase if there is any changes should be made. By using

this model, the development flow of this project will be more accurate and easy to manage from time to time.

3.2 Research Methodology of Choice

In gathering information need for the project development, there are many ways of doing it. As previous chapter has analyzed several research methodologies, this chapter will highlight the advantages and disadvantages of each particular research methodologies. **Table 3.2** shows the advantages and disadvantages of each manner. Based on this information, one of the techniques will be chose to gather the data for this project. See **Table 3.2** for more details.

Table 3.2 Research Methodologies' Advantages and Disadvantages Comparison

Research Methodology	Advantages	Disadvantages
Survey	• It is a cost effective since it wont cost much • It can be done from distance for instance using mail, email of telephone • High reliability is easier to be obtained	• It might be hard for participants to recall information or to tell the truth • It depends on honesty, memory, and ability to respond

Questionnaires	• Responses are gathered in a standardized form, so it will be more objective • It is a time effective method because it usually can be done quickly • Potential information could be obtain from portion of group	• Participants might misunderstood the questions • Participants might answer inappropriate when completing the questionnaires takes too long
Interview	• Supplementary information can be obtained • Participants able to understand exactly the questions asked • Interviewers have the flexibility to use their knowledge, expertise, and interpersonal skills to explore interesting or unexpected ideas raised by participants	• Analyzing and interpreting qualitative interviews is much more time-consuming • It might depends on personalities, moods and surroundings

Based on reviewed techniques available, the most suitable technique in gathering data for this project would be questionnaires. This is because by performing questionnaires it does not take long in terms of time. It also allows the researcher to gather information more precisely by providing relevant questions.

3.3 Questionnaires

As mention above, questionnaires have been chosen in order to gather data needed in this project. This is because the work involved in questionnaires is much easier than in conducting interviews. It will also save the time and cost. Other reason is, in doing the questionnaires it only requires one person to handle it. Besides that, the result based on the questionnaires is on paper stated by the respondent. So, it is easy for the researcher to do the statistical analysis based on that result. Steps involve in performing questionnaires are as follow.

1. Defining the Objectives of the survey
2. Determining the Sampling Group
3. Writing the Questionnaire
4. Administering the Questionnaire
5. Interpretation of the Results

3.4 Results of Questionnaires

A questionnaire has been distributed to 30 respondents who are teachers and administrators that come from various kindergartens located in Kajang. It has been

done by using a set of questionnaire containing 12 questions. These are the result of the survey:

i) Please choose your gender

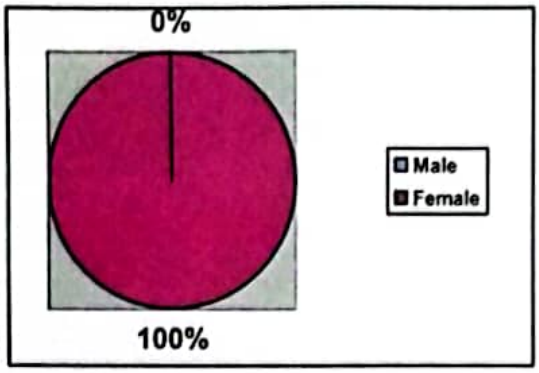

Figure 3.1 Shows gender of the respondents

- 100% of the respondents are female

ii) How many students available in your kindergarten?

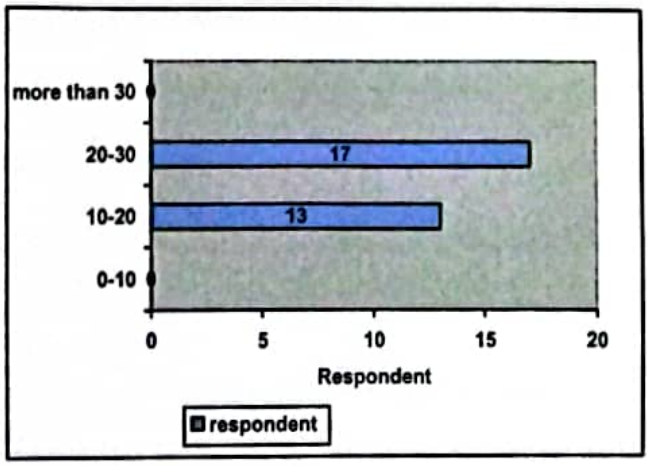

Figure 3.2 Shows amount of students

- 56% of the respondents have 20-30 students and another 44% have 10-20 students.

iii) Do you agree that managing kindergarten manually is difficult?

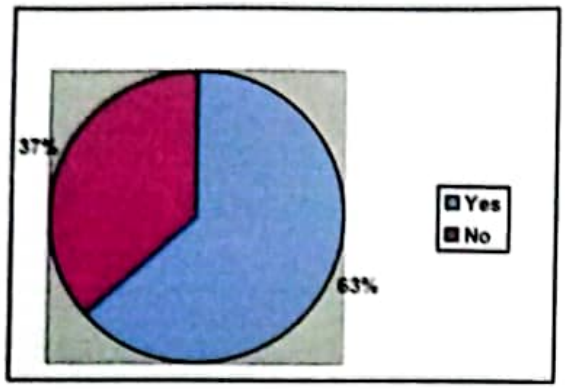

Figure 3.3 Shows Difficulties in managing kindergarten

- 63% of the respondents agree that managing kindergarten is difficult and the rest disagree with the statement

iv) What are the regular problems you face in managing kindergarten?

- logbook missing
- miscalculate payments
- managing kids data
- forgot amount of payment made and received
- difficulties in providing receipt
- difficulties in looking for student's information in emergency time

v) Have you heard about computerized system in managing kindergarten?

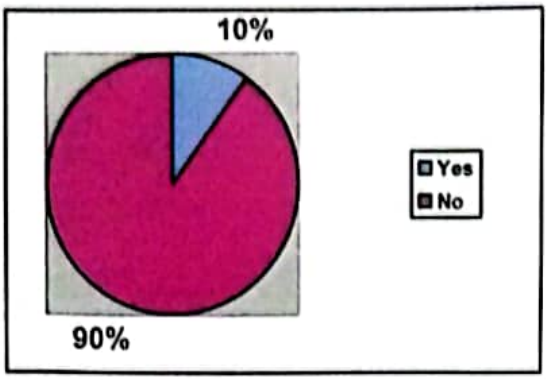

Figure 3.4 Respondent know about computerized system

- 10% of the respondents have heard about computerized system and the rest never heard of it.

vi) Do you think computerized system will allow you to manage better?

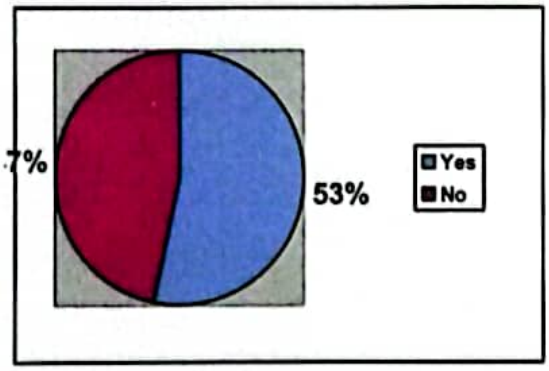

Figure 3.5 Ability of computerized system to perform better

- 53% of respondents believe computerized system will allow them to manage better

vii) What kind of task would you prefer computerized system would be able to perform?

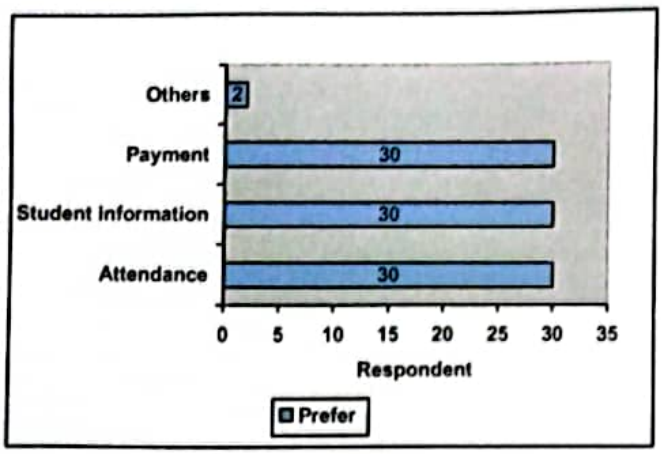

Figure 3.6 Task preferred by respondents

- 100% of respondent prefer to have payment record, student information and attendance function in the system.
- One of respondent would like to have reminder function and another one would like to have calculator function.

viii) Do you think the system need to be protected with password?

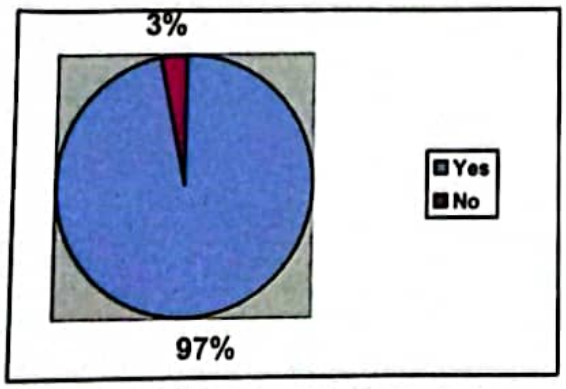

Figure 3.7 System protected by password

- 97% of the respondents agree that the system must be protected by password

ix) Do you prefer the system perform the calculation automatically for the payment made and received?

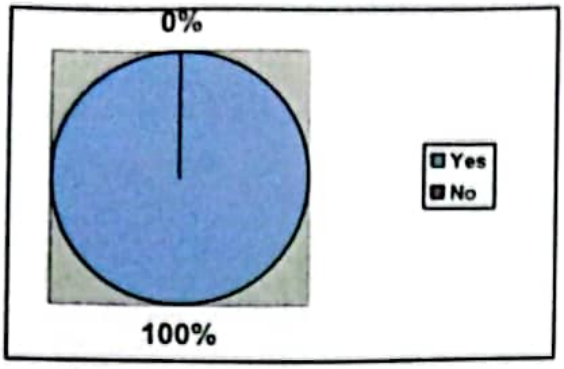

Figure 3.8 Automatic Calculation by system

- 100% of the respondents prefer the system to calculate automatically for the payments.

x) What would you like to appear on the first page of the system?

- Calendar
- Name of kindergarten
- Date
- Day
- Time
- Reminder
- News
- Student's birthday
- Pictures

xi) Do you want the system can be accessed via internet?

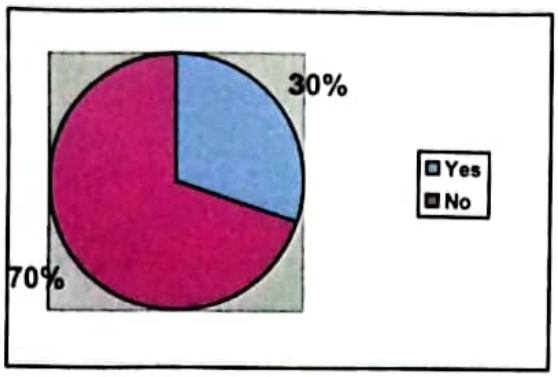

Figure 3.9 Ability to access via internet

- 30% of respondent prefer the system can be accessed via internet and the rest not.

xii) Would you like to have "Help" function provided in the system?

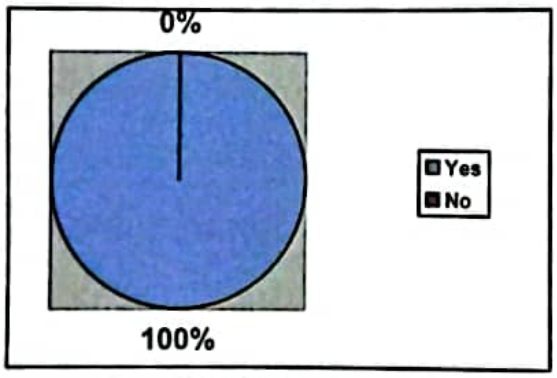

Figure 3.10 Help function provided

- 100% of the respondent prefers to have the "Help" function in the system.

3.5 Comparison of Similar System

Based on Chapter 2, there are three similar system has been reviewed. All these three systems have been detail analyzed and all features included the systems are shown in the **Table 3.3** as follow.

Table 3.3 Show comparison between similar systems

Features	School Management System	Bifrost Inventory System	Customers Order Management System
Password protection	Yes	No	No
Help Menu	Yes	Yes	Yes
Reminder	Yes	No	Yes
Search functionality	Yes	Yes	Yes
Information	Yes	Yes	Yes
Print report	Yes	Yes	Yes
Calendar	Yes	No	Yes
Background color	White	Grey	Grey
Fonts	Times New Roman	Times New Roman	Times New Roman
Automatic calculation	Yes	Yes	Yes
News	No	No	No

CHAPTER 4

Design

4.1 Introduction

Design is a process that involves creating the Graphical User Interface and behaviors within the systems itself. This is where the system will be structured to meet the system requirement and determines how is going to act and perform. There will be several diagrams to show the flow of the project in this chapter including diagram, story board and activity diagram.

4.2 Proposed System

As mentioned in Chapter 1, this system is mainly about developing a Kindergarten Management System. This system is meant to be used by teacher or administrator of the kindergarten in managing the registration of the students, taking attendance, creating reminders, and recording all the payments log. This system will help user to manage the kindergarten better by avoiding such incident for instance loosing payment records book, inconvenient in updating and editing data of the student information and so on.

4.3 System Functionalities

In this chapter, designing the system will be the most important part. Functionalities that will be available in the system have been determined. These functionalities are extracted from user requirement collected earlier. Below are the functionalities for the system.

4.3.1 Login System

Input: Login name and password

Process: For this process, users are required to enter the login name and password to access system. This function is mainly purpose to ensure the system will be used by only authorized people to avoid any misuse of the data. The login name and password will be verified by comparing it to the data in the database if it valid or not. If valid, the authentication can be given and if it is not, the system will deny and repeat the authentication process.

Output: Entering the system or reenter the login name and password.

4.3.2 System Logout

Input: single click logout button.

Process: The user will be automatically logged out from the system when the user clicks on the logout button. When logged out, it means that the user is not authenticated anymore to access any part of the system. This is for the sake of security and privacy. If the user wants to access the system again, user may do so by login using appropriate user name and password.

Output: Totally logged out from the system.

4.3.3 Search box

Input: Search for students details

Process: User may enter any word that relate to students into the box and the search engine will do the searching through entire system. If the word found, then the system will display the link to the particular page that contain the word. User may click on the link to get to the particular page.

Output: Result page

4.3.4 Reminder

Input: User enter any event in particular date

Process: User may enter any coming events in the calendar according to respective date and time. Any coming events within one week of current date will be displayed in the first page of the system.

Output: Reminder appear on the first page of system

4.4 Context Diagram

Context Diagram can be used to scope the project as it provides a visual model of the interactions between the system that are going to be built and the outside entities that interface with the solution. Such diagram is easily understood by the stakeholders and is used to get agreement on the scope under review.

The system to be build is represented as a circle in the middle and the external entities are represented as rectangles around it. For example the external entities could be Finance, Vendors, Marketing, Customers, etc.

The interactions between the system and the external entities (the processes) are represented as arrowed lines, pointing to the receiving party. The text next to each line

briefly describes the interaction: provide promotional details, deliver supplies, request service, etc. [9] Refer **Figure 4.1** for more details.

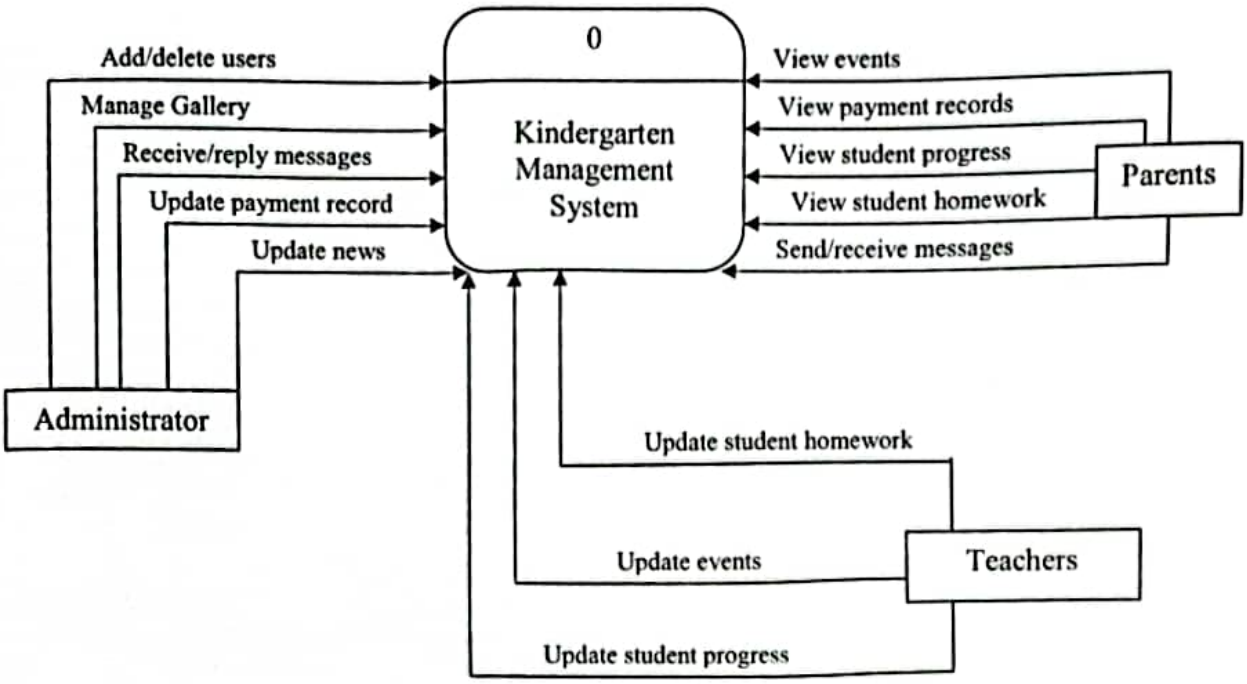

Figure 4.1 Shows Context Diagram

4.5 Database Schema

Database Schema is a structure of the system described in a formal language supported by DBMS (Database Management System). The schema defines the tables, the fields in each table, and the relationships between fields and tables. Although a schema is defined in text database language, the term is often used to refer to a graphical depiction of the database structure. Refer to **Figure 4.2** for the Database Schema [6]

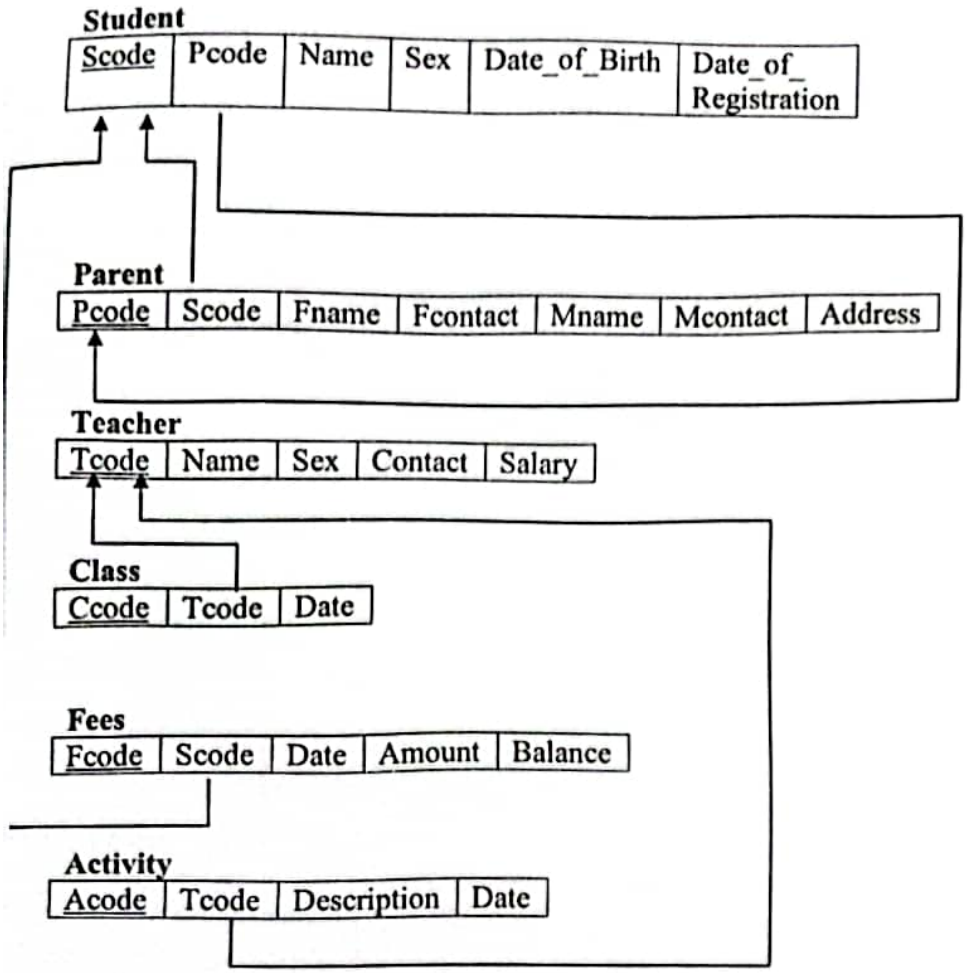

Figure 4.2 Shows Database Scheme

4.6 Entity Relationship Diagram

Next is an Entity Relationship Diagram (ERD) which will provide a high level description of a conceptual data model. It provides a graphical notation of relationship between entities. Typically, the first stage of information system design will use this model to describe information needed to be stored in a database during the requirements analysis. Refer **Figure 4.3** for ERD of the system.

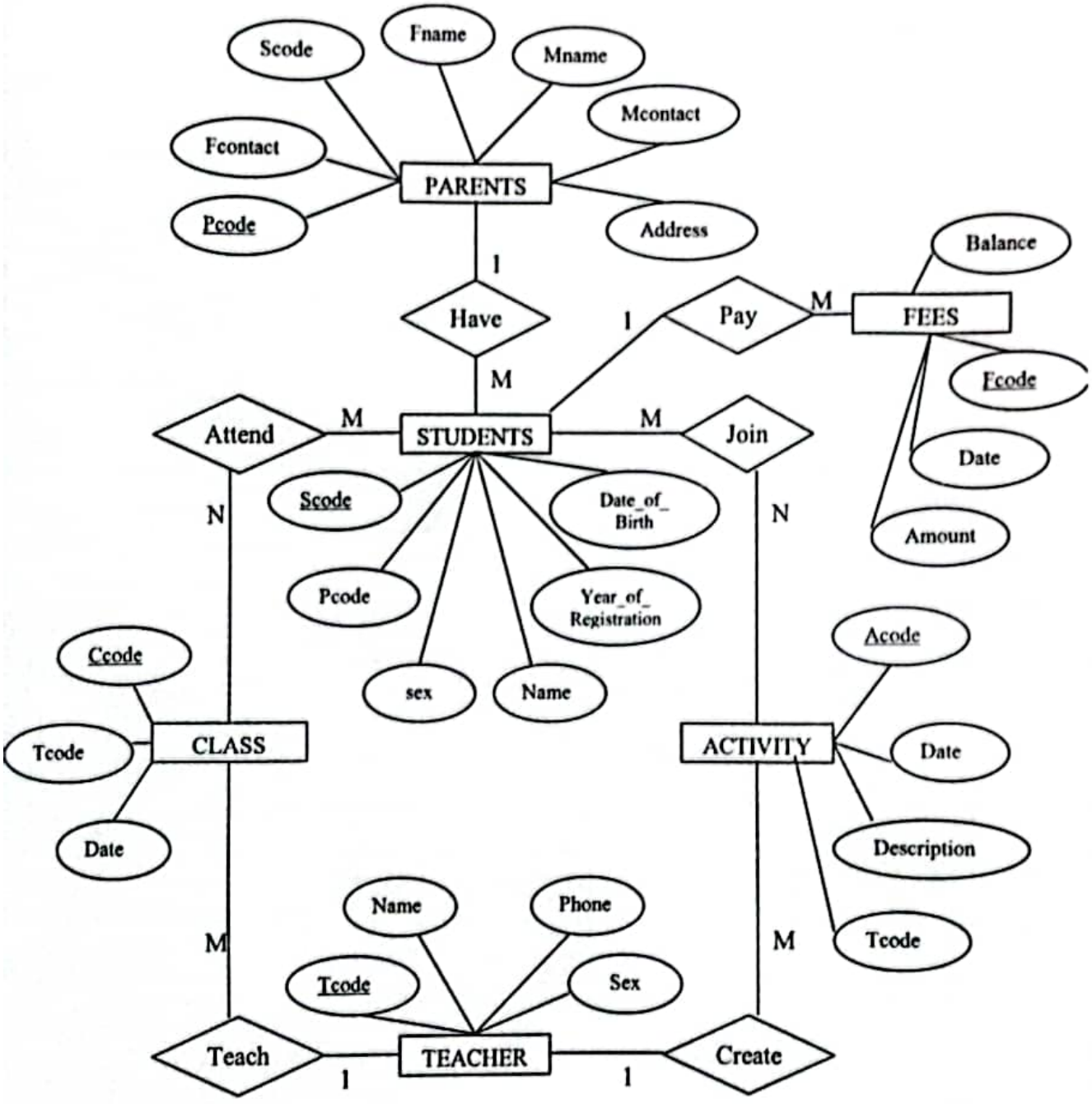

Figure 4.3 Shows ERD of the system

4.7 Data Flow Diagram

Data flow diagrams are used to describe how the system transforms information. They define how information is processed and stored and identify how the information flows through the processes.

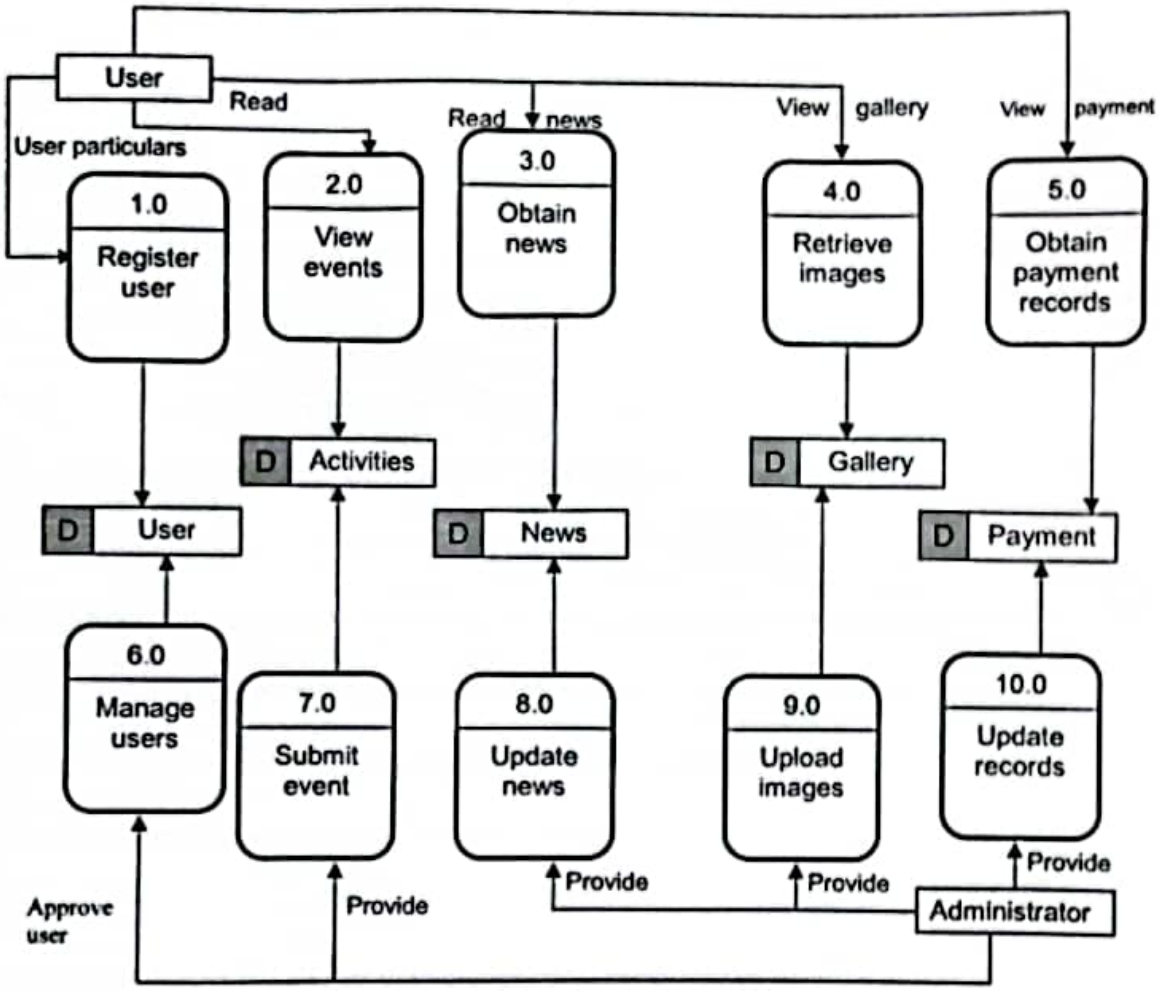

Figure 4.4 Shows DFD of the system

4.8 Interface Design

Interface design is producing the rough idea on how the system will looks like, the structure of the system and how the user will interacts with the system. Designing interface is important to ensure user look and feel when user navigate the system. A good interface design will contain three major aspects need to be included together. Below are the explanations of the criteria involved.

- Usability – this is about how intuitively or easily the media item is navigated and processed. For instance the flow of the system, sequence, instructions, processing time and so on.
- Visualization – this criteria focus on creating visually interesting and aesthetically pleasing media items while avoiding potentially distracting or unnecessary bells and whistles.
- Functionality – it refers to the features of the media item and how useful these media item in supporting a given task. For example, the site maps, frequently asked questions, search engines. These items must be placed in the system to ensure the functionality criteria in the system.

The goal of the interface design is to ensure the user interactions with system will be as simple and efficient as possible. Developers also need to ensure user will be comfortable with the system looks. The color of background, text size, object placement and many other things need to be put in consideration and must be well determined to be used and viewed by users. [5]

4.8.1 Main Page

Main page of the system is the first page that will appear after the login page. When user successfully login by using correct username and password, user will be able to view this main page. It contains few columns and links to navigate within the system. Refer **Figure 4.5** for the explanation of the A n page.

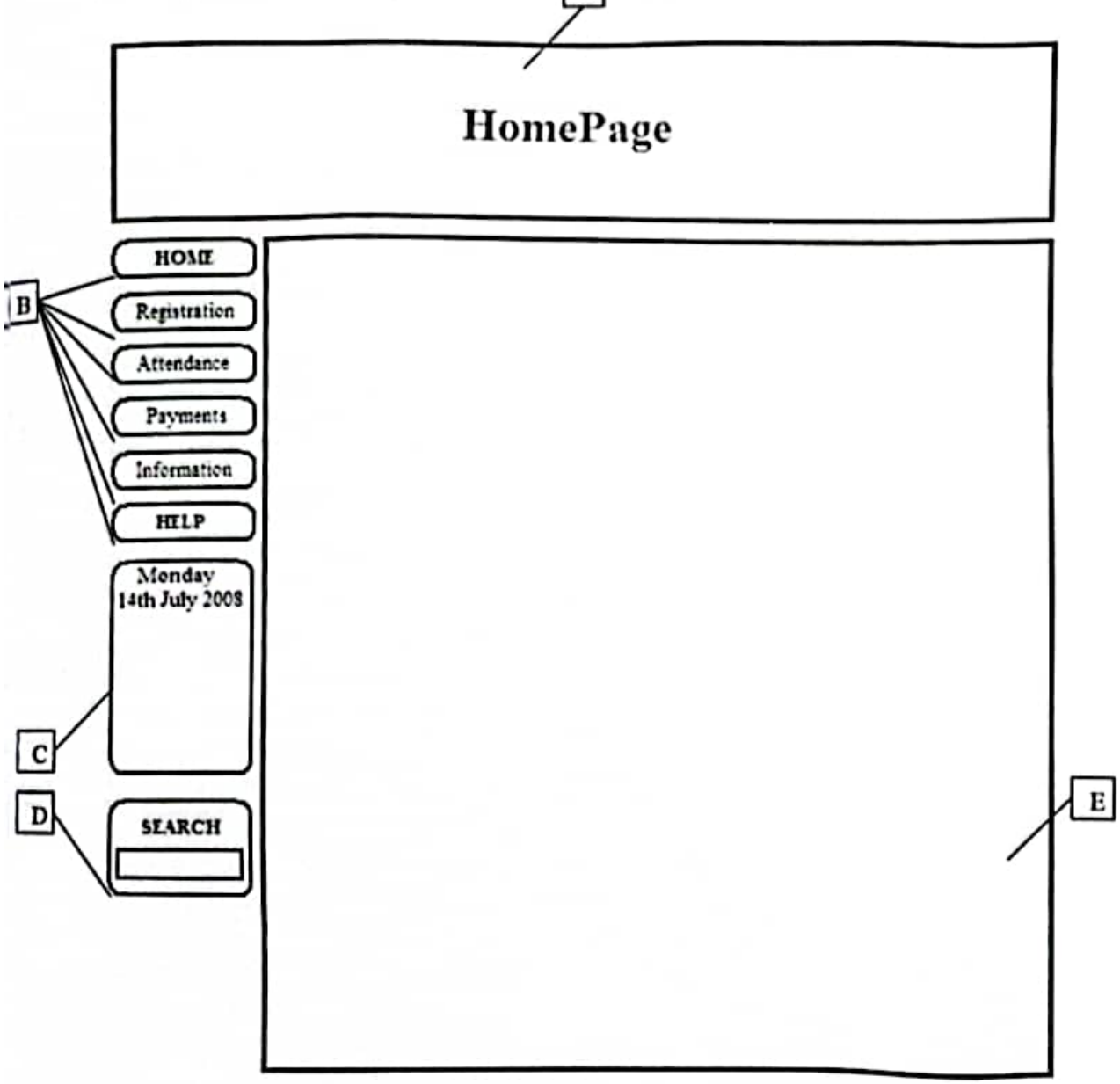

Figure 4.5 Shows the Main Page of the system

A. Banner of the system. Contained name of the kindergarten.

B. Buttons to navigate to other pages of the system.

C. Calendar to insert reminder or view current date.

D. Tips column. Provides tips on how to use the system.

E. Search box. To search names or anything within the system.

F. Multipurpose column. Provides coming events, reminder and so on.

4.8.2 Registration Page

Next is the registration page where a page that required to be filled in when a new student enrollment process to be done. This page will help user to update the database by inserting the information of the student filled by user into the database. This information then can be viewed in other pages as well. Refer **Figure 4.6** for more details about registration page of the system.

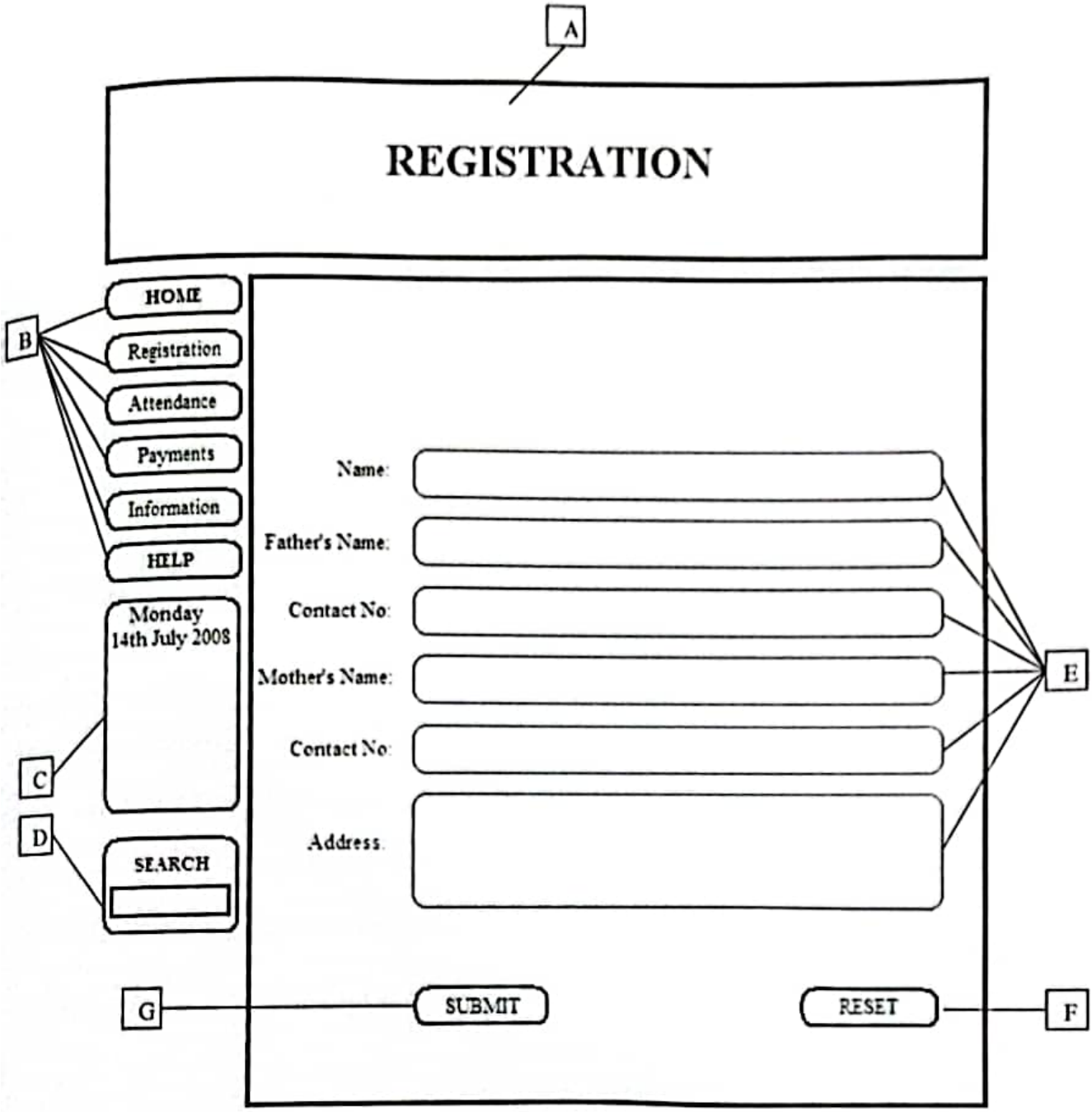

Figure 4.6 Shows Registration Page

- For A,B,C and D, refer explanation for **Figure 4.5**

E. Registration Column. It will consist few details that compulsory to be filled in such as :

i. Name – name of the student which will be the primary key in the database.

ii. Father's name – needed as student's family information

iii. Father's contact no – needed in contacting the students' parents

iv. Mother's name - needed as student's family information

v. Mother's contact no - needed in contacting the students' parents

vi. Address – needed for mailing purpose

F. Reset button – this button is meant to clear all the information entered in the columns by the user if the user make mistakes.

G. Submit button – once the user finish inserting all the information required, user need to click on the submit button so that the data will be kept in the database.

4.8.3 Attendance Page

Attendance page is the page for user to record the attendance log of the student coming to class. This log will be kept safe in the database. Users are able to retrieve it at anytime that user wanted to. This page will also display the attendance log for previous day within one month time.

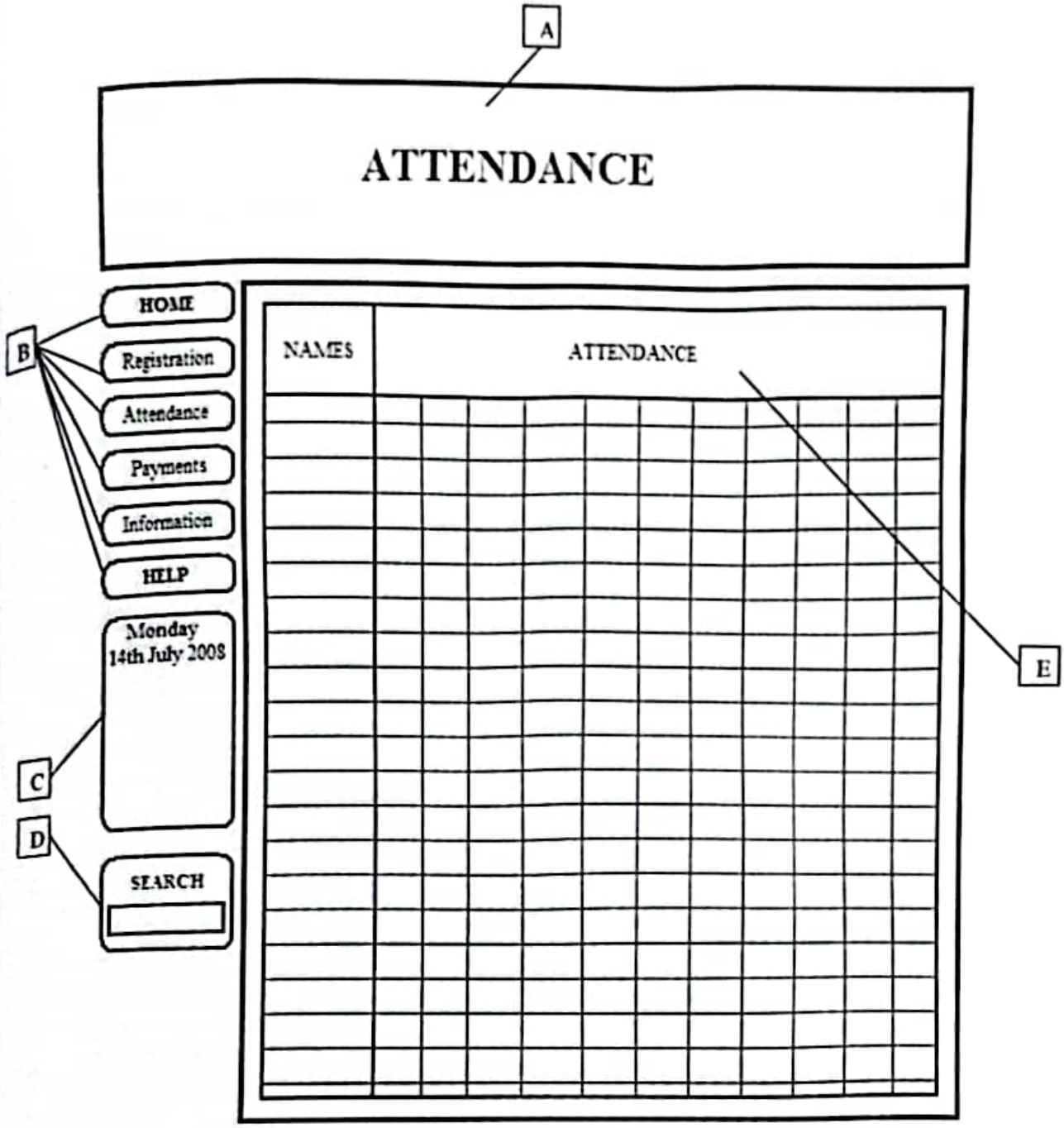

Figure 4.7 Show the Attendance Page of the system

- For A,B,C and D, refer explanation for **Figure 4.5**

E. Attendance of the students. User may mark any respective column based on date.

4.8.4 Payments Page

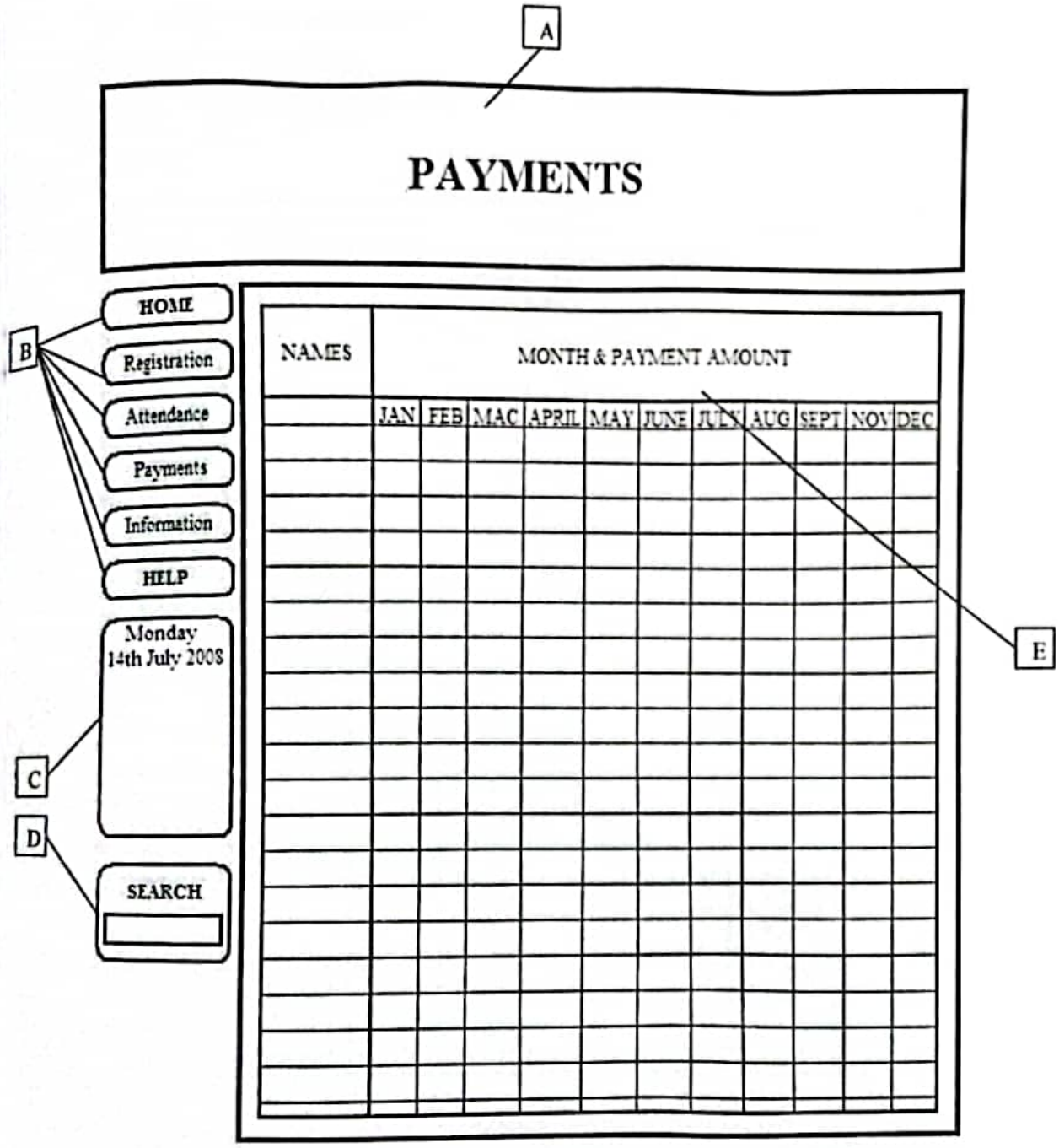

Figure 4.8 Shows the Payment Page

- For A,B,C and D, refer explanation for **Figure 4.5**

E. Payment column. User may enter amount paid by students in respective column. Columns are sorted based on months.

4.8.5 Student's Information Page

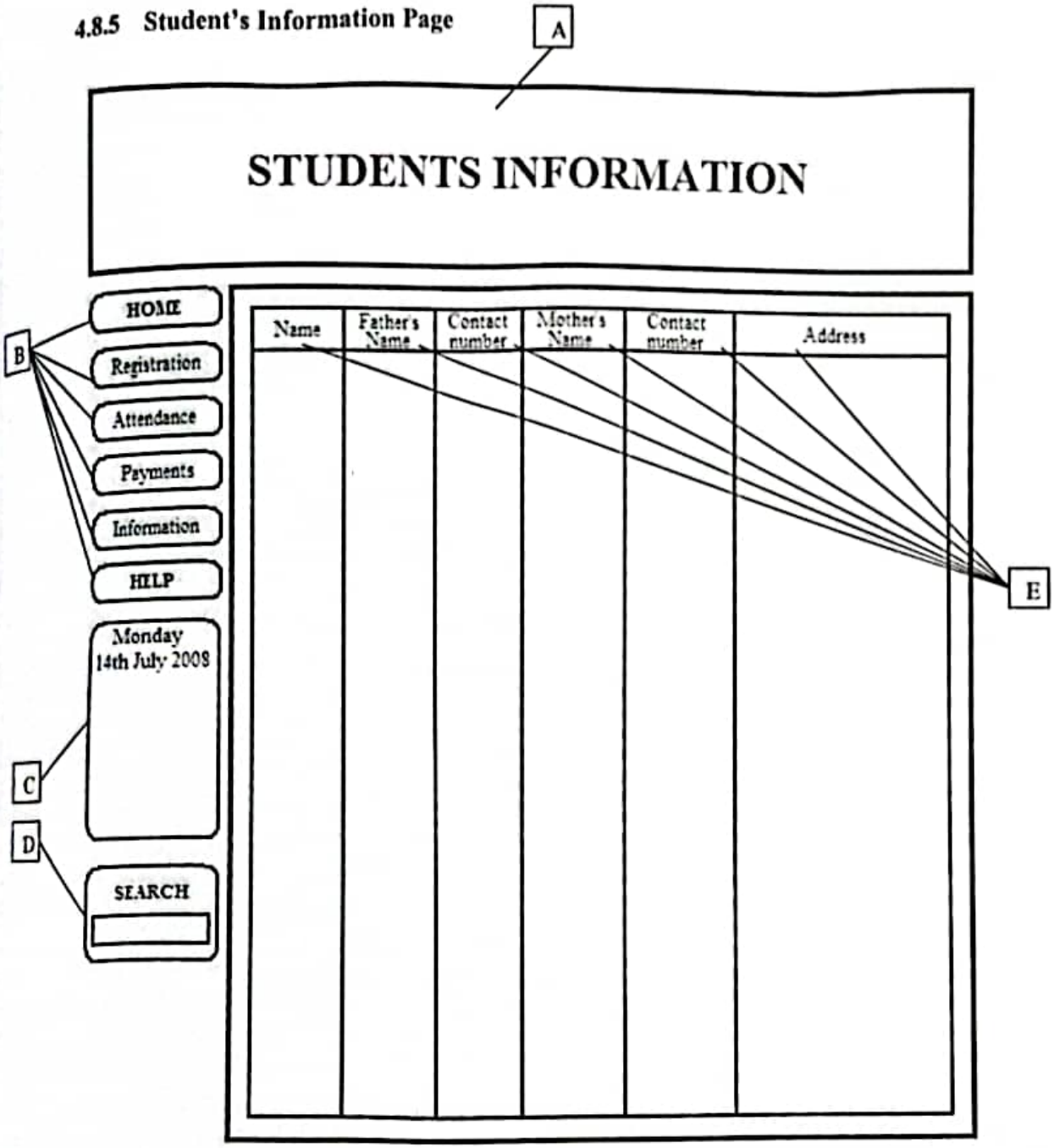

Figure 4.9 Shows the Student's Information Page

- For A,B,C and D, refer explanation for **Figure 4.5**

E. All these particular columns will display specific information about students.

4.8.6 Help Page

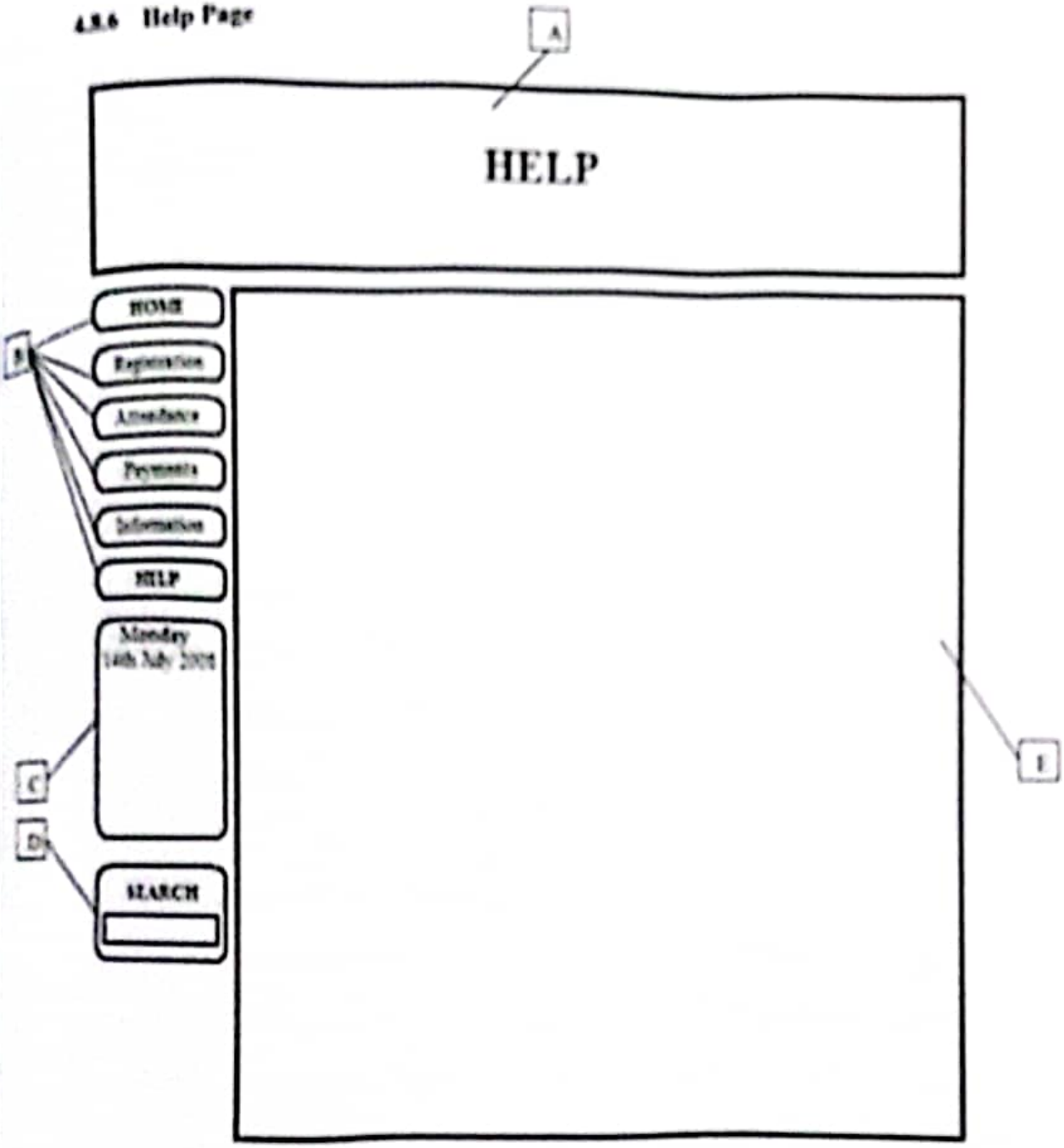

Figure 4.10 Shows the Help Page

- For A,B,C and D, refer explanation for **Figure 4.5**

E. This column will show Frequently Asked Questions and tips on how to use the systems.

CHAPTER 5

IMPLEMENTATION

5.1 Overview

Waterfall model has been used in determining the feasibility of the design throughout the whole stage Chapter 4. After the previous stage has done, some modifications on system functionality, user interface and forms has been done during this Implementation stage.

5.2 Description of the developed system

This Kindergarten Management System is designed for four types of users which are Admin (owner of kindergarten), teachers, parents and guests of the website. Each of users has their own dedicated functions based on their level where Admin has the full control of the systems. Admin will have functions such as register new teachers, view all teachers from all branches and view all students from all branches.

5.3 Technical details of implementation

This system has been successfully developed using Notepad++, Dreamweaver, Adobe Photoshop and Aranae. System then run using WAMP version 2.0 to test the system.

Below are the screenshots of the WAMP main interface in figure 5.1 and Notepad++ in figure5.2.

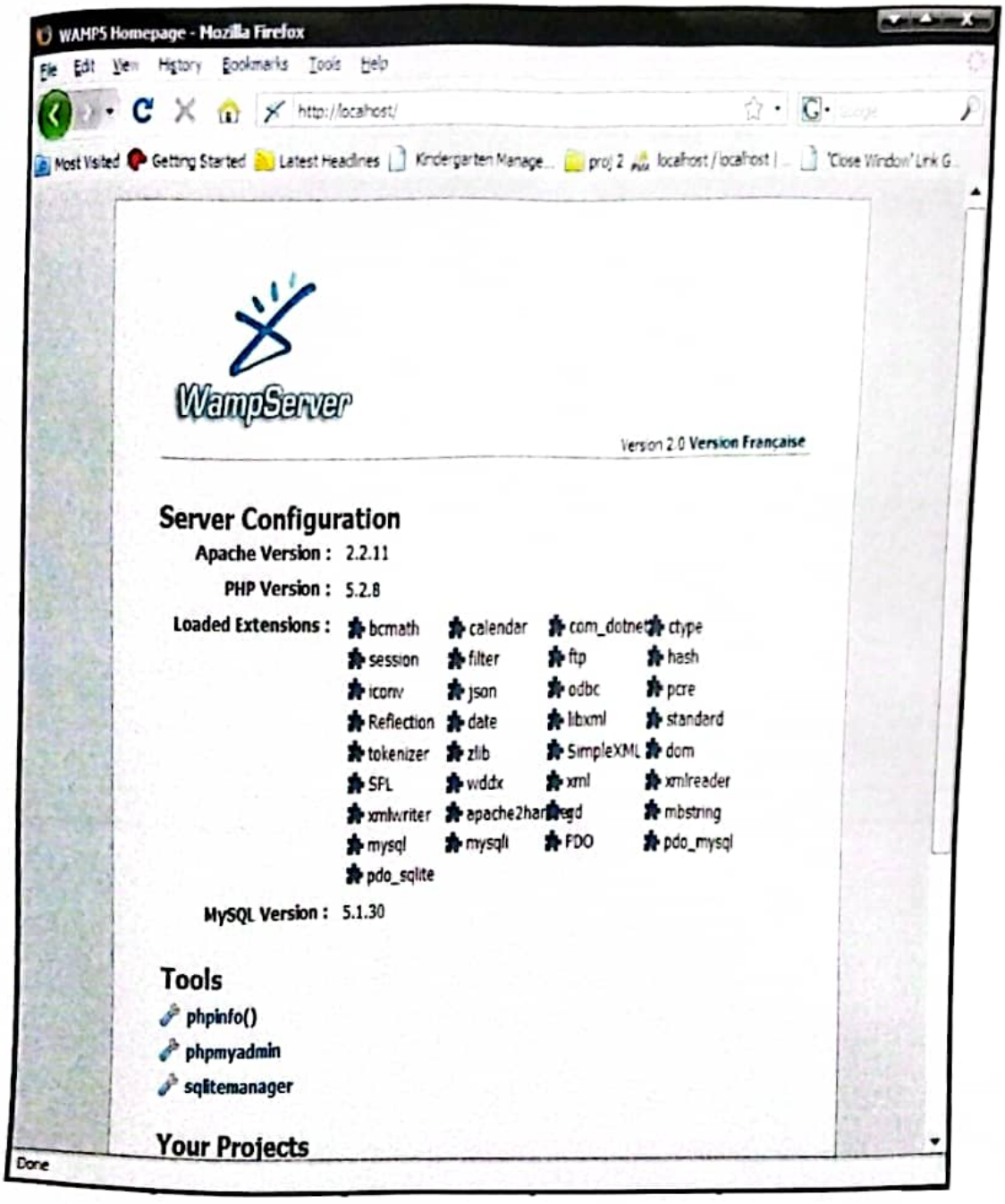

Figure 5.1 WAMP Main Interface

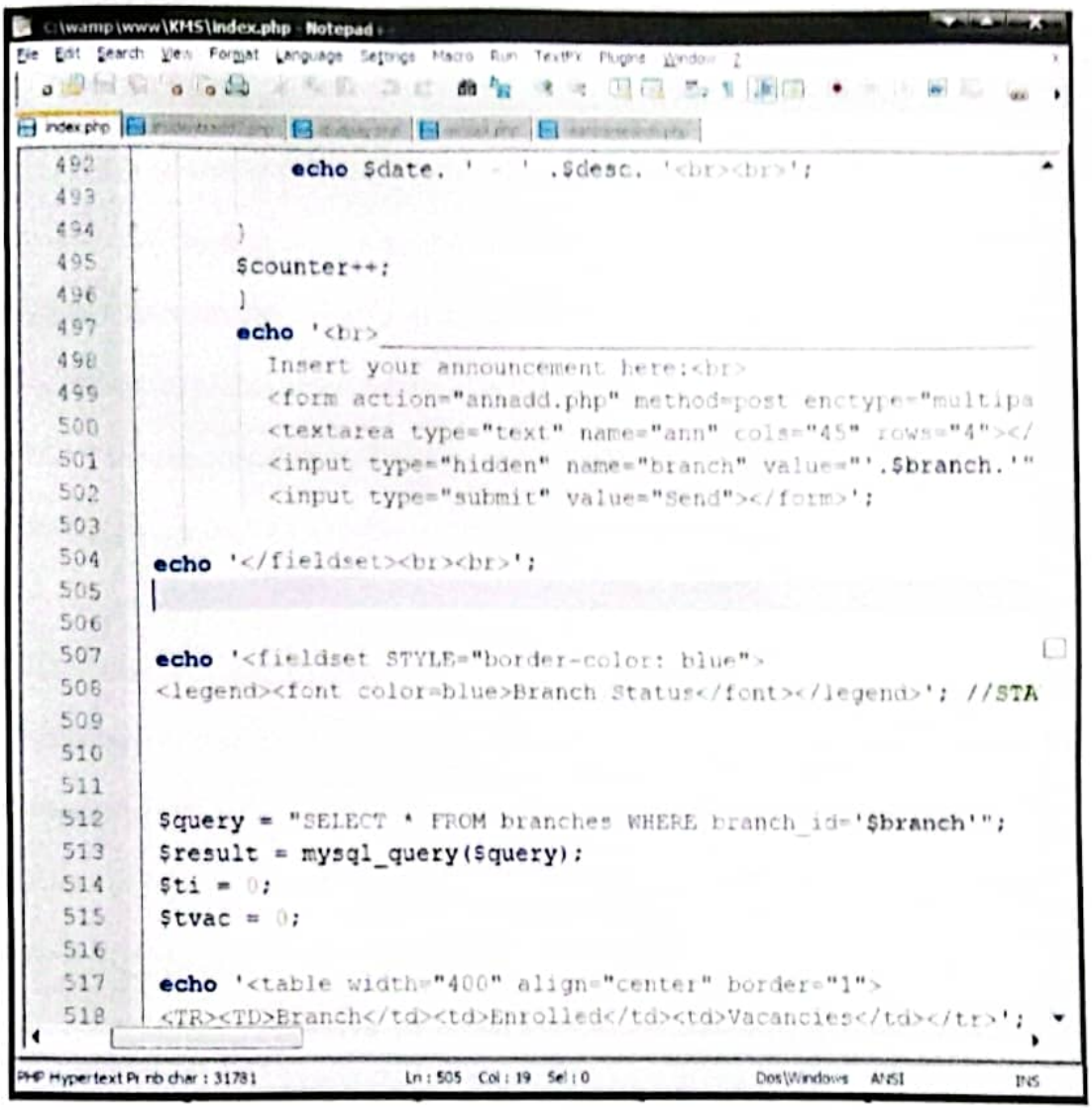

Figure 5.2 Notepad++ Main Interface

5.4 Implementation of Main Functions for Users

5.4.1 Announcements

This system allows Admin and Teachers to post announcements that will be displayed inside the first page of every user after login. Admin may dedicate announcements to any particular branches differ from teachers where they can post announcements to their respective branch only. Admin also has control in making emendations and deleting any announcements. Teachers are only able to delete announcement for their branch. As parents, they are able to view only the announcements.

5.4.2 Teachers Registration

Registration of teachers can only be done by Admin where some important particulars of teachers need to be taken and fill up in the form. While registration process, teachers will be assigned to any branch by Admin. Salary will also be determined by Admin and saved in the same form. Teachers will automatically be provided an account to use the system with username to login determined by teachers while registering. Their MYKID number will be used as password for login process.

5.4.3 Students Registration

Students' registration works similar as Teachers Registration process where admin may register new students and assign to respective branch. Teachers also have the same function except assigning the students to branches. Any students registered by teachers, the students will automatically register to which branch the teacher is from. Particulars about the students and parents need to be taken and fill up in the form. This information will be saved in MySQL database. Parent of students will automatically

be provided an account to use the system with username to login determined by parents while registering. Student's MYKID number will be used as password for login process.

5.4.4 Users Management

This developed system allows Admin and other Users to view System Users whom came from Teachers and Parents. As an Admin, added functionality given is ability to change users password without the need of their current password. In case of any users forgot their password, any can always reset their password to temporary password and later to be changed by users themselves. Another function is Admin may change the status of users. For example, Admin may change status of users from active to inactive where users cannot login when status is inactive.

5.4.5 Events

Events that held or will be held can be recorded in the system. Teachers and Admin has the control to do the adding and deleting process of the events. No classification made for events. It means, any Users from any branch may view any events for any branch. It is made this way because of information about events is not a restricted information and events might held with combination of branches.

5.4.6 Transaction

This function allows Admin and Teachers to view payment log for the branch. Admin has right to view transactions for all branches while teachers only for their respective branch. Update about payment made and payment received can be done. This log will be kept in the database.

5.4.7 Password Management

Users can update their password on their own from time to time for security measures as they have the function to do so. Users have to key in their old password and followed with new password and confirm password. If the entries are valid then it will change the password automatically.

5.4.8 Branches Management

This function allows Admin to view report about all branches. Admin may view current amount of students and teachers for each branch. Admin also has control to edit information about branches such as name, address and capacity. Ability to close any branch also provided to Admin.

5.4.9 Gallery

All users are given ability to upload pictures into gallery but ability to delete pictures only given to Admin and Teachers. Guest only can view gallery from outside without the ability to upload or delete pictures.

5.5 Screenshots of the Developed System

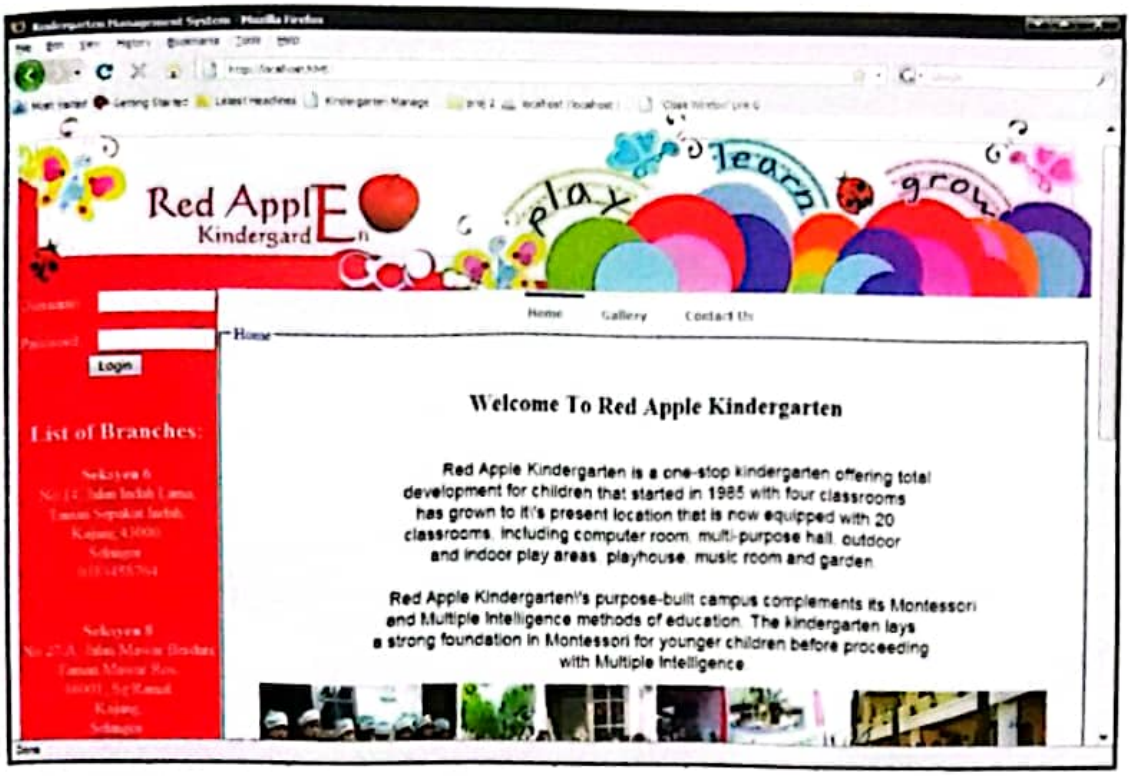

Figure 5.3 Homepage

Figure 5.3 shows the home page for Users and Guests. Users can view all the information about the kindergarten in this page. There are information about the kindergarten such as, address and phone number for branches, introduction for kindergarten, and contact us where users and guests may send any comments or messages to admin.

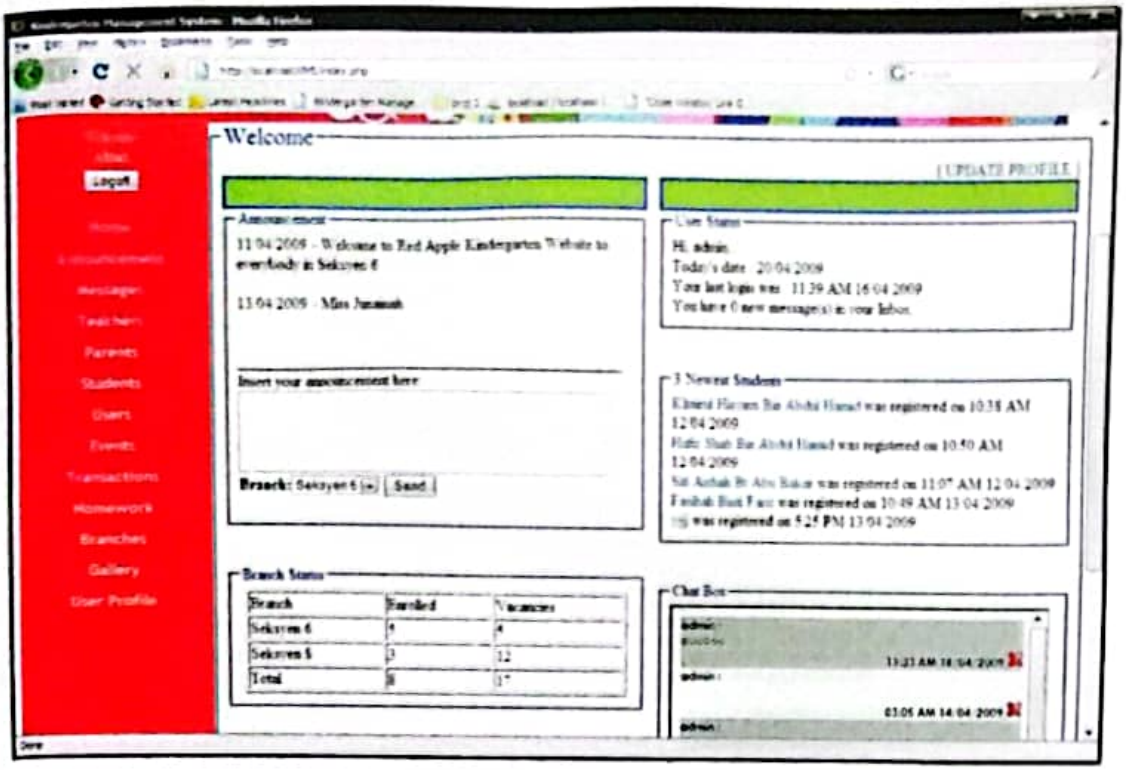

Figure 5.4 Admin Homepage

Figure 5.4 shows homepage for Admin after login process. In this page, information about branches, announcements, chat box and user's information will be displayed here. Users may post announcements and chat message within this page.

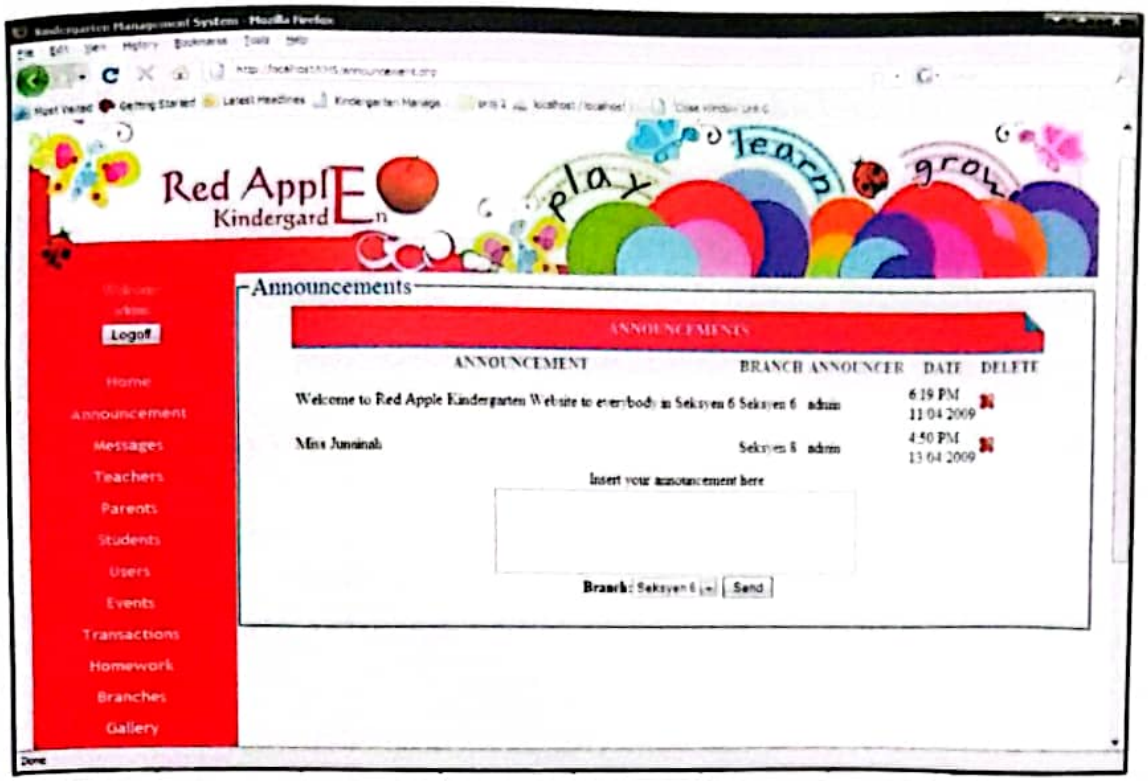

Figure 5.5 Announcements Page

Figure 5.5 show announcements page. Users may view all announcements have been made in this page. Information about date, announcer and branch also displayed in this page. For Admin and Teachers, another column that contains links to delete announcements will appear right next to each announcement.

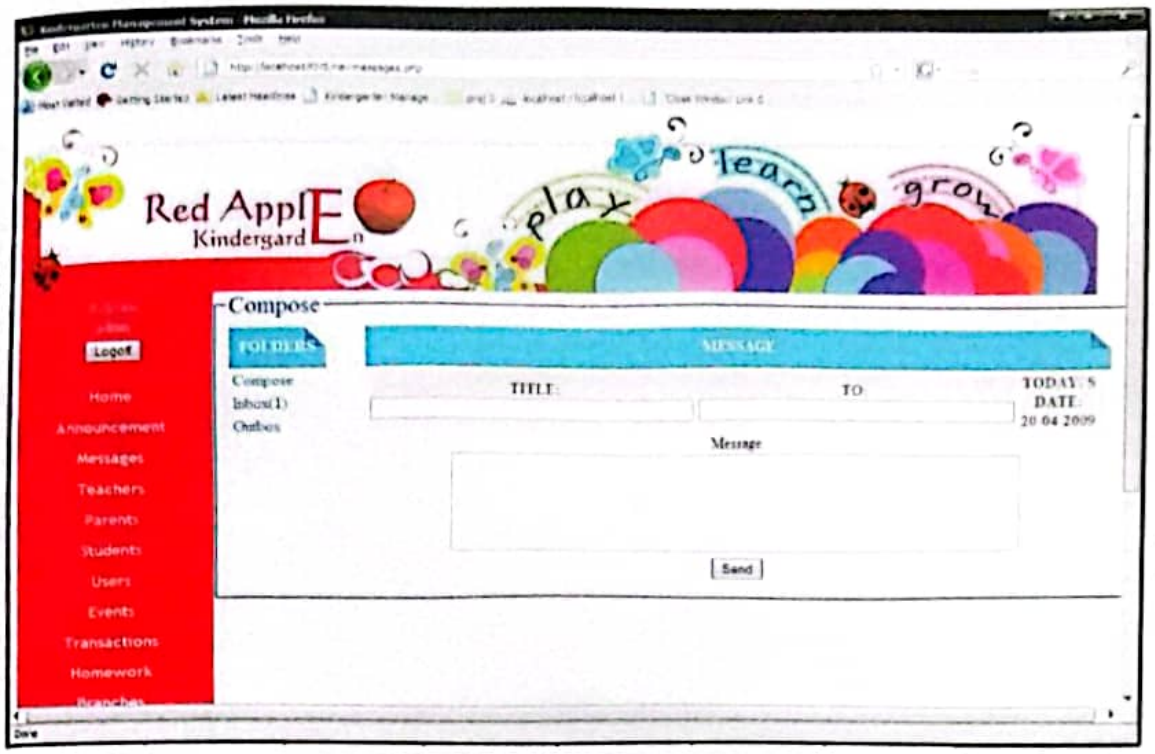

Figure 5.6 Compose Message

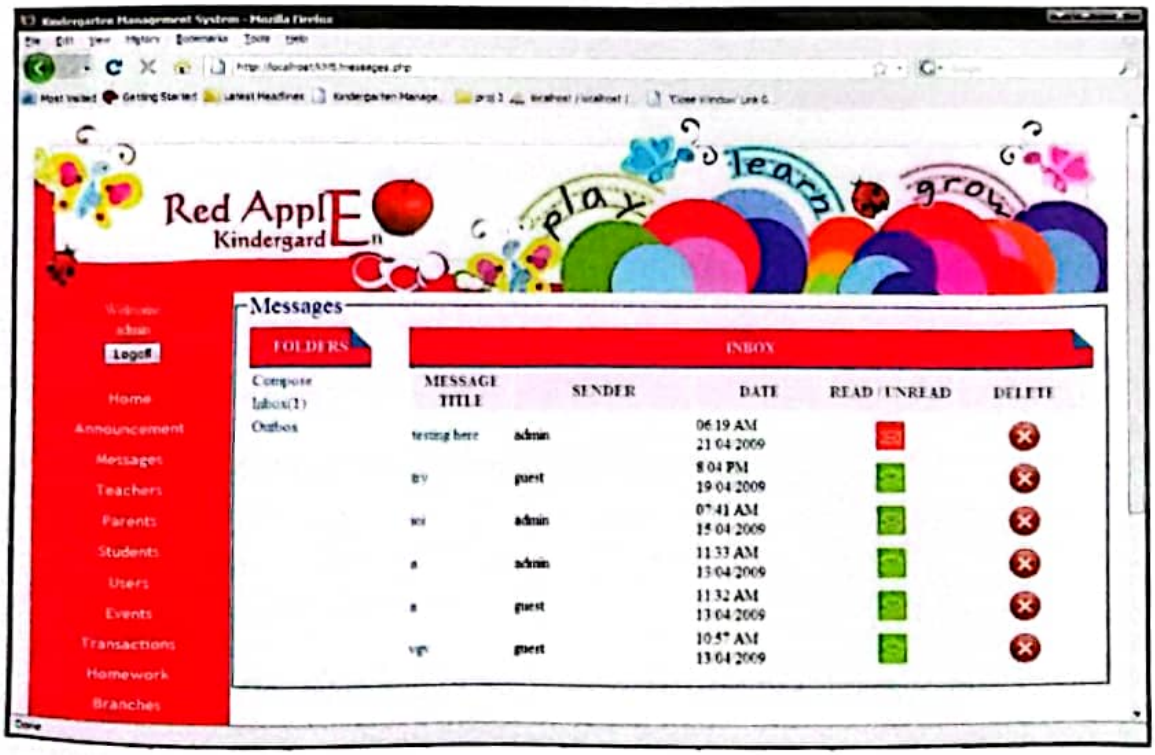

Figure 5.7 Message Inbox

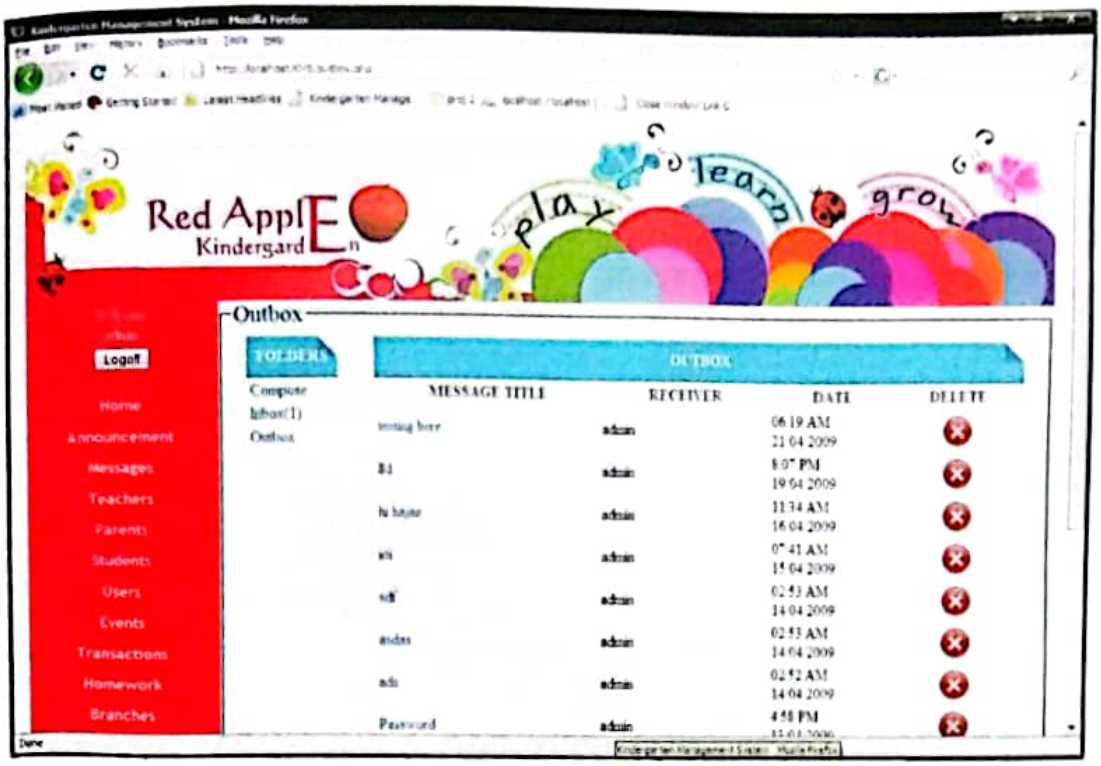

Figure 5.8 Message Outbox

Figure 5.6 until **Figure 5.8** show the messaging function. This messaging function allows users to communicate among them. Messaging will allow users to compose new message to other user where user need to enter the recipient name such as shown in **Figure 5.6**. Message that sent to user will be retrieve and display inside Inbox including information about date message sent and sender name as shown in **Figure 5.7**. All message sent by user will be saved and displayed in Outbox including date message sent and recipient name as shown in **Figure 5.8**.

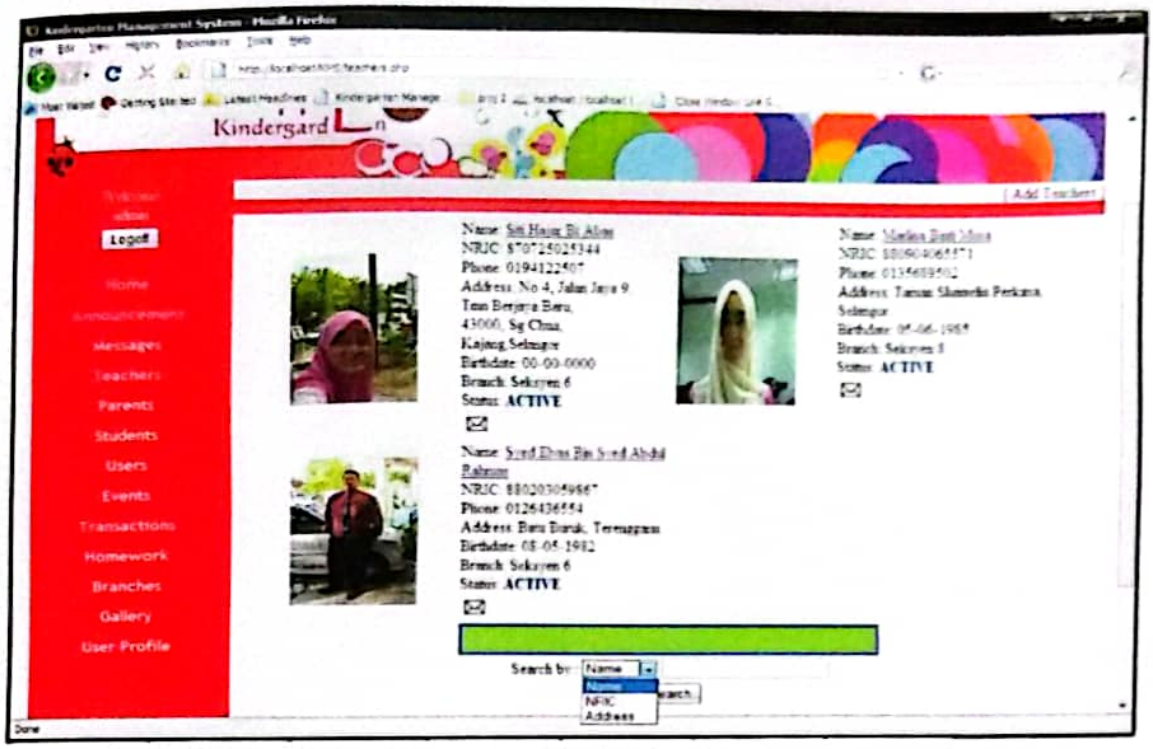

Figure 5.9 Teachers

Figure 5.9 shows the page where information about teachers will be displayed. Information such as image, teacher`s name, NRIC, Phone number, address, branch and status will be retrieved. For Admin, Information about teachers from all branched will be displayed but for Teachers and parents, only teachers from their branch will be displayed.

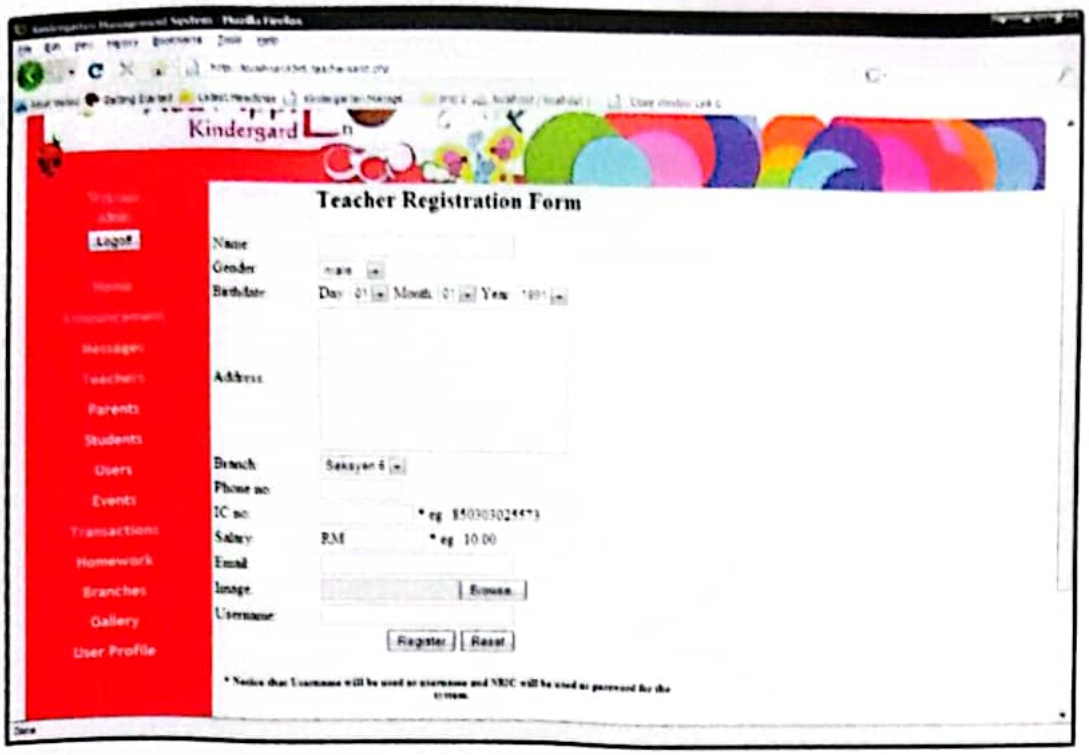

Figure 5.10 Teachers Registration

Figure 5.10 shows the registration form need to be filled up by Admin when registering new teachers. Username for system will be asked from teacher and password will come from teacher's NRIC number.

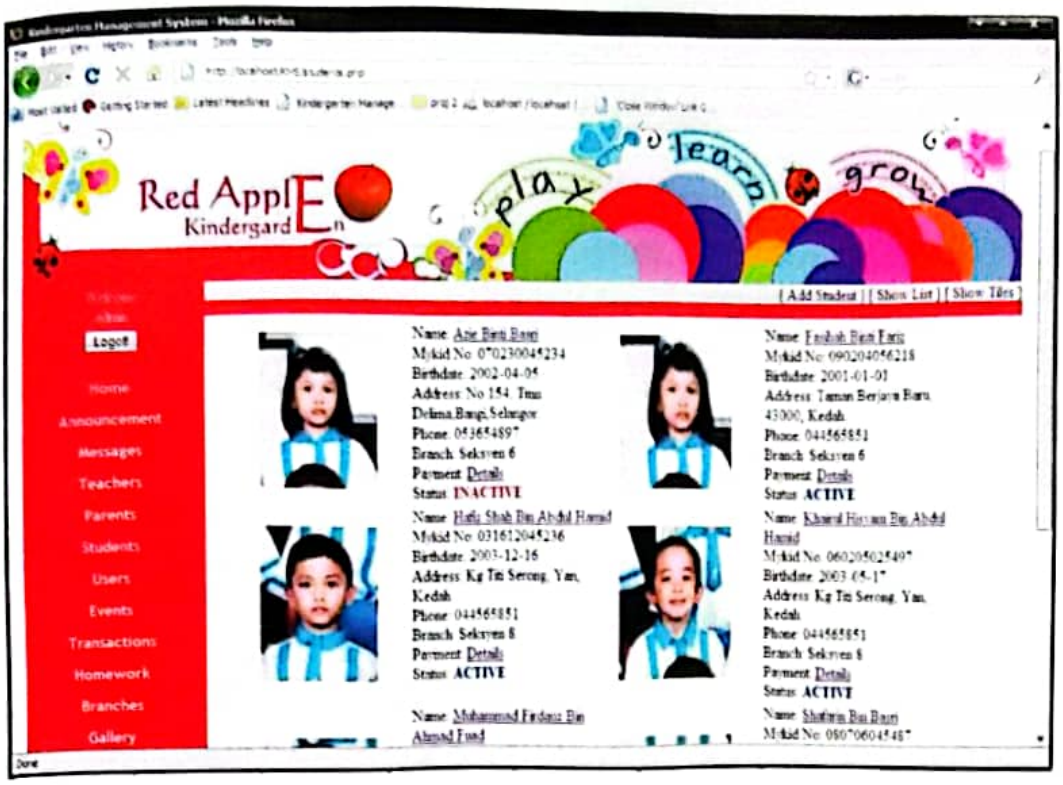

Figure 5.11 Students

Figure 5.11 shows the page where information about students will be displayed. Information such as image, student`s name, MyKID number, Phone number, address, branch and status will be retrieved. For Admin, Information about students from all branches will be displayed but for Teachers and parents, only students from their branch will be displayed.

Figure 5.12 Students Registration

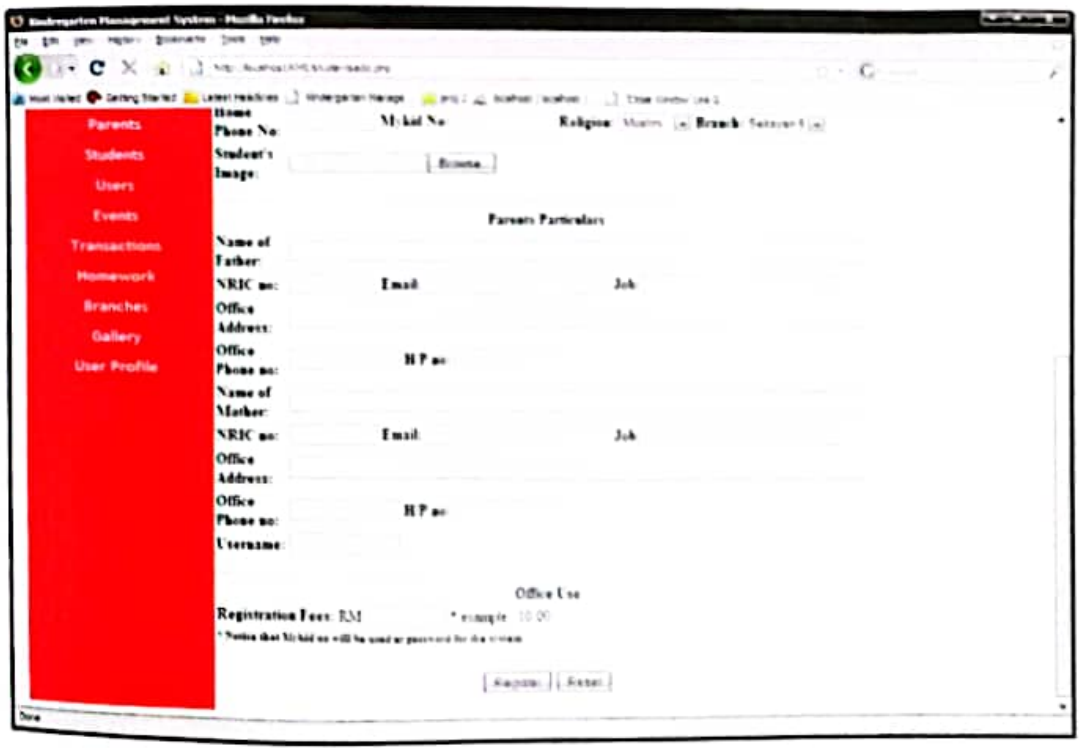

Figure 5.13 Students Registration Continue

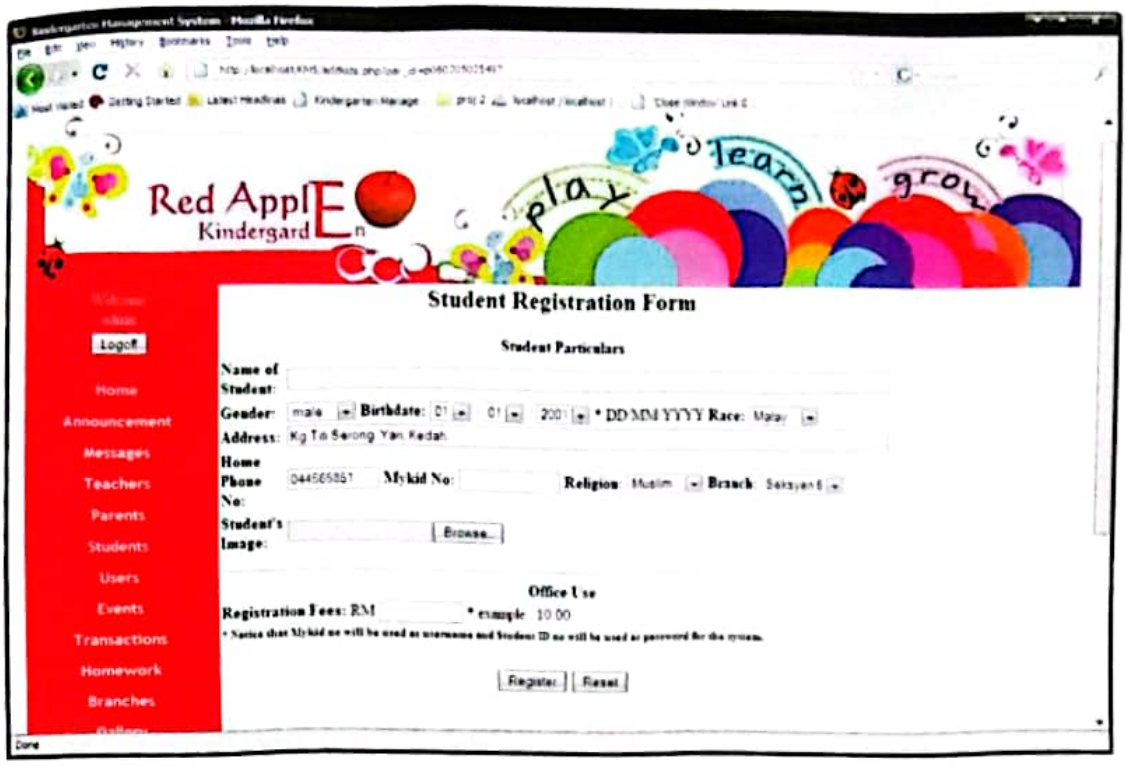

Figure 5.14 Students Registration continue

Figure 5.12 shows the page that contains forms to be filled in order to register new students. **Figure 5.13** shows the continuous of the registration page. **Figure 5.14** shows the form that will be used to register a student if parent of the student has already registered other child in the kindergarten. This form will not acquire teacher or Admin to reenter parent's information.

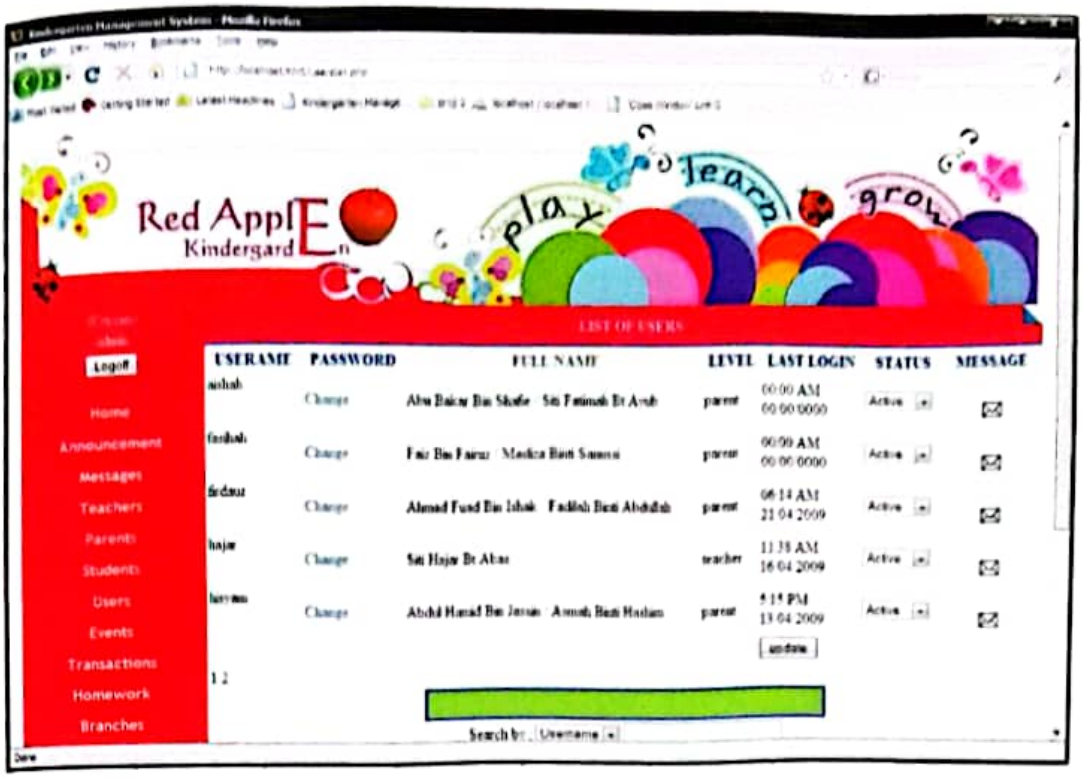

Figure 5.15 Users List

Figure 5.15 shows the page that contains list of the system users where user can click the mail icon to send out message. Information such as username, status, full name, level and last login date will be shown. For Admin, status and password of users can be changed.

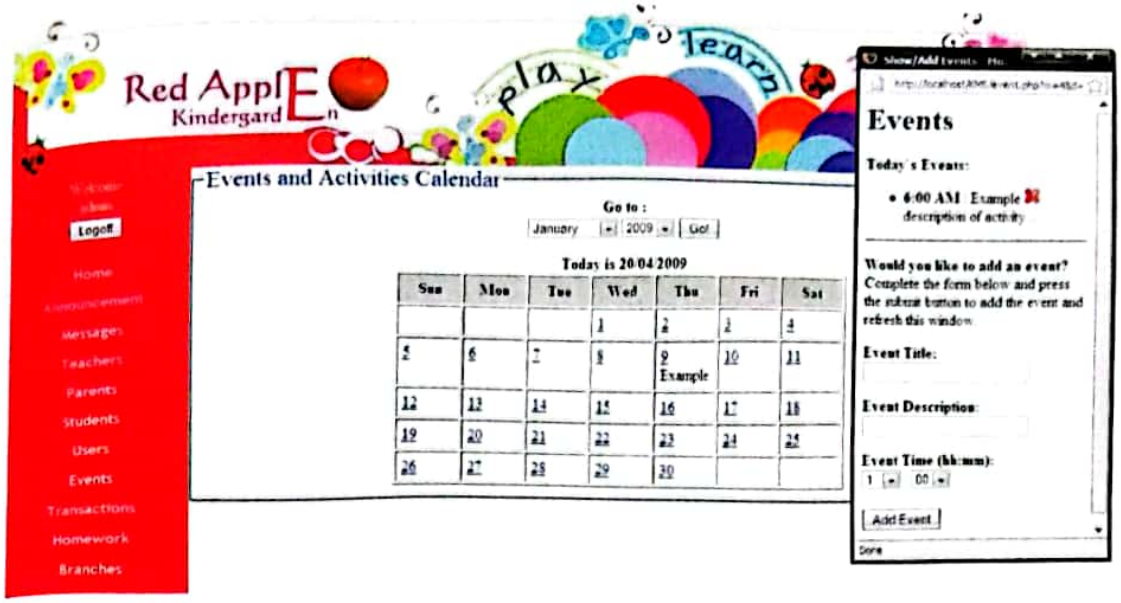

Figure 5.16 Events

Figure 5.16 shows the events page where calendar will show up and date on calendar is clickable to view any event on that particular date.

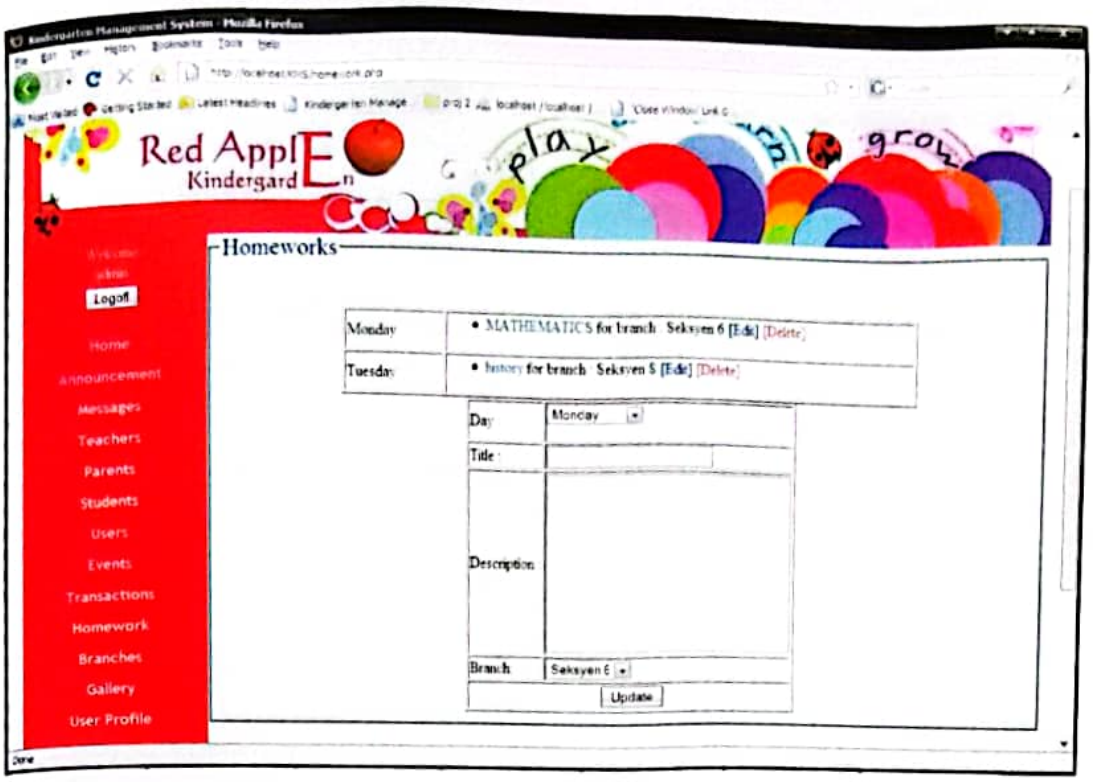

Figure 5.17 Homework

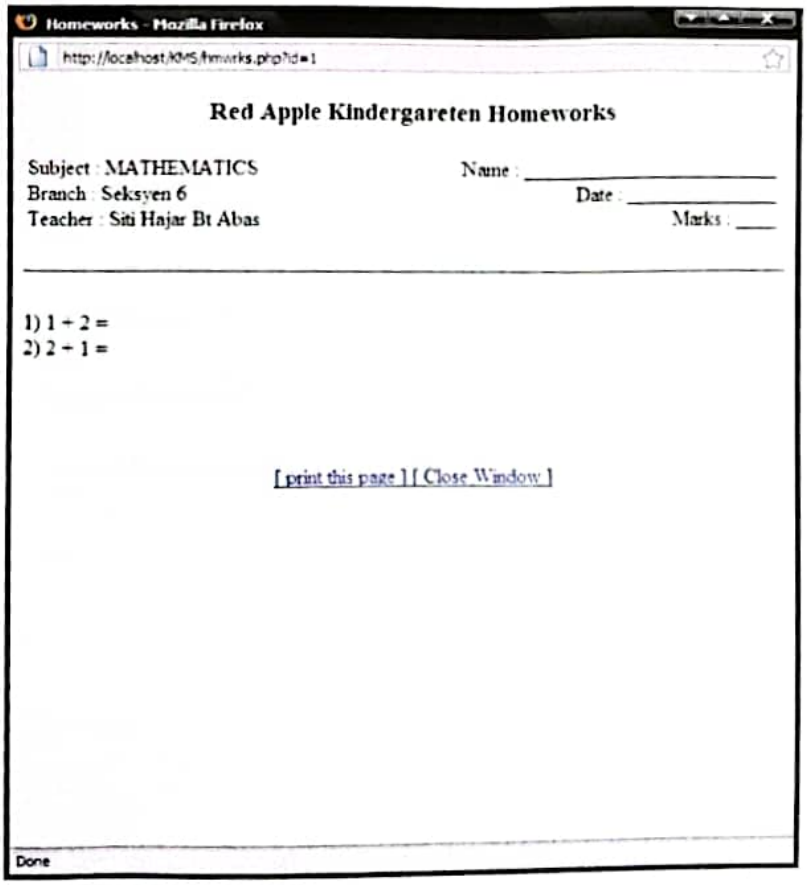

Figure 5.18 Homework Details

Figure 5.18 shows list of homework updated by Teachers or Admin for the particular week. Subject list will appear as link to let user view the details of the homework as shown in **Figure 5.18**.

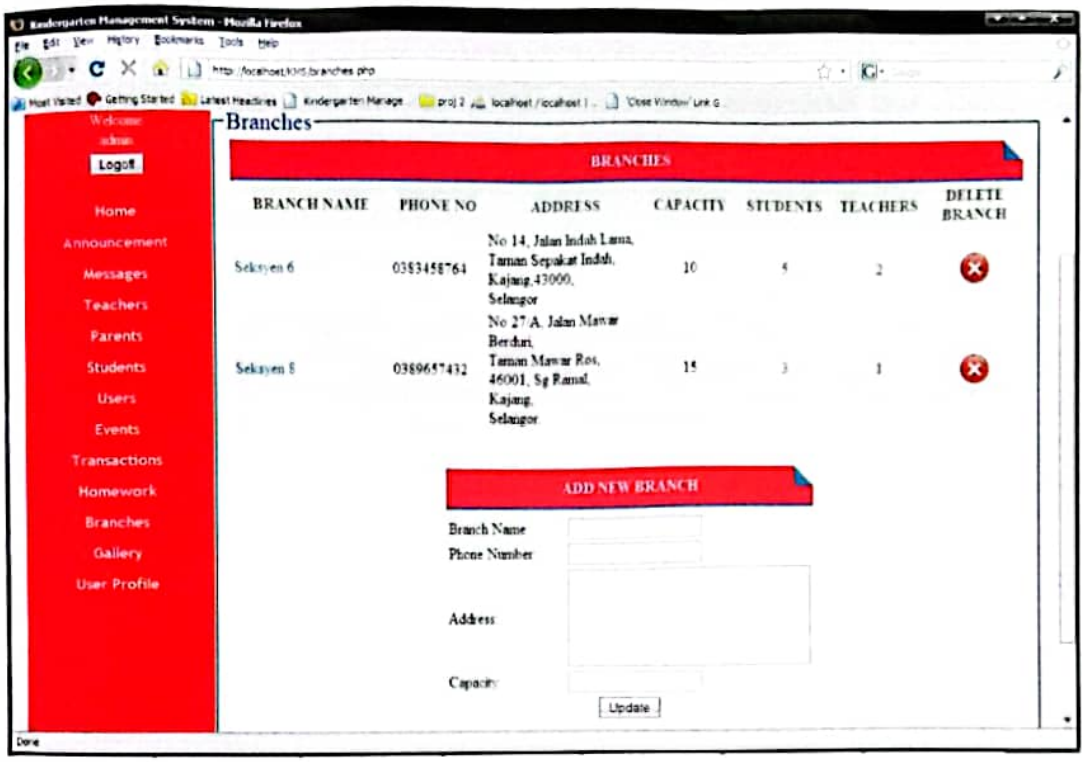

Figure 5.19 Branches

Figure 5.19 shows list of existing branches and also information about each branch such as capacity, amount students enrolled, amount teachers. In this page also, Admin may update information about branch such as name, ddress, capacity and phone number.

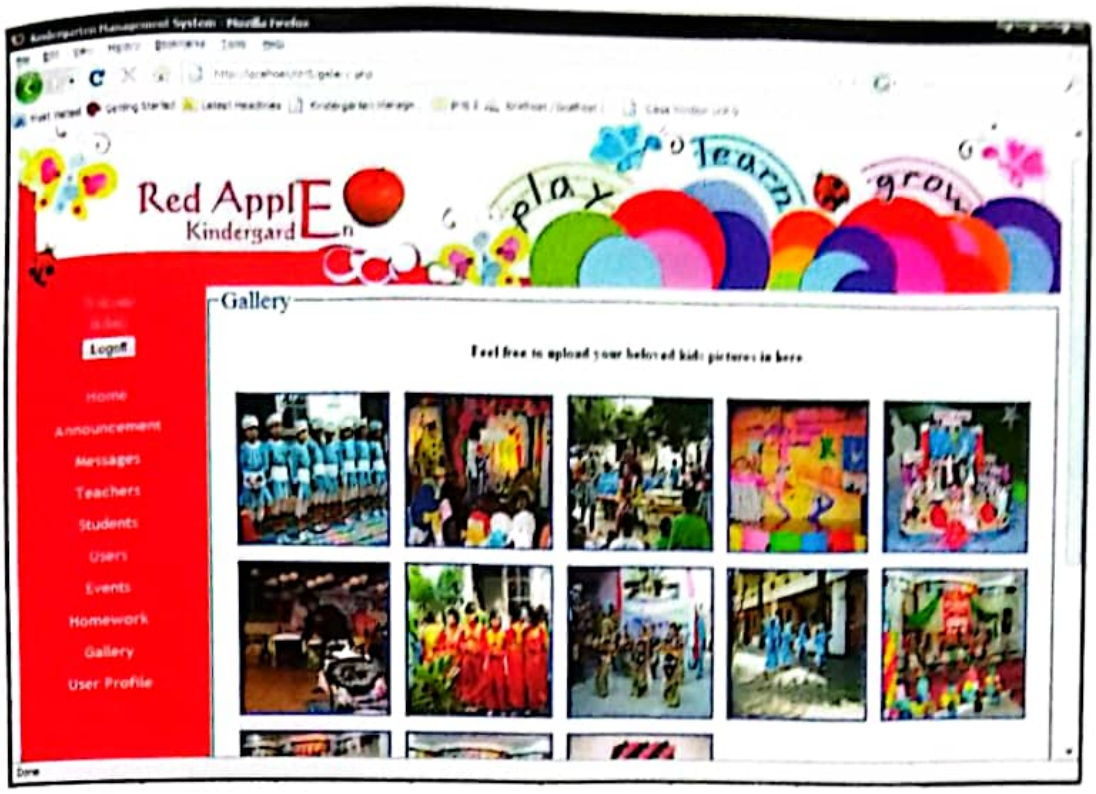

Figure 5.20 Gallery

Figure 5.20 shows pictures uploaded by users. All users has authority to upload pictures except guest. While delete pictures function only given to Admin and Teachers.

CHAPTER 6

Testing and Verification

6.1 Introduction

Software Testing is the process of executing a program or system with the intent of finding errors. It involves any activity aimed at evaluating an attribute or capability of a program or system and determining that it meets its required results. Software is not unlike other physical processes where inputs are received and outputs are produced. Where software differs is in the manner in which it fails. Most physical systems fail in a fixed (and reasonably small) set of ways. By contrast, software can fail in many bizarre ways. Detecting all of the different failure modes for software is generally infeasible. [10]

Software testing is the process used to identify correctness, completeness, security and quality of developed computer software. It is a process of technical investigation, performed which is intended to reveal quality information about the product with respect to the context in which it is intended to operate. The system being executed, distinguishes testing from code reviews, in which uncompelled source code is read and analyzed.

6.2 Types of Testing

(i) Functionality Testing

This testing verifies the proper functionality of the system which includes the validation of the system, business requirements, validation on formulas and calculations as well as testing on user interface functionality.

(ii) Performance Testing

Performance testing checks on how well the system performs in terms of speed of computations and responsiveness to the end user of the system.

(iii) Usability Testing

This testing ensures that the system is easy n intuitive to be used by the end users.

(iv) Scalability Testing

Scalability testing will make sure that the system performs well as the number of user and the databases increases.

(v) Acceptance Testing

Acceptance testing was done to verify the readiness of the system to be delivered to the end user.

(vi) Verification and Validation

Verification is done to ensure that the system delivers all its functionality to the user. Validation ensures that functionality, as defined in requirements, is the intended behavior of the product.

6.2.1 Unit Testing for Kindergarten Management System

Table 6.1 Unit Testing

Test Case	Testing Procedure	Expected Result	Test Result
Register new teachers	Valid input data	Data saved in database	Success
	Form validation	Error message if invalid data	Success
Login	Valid username and password	Login success	Success
	Invalid username and password	Access denied	Success
Register new students	Valid input data	Data saved in database	Success
	Form validation	Error message if invalid data	Success
Accessing page	Correct level for page accessed	May proceed	Success
	Incorrect level for page accessed	Error message	Success
Make announcements	Admin dedicate announcement to branch	Respective branch only may view	Success
	Deleting announcements made by admin	Unable to delete	Success

Admin (Users management)	View registered member (update, delete) Update member details (password)	Show the registered members of the system Password changed	Success Success
Users	View and update details Change password	Details updated Password changed	Success Success

6.2.2 Integration and System Testing

Once the unit testing is complete, the integration test of the whole system will be done. Purpose of this testing is to detect any inconsistencies between all the individual modules which are now integrated together. Integration test concerns more on the flow of the system. This testing will ensure that all the links are connected properly from the login page till the log out process. It delivers its output which is integrated system ready for system testing.

System testing is conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements. This testing will ensure that the system works well and there will not be any errors. This system is tested until its runs perfectly to avoid any possible errors during the usage of this system by the end user.

6.2.3 Acceptance Testing

Acceptance testing is one of the final testing which is conducted and it is considered to be the final stage of validation. This testing is conducted in the real world which the final user of the system will test the system. As for this system, Kindergarten Management System, it was tested by the owner and the staff of the kindergarten. Upon user testing, here were the comments given by the end users:

- Attractive user interface
- Easy to understand
- Full of information
- Unable to make online payment
- Satisfied with payment records
- Users may communicate with each other using chat box and messaging

6.3 Problems encountered during System Testing

The system testing is one of the most important testing that should be done and the system could not be carried for a longer period of time in order to detect and rectify much errors. This was due to time constraints as there was not much time to carry system testing with much more users.

6.4 Summary of System Testing

As conclusion, system testing was very helpful in finding and tracing errors that cannot been found during implementation and designing stages. Errors found in this stage have been corrected. Functions finally working good as integrated system.

CHAPTER 7

Conclusion

7.1 Results and Achievement

This system has achieved targets and objectives determined in the Project I stage. However there is always room for future enhancement, as the requirements of the user will keep on changing as we all live in fast changing technologies. This systems could help all stakeholders involved with kindergarten to become ease in performing task or activities related to kindergarten. It has changed the manual system into much more convenient way of performing tasks.

7.2 Problems Encountered

There were a few problems faced during the initial stages of developing this system. The problems occurred during analysis and design phases. It was hard to obtain correct and precise information since there were very limited examples of existing system. Besides that it was very hard to differentiate functionalities among users. Another problem faced was the difficulty in understanding PHP and MySql since never use both before. Problem arise while system almost finished was the validation part where some of validations did not work where invalid data was accepted by the system. It took some times to encounter the validation problems.

7.3 Limitations of the System

The limitation of this system is that it doesn't cater for online payment. This may be a problem for some customers as they would have to travel a distance to come and get the products and pay at the salon.

Another limitation is the unavailable of online registration for students. This was due to insufficient time to add extra functions since time was very limited.

7.4 Future Enhancement

There are few functions and features that might be useful to be added later in future such as online payment by using cash deposit, credit card, banking transfer and so on. This will help parents to make payment easier and in more and secure and convenience way.

Another useful function is online registration where parents may register their kid via online and teachers may approve once parent appear to send in their kid on the first day. Both function will enhance the system a lot when included later in future.

7.5 Overall Conclusion

It is now has reach at the end of the stages where the system has been fully functioning. It is very relief to have it finished and working and could be used in real world. Many effort was put in during finishing this final year project and all these effort seems worth it when looking at the finished system. The development process of this project since Project 1 until the end of Project 2 is an unforgettable experience.

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Kindergarten Management System

1. Please choose your gender.

   ☐ Male ☐ Female

2. How many students available in your kindergarten?

   ☐ 0-10
   ☐ 10-20
   ☐ 20-30
   ☐ More than 30

3. Do you agree that managing kindergarten manually is difficult?

   ☐ Yes ☐ No

4. What are the regular problems you face in managing kindergarten?

   ☐

5. Have you heard about computerized system in managing kindergarten?

   ☐ Yes ☐ No

6. Do you think computerized system will allow you to manage better?

   ☐ Yes ☐ No

7. What kind of task would you prefer computerized system would be able to perform?

   ☐ Attendance
   ☐ Student information
   ☐ Payment records
   ☐ Others : (please specify) ☐

8. Do you think the system need to be protected with password?

☐ Yes ☐ No

9. Do you prefer the system perform the calculation automatically for the payment made and received?

☐ Yes ☐ No

10. What would you like to appear on the first page of the system?

11. Do you want the system can be accessed via internet?

☐ Yes ☐ No

12. Would you like to have "Help" function provided in the system?

☐ Yes ☐ No