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DEPARTMENT OF SCIENCE, TECHNOLOGY AND DESIGN EDUCATION

THE DESIGN AND IMPLEMENTATION OF A COMPUTERIZED STUDENT REGISTRATION SYSTEM AT A LOCAL PRIMARY SCHOOL.

BY

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APPROVAL FORM

The undersigned certify that they have read and recommended to the Midlands State University for acceptance a dissertation entitled:

THE DESIGN AND IMPLEMENTATION OF A COMPUTERIZED STUDENT REGISTRATION SYSTEM AT A LOCAL PRIMARY SCHOOL.

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YEAR DEGREE GRANTED: 2O21

DECLARATION

I declare that this project is my original work and has not been presented in this institution or any other universities.

DEDICATION

I dedicate this project to my beloved husband, my children, my family, my lecturers and my fellow colleagues.

ACKNOWLEDGEMENT

I give thanks to the Almighty and everyone who put effort directly or in directly to the contribution of the success to this work. Firstly I would like to pay great tribute to my beloved husband for his financial support, assistance and guidance that ensured me to remain focused on my goals. I also acknowledge moral support provided by my children and my colleagues whom I worked with during the study period. Lastly, I would like to pay my great tribute to my supervisor Dr Mandina for his tireless guidance revision and corrections ensuring the completion of this work. I thank you all guys for the job well done.

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CHAPTER 1

1.1 Introduction

Every child has a right to education. Education starts at primary level so every pupil is expected to be registered into a school of their choice so as to fulfill their right to education. The following system is proposed to facilitate an efficient and time way of registering pupils.

1.2 Background

Primary school educational system starts from ECDA to grade seven. A pupil can enroll at ECDA and progress until grade seven at the same school or can start at one school and then transfer to several schools until he or she finishes grade 7. Both scenarios described above needs a pupil to register into a specific school system where the head of the school authorizes the registration of the pupil. The pupil or guardian approaches the head who assess the pupil documents and other check points and if all is in order the head refers to the secretary who do the manual process of registering the pupil into a relevant class and level and also facilitates the payment of registration and school fees. The current system is a manual operated system where new student are registered manually in a new, student register where admission number, student name and other details are recorded. After the student is assigned his/her class, another record is written down. The person in charge of admission of the student has to count the number of the manually. The school uses manual system in the process of administration and its data is stored on paper in files. The administration of the school collects information from students and this is the student personal details. This includes student's name, country and village of origin, medical details and parents/ guardian details are also kept including their marital status, phone number and address. Before admission the student has to pay half the school fees. During the admission a student is issued with admission number and class. After the process the student is given a script bearing his name, admission number and the respective class. All this become more tedious wastage of time and also high cost of operation. Some of the information may be lost due to natural disaster, movement of file and also storage of files. The person who will be in charge of the system will be able to register new student, also be able to track student information without hinder. The system will have a back up if any natural disaster occurs so as to retrieve the information needed.

1.3 Problem Statement

The number of pupils that need to be registered at the beginning of each academic year has increased due to increase in population and people migrating from one place to another hence necessitating pupil transfers.

The process involved in manual registration of pupils at schools has become so complicated, tiresome and liable to human error. The secretary is expected to register all infant classes at a very short space of time. The secretary will physically assess the pupil documents and manually capture the pupil details, allocate a class and calculate fees for each pupil then file the documents. The rate at which the process is done is so slow which frustrates the applicants and takes a lot of time to accomplish the registration process.

Clearance for transfers is also tallied to the registration. The pupil must first be cleared from the secretary's office where he or she's records are kept so the secretary will go through the files and receipt books to check for any fees balances which takes a lot of time and chances of omitting some unpaid fees is high and clear a pupil who owes the school some money.

The manual process makes it difficult for the administration to make informed decisions in terms of transfers at other levels of the school since there is need for consultation with teachers and the head. If any of the two is not available hence the transfer process might not be done which also fosters corruption in the allocation of places

Due to the repetitive process for each pupil described above the secretary will lose concentration and is prone to make errors in fee calculation and in the number of pupils per class which will lead to over enrolment or uneven distribution of pupils into classes. In the process if the secretary need to verify some details on an already registered pupil he or she will have to go through all the filed documents one after the other which is time consuming given the current enrolment levels in primary schools.

The process does not allow time production of reports such as statistics at an instant of a time since the secretary will need to stop everything and manually calculate the figures from class registers and this is the same with total fee calculations at a given time.

Storage of confidential registration information is compromised since they are filed and chances of an unauthorised personnel to have access to the files is high which shows that the manual system has security problems.

1.4 Current System

A pupil enrolling for ECDA produces a birth certificate and proof of residence and gives the secretary. The pupil's guardian is then given a form to fill personal details of the pupil and submit the form. Secretary checks the enrolment register and allocate the pupil a class by physically checking the number of pupils in each class. The pupil is then given payment details and the guardian pays registration fee and bring the receipt to the secretary who then gives the pupil library cards for magazines and picture books.

A pupil coming from ECDB into grade one from the same school is expected to produce same documents as a new student and the class allocation is done the same way again the only difference is the returning pupil does not pay registration fee but pays school fees only. An ECDB student from another school coming into grade one produces a birth certificate, proof of residence and a graduation certificate then the process is followed as above. After paying school fees the grade one pupils are given library cards for their section.

Teacher and class details such as name and contact are not readily available and are given to the guardian or pupil upon request. If the pupil is coming to the school as a transfer the

secretary will have to physically check with class teachers for any vacancies and also confirm if there were any transfers from the teacher or the administration team including the headmaster. If the information is not readily available, the pupil will come back when the teachers could be reached for their input meaning the pupil won't be enrolled in the absence of the people responsible for transfers and input from class teachers to check on capacity.

If all the people responsible for transfers had been contacted and all goes well the secretary, then goes on to allocate the pupil a class by comparing the numbers of pupils in each class and also checks the report for performance to check if there are special needs for the pupil which also influences the choice of class. If a pupil transfers the head handles the transfer process and only appraise the teacher who then passes the information to the secretary when necessary.

After the registration process closes the secretary will compile the statistics of all the classes and record them class by class and calculates the total enrollment for the school and if the enrolment statistics is needed at a given point during the enrolment process he or she stops everything and start to calculate the totals per class then sum them up.

1.5 Proposed System

ECDA pupil's guardian will fill an enrollment form and submit to the secretary accompanied by a birth certificate and proof of residence and the secretary will capture the details into the system and the system will allocate the pupil a class, calculate fees and provide class teacher's name and contact details. The system generates a library code for the pupil that will link him to a library section that tallies with his or her level and class.

Returning pupils for ECD B and other levels will be in the system so the system will produce individual financial statement and the current fee to pay. Returning pupil class registers will be updated to reflect if there were any transfers into the class or out of the class. Transfer letters are generated by the system and relevant class registers automatically updated.

If a pupil transfers into the school, the system through captured details will allocate the pupil a class and then update the register. Each level of classes has got class limits and if a given grade level class has reached its limit, the system will produce a message to that effect. The secretary and the head will have same privileges in terms of transfers and enrolment that is the secretary will have the privilege to enroll since all the checks and balances are done by the system. If a pupil meets all set criteria and there is a vacancy, then the secretary can enroll him or her as well as the head.

At the end of each day or per request the system will show the relevant authorities the total number of pupils at a given day and time. The head is the only authority who has the privileges to view total fees paid at a given moment in time or grand total at the end of the day.

The administration team which comprises of the head, deputy head, senior teacher and the secretary will have access to the system but operating at different privileges with the head having full access to the system functionalities.

1.6 Objectives of the system

The system must be able to:

1. Capture personal details of the pupil.
2. Allocate each pupil a class.
3. Calculate level based school fees.
4. Generate a library code.
5. Calculate enrolment at a given point in time.
6. Improve security.
7. Produce correct and timely reports on status of all the registered pupils.

1.7 Scope

The computerised system will present an updated comprehensive design of the following:

- Enrolment process which includes capturing personal details of the pupils, class allocation and level based fees calculation.
- Class based databases for the school.
- Report generating modules which will produce registers and financial reports showing all the funds paid during registration and number of pupils in the school showing the number of transfers in and out of the school for assessment purposes.
- Security procedures that would limit access to privileged people to view the databases.

1.8 Lifecycle Model

The waterfall model is the development life cycle model to be used for the computerised student registration system. The model describes a development method that is linear and sequential. Waterfall development has distinct goals for each phase of development. The developmental phases are clearly shown on the

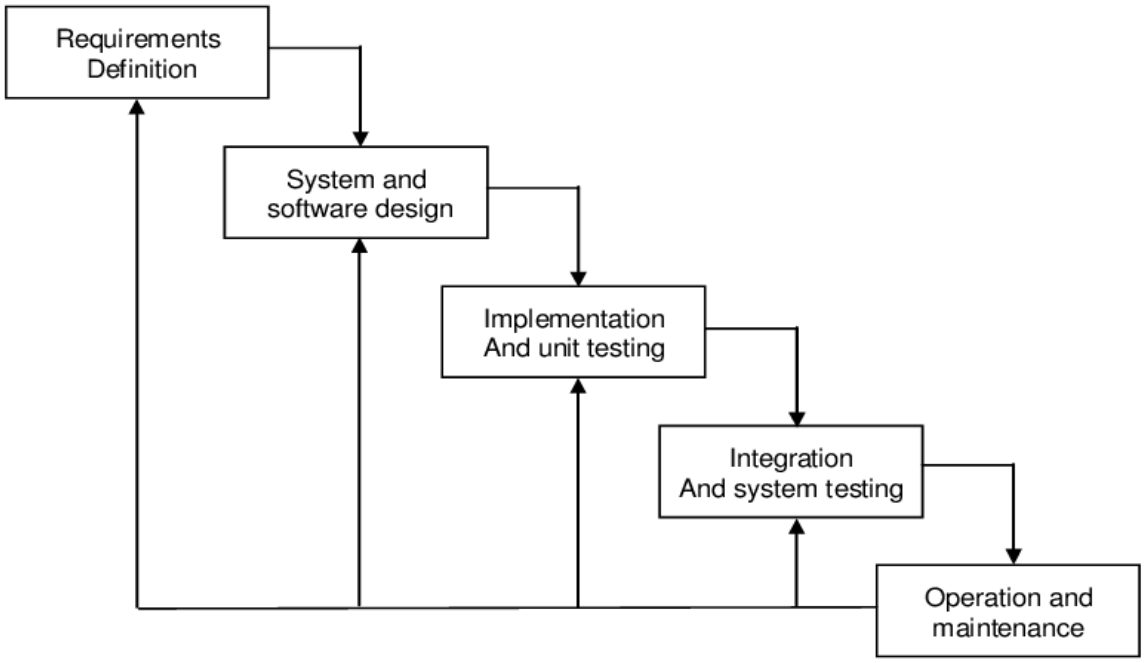


diagram below:

(a) Requirement analysis and definition

At this stage user are met in order to get the system requirement constraints and goals. The requirements will be used as a system specification and later can be used as a basis for agreement with users.

(b) System and software design

The systems design process involves analysing the requirements from the software engineer and software architecture perspective. Each requirement will be identified in details and the outcome is the complete design that should meet the user requirements and describing the fundamental software system abstractions and their relationships. It establishes an overall system architecture which will involve hardware and software parts.

(c) Implementation and unit testing

During the implementation stage, the software design is created as a set of programs or program units. Then when each unit was completed, the unit testing involves verifying that each unit meets its specification.

(d) Integration and system testing

After unit testing has been completed, the individual program units or programs are integrated and tested as a complete system to make sure that the software requirements have been met. After integration testing has been completed, the software system is delivered to the customer.

(e) Operation and maintenance

During this cycle, the system is installed and used by the user. Maintenance involves correcting errors which were not discovered in earlier stages of the life cycle, improving the implementation of system units and enhancing the system's services when new requirements are discovered.

Advantages of a waterfall model

- Simple and easy to understand and use.
- Easy to manage due to the rigidity of the model – each phase has specific deliverables and a review process.
- Phases are processed and completed one at a time.
- A schedule can be set with deadlines for each stage of development and a product can proceed through the development process like a car in a car-wash, and theoretically, be delivered on time.

1.9 Literature Review

A computerized student registration system is usually a system, which is implemented with a computer to achieve the utmost efficiency and desired goals.

Funk (1980), defined a computer as an electronic device that can perform automatically and at a high speed a sequence of logical operations according to instructions given to it inform of a pre-arranged program. The registration process will be done using the computer and all computations such as enrolment and fees will be automatically done by the computer. Time taken to serve one pupil will be reduced by automating the process using a computer.

Aluko (1991), states that “in virtually any job whether clerical, technical, business, or professional; whether it is a banking, medicine, education etc. Computers are useful tools” that “computers are tools with which we calculate, measure, assess, store, retrieve regulate and monitor information”.

Russell, M. (1987), dealt extensively on the need for the use of computers on such database system like computerized course registration system. Course registration operates similarly to computerised registration system proposed hence Russell, M. (1987), is of much significance to this project.

In the words of Dimorji (2003), at the centre of any information system is a database, which is any collection of related information grouped together as a simple item. In other words, the centre of the computerised student registration is the database which stores student records and files and most manipulations are based on the data that would be retrieved from the database.

Computerised systems offer several key advantages to the school such as:

- Speed and efficiency- rather than having to search through piles of documents to find information, the user can often find what's needed with just a few keystrokes or mouse clicks.
- Legibility and Accuracy- hand written documents, poor penmanship can also render the information illegible.
- More space- computerising a manual system can create additional space, as there is no longer need to store a large volume of paper records or forms.

Kling, (1994) illustrates that systems being computerized offers exciting possibilities of manipulating large amount of information rapidly with little effort to enhance control, to create insights, to search for information, and to facilitate cooperative work between people.

Information and Technology (IT) has become one of the important tools in the world, for those who are familiar with the Information Communication and Technology (ICT) based system. In Western countries ICT is part and parcel of their life, many of their activities are computerized. In Africa some states have recognized the power of ICT and even have gone further to computerize Government held institution. IT has become the talk of the day in the whole world for example in communication, learning and business world. It is possible to order products and pay online without delay, though IT world has become a global village.

Several schools are available in the country today with different design features on how the student should be registered easily and those records are being kept safely in the computer also on how the record can be updated, how the student admission number are generated automatically and unique. There will also be addition of new records and deletion of unwanted records. The difference between the systems is how the user interface will be

created. Therefore the designer will be very careful when designing the user interface, that it should be user friendly. The student's academic report will be generated automatically and the results be printed.

CHAPTER 2: PLANNING PHASE

2.0 INTRODUCTION

This chapter seeks to identify and come up with the business value of the project and take a look at how the project development time span will be used, as well as putting down all the activities that are going to be pursued, and determine whether the project is feasible.

There is also need to look at and carry out a detailed feasibility study to see if it's feasible to develop the system or not, if it is, the analyst will move onto the development of a work plan for carrying out the project. In addition, the analyst need to establish if the system to be developed will benefit the school operationally, technically and economically.

2.1WHY BUILD THE SYSTEM

The objective of this phase is to ascertain the business value of the system as well as coming up with a feasibility report, outlines the feasibility of the technical solution as a remedy of the current problems. It also highlights the opportunities that will arise from using the computerised registration system. The three major measurements that are going to be used to ascertain the feasibility of the system are economic feasibility, technical feasibility and operational feasibility and these form the basis for decision making concerning project commencement or termination. A work plan for project development is also going to be done to determine how long the project will take to completion. There is also need for a risk analysis. It helps in the identification of the potential and actual risks associated with the project.

2.2 **BUSINESS VALUE**

Business values are the anticipated gains that will be brought to the school if the system is developed. The anticipated gains could be categorized into tangible and intangible benefits.

The system is expected to help primary schools to realize their main goal of time registering and educating pupils.

- **Organizational value:** Conceptually, the school will be viewed as a technologically reputable organization and thereby improving its image.
- **Managerial value:** It will be seen as a management tool, which will help them to move towards offering quality services to the pupils.
- **Client's value:** They will view it as a system that will improve the registration process's efficiency and effectiveness.
- **Operational value:** The system will reduce the chances of over enrolling or having unregistered pupils in the school.
- **Employees' value:** It will help the employees in performing their daily duties in an easier way by removing the burden of physically adding pupils in the registers and manually calculating grand totals of statistical or financial figures.
- **Security value:** The pupils and school's details and information will be safely protected.

2.3 INFORMATION GATHERING METHODOLOGIES

2.3.1 Interviews

Interviews allow direct communication with the people who manage and operate current system. Thus first hand information on: -

a. How the system operates
b. The existing problems
c. Opportunities to improve performance

Advantages of interviews

1) Allows instant clarification of matters that arises as the interviews progress.
2) Allows to get practical thoughts from the head, deputy head, secretary and senior teacher
3) Some areas of the current registration system not understood by the analyst will enlightened.

Disadvantages of interviews

1) Careful planning is needed to get the most out of the interview

2) Some members of the administration committee might be reluctant to give information.
3) It was costly as compared to use of questionnaires as I had to arrange for and prepare for the right venue.
4) It was time consuming especially when there was a misunderstandings or clarifications to be made

2.3.2 Physical Observation

Advantages of using observations

1) It gave a perfect picture and understanding of how the system works / operates.
2) Observation allowed personal view of how the system works without any bias from administration personnel.
3) Observation helped to interpret the other information researched correctly and accurately.

Disadvantages of using observations

1) The workers tend to pretend especially when they realize that they are being observed.
2) Some of the workers try to impress, instead of being natural, by doing extra ordinary work.

2.3.3 QUESTIONNAIRES

Questionnaires strategies

- **Administration questionnaire: -** This will be given to school administrators to understand what information they need from the system and how the system should be helping them to achieve the information.
- **Secretary and teachers: -**This will be given to the secretariat and teachers to understand what changes they would like to see happening in their work routines and how the system is supposed to help improve this.
- **Pupils or Guardians: -**This will be given to current pupils or guardians to understand what they would have expected from the registration system.

Advantages of questionnaires

1) It allowed for anonymous input and therefore produced precise information.
2) It allowed the respondent to give answers at their own pace without being rushed.
3) Managed to cover a number of people in a short period of time.
4) It is cheaper compared to other techniques such as interviewing.

Disadvantages of questionnaires

1) Some questions were answered wrongly because they were misinterpreted.
2) Some questions were left unanswered because they seemed ambiguous to the respondent.
3) They did not allow probing for further information or clarification on seemingly ambiguous responses.

2.4 TANGIBLE BENEFITS

- Computerised registration results in unbiased allocation of pupils into classes and minimizes oversubscribing into one class believed to be the best class.
- **Cost Reduction**: The proposed system will reduce stationary costs and overtime allowances such as dinner for the secretary since the system will be fast that the secretary will work within his or her normal working hours during the registration peak periods.
  No need for phone calls or travelling expenses of either the teacher or the head in case of transfers since the system will take care of the process.
- **Provide Documentation**: Since the system is going to be built using proper software engineering techniques the documentation is going to be available

2.5 INTANGIBLE BENEFITS

- Improved and efficient pupil registration.
- Improved school's image.
- Updated enrolment status of each class.
- Increased employee morale.

2.6 **FEASIBILITY STUDY**

The feasibility analysis enables us to determine why the proposed system should be built, ascertain whether the desired objectives could be achieved within the prevailing economic, financial, organizational and technological constraints. It also aims to determine whether the overall costs associated with the system compare considerably with the project's expected benefits. It should be noted that at this stage despite its benefits, the proposed system is also seen as an opportunity to improve the school and catch up with current advances towards computer technology

- In determining Technical Feasibility (will the system work?)
- Operational Feasibility (what business operations will improve?)
- Economic Feasibility (will it be cost effective?)

2.6.1 **TECHNICAL FEASIBILITY**

Technical feasibility tries to establish weather technical expertise, hardware and software requirements can sustain the development of the project.

Technical feasibility analysis also involves checking the availability and capability of the software and hardware resources needed. It also looks at the availability of the technical expertise that will be required for the system to be developed. The development of the system is very practical since the computers and some of the software needed for the system such as the databases is available although they were not being used. A local LAN is in place. However, there is need to acquire a state of the art hp computer to host the system.

HARDWARE REQUIREMENTS

Model: hp computer

Item	Specifications
H.D.D	1Terabyte
RAM	4 gig

Processor	Core i5
Network card	10/100 MB
Display	17 inch Monitor
Fast Backup Media	Compact Disc (CD) Writer Drive
Portable Media	USB Flash Memory Stick

The table summarizes hardware requirements needed for the personal computer to be used for the registration purposes.

Network Specifications

Component	**Recommended Requirements**
Switch	8 Port
Patch Panel	8 port
Cabinet	3U

There is no need for cabling since the computers are already networked. The only requirement is for the computers to be upgraded to meet the stated requirements.

2.6.2 ECONOMIC FEASIBILITY

This part involves analyzing the costs that arise as a result of developing and operating the system versus the benefits that will be realized when the system is fully operational. It looks at economic gains and loss to be incurred before, during and after the proposed system becomes operational. That is, developing a system such as the one proposed, is an investment to any business organization. Therefore, risks must be assessed and weighed against any other available feasible alternatives and using cost-benefit analysis a comparison and contrast of benefits against the costs. The costs can be divided into development costs and running costs.

Development costs: Are costs that are incurred during the development of the project.

Running costs: Are costs which are going to be incurred, when the system becomes fully operational.

COST BENEFIT ANALYSIS

The Cost Benefit Analysis (CBA) analyzes and evaluates, from a cost and benefit perspective, the candidate solutions to meet the stated need. It will also describe all the tangible and intangible benefits, and the results of the analysis.

YEAR ►	**2020**	**2021**
Benefits	**$(US)**	**$(US)**
Improved Image	500	600
Estimated services in figures	1500	1800
Reduced Paperwork	300	600
Total Benefits	**2300**	**3000**
Development Costs		
Labour (technical)	6 00	0
Software Licenses	1 000	0
Additional Hardware	1 500	0
User Training	500	0
Total Developmental Costs	**3600**	**0**
Operational Costs		
H/W Maintenance	300	240
S/W Maintenance	150	130
Stationary	120	96
Other Costs	200	160
Total	**770**	**626**
Total Costs	**4370**	**626**
Total Benefits	**2300**	**3000**
Profit/Loss	**(2070)**	**2374**

Cash Flow for three years

From the table above costs and benefits, the system proved economically feasible since if viewed from long term, benefits outweigh costs

(a) Net profit = total benefits – total costs

5300-4370

= 930

(b) Payback Period:

Year	**Cash Flow**
0	**-4370**
1	2300
2	3000
Net Profit	**930**

Year	**Cash Flow**	**Net Cash Flow**
0	**-4370**	**-4370**
1	2300	-2070
2	3000	930

The payback period is 2 years.

(c) **Net Present Value based on a discount factor of 10%:**

NPV = (CF/ (1+ r) ^ t)

Where cf = cash flow

r = discount rate

t = time in year

Year	**Value in Year (US$)**	**Discount Factor 10%**	**Net Present Value** (CF/ (1+ r) ^ t)
0	**-4370**	0.1	-4370
1	2300	0.1	2090.91
2	3000	0.1	2479.34

Net Present Value			**200.25**

Net Present value = $200.25

2.6.3 Organizational feasibility

After presenting and outweighing the benefits of the proposed system, the new system will put the school ahead of other schools.

2.6.4 Operational feasibility

The issues are those concerning the school and human factors and also matters of policy. Operational questions might include: -

- Effect of proposed system on school's boundaries.
- Changes to staffing levels and working practices and how such changes may be managed and absorbed.
- Reaction of individuals both inside and outside the school
- Effect of the system on the school's image.

2.6.4.1 The Current system vs. The Proposed system

In order to fully appreciate the operational feasibility of the proposed system it is important that its functionality be compared with the current system. Certain aspects of the proposed system must be considered. These aspects must be quantifiable, so as to get a more measurable analysis of the functionality of the systems.

Time: The time taken for processes to be completed is expected to improve as processes will have been computerized.

Speed: The speed of achieving results from processed queries must improve compared to the current system.

Integration of school's activities: The proposed system is supposed to integrate the different registration activities as the current system is doing but in a better way

Conformance to objectives: The proposed system is supposed to meet its major objectives which are to register and place pupils into classes. Generate library codes, provide timely statistical and financial reports and offer improved security.

2.7 **RISK ANALYSIS.**

2.7.1 Risk Assessment

This is whereby a look is taken on possible risks to the project development itself, preventative measures to avoid the risks and trying to come up with counter measures for the risk if they do occur.

2.7.2 Project Sponsors' risks:

These are risks that the project sponsor would decide not to fund the project before completion.

2.7.3 Unreliable Estimates:

These are risk that the estimated costs of the project could be well below the actual and thus fuelling budget overruns early in the development process.

In light of this, the figures used for the budget estimates will be inflated by 20% of the current costs to mitigate the risk.

2.7.4 Changes in Requirements:

These are risks that the system requirements could change during the project life.

In order for to minimize this risk there must be frequent user and developer meetings during the course of the project so that even if the requirements change, they could have been identified earlier.

2.7.5 Developer skill deficiency:

The developer of the system might be his first time to develop a system of such magnitude so there might be problems caused by inexperience. That puts the project at risk.

This risk is mitigated by the fact that the developer will be provided with all the necessary tools available for the development of the system.

2.8 WORK PLAN: Project Activities

2.8.1 Project Plan

1. Time Plan

Time plan is as follows within 150 days:

Activity	**Duration**	**Predesessor**

Proposal	7 days	-
Feasibility Study	15 days	Proposal
System Analysis	30 days	Feasibility Study
System Design	45 days	System Analysis
Coding	45 days	System Design
Testing	6 days	coding
Deployment	2 days	deployment

DAYS	1-7	8-22	23-52	53-97	98-142	143- 148	149-150
Proposal							
Feasibility Study							
System Analysis							
System Design							
Coding							
Testing							
Deployment							

2. Gantt chart

The project duration is 150 days if there are no problems encountered with the needed software and hardware for the development process.

2.9 **CONCLUSION**

The planning phase clearly shows that the project is feasible for development as shown by the feasibility study analysis and other analyses such as the risk analysis.

REQUIREMENTS ANALYSIS

3.0 REQUIREMENTS ANALYSIS: INTRODUCTION

A good system is the one that produces expected results. The results are achieved after the knowledge of end user requirements hence an effort should be made to come up with the end user requirements. What is lacking in the current system should be addressed in the proposed system and it is at this time that the developer works closely with end users so that he gets to know the loopholes of the current system and try to appreciate what the end users would appreciate in the proposed system. The analysis phase is one of the most important phases in the project life cycle. This section fully scrutinises all the information (input and output) and processes of the current system.

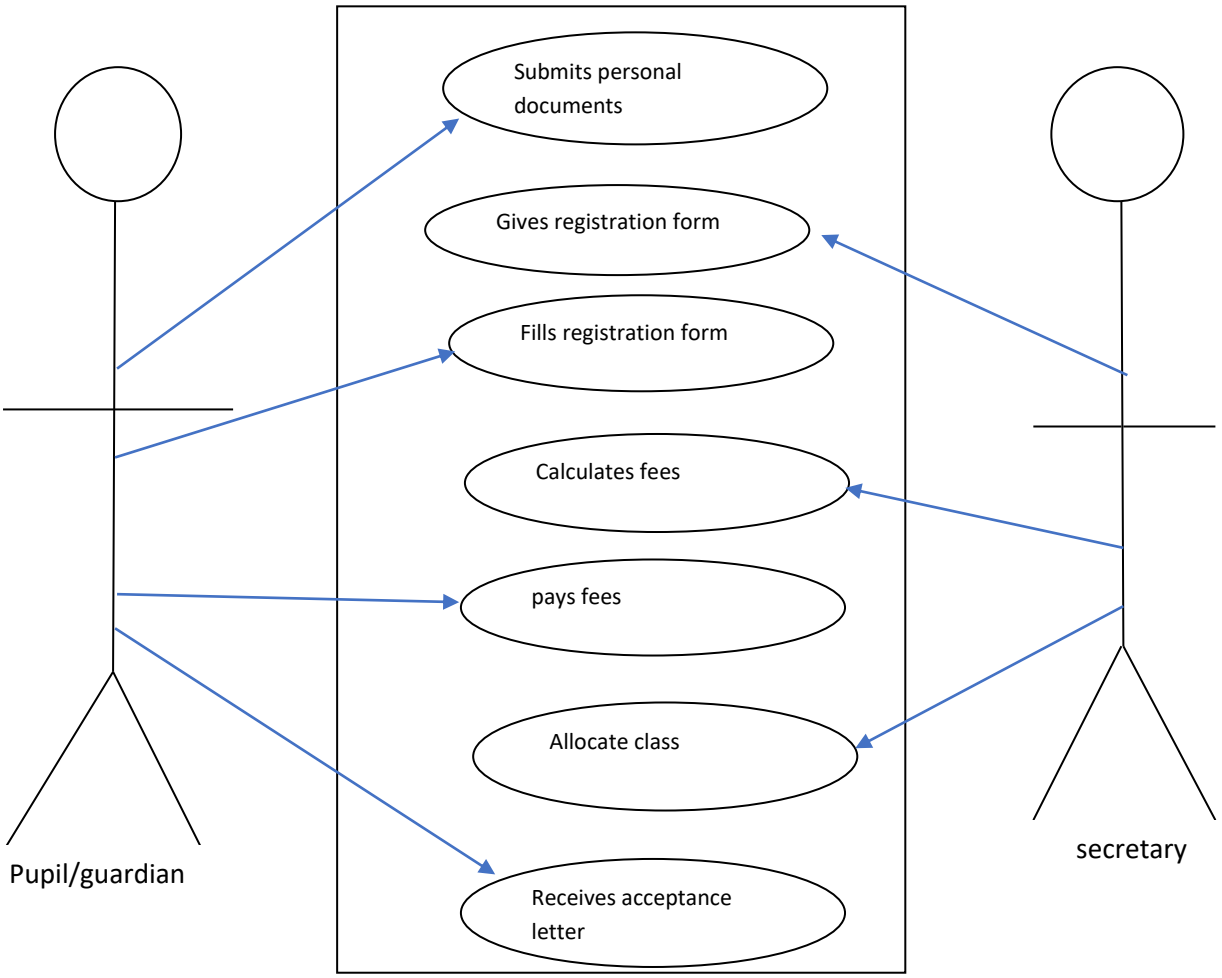
3.1 ANALYSIS OF EXISTING SYSTEM

The existing system is a manual system where **a** pupil enrolling for ECDA produces a birth certificate and proof of residence and gives the secretary. The pupil's guardian is then given a form to fill personal details of the pupil and submit the form. The secretary checks the enrolment registers and allocate the pupil a class by physically checking the number of pupils in each class. The pupil is then given payment details and the guardian pay the registration fee and bring the receipt to the secretary who then gives the pupil library cards for magazines and picture books.

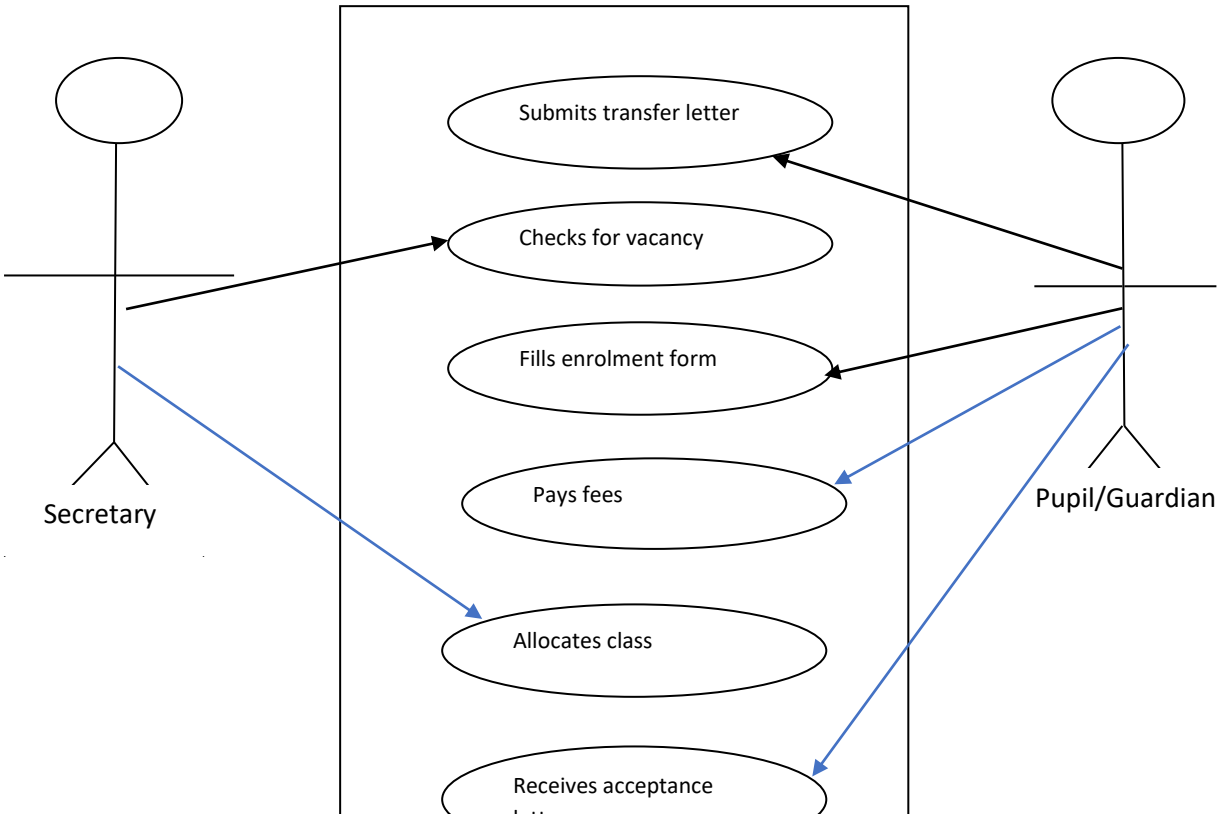
Returning students also go through the same process and the only difference is that they do not pay registration fees. Transfers in and out of the school are handled by the head, teacherand the secretary. Statistical and financial calculations are done by the secretary at the end of each working day or per request.

Current System Use Case Diagrams

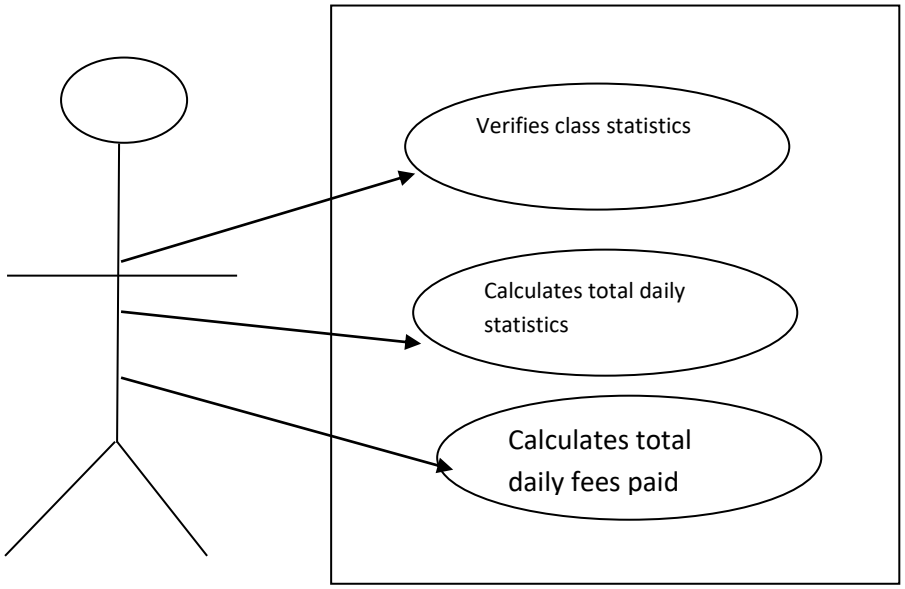
Pupil/Guardian - Secretary Use Case



Pupil/Guardian – Secretary Transfer Use Case



Secretary-System Use Case



3.3 OVERVIEW OF PROPOSED SYSTEM:

The proposed system is an electronic system whereECDA pupil's parent/guardian will fill an enrollment form and submit to the secretary and the enrolment form will be captured into the system and the system will allocate the pupil a class, calculate fees and provide class teacher's name and contact details. The system generates a library code for the pupil for the pupil's level and class.

Returning pupils files will be in the system so the system will produce individual financial statement and the current fee to pay. The system will capture and update relevant registers in case of transfers into or out of the school.

Checks and balances for both new enrolments and transfers are done by the system hence the secretary can complete all the processes as well as the head.

At the end of each day or per request the system will show the relevant authorities the total number of pupils at a given day and time. The head is the only authority who have the privileges to view total fees paid at a given moment in time or grand total at the end of the day.

The administration team which comprises of the head, deputy head, senior teacher and the secretary will have access to the system but operating at different privileges with the head having full access to the system functionalities.

3.3.1 WEAKNESSES OF THE CURRENT SYSTEM

- Time consuming and very slow.
- There are high chances of over enrolling
- Prone to human error on fee and enrolment calculations
- The system cannot generate instant reports and reflect the status of registered pupils.
- The security levels are very low that confidential financial information is readily available to unauthorised people.
- Complicates the transfer process
- Consumes a lot of storage space in terms of filed documents

3.3.2 STRENGTHS OF THE CURRENT SYSTEM

- Not affected by the availability of electricity.
- Gives pupils or guardians a leeway to choose a class of their choice according to teacher's performance.
- Allows anyone to stand in for the secretary in case of an emergency since the process is manual and steps clearly laid down

3.4 EVALUATION OF ALTERNATIVES

Outsourcing

Outsourcing would be the best option if there is inadequate in-house expertise to support the system development process or any of the system maintenance required. Most software vendors are either expensive, or do not offer effective support after implementation which is viewed as ineffective for business turn around in crisis situations.

Advantages:

- It lowers the development costs
- Requires less time to implement

- Requires less technical staff, since the vendor will do the implementation and installation of the system.

Disadvantages

- It increases training costs, as there will be constant reference to the developers for training.
- Maintenance of the system will be difficult for the Management Information Systems department, as in most cases the development tools will not be familiar to staff. Since the contracted firms provide upgrades, additional costs will be called for unlike when the system is developed in-house.

3.5 In-house Development

- **System Ownership –** System users assume complete ownership of system as system specifications are based on user requirements during system development.
- **Employee Development**- Although in-house development is challenging, the company will continue to build its employee skill base through in-house development.
- **Technical expertise –**The developer Joshua Mbizi has some knowledge in developing systems.
- **Budgetary Constraints** In-house development is well in line with company budgetary constraints.

3.5.1 Buying an off the shelf package:

Currently an off-the-shelf package is more expensive and again it would need to be customized. Most packages will be difficult to customize to suit the organizational activities. This would be a limiting factor in terms of maintenance to the organisation

. In addition, it would also mean that other types of software have to be purchased to have a complete package.

Advantages:

- Lowers the development costs
- Requires less time to implement
- Requires less technical staff for development

Disadvantages:

- Increased Training Costs as there will be constant reference to the developer for training.
- Maintenance of the system will be difficult for the staff.
- Off the shelf packages are usually expensive.

3.5.2 Developing a new system:

Though this maybe costly, it is a good investment and also cheaper in the long run as the cost of maintenance is within reach for the organization. If there is need for improvements, this can be easily done through maintenance of the system. The proposed can also be appraised to take advantage of new changes in technology.

3.6 REQUIREMENTS ANALYSIS

3.6.1 Functional requirements

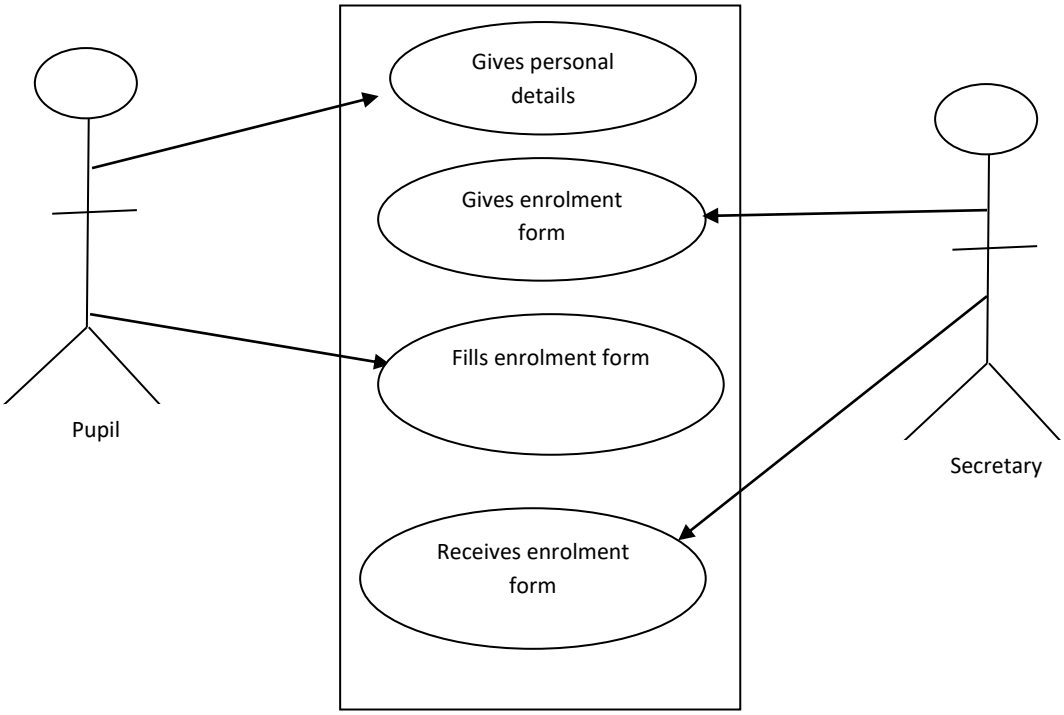
Functional requirements are the capabilities of the functions that will be performed by the system.

These should be:

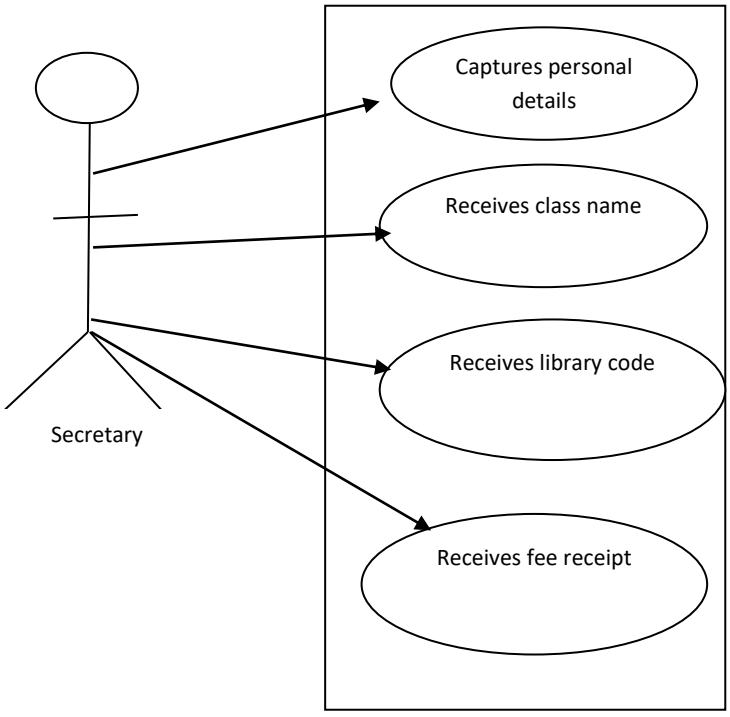
1) Use of passwords to control access to data (Granting access privileges or rights)
2) Use of report generating modules to produce correct and timely reports on status of all the registered pupils.
3) Statements for each transaction on time.
4) Use of query processing modules to enable production of registers, financial statements, overall statistics and allocation of pupils in each class.
5) Use of a central database to enable real-time data capturing and manipulation to facilitate access to pupil details.

3.6.2 Proposed System Use Case Diagrams

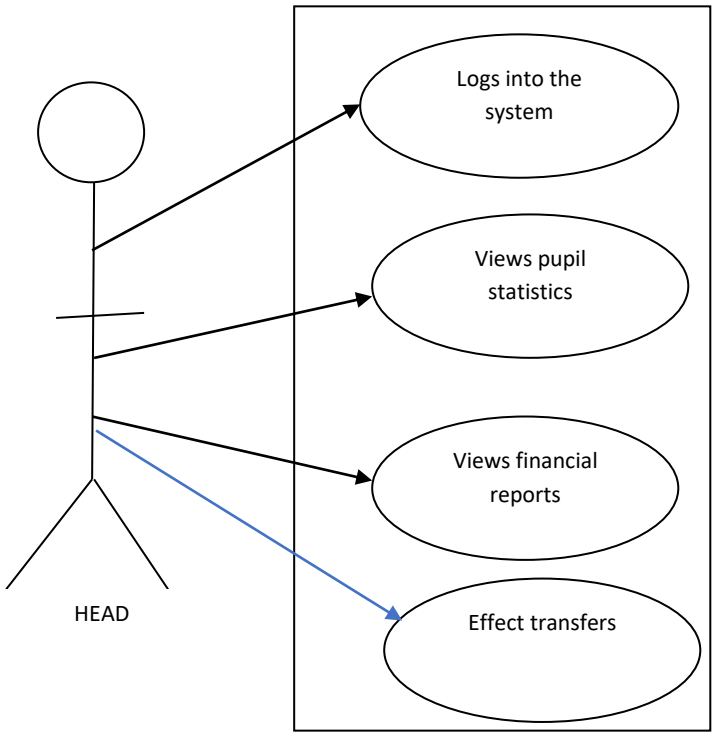
PUPIL-SECRETARY INTERACTION



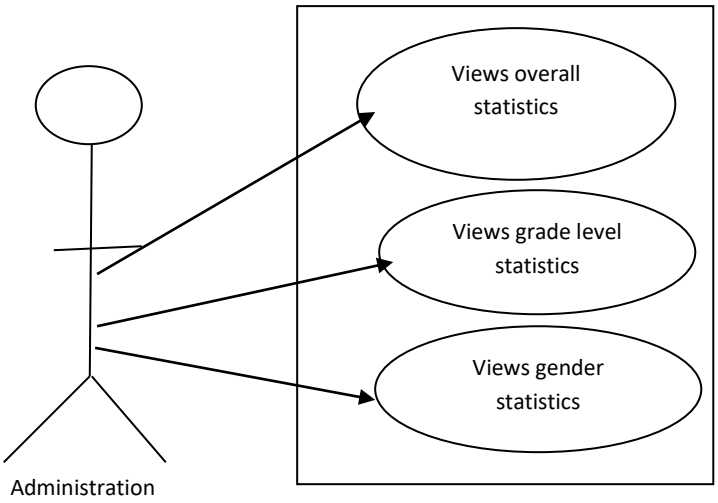
SECRETARY-SYSTEM INTERACTION



HEAD -SYSTEM INTERACTION



ADMINISTRATION(head, deputy head and senior teacher)- RELATIONSHIP



3.7 Non-functional requirements

When determining non-functional requirements for a computerised registration system for a local primary school constrains considered and faced when developing the system are:

1) Error handling capabilities
2) Familiar and friendly user interface
3) User Satisfaction

User Interface and Human Factors

- The system should be simple.
- The user interface should be almost completely self-explanatory.
- The system should allow for error recovery.
- The system must be user friendly

Error Handling

The system should have error handling for

- Data entry\capture
- Data\user details analysis

Security Issues

- The system must have a log on password
- Access levels should vary with different users to protect information
- Passwords must be long enough

Security of information

The proposed system must be more secure through:

- The use of secure authentication mechanisms such as passwords and access rights to system users.
- Backup using tapes and also storing some information in other secure places away from the site.
- Capturing the details of the user currently logging on to the system.

The proposed system is supposed to

- Allow for quick retrieval as well as availability of data whenever needed.
- Improve the services provided in terms of response time, efficiency and reliability.
- Reduction of operational costs due to minimization on the overtimes.

User requirements

In order to be able to use the system the user has to

- Be able to enter correct information in the system.
- Be able to retrieve information from the database.
- Be able to update the database on each and every transaction made.

Quality service

Quality is very important and therefore should be maintained. The proposed system should make the local primary school a pace setter in terms of quality that is brought about by IT systems.

Improved client service:

To build customer goodwill there is need to improve pupil satisfaction and client service. The proposed system should address this.

Effectiveness and Efficiency:

Effectiveness and efficiency are of paramount importance as they help to boost pupil satisfaction as well as staff moral when they perform their tasks. This will also increase productivity in the school.

Processing Speed:

The new system should be in a position to process data faster and accurately.

3.8 SURVEY REPORT

FACT FINDING

INTRODUCTION

In order to collect information on which to base the analysis and to ascertain whether or not the information on the system meet the user's current needs, various techniques will be used to collect information about the existing management system. The following methods and techniques will be used to carry out fact finding current system in the organisation.

INTERVIEWS

This method was used to collect information from the administration, the head, teachers, employees, clerk and bursar through face to face interaction concerning the operation of the present system. The interview covered the following areas

a) The method currently used to admit students and generate the student results data and the current backup storage.

b) The problem of the current system and how it operates.

c) The required output of the information that need to be kept.

OBSERVATION

An observation since it involves an analyst getting involved in some activities of the interview it will be carried on the operation of the current system and formulate questions and conclusion on the basis of the observation. The observation will be carried out during the operation hours.

QUESTIONNAIRES

Questionnaires were also used and responses got from them was that very few employees were computer literate and they were at ease with the new system since it was going to make work easier to the very busy departments.

SAMPLE STRUCTURE OF MY QUESTIONNAIRE

DATE_____ JOB TITLE_____

QUESTION 1

How do you grade your current manual student's enrolment system?

Put a mark in the appropriate box

Very Good ☐ Good ☐ Average ☐ Poor ☐

QUESTION 2

Do you think it should be computerised?

YES (give two reasons)

1_____

2_____

NO (give two reasons)

1_____

2_____

QUESTION 3

Does the current system have any advantage over the proposed one?

YES NO

If 'YES' state them

_____

_____

_____

If 'NO' state the disadvantages

_____

_____

QUESTION 4

What would you like included in the new system

1_____

2_____

3_____

Any other details regarding the new system

_____

_____

_____

Please fill the form with the right details and hand it in.

3.9 ETHICAL CONSIDERATION

In order to create a good relationship between those who are researched and the researcher all questionnaires and interviews would not hold anyone's identity or name of the two, hence good communication and management plan to be considered for confidentiality of information given. To get correct information of the research, the researcher would choose people randomly taking those people whom the researcher would choose do not know so that the information being given by those being researched should be true and honesty. The system should be of transparent, so as to reduce the chance of corruption as well as to let people understand the system. The system should be of integrity. It should be encrypted so as to ensure that information is not altered by unauthorised person in a way that is not detectable by authorised users. It should have the ability to provide timely warnings to users when they should not be used for navigation.

QUESTIONNAIRE

1) How do you find this system?

EXCELLENT ☐ VERY GOOD ☐ FAIR ☐ POOR ☐

2) How is the operation?

COMPLICATED ☐ EASY ☐ INTERESTING ☐

3) What do you think should be improved?

The current (old) system ☐ Build a system ☐ Other (specify)_____

4) Do you find this new system relevant and helpful?

YES ☐ NO ☐

5) What would you like added in this system?

_____

_____

_____

6) Do you like the graphic presentation of the system?

YES ☐ NO ☐

7) Do you recommend others to use this system?

YES ☐ NO ☐

8) Is the system readily available in your area?

Always ☐ Sometimes ☐

9) What impact does the system have on you

Positive ☐ Negative ☐ Other (specify)_____

Personal Remarks _____

_____

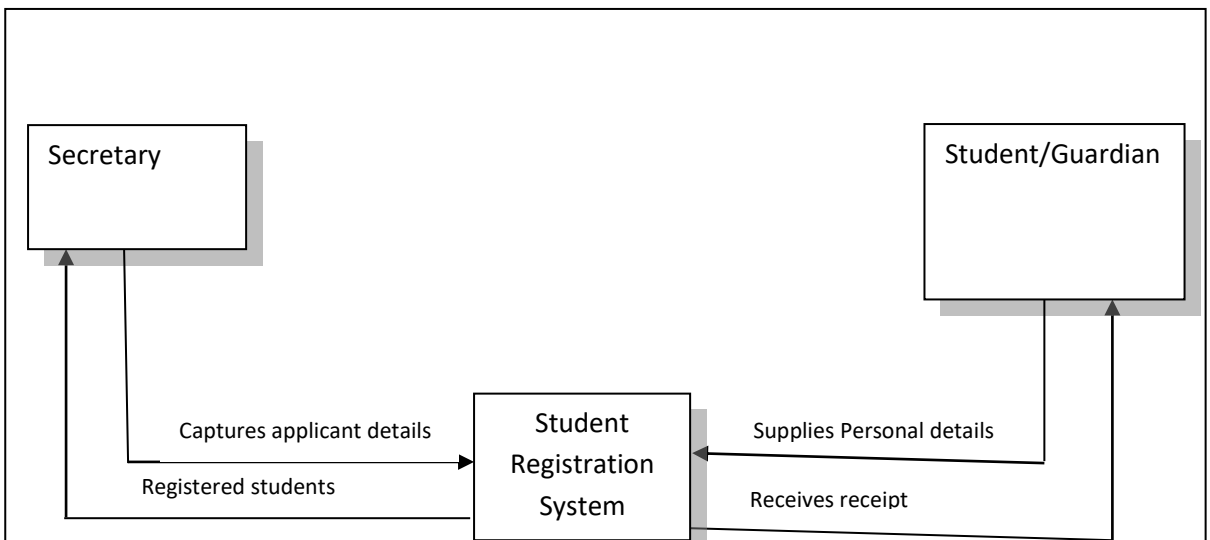
3.10 CONCLUSION

The current system has been analysed very well since the interviews and observations were done quite well although the research needed much time to gather all the required information. Thus the proposed system has many advantages, which will enable the school to increase its efficiency and therefore must be designed. The proposed system should be user friendly and end users should feel at home when using the system. This increases job satisfaction hence productivity.

CHAPTER 4

4.1SYSTEM MODELS

CONTEXT LEVEL DFD



DATABASE DESIGN

All the information that the system uses will be stored in MsAccess database.

Below is a **Data Dictionary** showing critical tables in the database

Class Table

(BirthNum firstname, Surname,DOB, Gender,
Age,GradeLevel,GuardianName,GuardianAddress,GuardianPhone,TeacherName,ClassName
TeacherGender,TeacherPhone)

User TABLE

(Password, Designation,Username,PhoneNum,EmailAddress)

LoginActivityTABLE

(Designation**,** Username, LoginDate, ActivityPerformed)

Fees Table

(ReceiptNum, BirthNum, Firstname, Surname, ClassName, AmountPaid, BalanceDue,TotalFeesAmount)

LevelAndClassLimitNo TABLE

(LevelLimitNo,ClassLimitNo,NoOflevels,NoOfClasses)

Class Table

ATTRIBUTE	DATA TYPE	COMMENTS
BirthNum	Varchar(20)	Birth certificate number
First Name	varchar(20)	Specifies the name of the student
Surname	varchar(20)	Specifies the surname of the student
Gender	varchar (4)	Student's gender
Age	Autonum(4)	Student's age
GradeLevel	varchar(20)	Specifies the level of the student

GuardianName	varchar(40)	Name of the parent or guardian
GuardianAddress	varchar(40)	Address of the parent or guardian
GuardianPhone	autoNum(20)	Contact number of the guardian
TeacherName	varchar(40)	Name of the teacher
TeacherAddress	Varchar(40)	Address of the teacher
TeacherPhone	autoNum(20)	Contact number of the teacher
TeacherGender	Varchar(10)	Specifies whether male or female teacher
ClassName	Varchar(20)	Specifies the class of the student

User TABLE

ATTRIBUTE	**DATA TYPE**	**COMMENTS**
Password	varchar(20)	Security code
Username	varchar(20)	Name of the user
EmailAddress	varchar (20)	Electronic mail address
Phonenum	autoNum(20)	Contact number of the user

Designation	Varchar(20)	Position of the user

Fees TABLE

FIELD NAME	DATA TYPE	COMMENTS
BirthNum	varchar(20)	Birth certificate number
Firstname	varchar(20)	Name of the student
surname	varchar(20)	Surname of the student
Class name	varchar(20)	Class of the student
AmountPaid	currency	Paid fees
BalanceDue	currency	Remaining fees to be paid
ReceiptNum	Varchar(20)	Number of receipt
TotalFeesAmount	Currency	Total fees

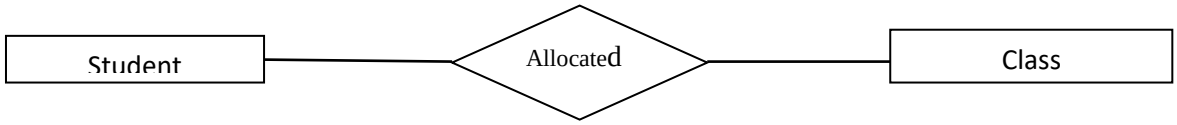
LevelAndClassLimitNoTable

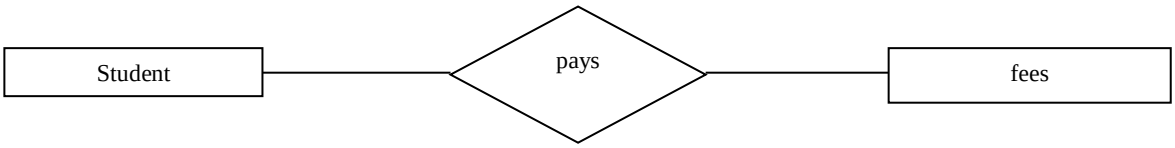
FIELD NAME	DATA TYPE	COMMENTS
LevellimitNo	autoNum(4)	Maximum students per level
ClassLimitNum	autoNum(4)	Maximum number of students in a class
NoOfLevels	autoNum(4)	Number of levels

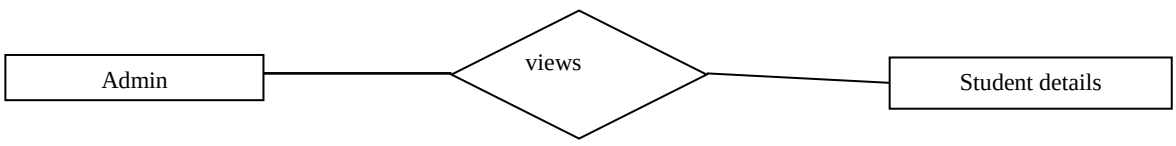
Login Activity Table

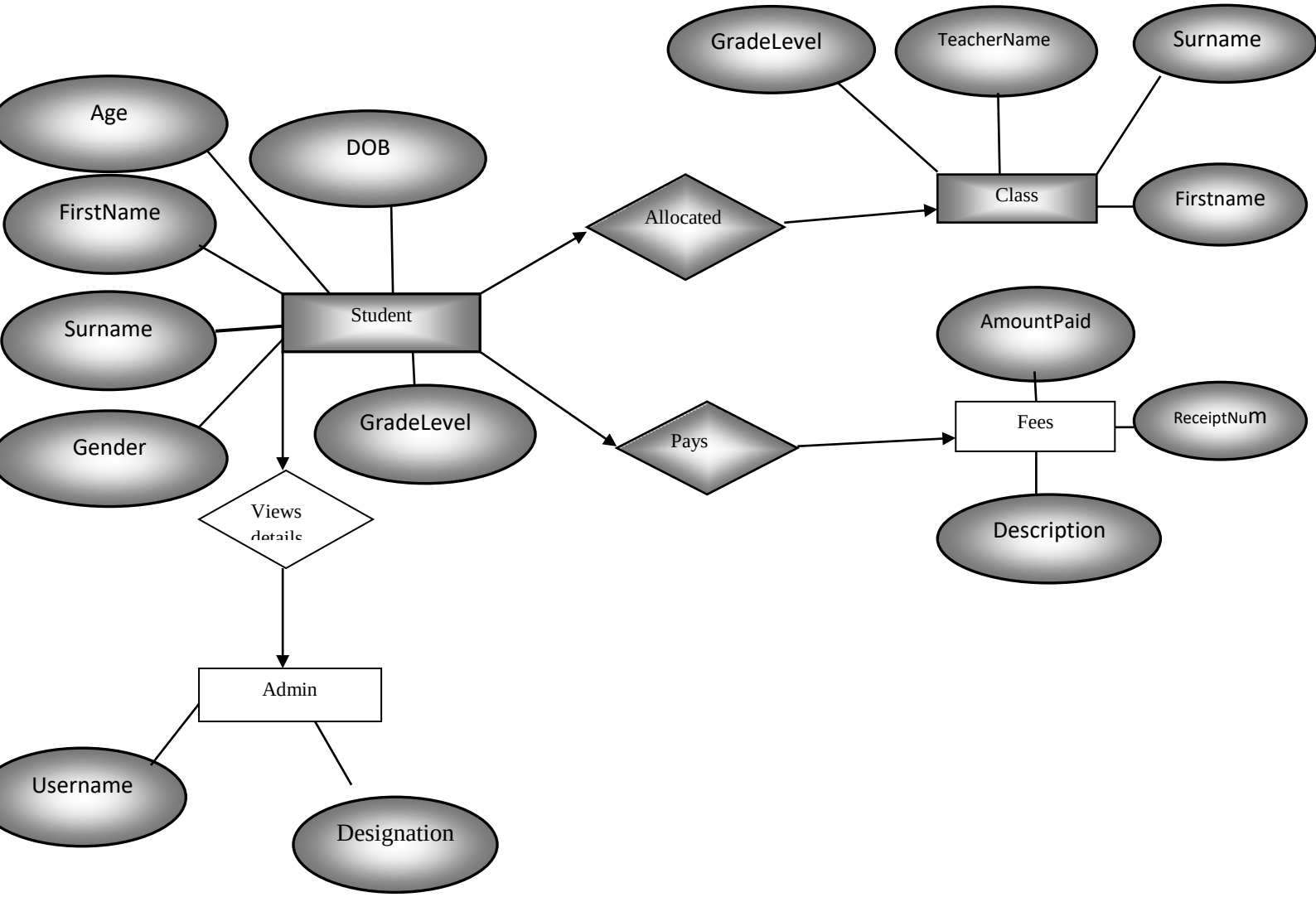
FIELD NAME	DATA TYPE	COMMENTS
Designation	varchar (20)	Position of user
username	varchar (20)	Name of the user
LogInDate	Date	Date that the user logged in
LogInTime	Date/Time	The exact time the user logged in
ActivityPerformed	Varchar(40)	Updates or any changes done by the user

4.2 ENTITY RELATIONSHIP DIAGRAM







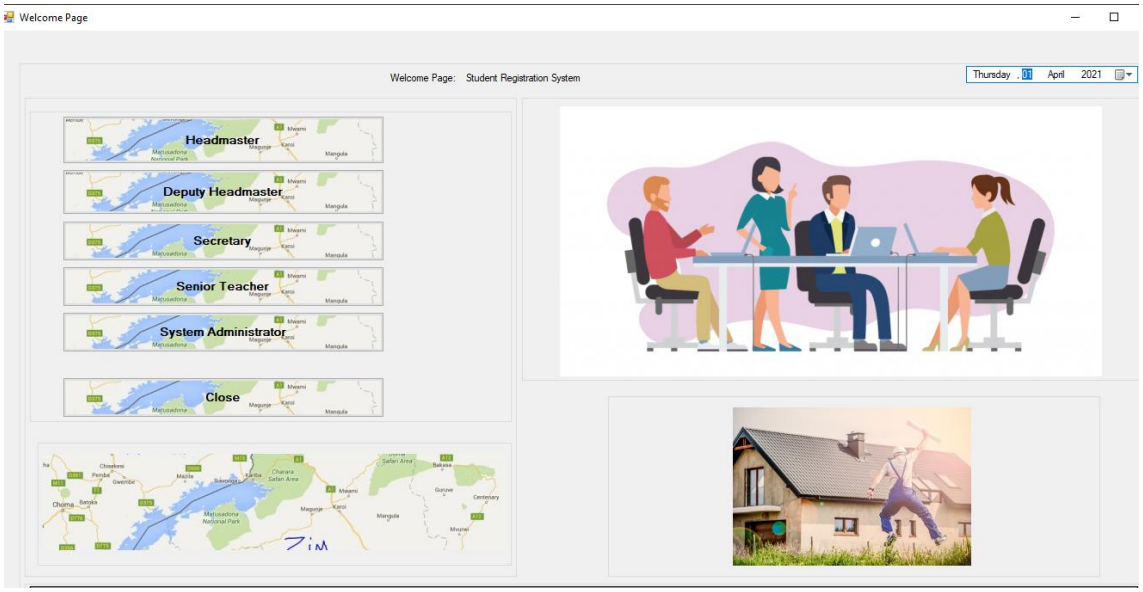


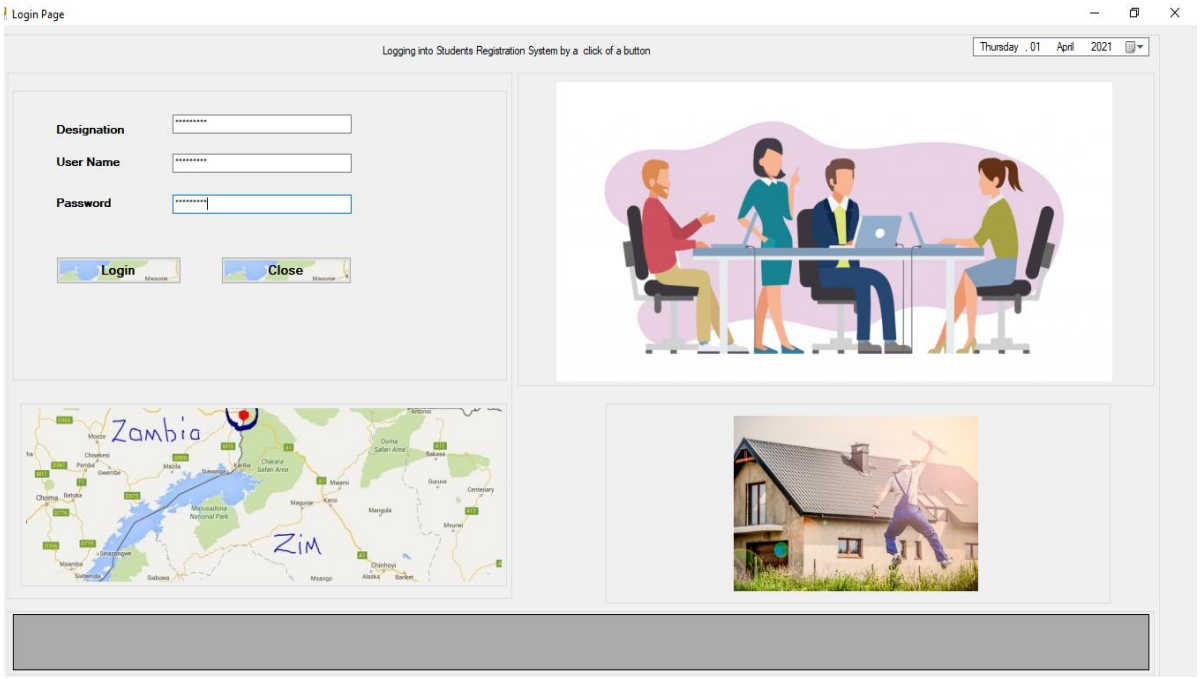
CHAPTER 5

5.0 Interface Design

Outline the design of the menus and forms for data entry into the system. It also gives the input and output structures of the system.

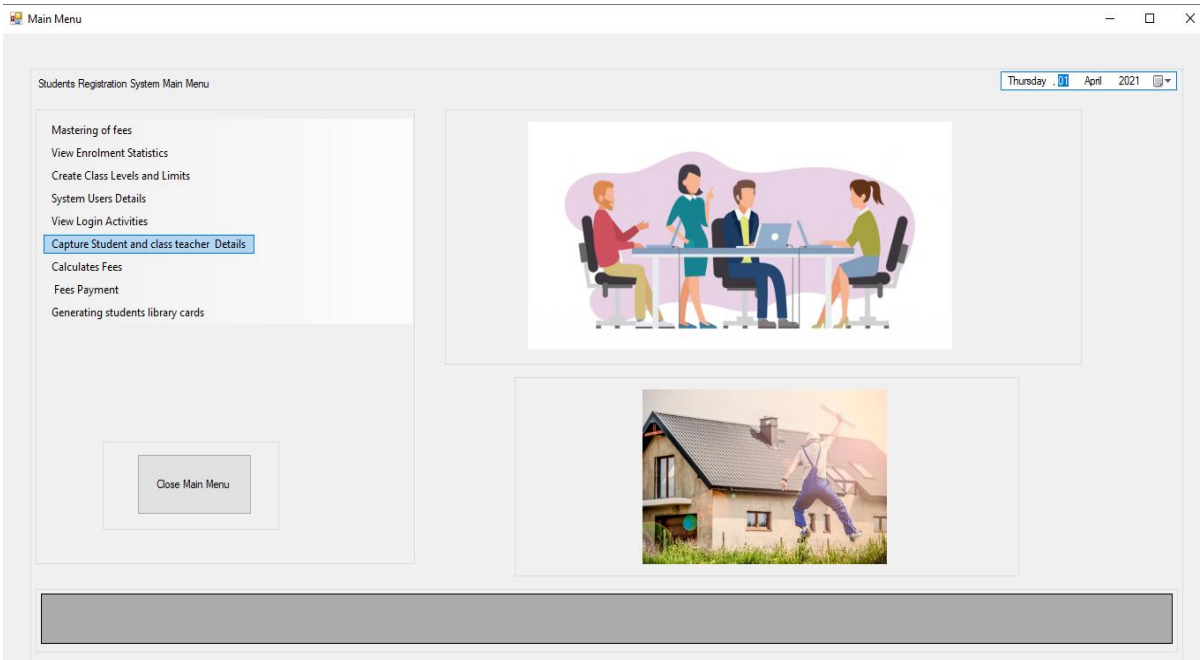
Graphical User Interface will be used and the data will be entered into the system through a form filled by the student or guardian.





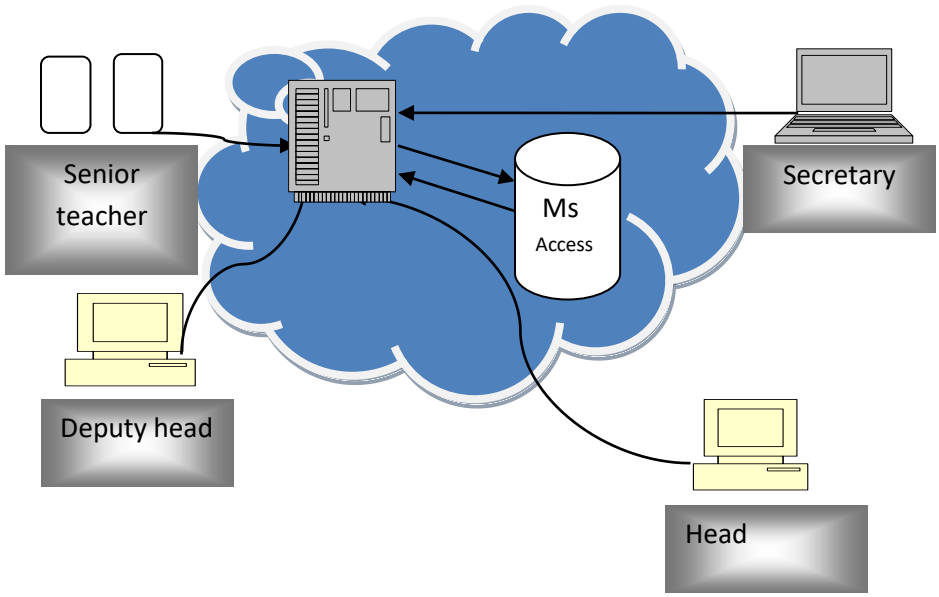
5.1 Menu Design

The menu design gives the user the options of modules



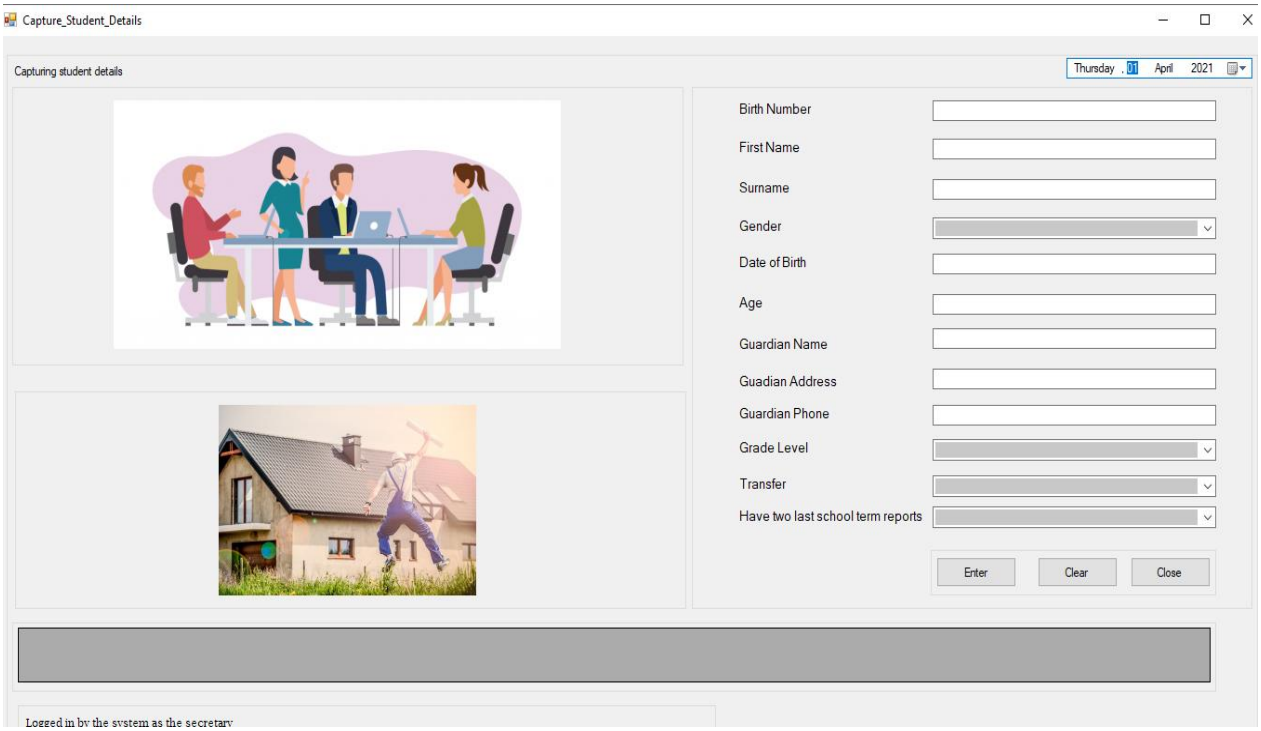
5.2 SYSTEM ARCHITECTURE

The architecture is a client server relationship as depicted below.



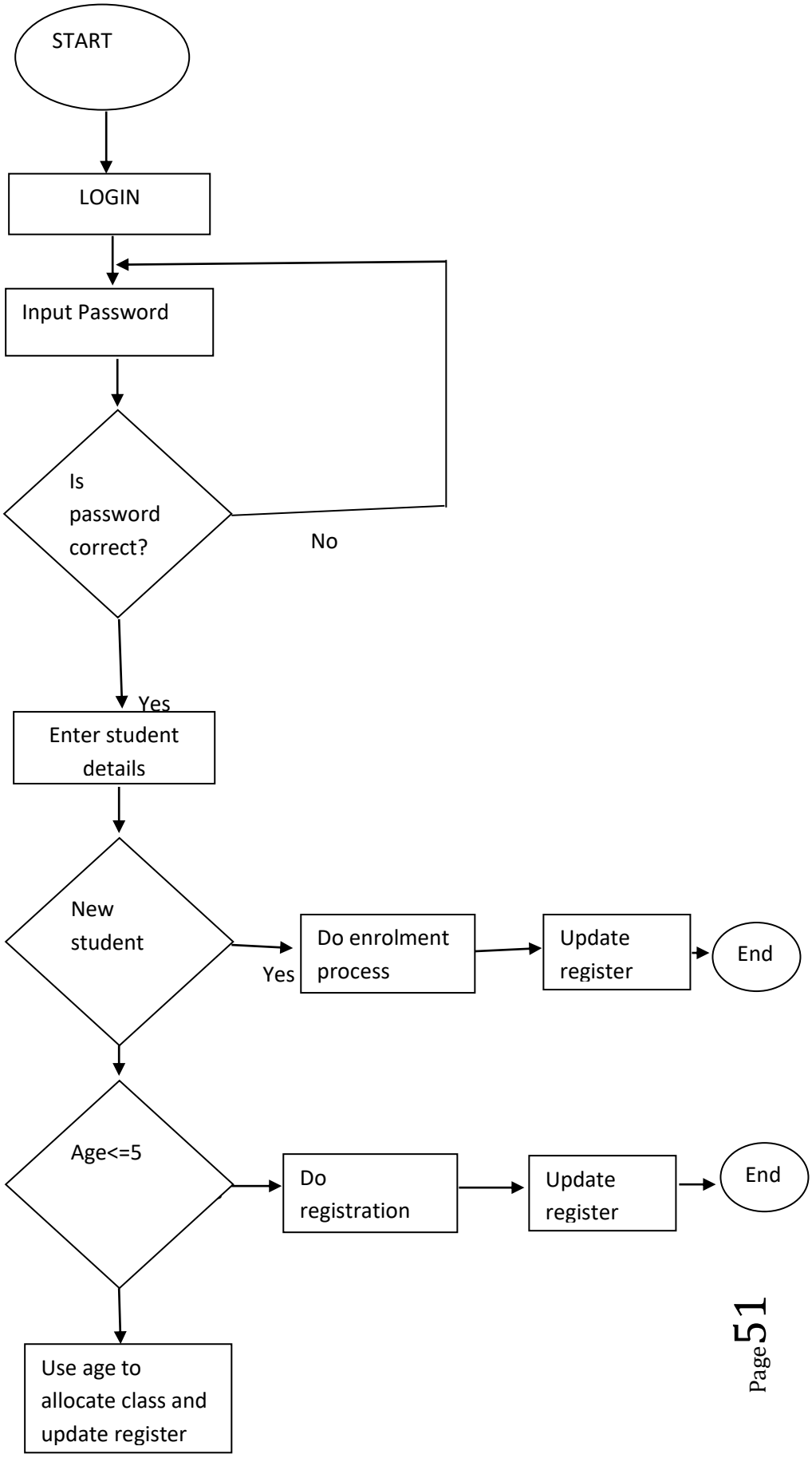
The user who is either the secretary, head, deputy head or senior teacher will access the details of the database by either uploading information or downloading information depending on users' needs and duties) into the server as diagrammatically represented above.

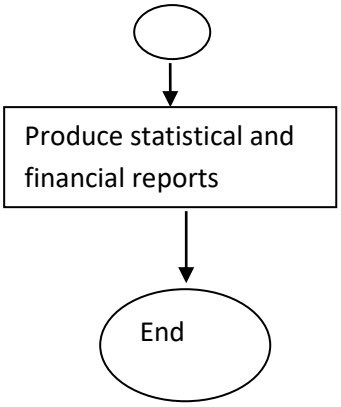
5.3 Module Design



CHAPTER 6

6.0 Program Flowchart





6.1 Code of working System

```
Imports System.Data.OleDb
Imports System.Data.SqlClient

Public Class Capture_Student_Details

    Dim provider As String
    Dim dataFile As String
    Dim connString As String

    Dim found As Boolean = False

    Dim con As OleDbConnection = New OleDbConnection
    Dim conEcdA_A As OleDbConnection = New OleDbConnection
    Dim conEcdA_B As OleDbConnection = New OleDbConnection
    Dim conEcdA_C As OleDbConnection = New OleDbConnection
    Dim conEcdA_D As OleDbConnection = New OleDbConnection
    Dim conEcdA_E As OleDbConnection = New OleDbConnection

    Dim conECDB_A As OleDbConnection = New OleDbConnection
    Dim conECDB_B As OleDbConnection = New OleDbConnection
    Dim conECDB_C As OleDbConnection = New OleDbConnection
    Dim conECDB_D As OleDbConnection = New OleDbConnection
    Dim conECDB_E As OleDbConnection = New OleDbConnection

    Dim conGrade1A As OleDbConnection = New OleDbConnection
    Dim conGrade1B As OleDbConnection = New OleDbConnection
    Dim conGrade1C As OleDbConnection = New OleDbConnection
    Dim conGrade1D As OleDbConnection = New OleDbConnection
    Dim conGrade1E As OleDbConnection = New OleDbConnection

    Dim conGrade2A As OleDbConnection = New OleDbConnection
    Dim conGrade2B As OleDbConnection = New OleDbConnection
    Dim conGrade2C As OleDbConnection = New OleDbConnection
    Dim conGrade2D As OleDbConnection = New OleDbConnection
    Dim conGrade2E As OleDbConnection = New OleDbConnection

    Dim conGrade3A As OleDbConnection = New OleDbConnection
    Dim conGrade3B As OleDbConnection = New OleDbConnection
    Dim conGrade3C As OleDbConnection = New OleDbConnection
    Dim conGrade3D As OleDbConnection = New OleDbConnection
    Dim conGrade3E As OleDbConnection = New OleDbConnection
```

```
    Dim conGrade4A As OleDbConnection = New OleDbConnection
    Dim conGrade4B As OleDbConnection = New OleDbConnection
    Dim conGrade4C As OleDbConnection = New OleDbConnection
    Dim conGrade4D As OleDbConnection = New OleDbConnection
    Dim conGrade4E As OleDbConnection = New OleDbConnection

    Dim conGrade5A As OleDbConnection = New OleDbConnection
    Dim conGrade5B As OleDbConnection = New OleDbConnection
    Dim conGrade5C As OleDbConnection = New OleDbConnection
    Dim conGrade5D As OleDbConnection = New OleDbConnection
    Dim conGrade5E As OleDbConnection = New OleDbConnection

    Dim conGrade6A As OleDbConnection = New OleDbConnection
    Dim conGrade6B As OleDbConnection = New OleDbConnection
    Dim conGrade6C As OleDbConnection = New OleDbConnection
    Dim conGrade6D As OleDbConnection = New OleDbConnection
    Dim conGrade6E As OleDbConnection = New OleDbConnection

    Dim conGrade7A As OleDbConnection = New OleDbConnection
    Dim conGrade7B As OleDbConnection = New OleDbConnection
    Dim conGrade7C As OleDbConnection = New OleDbConnection
    Dim conGrade7D As OleDbConnection = New OleDbConnection
    Dim conGrade7E As OleDbConnection = New OleDbConnection

    Private Sub Button3_Click(sender As Object, e As EventArgs) Handles Button3.Click
        Me.Hide()
        SecretaryMainMenu.Show()
    End Sub

    Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click
        Try

            Dim ECD_A As Boolean = False
            Dim ECD_B As Boolean = False
            Dim grade1 As Boolean = False
            Dim grade2 As Boolean = False
            Dim grade3 As Boolean = False
            Dim grade4 As Boolean = False
            Dim grade5 As Boolean = False
            Dim grade6 As Boolean = False
            Dim grade7 As Boolean = False

            Dim result As Integer

            Dim cmd As New OleDbCommand
            Dim dr As OleDbDataReader


            provider = "Provider = Microsoft.ACE.OLEDB.12.0;Data Source="
            dataFile = "|DataDirectory|\Students Registration System Database.accdb"
            connString = provider & dataFile
            con.ConnectionString = connString


            con.Open()
            cmd = New OleDbCommand("SELECT * FROM [ECD_A_LevelTable] ", con)
            dr = cmd.ExecuteReader

            While dr.Read
                If TextBox1.Text = dr("BirthNum") Then
                    ECD_A = True
```

```
                End If
            End While
            con.Close()

            con.Open()
            cmd = New OleDbCommand("SELECT * FROM [ECD_B_LevelTable] ", con)
            dr = cmd.ExecuteReader

            While dr.Read
                If TextBox1.Text = dr("BirthNum") Then
                    ECD_B = True
                End If
            End While
            con.Close()


            con.Open()
            cmd = New OleDbCommand("SELECT * FROM [Grade1LevelTable] ", con)
            dr = cmd.ExecuteReader

            While dr.Read
                If TextBox1.Text = dr("BirthNum") Then
                    grade1 = True
                End If
            End While
            con.Close()

            con.Open()
            cmd = New OleDbCommand("SELECT * FROM [Grade2LevelTable] ", con)
            dr = cmd.ExecuteReader

            While dr.Read
                If TextBox1.Text = dr("BirthNum") Then
                    grade2 = True
                End If
            End While
            con.Close()

            con.Open()
            cmd = New OleDbCommand("SELECT * FROM [Grade3LevelTable] ", con)
            dr = cmd.ExecuteReader

            While dr.Read
                If TextBox1.Text = dr("BirthNum") Then
                    grade3 = True
                End If
            End While
            con.Close()

            con.Open()
            cmd = New OleDbCommand("SELECT * FROM [Grade4LevelTable] ", con)
            dr = cmd.ExecuteReader

            While dr.Read
                If TextBox1.Text = dr("BirthNum") Then
                    grade4 = True
                End If
            End While
            con.Close()

            con.Open()
            cmd = New OleDbCommand("SELECT * FROM [Grade5LevelTable] ", con)
```

```
            dr = cmd.ExecuteReader

            While dr.Read
                If TextBox1.Text = dr("BirthNum") Then
                    grade5 = True
                End If
            End While
            con.Close()

            con.Open()
            cmd = New OleDbCommand("SELECT * FROM [Grade6LevelTable] ", con)
            dr = cmd.ExecuteReader

            While dr.Read
                If TextBox1.Text = dr("BirthNum") Then
                    grade6 = True
                End If
            End While
            con.Close()

            con.Open()
            cmd = New OleDbCommand("SELECT * FROM [Grade7LevelTable] ", con)
            dr = cmd.ExecuteReader

            While dr.Read
                If TextBox1.Text = dr("BirthNum") Then
                    grade7 = True
                End If
            End While
            con.Close()

            If ECD_A = True Then
                result = MessageBox.Show("Enrol another student?     ", "Student has
been already enrolled in ECD A. ", MessageBoxButtons.YesNo)
                If result = DialogResult.Yes Then
                    TextBox1.Focus()
                    TextBox1.Clear()
                    TextBox2.Clear()
                    TextBox3.Clear()
                    TextBox4.Clear()
                    TextBox5.Clear()
                    TextBox6.Clear()
                    TextBox7.Clear()
                    TextBox8.Clear()
                    TextBox1.Focus()
                    ComboBox1.Text = " "
                    ComboBox2.Text = " "
                    ComboBox3.Text = " "
                    ComboBox4.Text = " "
                    Me.Show()
                Else
                    Me.Show()
                End If

                ElseIf ECD_B = True Then
                    result = MessageBox.Show("Enrol another student?     ", "Student
has already enrolled in ECD B. ", MessageBoxButtons.YesNo)
                    If result = DialogResult.Yes Then
                        TextBox1.Focus()
                        TextBox1.Clear()
                        TextBox2.Clear()
                        TextBox3.Clear()
```

```
                    TextBox4.Clear()
                    TextBox5.Clear()
                    TextBox6.Clear()
                    TextBox7.Clear()
                    TextBox8.Clear()
                    TextBox1.Focus()
                    ComboBox1.Text = " "
                    ComboBox2.Text = " "
                    ComboBox3.Text = " "
                    ComboBox4.Text = " "
                Me.Show()
            Else
                Me.Show()
            End If
```

```
        ElseIf grade1 = True Then
            result = MessageBox.Show("Enrol another student?     ", "Student has
already enrolled in Grade 1. ", MessageBoxButtons.YesNo)
            If result = DialogResult.Yes Then
                TextBox1.Focus()
                TextBox1.Clear()
                TextBox2.Clear()
                TextBox3.Clear()
                TextBox4.Clear()
                TextBox5.Clear()
                TextBox6.Clear()
                TextBox7.Clear()
                TextBox8.Clear()
                TextBox1.Focus()
                ComboBox1.Text = " "
                ComboBox2.Text = " "
                ComboBox3.Text = " "
                ComboBox4.Text = " "
                Me.Show()
            Else
                Me.Show()
            End If
```

```
            ElseIf grade2 = True Then
                result = MessageBox.Show("Enrol another student?     ", "Student
has already enrolled in Grade 2. ", MessageBoxButtons.YesNo)
                If result = DialogResult.Yes Then
                    TextBox1.Focus()
                    TextBox1.Clear()
                    TextBox2.Clear()
                    TextBox3.Clear()
                    TextBox4.Clear()
                    TextBox5.Clear()
                    TextBox6.Clear()
                    TextBox7.Clear()
                    TextBox8.Clear()
                    TextBox1.Focus()
                    ComboBox1.Text = " "
                    ComboBox2.Text = " "
                    ComboBox3.Text = " "
                    ComboBox4.Text = " "
                Me.Show()
            Else
                Me.Show()
            End If
```

```
                ElseIf grade3 = True Then
                    result = MessageBox.Show("Enrol another student?     ", "Student
has already enrolled in Grade 3. ", MessageBoxButtons.YesNo)
                    If result = DialogResult.Yes Then
                        TextBox1.Focus()
                        TextBox1.Clear()
                        TextBox2.Clear()
                        TextBox3.Clear()
                        TextBox4.Clear()
                        TextBox5.Clear()
                        TextBox6.Clear()
                        TextBox7.Clear()
                        TextBox8.Clear()
                        TextBox1.Focus()
                        ComboBox1.Text = " "
                        ComboBox2.Text = " "
                        ComboBox3.Text = " "
                        ComboBox4.Text = " "
                        Me.Show()
                Else
                    Me.Show()
                End If
                    ElseIf grade4 = True Then
                        result = MessageBox.Show("Enrol another student?     ",
"Student has already enrolled in Grade 4. ", MessageBoxButtons.YesNo)
                        If result = DialogResult.Yes Then
                            TextBox1.Focus()
                            TextBox1.Clear()
                            TextBox2.Clear()
                            TextBox3.Clear()
                            TextBox4.Clear()
                            TextBox5.Clear()
                            TextBox6.Clear()
                            TextBox7.Clear()
                            TextBox8.Clear()
                            TextBox1.Focus()
                            ComboBox1.Text = " "
                            ComboBox2.Text = " "
                            ComboBox3.Text = " "
                            ComboBox4.Text = " "
                    Me.Show()
                Else
                    Me.Show()
                End If
```

```
                        ElseIf grade5 = True Then
                            result = MessageBox.Show("Enrol another student?     ",
"Student has already enrolled in Grade 5. ", MessageBoxButtons.YesNo)
                            If result = DialogResult.Yes Then
                                TextBox1.Focus()
                                TextBox1.Clear()
                                TextBox2.Clear()
                                TextBox3.Clear()
                                TextBox4.Clear()
                                TextBox5.Clear()
                                TextBox6.Clear()
                                TextBox7.Clear()
                                TextBox8.Clear()
                                TextBox1.Focus()
                                ComboBox1.Text = " "
                                ComboBox2.Text = " "
                                ComboBox3.Text = " "
```

```
                                ComboBox4.Text = " "
                    Me.Show()
                Else
                    Me.Show()
                End If

                            ElseIf grade6 = True Then
                                result = MessageBox.Show("Enrol another student?
", "Student has already enrolled in Grade 6. ", MessageBoxButtons.YesNo)
                                If result = DialogResult.Yes Then
                                    TextBox1.Focus()
                                    TextBox1.Clear()
                                    TextBox2.Clear()
                                    TextBox3.Clear()
                                    TextBox4.Clear()
                                    TextBox5.Clear()
                                    TextBox6.Clear()
                                    TextBox7.Clear()
                                    TextBox8.Clear()
                                    TextBox1.Focus()
                                    ComboBox1.Text = " "
                                    ComboBox2.Text = " "
                                    ComboBox3.Text = " "
                                    ComboBox4.Text = " "
                    Me.Show()
                Else
                    Me.Show()
                End If

                                ElseIf grade7 = True Then
                                    result = MessageBox.Show("Enrol another student?
", "Student has already enrolled in Grade 7. ", MessageBoxButtons.YesNo)
                                    If result = DialogResult.Yes Then
                                        TextBox1.Focus()
                                        TextBox1.Clear()
                                        TextBox2.Clear()
                                        TextBox3.Clear()
                                        TextBox4.Clear()
                                        TextBox5.Clear()
                                        TextBox6.Clear()
                                        TextBox7.Clear()
                                        TextBox8.Clear()
                                        TextBox1.Focus()
                                        ComboBox1.Text = " "
                                        ComboBox2.Text = " "
                                        ComboBox3.Text = " "
                                        ComboBox4.Text = " "
                                        Me.Show()

                                Else
                    Me.Show()
                                End If

            ElseIf ComboBox3.Text = "No" Then
                Captured_Student_Details.TextBox1.Text = Me.TextBox1.Text
                Captured_Student_Details.TextBox2.Text = Me.TextBox2.Text
                Captured_Student_Details.TextBox3.Text = Me.TextBox3.Text
                Captured_Student_Details.ComboBox1.Text = Me.ComboBox1.Text
                Captured_Student_Details.TextBox4.Text = Me.TextBox4.Text
                Captured_Student_Details.TextBox5.Text = Me.TextBox5.Text
                Captured_Student_Details.TextBox6.Text = Me.TextBox6.Text
                Captured_Student_Details.TextBox7.Text = Me.TextBox7.Text
```

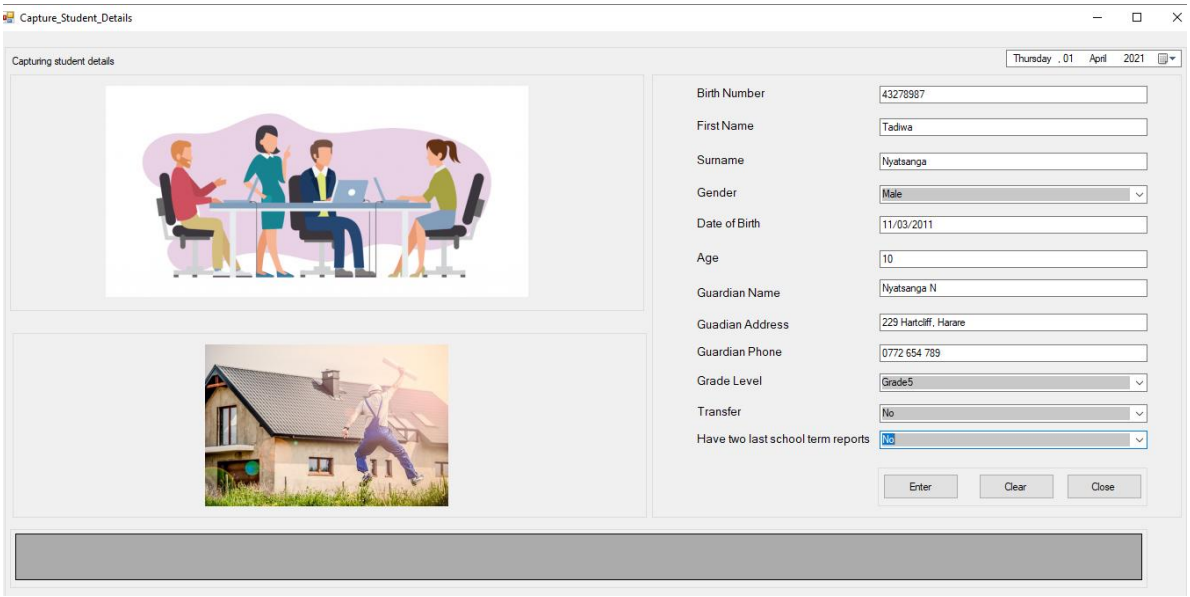
```
                Captured_Student_Details.TextBox8.Text = Me.TextBox8.Text
                Captured_Student_Details.ComboBox2.Text = Me.ComboBox2.Text
                Captured_Student_Details.Show()

            ElseIf ComboBox4.Text = "No" Then

                MsgBox("You can't be enrolled without the two previous school term
reports", MsgBoxStyle.Information, "You are required to bring two last school terms
reports")
                result = MessageBox.Show("Enrol another student?     ", "Bring last
two school terms reports  ", MessageBoxButtons.YesNo)
                If result = DialogResult.Yes Then

                    TextBox1.Focus()
                    TextBox1.Clear()
                    TextBox2.Clear()
                    TextBox3.Clear()
                    TextBox4.Clear()
                    TextBox5.Clear()
                    TextBox6.Clear()
                    TextBox7.Clear()
                    TextBox8.Clear()
                    TextBox1.Focus()
                    ComboBox1.Text = " "
                    ComboBox2.Text = " "
                    ComboBox3.Text = " "
                    ComboBox4.Text = " "
                    Me.Show()
                Else
                    Captured_Student_Details.TextBox1.Text = Me.TextBox1.Text
                    Captured_Student_Details.TextBox2.Text = Me.TextBox2.Text
                    Captured_Student_Details.TextBox3.Text = Me.TextBox3.Text
                    Captured_Student_Details.ComboBox1.Text = Me.ComboBox1.Text
                    Captured_Student_Details.TextBox4.Text = Me.TextBox4.Text
                    Captured_Student_Details.TextBox5.Text = Me.TextBox5.Text
                    Captured_Student_Details.TextBox6.Text = Me.TextBox6.Text
                    Captured_Student_Details.TextBox7.Text = Me.TextBox7.Text
                    Captured_Student_Details.TextBox8.Text = Me.TextBox8.Text
                    Captured_Student_Details.ComboBox2.Text = Me.ComboBox2.Text
                    Captured_Student_Details.TextBox1.Focus()
                    Captured_Student_Details.Show()
                End If
            Else
                Me.Show()
            End If

        Catch ex As Exception
            MsgBox("Please enter correct details.")
        End Try
    End Sub

    Private Sub Button2_Click(sender As Object, e As EventArgs) Handles Button2.Click
        Try
            TextBox1.Focus()
            TextBox1.Clear()
            TextBox2.Clear()
            TextBox3.Clear()
            TextBox4.Clear()
            TextBox5.Clear()
            TextBox6.Clear()
            TextBox7.Clear()
            TextBox8.Clear()
```

```
            TextBox1.Focus()
            ComboBox1.Text = " "
            ComboBox2.Text = " "
            ComboBox3.Text = " "
            ComboBox4.Text = " "
        Catch ex As Exception
            MsgBox("An error has occurred during debugging process")
        End Try
    End Sub
End Class
```

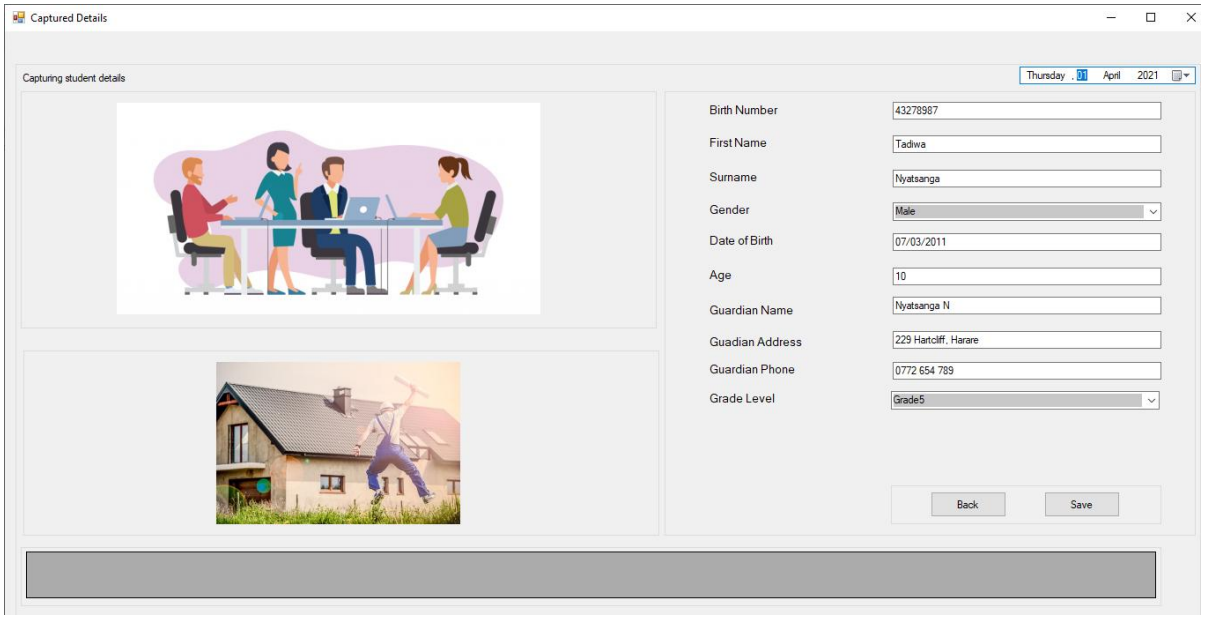
CHAPTER 7

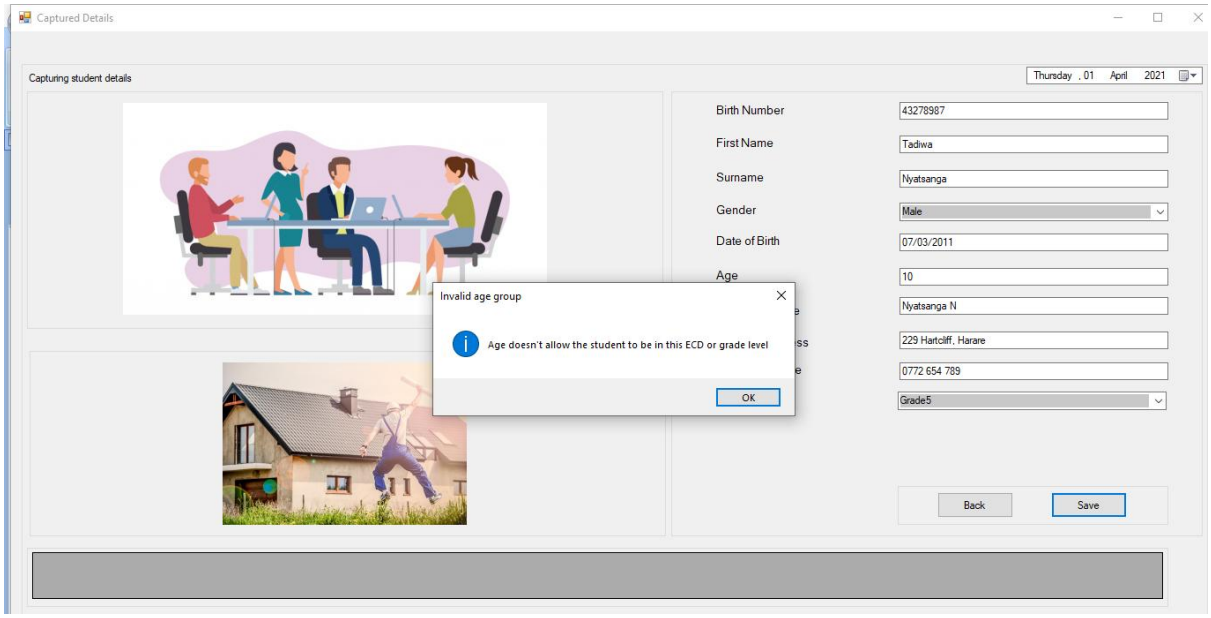
7.1 Test Results

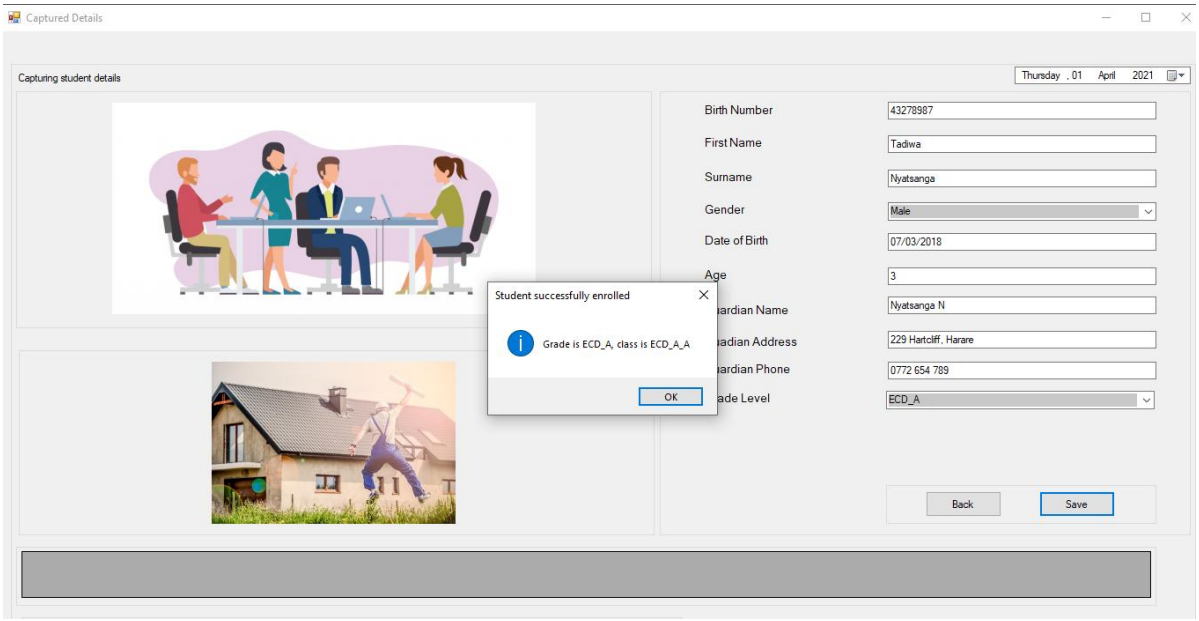
CAPTURING MODULE



CAPTURED RESULTS OUTPUT

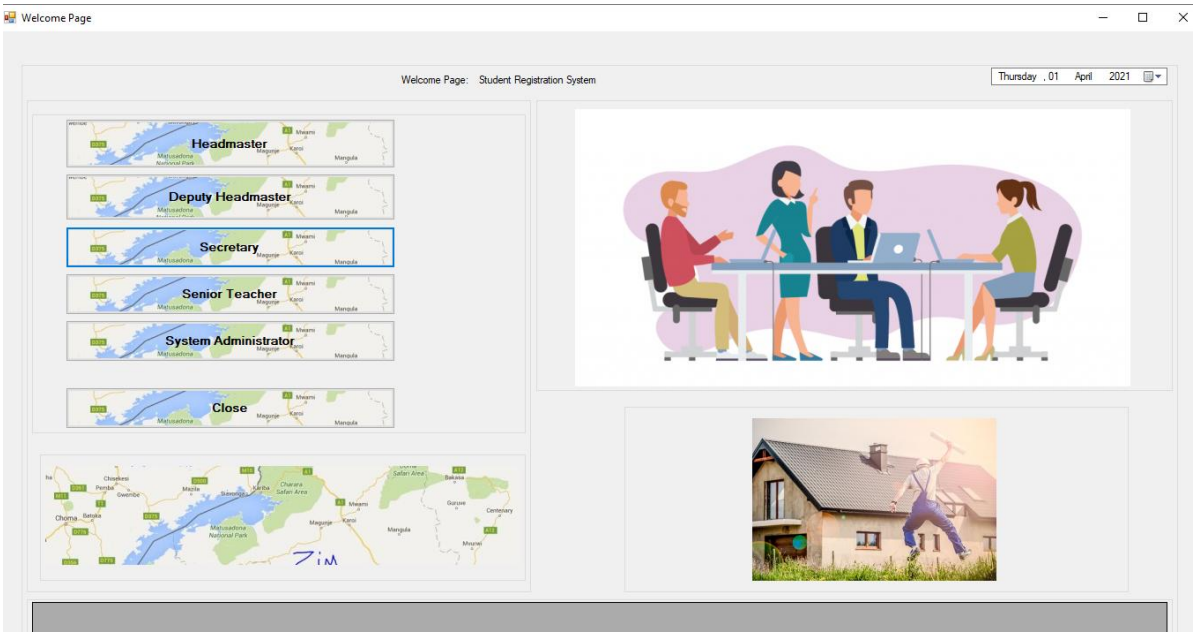

Captured Details
Capturing student details
Thursday , 01 April 2021
Birth Number
43278987
First Name
Tadiwa
Surname
Nyatsanga
Gender
Male
Date of Birth
07/03/2011
Age
10
Guardian Name
Nyatsanga N
Guadian Address
229 Hartcliff, Harare
Guardian Phone
0772 654 789
Grade Level
Grade5
Back
Save

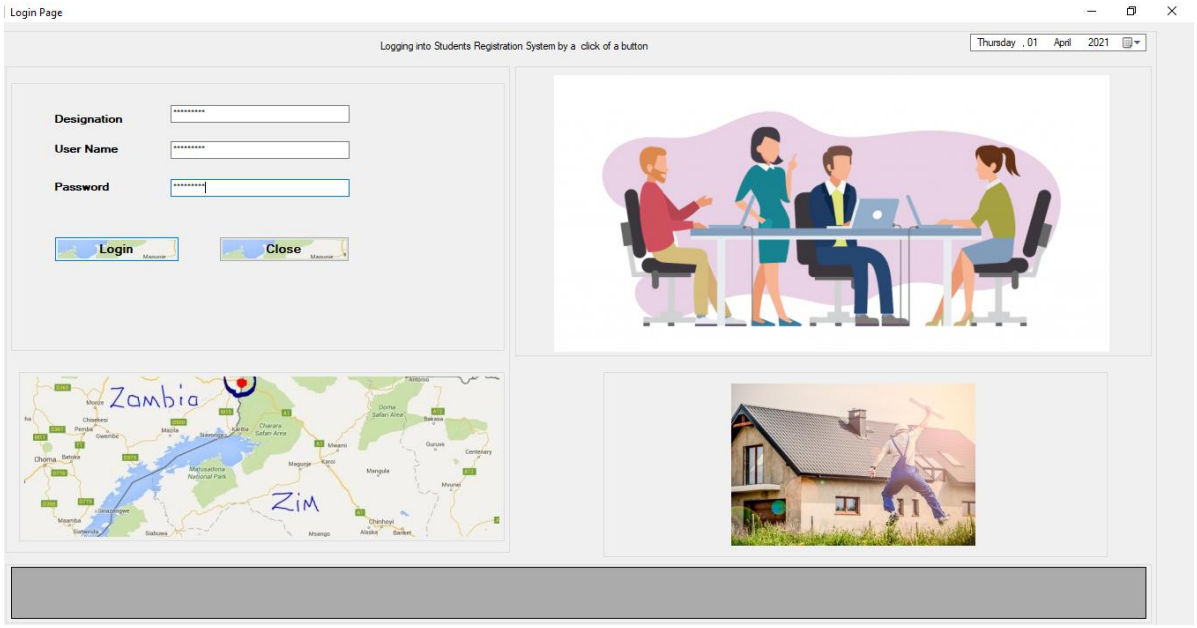

Captured Details
Capturing student details
Thursday , 01 April 2021
Birth Number
43278987
First Name
Tadiwa
Surname
Nyatsanga
Gender
Male
Date of Birth
07/03/2011
Age
10
Nyatsanga N
229 Hartcliff, Harare
0772 654 789
Grade5
Invalid age group
Age doesn't allow the student to be in this ECD or grade level
OK
Back
Save

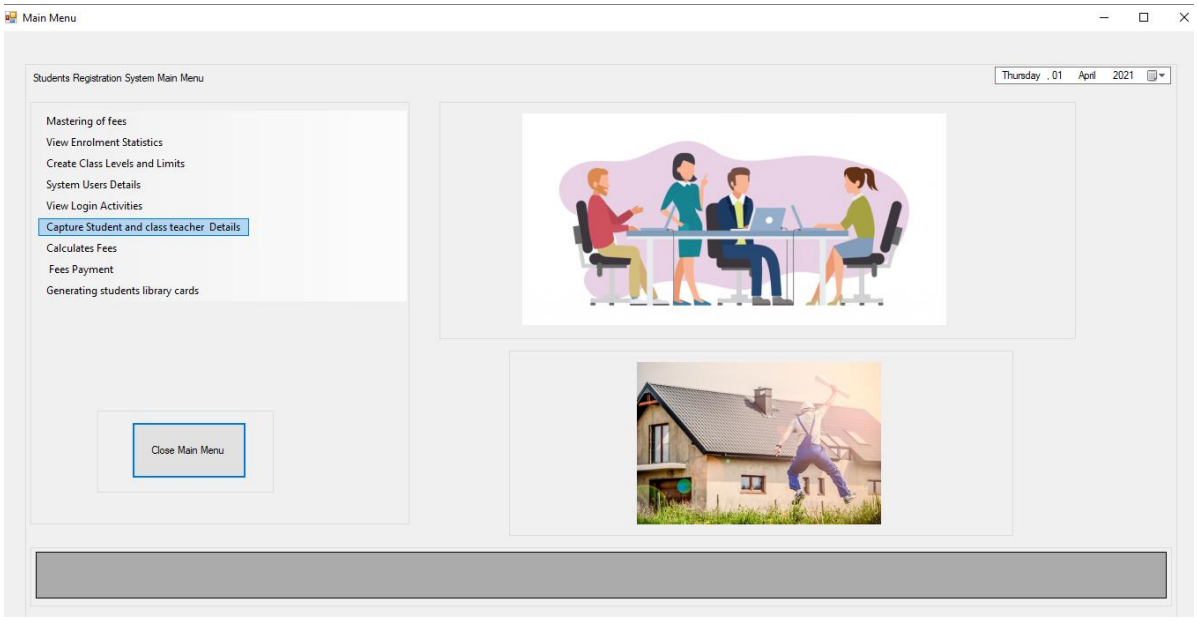


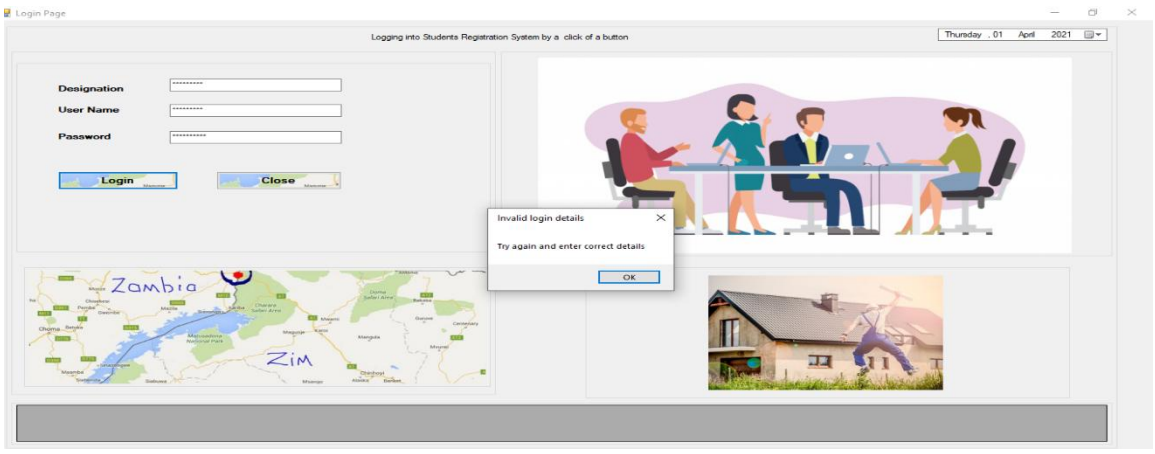
USER ACCEPTANCE TESTING- IMPLIMENTATION OF BLACK BOX TESTING

The testing is done by the user of the system and the following screen shots are the samples of the test results of acceptance testing using different scenarios.




Login Page
Logging into Students Registration System by a click of a button
Thursday , 01 April 2021
Designation
User Name
Password
Login
Close
Zambia
ZIM


Main Menu
Students Registration System Main Menu
Thursday , 01 April 2021
Mastering of fees
View Enrolment Statistics
Create Class Levels and Limits
System Users Details
View Login Activities
Capture Student and class teacher Details
Calculates Fees
Fees Payment
Generating students library cards
Close Main Menu


Login Page
Logging into Students Registration System by a click of a button
Thursday , 01 April 2021
Designation
User Name
Password
Login
Close
Invalid login details
Try again and enter correct details
OK
Zambia
ZIM

Chapter 8 Deployment

8.1 INSTALLATION

The system will be packaged in a DVD with relevant labels on it and will be installed in all the relevant user computers.

INSTALLATION STEPS:

- Insert the system DVD in the DVD-ROM drive.
- Access the DVD, Double click the installation folder
- Double Click Setup Icon
- Follow the setup wizard to install the program in the program files section
- Run your Program.

8.2 User manual

The guide will help the users to navigate through the system, trouble shoot the system, training other users and also when installing the system.

SOFTWARE AND HARDWARE REQUIREMENTS

The program will run in a windows environment. The proposed system will require personal computers that meet the following minimum hardware requirements:

Model: hp computer

Item	Specifications
H.D.D	1Terabyte
RAM	4 gig
Processor	Core i5
Network card	10/100 MB
Display	17 inch Monitor
Fast Backup Media	Compact Disc (CD) Writer Drive

USING THE SYSTEM

Login details

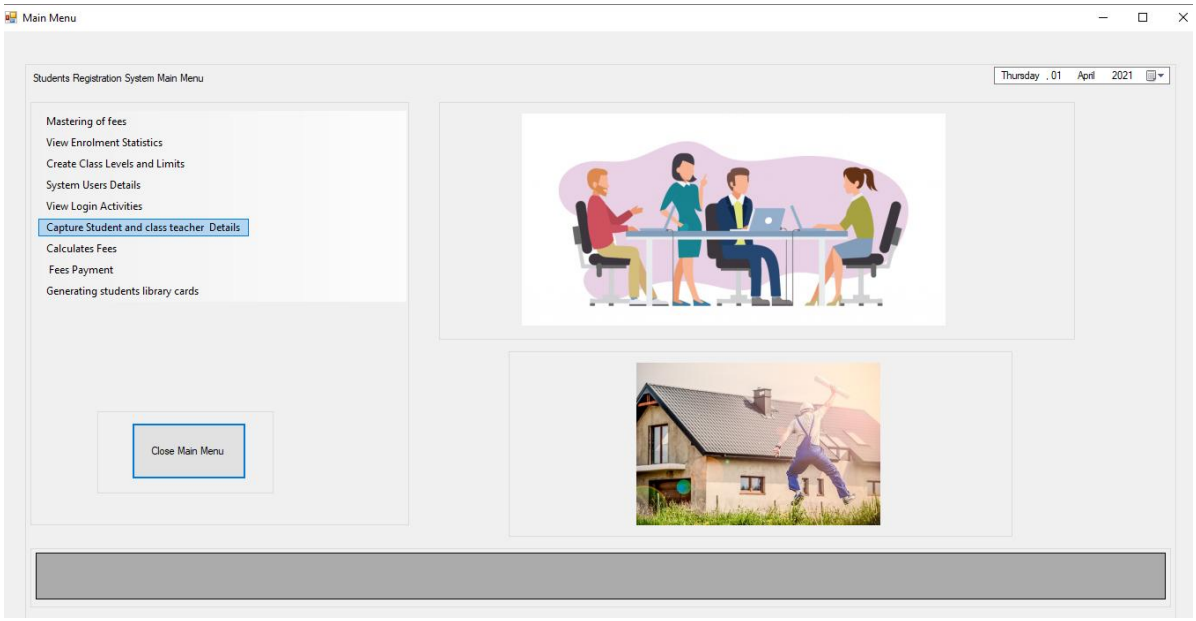
The user enters his or her credentials on the login screen. The details entered will be compared with the saved details to verify if the user is authenticated. If the details match the user is allowed to proceed else the user is asked to retry or exit the system.

Exiting the program

Click the exit button in the system to close the program.

Navigating the system

The menu screen shot below allows the user to quickly navigate through the system by clicking any of the modules and the system will guide you on what is achieved in that particular module.



USER SUPPORT INFORMATION

Threats to the system

Any information systems is prone to threats. Some are planned threats targeted at the system and some are unintentional threats that are inevitable biut can be avoided or have a reduced impact.

Planned threats are crimes committed with full consent and knowledge: They include

- Theft of data, the computer hardware and software.
- Inappropriate use of data.
- Viruses may also damage the information in the computers and the system.

Unintentional threats include:

- Human Errors
- Environmental hazards such as fire, flood, earthquakes, and power failures.

Control measures

The following control measures can be used to mitigate the above consequences:

- Restricting physical access to the computers
- Shielding the system against electro-magnetic fields
- Prevention of such risks as fire, water and emergency power shutoffs.
- Maintaining backups of every information in the system
- An antivirus program should be installed in the computers.

8.3 Discussion of results

After the system is fully implemented the following issues will be evaluated:

- Accuracy of information produced.
- User satisfaction.
- Net operating costs.
- Impact of the system on the users and their jobs.
- Systems fit and impact on the organization structure.

This evaluation is meant to:

- Verify that the installed system meets the user's requirements.
- To provide feedback to the software developer.
- Justify the adoption, continuation or even termination of the installed system.
- Clarify and set priorities for any needed modification.

8.4 Conclusion

The system has been tested and must be able to eradicate all the enrollment problems of the school. The system is user friendly and cost minimization has been taken into consideration throughout the system development. Any maintenance and improvements of the system will be done in the course of system usage.