

DESIGN AND DEVELOPMENT OF AN AUTOMATED STUDENT INFORMATION SYSTEM FOR QUEENS' ACADEMY PRIVATE SCHOOL IN KABWE ZAMBIA

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ABSTRACT

This study was intended to design and implement an Automated Student Information System for Queens's Academy Private School in Kabwe. The system has three other sub system namely Library management system, Online examination and online quizzes for pupils. The vision was to make this system act automated. Specific objectives of the study are: To identify the structure/characteristics of online library, online examination and quizzes system for pupils.

Concerning methodology for this study, the data used for the development of the research was gotten from the internet, textbooks and articles. The contributions of other researchers on the subject were examined to gather relevant information. The case study also provided useful information for the development of the system.

System analysis has to do with examining a system in order to understand its step by step operations to identify its benefits and areas of limitation that require improvements. In the existing system, operations were both manually and automated. The problems of the existing system include; it is time consuming, errors in computation is very common, it is inefficient, reports of results cannot be easily retrieved.

In the proposed system, the case study will be carried out effectively on the internet in order to

save time and to bring fairly to qualified candidates. This system will save time, minimize computation errors and help the staffs to recruit the right personnel for the organization. The system design pertains to the layout of the system and it consists of the input and output layout. In considering the design of a web-driven relational Database Management System, it is obvious that RDBMS success to a very large extent depends on the level of data structure. While structure itself depends on the level of reliability, which can be achieved through the kind of tables and web interface to be rendered and the requirements needed. It is my convention that a closer look at this project work give insight and vital information to any interested person who wish to know the requirement for developing a HTTP and a relational database management system server to effectively implement an academic information system design has demonstrated its HTML web pages integration via PHP programming by demystifying and defining what it takes to implement an Apache HTTP server, a MYSQL relational Database Management system and a PHP scripting engine

I. CHAPTER ONE: INTRODUCTION TO THE RESEARCH

A. 1.1 Introduction

Automated Students Information System is the web application system database driven for Queens Academy Private School in Kabwe, located in Luangwa Township. The application has been designed to focus on an automated students' information system (ASIS). It was developed using HTML, php, Javascript, MySQL. The system is made up of three main sub systems namely; library management system, online examinations and online quizzes. All the trio systems are fully computerized. The manual method of students' getting the materials from the library, taking end of term tests and having the quizzes in school was found to be tedious, especially when carried out for many students, this makes the entire process time-consuming and error prone. The system designed is meant to register eligible students and they will have access to the system. The initial password to the platform is issued via their email addresses, (Amar J.S 2009).

The system presents a single platform that will be used to manage the processing of all the three other system but with series of security features. This study was carried out to verify the manual process involved in generating students' examination result and to seek a way of automating the system for effective operations. This system is designed to efficiently handle processes like inputting scores, storing results, automatically calculating grade points, and interpreting the student's overall result, (Amar J. S 2009).

B. 1.2 Motivation and Significance of the study

This research work critically explores the possible ways of making clear of the mystery behind database and related technologies, web hosting services, protocols and of course design and encourages young programmers to join the race without feeling interims to their counterparts in the development parts of the world.

Without shifting this focus to website design, we might still be in darkness for the next twenty years

and by then a new invention might be made which can sentence us into another one thousand years of dark ages.

The study will go a long way to cutting down on time wastage, inefficient use of traditional management of libraries, examinations and quizzes. It will also enhance efficient query and inquiring, ensure security of records and assist the school in coping with the daily work based.

Designing a database driven website for an educational institution entails more of data collection than traditional programming. Nevertheless, the outcomes and benefits of a well-planned website cannot be emphasized. Although many factors contribute to an effective website, yet there are so many that one could not but think of them all. The internet with all its functionality has indeed changed the way people live and interact politically, socially, economically and otherwise the internet. This has enabled website an interactive media when integrated with a database making it a cost effective one on one educational tool.

To this end, the researcher suggests the following recommendations;

1. Implementing a database local website.
2. This implementation will also allow for staff, student and management interaction through live survey charts forms and e-mails. While helping to improve the knowledge and understanding of the institutional needs and interests.
3. Undoubtedly, a well incorporated webbed database would improve the customer support service by saving money and time while expanding on its educational distribution.

C. 1.3 Scope

Data notwithstanding of its size cannot be too large to process. However, a guided approach is adopted to stay within limits for easy comprehension.

To end this, the study will focus on the student together with its accompanying web interface, student's registration details and academic assessment (quizzes and online exams). In its most common form, the wide application of computers

in accessing remote files make way for adoption of more superior ways of making information available to the millions of users. And it also exposes the researcher to the core about the difficulties of database programming for the web, an all-round technology but because of the following constraints, the study may not be completed. They include;

- Time constraints and finance
- The school does not have enough necessary software and extended network of computers.
- It lacked the projected operational hardware
- Unavailability of power supply to test and implement the developed work.

D. 1.4 Problem Statement

The problem that gave rise to this study system from the continuous use of manual methods of dispensing academic details in the institution. The core is the information management. As the adage says “if you are not informed, you are deformed and he who is deformed cannot perform”. It will not be an exaggerated statement if I say that pupils from Queens Academy are not being well informed due to inadequate information acquisition facilities. Information is not only important in this stage but also the methods of accessibility.

According to Powell (2005), “Lack of information breeds analysis paralysis”. Without adequate information on any subject matter, it would be difficult to handle.

To eradicate this to its optimum, a robust database and web server should be implemented where the information can be shared easily among the students and being kept so that it can be retrieved at any time by anybody who needs it. Again, it will make the information remain authentic without adding or removing anything.

The problems of the study are:

1. The problem of being deformed in the society
2. The problem of keeping untidy records.

3. Using of manual and archaic system in processing data.
4. To determine ways which information can process a large volume of data such as academic tedious and detail and repetitive denial work done with manual method in some information.
5. Method of accessibility.
6. The problem of managing information thereby accessing it to make something out of it.

E. 1.5 Aim

The aim of the new system is to bring about efficient and effective academic information system and also help in making the processing of information as well as in the sport feedback faster.

F. 1.6 Objectives

In order to produce a more classified knowledge of the subject matter, the researcher intends to;

1. To describe the tools required to design and implement a functional Apache HTTP web, HTTP web server and MYSQL relational database server for the institution through HTML communication.
2. To develop the system and procedure for Queens Academy to ensure that end-users are provided with equisetive tools and data that is cost effective and easily accessible.

G. 1.7 Research Questions

1. Mention the tools you will use to design the system and development.
2. What methodologies will be used to develop the system?
3. What will be the functional requirements of the system?

H. 1.8 Organization of the thesis

- The outline of this thesis is described as follows;
- In chapter two, the information is about the literature review.
- The methodologies applied to the development of the system are in the third chapter.

- The findings of the research are described in chapter four
- The last chapter is Chapter five. It has the discussions and conclusions regarding the entire system

1. 1.9 Summary

This chapter meant to present the research region and summaries the background of the study. The reformulated objectives try to specify the specific goals which need to be achieved. the research questions try to simplify the objectives. The chapter next defines the review of the system and provide ancillary information where thoughts where strained from.

II. CHAPTER TWO: LITERATURE REVIEW

A. 2.1 Introduction

This chapter is much focused with the analysis of correlated literature, the contributions of other academicians to the system stated.

B. 2.2 Review of the Literature

1) 2.2.1 What Is a Student Information System?

A Student Information System (SIS), also referred to as a Student Management System (SMS) is a software solution designed to help schools track and manage all their student data – everything from grades, attendance, behavioural information and more, (Vincent P 2018).

Basically, an SIS serves as the core database for all school operations, and over the past few decades, many of them have also incorporated additional features and modules to manage administrative tasks such as:

Admissions – Often SIS software is capable of managing the entire admissions process, from initial contact to full enrolment.

Billing and Payments – Paying and being paid can often be managed through the SIS, as it holds all the data about parents, employees, suppliers, and contractors.

Reporting – Reporting functionality allows schools to identify trends in student behaviour and analyse results to improve their performance and many more, (Vincent P 2018).

An effective SIS provides schools with a centralized system to manage student data.

SIS software, however, is not only used by teachers and school administrators – it often has apps or portals for parents and students too, making it an effective tool for communication and consolidated data collection.

2) 2.2.2 The Rise of the School-Tech Stack

The term “technology stack” comes from the world of software development and it refers to the set of tools, applications and software

programs used to create web and mobile applications. Programmers carefully create and manage their stack for optimal performance and reliability, (Vincent P 2018).

With the rapid growth of new school software, IT departments are now stacking technologies together with their existing SIS, to create an integrated series of tools that allow them to effectively manage school administration.

The “School-Tech Stack” challenges the status quo of an “All-In-One” system by providing schools with the ability to leverage dedicated best-of-breed solutions (Vincent P 2018).

Cloud-based – Cloud-based systems provide significant benefits over locally hosted equivalents including reduced IT support, hardware maintenance and hands-free upgrades. This makes it easier for your IT department to manage multiple systems, (Vincent P 2018).

Data security – Information security has become a primary concern for schools as they are in control of an array of sensitive personal information. It’s essential to ensure that any system you add to your School-Tech Stack employs a high standard of data security and has the proper certifications to back it up. Integrations – Integrations help to ensure your data remains consistent and accurate across all software systems in your stack.

3) 2.2.3 How Boarding Ware Fits Within Your School-Tech Stack

Boarding ware is essential to keep track of students’ movements, ensure student safety and accountability, and empower staff to fulfil their duty of care. As a cloud-based application, with certified data security and native integrations partners, boarding ware is tech-stack ready, (Vincent P 2018).

According to Engr. P. D Joseph (2006) There was a time in the primitive and barbarian days before computer, when the amount of information

shepherded by a group of people could be collected in the wisdom and the stories of its older members. In this world story tellers, magicians and grandparents were considered a great and honored storehouse for all that was known.

And so in order to store all the new information, humanity invented the technology of writing and then great scholars like Aristotle warned that the invention of the alphabet would lead to the subtle but total demise of the creativity and sensibility of humanity, data began to be stored in voluminous data repositories called books. As we know, eventually books capsulated with great speed and soon whole communities of books migrated to the first real “database” libraries. Unlike previous versions of data warehouses (i.e. People and books) that might be considered the Australopithecus of the database lineage, libraries crossed over into the modern-day species, though they were incredibly primitive of course over into libraries introduced.

According to Brenden (2005), the useful of a library or any base of data is proportional to its data storage and retrieval efficiency. This one corollary would drive the evolution of database over the next 2000 years to its current state.

The first attempt at information storage and retrieval followed traditional lives and metaphors. The first system was based on discrete files in a virtual library. In this file-oriented system, a bunch of files would be stored on a computer and could be accessed by a computer operator. Files of achieved data were called table “because they looked like record and column in the data.

Meanwhile Dimoji (2005) “Introduction to Cobol Programming” he stated that data can be seen in the aspect of every business despite the size and purpose is concerned with processing facts or data about its operations in order to provide current, and accurate information to management.

Decision in colleges are based on data such as students result, inventory level and other quantities factors. Data are also facts, events, transactions and

so on. It is only after these data have been examined; compared, classified and summarized do they become useable information.

According to Dimoji and Okafor (2005) A computer is an “electronic device which accepts data as “input”, store them as “storage”, process them as “processor” decoding to precise or logical instruction as “program” to produce a fast and accurate result “information” as the output.

Database, since its conception in the 60’s was created to solve the problems with file-oriented system in that they were compact, fast easy to use, current, accurate, allows the easy sharing of data between multiple users and well secured.

These days when you talk about database in the wild, you are primarily talking about two types which include the

- a. Analytical database
- b. Operational database

Operational database OLTP (On-line transaction processing), on the other hand are used to manage more dynamic bits of data. These types of database allow you to modify that way of adding, changing or deleting data.

These types of database are usually used to track real-time information for example, a financial company might have an operational database used to track cash transactions that is as customers make payment from an online store an operational database can be used to keep tracks of how much cash is left and the customers draw his credit line.

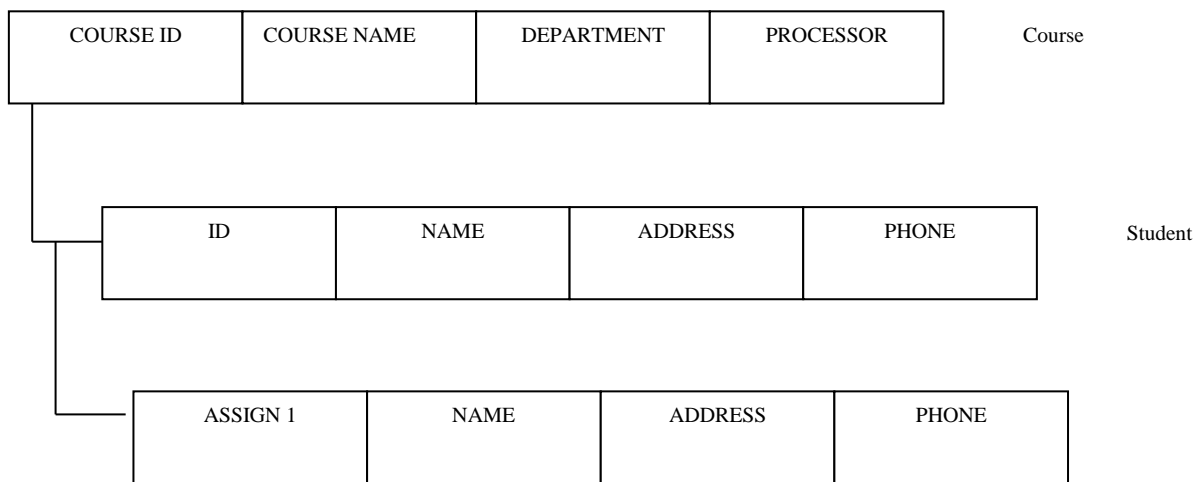
According to Dine C J (2003) “fundamental of database system”, he stated that a database might be as complex and demanding as an account tracking system used by a bank to manage the constantly changing accounts of thousands of bank customers, or it could be as simple as a collection of student registration number with matching departments. The important thing is that database allows you to store data and get it or modify it when you need to easily and effectively regardless of the amount of data being manipulated.

The hierarchical database model defines hierarchical arranged data. Perhaps the most intuitive way to visualize this type of relationship is by visualizing an upside-down tree of data. In this tree, a single table acts the “roof” of the database from which other tables “branch” out. You will be instantly familiar with this relationship because that is how all windows-based directory

management systems like window explorer works. Relationship in such a system are thought of in terms of children and parents such that a child may only have one parent but a parent can have multiple children. Parents and children are fed together by links called “pointers” (perhaps physical addresses inside the file system). A parent will have a list of pointers to each of their children.

Example:

Figure 1 :Hierarchical Model



Source: Anthony J. M. (2003)

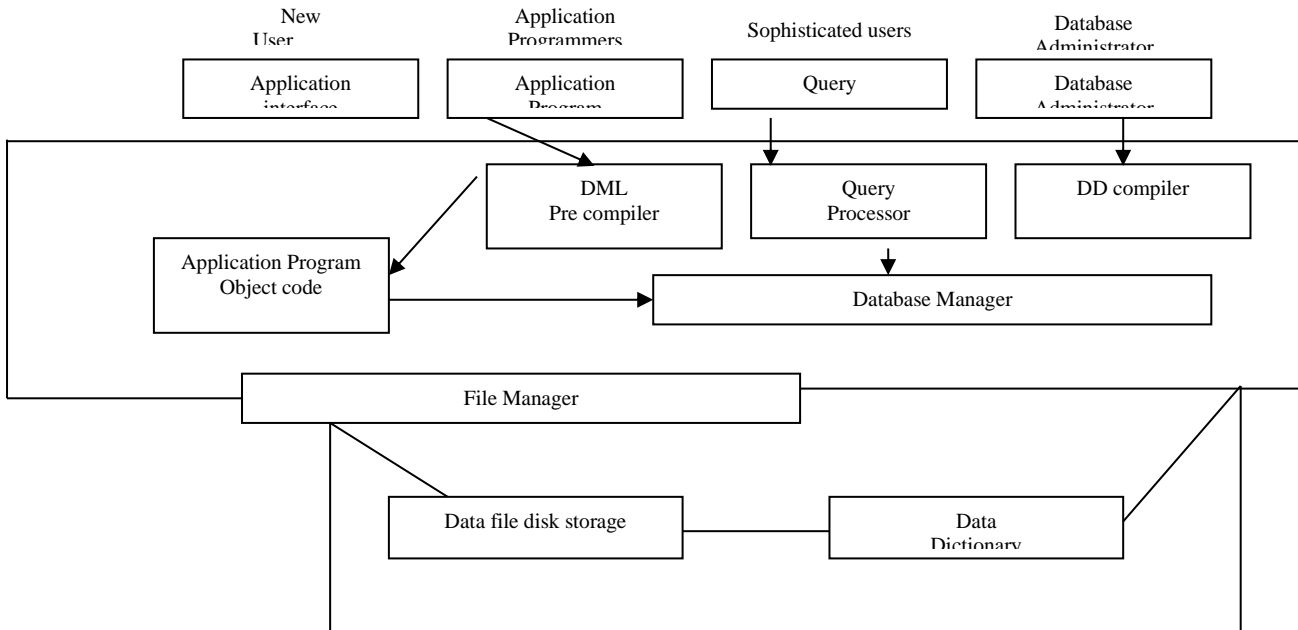
This child/parent rule assures that data is systematically accessible to get to a low level table, you start at the root and work your way down through the tree until you reach your target of course.

4) 2.2.4 Data and Information

Dimoji (2005) and Okafor (2009) are at the view that data and information are terms people use interchangeably in everyday speech, but they mean different thing. Data are facts such as a Name, a Number etc. while the term information is simply a processed data, that is when data is converted into a more useful or intelligent form. A data item e.g. (the data 28/06/2011) means title, when you associate the data item such as deadline and a subject, you can create information. Example, the deadline for your next project might be 28/06/2011. you store data in a database, you retrieve information from the database.

The network model was conceived in many ways “the network database model was designed to solve some of the serious problems with the hierarchical database model. Specifically, the network model solves the problem of data redundancy by representing relationships in terms of sets rather than hierarchy.

Figure 2 : Network Database Model

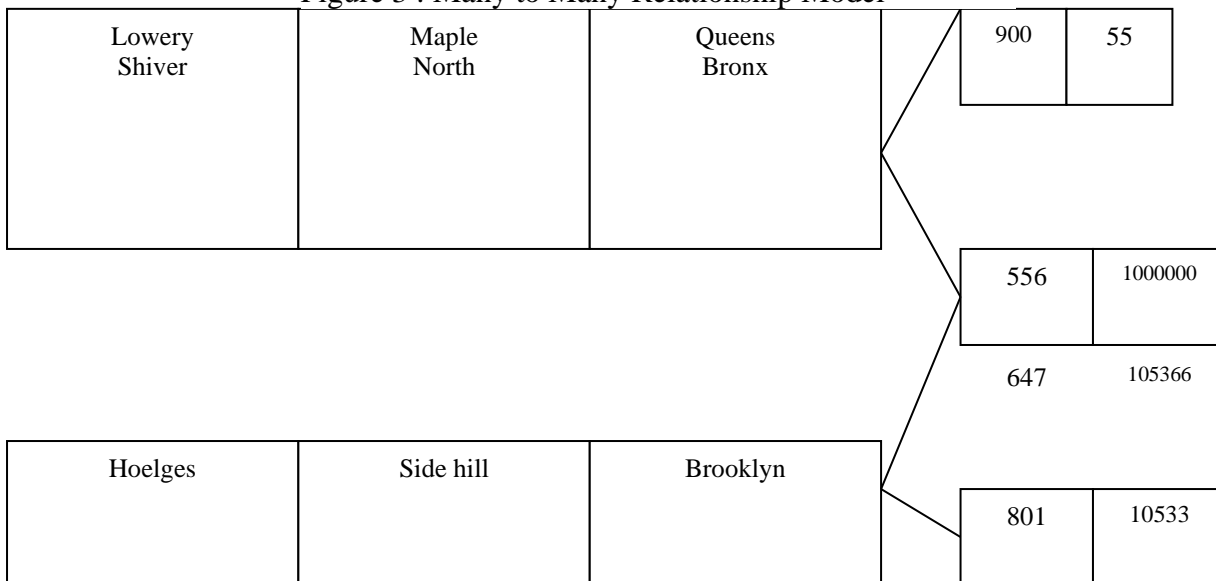


Source: Anthony J. M. (2003)

The network model is very similar to the hierarchical model actually. In fact, the hierarchical model is a subject of the network model. However, instead of using a single parent tree hierarchy.

The network model uses set theory to provide a tree, like hierarchy with the exception that child table were allowed to have more than one parent. This allows the network model to support many-to-many relationships. Visually, a network database model looks like a hierarchy database is that you can see a type of tree. However, in the case of a network database look is several trees which share branches. Thus, child can have multiple parents and as well have multiple children

Figure 3 : Many to Many Relationship Model



Source: Anthony J. M. (2003)

The relational model developed out of the work done by Dr. E. F Codd at IBM in the late 1960's who is looking for ways to solve the problems with the existing models. Because he was a mathematician, he naturally built the model on mathematical for large share database.

At the core of the relational model is the concept of a table (also called a relation) in which all data is stored. Each table is made up of records (horizontal rows also known as tuples) and field (vertical columns also known as attributes).

This is quite a bite different from the hierarchical and network models in which the user had to understand how the data were structured within the database in order to retrieve, insert, update or delete records from the database.

In the relational model, operations that manipulate data do so on the basis of the data values themselves, thus if one which to retrieve a row from a table for example, one could do so by comparing the values stored within a particular column for that row to some search criteria for example, "give me all the rows from the "STUDENTS" table which have "OKORO" in the FIRST NAME" "column" the database might return list which looks exactly like this.

Table 1

OKORO	Igwe	SID-001	2135
OKORO	Deborah	SID-268	818-934-50
OKORO	Chinwendu	SID-991	310-234-64

One could also use the data from a retrieval row to query another table. For example, want to know what grade OKORO Deborah received in Operation Research 421. in this case, the student ID Number from the previous query is used as the

keyword in the next query. This the query could be "I want the row in the operation research 421. course table were student ID equals "SID 001 ".

This data access methodology makes the relational model, a lot different from and better than the earlier database model because it is a much simple model to understand. This is probably the remaining reason for the population of relational database systems today. Another benefit of the relational system is that, it provides extremely useful tools for database administration. Essentially, table cannot only store actual data but they can also be used as the table means for generating meta-data (data about the table and field names which form the database structure, access rights to be database, integrity and data validation rules etc.

5) 2.2.5 Database Model

According to Navethe S. (2006) "Fundamental at Database system" Everything within the model can be stored in tables, this means that to provide information about the data, a user can query information concerning table, names, access right or some data and the results of these queries would then be presented to the user in the form of a table.

6) 2.2.6 Data Relation and Keys

Ugorji (2009) defined relation as a set of tuples and that by definition, all the elements of a set distinct: hence all tuples in a relation must also be distinct. This means that no two tuples have the same combination of values for all values for all their attributes.

Any set of attributes of a relation schema is called a "Super key" relation has at least one super key: the set of all its attributes. A key is a minimal super key i.e. a super key from which we cannot remove any attribute and still have the uniqueness constraints hold.

2.2.7 Entity and Integrity Constraints

As quoted from Codd's definition of entity integrity (2005) "No component of primary key is

allowed to have a missing value of any type". The notation of entity arises from the choice of a primary key while referential integrity arises from the choice of foreign keys. In a relational database, a primary key is a set of attributes designed by the user, is satisfied in a relation, if each tuple in the relation is uniquely identified by the primary key values. In addition, the primary key must be minimal set of attributes for which this uniqueness properly holds.

This is because the primary key value is used to identify individual tuple in a relation, having null values for the primary implies that some tuples cannot be identified. This referential integrity constrains is used to maintain the consistency among tuples of relations.

7) 2.2.8 Database Normalization

According to Elmasri and Navatue (2004), the normalization process as first proposed by Codd (1972) takes a relative schema through serial tests to certify whether or not to belong in a certain form (NF). Initially, Codd proposed three normal forms which he called 1st, 2nd, and 3rd normal form.

Normalization of data can be looked on as a process of organizing data in a database or processes during which unsatisfactory relation schema are decomposed by breaking their attributes into smaller relation scheme that process desirable properties. One objective of the normalization process is to improve flexibility and to ensure that redundancy and inconsistent dependency anomalies do not occur.

Normal forms provide database design with:

- (a) A formal framework for analyzing relation schema as based on their keys and on the functional dependencies among their attributes.
- (b) A series of fast that can be carried out on individual relation schema. So that the relational database can be normalized to any degree. When a test fails, the relation

that individual meets the normalization test as outlined below:

FIRST NORMAL FORM

A relation is in first normal form (1NF) if and only if all underlying simply domains contain atomic values only. Atomic data is a form of nominalism for data item. A data item is atomic if only one item is in each cell of a table. Thus, 1NF tends to

- i. Eliminate repeating groups in individual tables.
- ii. Create a separate table for each set of related data.
- iii. Identify each setoff relation data with a primary key.

SECOND NORMAL FORM

A relation is in second normal form (2NF) if and only if it is in 1NF and every one-key attribute its fully dependent on the primary key. Where the 1NF deals with redundancy of data across a horizontal row. 2NF deals with redundancy of data in vertical columns. Thus, 2NF tends to:

- i. Create separate table for set values that apply to multiply records.
- ii. Relate these table with a foreign key

THIRD NORMAL FORM

A relation in third normal form (3NF) if and only if it is 2NF and every non-key attribute is non-transitively dependent on the primary key. Eliminate fields that do not depend on the key.

CODD BOYCE NORMAL FORM

A relation is in Boyce-codd normal form (BCNF) if and only if determinate is a candidate key. A determinate is any attribute on which some attribute is (full) functional dependent.

FOURTH NORMAL FORM

A relation is in fourth normal form (4NF) if and only if whenever there exist multiple dependencies in the relation. Thus, this form prohibits independent multi value components of the key, for example, if an employee can have many skills and many dependents, you would move the skills and

dependents to separate tables, as they are not related in any way.

OPEN SOURCE MODEL

This is a generalized concept for free software development and acquisition. It is often confusing to people to learn that an open source company may give its products away for free or a minimal cost.

How do “Open source” companies make up for the cost while it is true that an open source business may not make money directly from products, it is untrue that open source business may not make money directly from its products, it is untrue that open source companies do not generate stable and scalable revenue streams. In actually in the 21st century web technology market, it is open source company that has the greater long strategic advantage company such as LINUX, APACHE, MYSQL, and NETSCAPE, host of web specific technology companies such as mail have demonstrated this.

8) 2.2.9 Local Network and The Internet

As Nigerian born scientist Engr. Philip Emeagwali (1999) put it that the internet is the greatest of all networks, the network of several networks (usually local networks) in its pool. The internet was not invented in 1993 by a single individual as it widely believed. The internet is product of a succession of invention that occurred in the 1970's and 1980's.

The dream behind the web is of a common information space in which we communicate by sharing information, its universality is essential. The fact that a hypertext link can point to anything, be it personal, local or global, be it draft or highly polished. there was second part of the dream too dependent on the web being, so generally used i.e. because a realistic mirror (a fact of the primary embodiment) of the works in which we work, play card and socialize that was once the state of our interactions was online, we could then use computer to help us analyse it, make sense of what we are doing, here we individually fit in how we will better work together.

According to Owo Abidemmi E. (2002): “there has been lot of improvement on the web programming concepts. We had the top-down and bottom-up, the procedural and structures. The object oriented and event driven programming methods of software application and information generator to meet the user's requirements.

Ndukwe and Chike (2005), says that internet is a system of computer network, connected to one another from different parts of the world, forming a very large network, hence it is a global connection of networks both big and small.

Meanwhile, internet has many subsets which of them is World wide Web (www), which is the most powerful and growing internet service, it uses hypertext links called hyperlinks to locate and retrieve pages from www servers.

Okafor and Dimoji (2009) says “internet which is an

example of national information highway, is a huge computer network available to nearly everyone who has a computer and all the accessories to connect it. Internet is a network connecting thousands of other network and computers.

One can use internet to transfer electronic mail, public discussion, copying files (upload and download) and even run programs on a computer in a remote place. “Another feature of www is the hypertext to describe text that is not constrained to be sequential. Hypertext as described by Nelson links documents to form a web of relationship that draws on the possibilities for extending and augmenting the meaning of a “flat” piece of text with links to other text. Hypertext, therefore is more than just footnotes that serve as commentary of furthermore, information in a text, instead, hypertext extends the structure of ideas by making “chunks” of ideas available for inclusion in many parts of multiple texts, Nelson also coined the term hypermedia which is hypertext not constrained to be text.

Ndukwe and Chike (2005) says that a web is a series of interconnected servers that support specially formatted documents. It contains a server which is a program that respond to request from other programs and delivers the requested documents.

. However, while file and database transfer and remote login (Telnet) were very important applications, electronic mail has probably had the most significant impact of the innovations.

The internets of these applications are generally to promote a product or service or actually sell a product or service over the network, be it local or global (Bob, B.I.M 1996). Thus, attracting and keeping a target audience is an important aspect of web programming.

C. 2.4 Related Works

There are several student information management system apps and here below are some of the examples.

1) 2.4.1 Grade link Sis

It has the ability to save time and improve student performance through a grade book and Student Information System software, (Shkurinalist, 2018). The cloud-enabled school software includes integrated lesson plans. Its features are as follows;

a) Classroom Management Features:

- Built in LMS
- Report Cards
- Assessments
- Transcripts

Gradebook Features:

- Attendance Tracking
- Class Summary
- Curve Scores
- Grade Calculations
- Individualized Assessments
- Lesson Planning

- Parent Portal
- Progress Reports
- Report Cards
- Weighted Assignments

b) School Administration Features:

- Cafeteria Management
- Curriculum Management
- Financial Management
- Higher Education
- Online Calendar
- Online Payments
- Parent/Student Portal
- Reporting
- School District
- Special Education

2) 2.4.2 Igradeplus

This is another system which is a web web-based grade book and school management system offering a wide array of features that appeal not only to individual teachers but to schools and districts. The software's features include student and classroom management, tracking of attendance and behaviour, plus customized report generation and user-friendly communication features. The package includes student and parent portal accounts, (Shkurinalist, 2018).

a) Classroom Management Features:

- Built in LMS
- Report Cards
- Tests/Assessments
- Transcripts

b) School Administration Features:

- Curriculum Management
- Higher Education
- K-12

- Online Calendar
- Parent/Student Portal
- Reporting
- School District
- Special Education

3) **2.4.3 Your Agora**

Your Agora provides ESL Schools with valuable analytics and insights to truly optimize the school's performance. It provides teachers with powerful, comprehensive tools to improve workflow and make teaching more collaborative and interesting. With features such as auto grading, course management, interactive assignments, a dynamic calendar, and customizable syllabi, Your Agora makes classroom management a seamless experience for both students, teachers, and administration, (Shkurinalist,2018).

Gradebook Features:

- Attendance Tracking
- Class Summary
- Curve Scores
- Grade Calculations
- Individualized Assessments
- Lesson Planning
- Parent Portal
- Progress Reports
- Report Cards
- Teacher Dashboard
- Customized Assignments

School Administration Features:

- Online Calendar
- Independent/Private
- Online Payments
- Parent/Student Portal
- Reporting/Analytics

- Classroom Management
- Electronic Assignments & Tests

4) **2.4.4 Family ID**

Family ID is making it easy to register and find important information on academic programs, school sports, fundraisers, clubs and activities. Family ID's online registration management platform eases the process of registering for programs and securely keeps track of the students' personal information, (Shkurinalist, 2018).

Registration Features:

- Activity Registration
- Attendance Management
- Contact Management
- Form Builder
- Online Registration
- Payment Processing

School Administration Features:

- Higher Education
- Independent/Private
- K-12
- Online Payments
- School District
- Special Education

5) **2.4.5 Fresh Schools**

Fresh Schools is a customizable management software, which contains end-to-end functionality to streamline the school enrolment process. This includes school selection, recruitment management, application and registration management, and year-round form for both families and school administrators. These solutions are available via user-friendly online and mobile interfaces, making them more accessible to all families, (Shkurinalist,2018).

a) School Administration Features:

- Independent/Private

- K-12
- Library Management
- Online Calendar
- Online Payments
- Parent/Student Portal
- Reporting/Analytics
- School District
- Special Education
- School District
- Special Education

6) **2.4.6 Parent locker**

This web-based school management and communications software manages and streamlines all aspects of school administration. This includes report cards, assignments and tests, data analysis, scheduling, admissions, enrolment and many more. It gives parents and the school complete and seamless way to exchange important information and monitor students' academic progress, (Shkurinalist,2018).

a) **School Administration Features:**

- Bookstore Management
- Cafeteria Management
- Independent/Private
- K-12
- Online Calendar
- Parent/Student Portal
- Reporting/Analytics
- School District
- Special Education

7) **2.4.7 School diary**

School Diary allows schools to manage all the updates that schools send and receive every day. The various updates, including messages, notices, pictures, homework, attendance, fee reminders, etc. may be shared through a single platform. This

eliminates the need for endless emails or print alerts. School Diary utilizes the push and pull mechanism to make communication easy, engaging and effective, (Shkurinalist,2018).

a) **Classroom Management Features:**

- Built-in LMS
- Collaboration Tools
- For Classroom
- For Labs
- Real-time Chat
- Remote Access/Control
- Report Cards
- Support Audio/Images/Video
- Tests/Assessments
- Transcripts

b) **School Accounting Features:**

- Accounts Payable
- Attendance Management
- Billing & Invoicing
- General Ledger
- K-12
- Payroll Management
- Purchasing

8) **2.4.8 Boarddocs**

Board Docs has allowed over 2,000 schools and other organizations to lower operations costs, increase transparency with customers and reduce time-of-staff. The solutions are so easy to use and may be implemented right away. Board Docs allows organizations to significantly improve the way they create and manage board packets, access information, and conduct meetings, (Shkurinalist,2018).

a) **Board Management Features:**

- Calendar Management
- Collaboration

- Document Management
- Electronic Signature
- For Non-profits
- Member Directory
- Minutes Management
- Polls / Voting
- Role-Based Permissions
- b) **Government Features:**
 - Compliance Management
 - Self Service Portal
 - Taxation & Assessment
 - Work Order Management

Meeting Features:

- Action Item Tracking
- Agenda Management
- Attendee Management
- Board Meetings
- Committee Meetings
- Internal Meetings
- Materials Management
- Meeting Preparation Tools
- Minutes Management
- Post-Meeting Tools
- Scheduling
- Travel Management
- Voting Management

c) **School Administration Features:**

- K-12
- Online Calendar
- School District

9) **2.4.9 USA scheduler**

USA Scheduler is a master scheduling software for schools is user-friendly and highly accurate. It is

cloud-based, fully automated and creates complete, accurate schedules. The company offers a free evaluation with your school's data, (Shkurinalist 2018).

III. CHAPTER: THREE METHODOLOGY

A. **3.1 Introduction**

An individual corporation bodies or even a nation is confronted with a lot of problems such as relaxing to education technology, physiology and psychological aspect of life. In order to solve these problems, we have to make a strong decision as to methods and steps of solving the various problems. To be able to make headway we need to conduct research. Therefore, research is considered as the process of arriving at a dependable solution to a given problem through the systematic collection, analysis and interpretation of data.

The process the researcher used to develop the system is the System Development Life Cycle, (Innovative Architects 2019). It was used to provide a framework for technical and non-technical activities involved in the project. The researcher followed various phases in the system. These include;

1. Planning
2. Systems Analysis and Requirements
3. Systems Design
4. Development
5. Integration and Testing
6. Implementation
7. Operations and Maintenance

The SDDL provide to be of help due to a number of reasons. Some of these reasons include;

It determined the progression in each phase. Even though some steps were more difficult than others, none were overlooked.

It prevented an oversight of the system from functioning as planned.

Waterfall Model - Design

In this model the whole process of software development is divided into separate phases. In this Waterfall model, typically, the outcome of one phase acts as the input for the next phase sequentially.

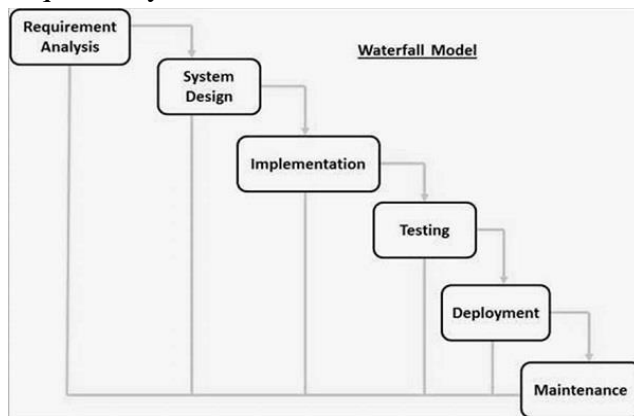


Figure 4 : Waterfalls phases [8]

B. 3.2 Baseline Study

Requirement analysis is the most important and fundamental stage in SDLC. The researcher performed tasks by carrying out baseline study and the information was used to plan the basic project approach. The method used in fact finding were outlined and the assessment of the weaknesses of the current system as evidenced by the collected data.

1) 3.2.1 Data Collection

There are numbers of approach to data collection depending on the nature of the research being conducted. In this project, the methods adopted include the following: Interview, World Wide Web, references to published and unpublished collection. The data collected for this research can be broadly classified into two types, namely: the primary and secondary data, (Innovative Architects 2019).

Primary data

Primary data can be defined as data collected directly from respondent relevant to the subject under investigation. The primary data used in this case is interview method according to, (Dime W 2019) says that primary source data collection is

source from first-hand information can be obtained. The tools for gathering the primary source of data collection include; interview, observation and questionnaire etc.

Secondary sources

These are source of data collection in which an already made data are been obtained i.e. that information that is already in printed form. Sources of secondary data include, textbooks, magazines, journals etc. in the case of this project, most of the data are published, documents, and references, (Dime W 2019).

The Interview Approach

I employed a combination of both oral interview, questionnaires and observation method consulting of staff, students, lecturers and downloading of information via website to investigate the system. The oral interview and distribution of questionnaires was given to teachers and pupils at Queens Academy, and also other facts and ideas for this research works was conducted in the exams and record of this school which involved about 5 (five) persons old and new student were also interviewed, (Dime C J 2013).

2) 3.2.2 Research Approach

The data collected was presented and analyzed using the table and simple percentages. A thorough and initial analysis was done at the end of each presentation. The forming of percentage is

$$\% = \frac{N}{f} \times 100/1$$

Where

N = the number of occurrences

f = the total number of occurrences

System Investigation

This is an in-depth and comprehensive study carried out upon an existing system in order to arrive at vital and relevant facts that helped in the design and implementation of the improved /new system or change which would be brought by the proposed system. The main objective of system investigation was to find out or learn how the current system is operating so as the surface and

come out with relevant data. The case organization was properly studied based upon their operational mode. Books and records kept and approaches to decision.

The researcher took time in studies and the academic operation of Queens Academy Private School which extract course schedule study and examination time table. Record and studying the unit was also studied. Data were collected from the workers and students which formed the basis for data analysis as below.

System Analysis

The existing system operational dedicated from the investigation made, shown that the Queens's Academy school uses manual course registration and as well as computerized automated process method form with high level database system which tends to be slow and inconsistent. Many hours are spent on grapping student result computing and storage of result data which leads to late release of results.

System requirements

We followed following steps to merge these requirements:

- Identify the common and conflicting requirements
- Categorize the requirements
- Take priority points for each requirement from stakeholders and on the basis of this voting prioritize the requirements
- Make final decision about the requirements

Common Requirements:

1. Web-Based Interfaces.
2. The application can be accessed from any computer that has Internet access.
3. Easy Access.
4. Enable to log in from smart phones or tablets.
5. Maintain a database of all items in the student information system.

Conflicting Requirements:

1. Easy access and Strong Authentication.

2. Allow any user to use the system and allow valid user to use the system.
3. To allow Program Account to log in the system with the official computers.

Final Requirements:

1. We finalized following requirements for the system by categorizing and prioritizing the requirements:
2. Error free system (Maximum 5% error may be considerable).
3. Web-based interfaces.
4. Accessible via the Internet.
5. Allow valid users to login and logout.
6. Restrict access to functionality of the system based upon user roles.
7. Allow administrators of the system to change user types and configure parameters of the system.
8. Allow any guest user to search for information in the student information system 's home page without having to log in to the system.
9. Allow valid users that log in to renew items, reserve items, and view the items they have checked out.
10. Allow admin to generate reports, editing information on the items in the system.
11. Maintain a database of all items in the Student Information System.
12. Restrict access to functionality of the system based upon user roles.
13. For example, Only Administrators of the system will be provided functionality to change user types, configure new changes to maintain database.

MINIMUM HARDWARE AND SOFTWARE REQUIREMENTS

As Gore (2019) suggests, looking at the population of the school and nature of activities, the recommendable minimum Hardware and Software

requirements to access the examination online is stipulated below

Operating System:

- Windows 7, Windows 8 or Windows 10
- Mac OSX 10.8, 10.9, 10.10 or 10.11, (Gore W 2019).

Hardware:

- Processor (CPU) with 2 gigahertz (GHz) frequency or above
- A minimum of 2 GB of RAM
- Monitor Resolution 1024 X 768 or higher
- A minimum of 20 GB of available space on the hard disk
- Internet Connection Broadband (high-speed) Internet connection with a speed of 4 Mbps or higher
- Keyboard and a Microsoft Mouse or some other compatible pointing device
- Sound card
- Speakers or headphones
- Strongly Recommended - Microphone and Webcam

Browsers:

- Chrome* 36+
- Edge* 20+
- Mozilla Firefox 31+
- Internet Explorer 11+ (Windows only)
- Safari 6+ (Mac OS only)

Google Chrome version 42+ and Microsoft Edge do not support NPAPI-type plug-ins, including Java plug-ins and many media browser plug-ins. Blackboard does not support these browsers for use with media that require NPAPI plug-ins for viewing, (Gore W 2019).

Students using unsupported browsers may experience issues submitting, quizzes, exams.

Browser Configuration:

The browser must be configured as follows:

- Strongly Recommended--add www.cameron.edu to trusted sites.

- JavaScript must be enabled
- Cookies must be enabled.
- Pop-up windows must be enabled.

Software:

- Microsoft Office--a free copy of Office 365 can be obtained at <http://office365.cameron.edu>
- Java -- To view and interact with all available blackboard applications.
- Real Player--for audio/video content.
- Quick Time--for audio/video content.
- PowerPoint viewer--PowerPoint Viewer lets you view full-featured presentations created in PowerPoint 97 and later versions.
- Adobe Shockwave--for Macromedia content.

Adobe Acrobat Reader --for PDF files Adobe® Reader® software is the global standard for electronic document sharing. It is the only PDF viewer that can open and interact with all PDF documents. Use Adobe Reader to view, search, digitally sign, verify, print, and collaborate on Adobe PDF files, (Gore W 2019).

Adobe Flash Player--Flash Player allows you to enjoy content with video, graphics and animation. At Queens's Academy, conducting examinations, library scheduling poses a great challenge as well as a lot consistent and clashes are always experienced both in general academic calendar, examination time table and lecture time table.

In the existing system, the manual approach conventional database system hampers fast decision making due to slow manual nature of processing of data, retrieval of data and overall control of data. The system is cumbersome and cost of labour at high rate, thereby affecting the measure resource of the institution.

Problems of The Existing System

From the analysis made above, the following problems faced by the current system in operation include:

1. There is a lot of delay in currency and consistency in the system.
2. There are noticeable hours spent on building and release of student results.
3. The student found it very difficult in completing their course registration form due to inefficient operation.
4. There are always clashes in the scheduling and release of the academic calendar, examination and lecture time table.
5. There is cumbersomeness of operations in the current examination system and persistence high cost of labour and raw materials
6. There is prolonged difficulty in decision making moving to the records and not so good efficient system in use.

3) 3.2.3 Development of the application

Development of the application involved the use of coding, installation and testing of the system. The following are the detailed programming environment which was used to develop the system. The coding of the system actually began at this stage. All previous planning was put into action during this phase. The purpose of the phase was to translate the design of the system into code and implement the design in the best possible manner. After coding the developer went further to do the testing of the developed system, (Wayner P 2015). During coding the structured programming was used to arrange the control flow in the program. That is, program text should be organized as a sequence of statements, and during execution, the statements are executed in the sequence in the program, (Wayner P 2015).

One big question the developer had to ask was “Which technologies are applicable for the software?” and “How to make code reusable in other applications?” these were my usually challenging questions to answer.

As a frontend developer, there was more focus on the client-side of the application. First, it was important to decide which frameworks or libraries were suitable for the system requirements, and how to improve the application with minimum changes in the future. There are different frameworks available such as Query, Angular, Backbone1 and React. Each framework has its own characteristics and features, (Wayner P 2015).

However, since the Automated Student Information System application was built based on Query, adding any new features or improvements was based on that. , (Wayner P 2015).

For the server-side scripting, PHP was the developer’s choice for its features and advantages. Client-Side Development, (Wayner P 2015).

HTML

Hypertext Mark-up Language Hypertext mark-up language (HTML) is the core language for building web sites. It is universally used in web development and responsible for marking up and structuring the content of all pages. Matters such as colour, positioning of elements, and decoration are of the Cascading Style Sheet (CSS), which is briefly discussed in technologies. The latest revision used is HTML5. It has different features that allow developers to build web pages that are smarter and faster than the old version of HTML. For better understanding HTML5 elements that are used for making good structure of a web page.

HTML document the first line contains a small piece of code, which indicates to the browser that it is compliant with HTML5. The browser examines the DOCTYPE to load the right grammar to speed up parsing and rendering the content of the page correctly. The most interesting new HTML5 elements are semantic attributes, graphics and multimedia. HTML5 is also using a new application programming interface such as geo location, drag and drop, local storage and application cache. It is important to know at least the basics of HTML5, because knowledge of

HTML5 was required to be able to build the search engine application, (Wayner P 2019).

CSS

Cascading Style Sheet Cascading Style Sheet is a language used to describe the style of an HTML document and how the content should be displayed. It is utilized to control the visual aspect of a 4-web page, including colours, background colours, element positioning, fonts, images, and other design aspects, (Wayner 2019). The HTML tag is used for selecting the element that the style must be applied to; the code inside curly braces describes the style. The application uses different CSS files for different purposes. Based on the designs and decisions made for choosing colours, background colours, and the layout, creating these files was a must to meet the project goals and fulfil its requirements, (Wayner P 2015).

JavaScript

JavaScript is the web programming language used to build interactive and dynamic websites. Developers can use it to change stylish appearance when it is loaded into the user's browser. It is useful for listening to events and mouse clicks

JavaScript uses different key terms such as variables, objects, functions, and events. Understanding the basics of JavaScript was a must to meet the needs of the customer in the project documented in this thesis. There are two options for adding JavaScript, it can either be inside an HTML file, or linked to external JavaScript files. The example in listing 3 shows an inline script. an inline script was added to an HTML file. This script uses an event called on load. When a page finishes loading, it will display the text "Welcome. 5 Since the application is based on the JQuery library, it will be a good chance for new trainees to practice and get to know how to use it in different situations. More about JQuery and its features will be presented in section, (Wayner P 2015).

4) 3.2.4 System Design

Systems design is the process of defining the interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development. There is some overlap with the disciplines of systems analysis, systems architecture and systems engineering. In this section, as a system designer, I made use of tools like algorithms and flowcharts to develop the design of the program.

Algorithm:

An algorithm explained below represents the logic of the processes to be performed by user. The logic process is represented in a sequence of instructions which are designed in such a way that if they are executed in the specified sequence, the desired goal of specific requirements is achieved in an algorithm, Each and every instruction is precise and clear and executed in a finite time.

Flowchart:

Another tool the developer used was a flow chart. Here the flow chart represents a pictorial representation of the algorithm. It represents the steps involved in the procedure and shows the logical sequence of processing using boxes of different shapes. The instruction to be executed is mentioned in the boxes. These boxes are connected together by solid lines with arrows, which indicate the flow of operation.

The first step in the design of a program is the algorithm. The algorithm is then represented in the form of a flowchart and the flowchart is then expressed in the computer language to actually prepare the computer program.

Modular Programming:

Using this method, the entire program is divided into smaller manageable modules so that the smaller modules can be designed, coded and debugged separately.

Top-Down Design:

Here the overall problem is first defined in terms of general subtask. These subtasks are divided into further subtasks. The system design pertains to the layout of the system and it consists of the input and output layout which takes in both forms and reports but I this report only a few will be illustrated.

Input design

The system takes in several inputs including information about the candidates to write the recruitment examination, the question to be asked in the examination and the answers

Login form

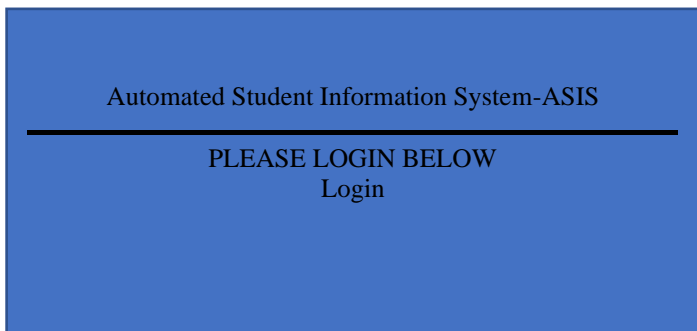
Login with the registered credentials and then move to the interface where available exams are shown.

Admin

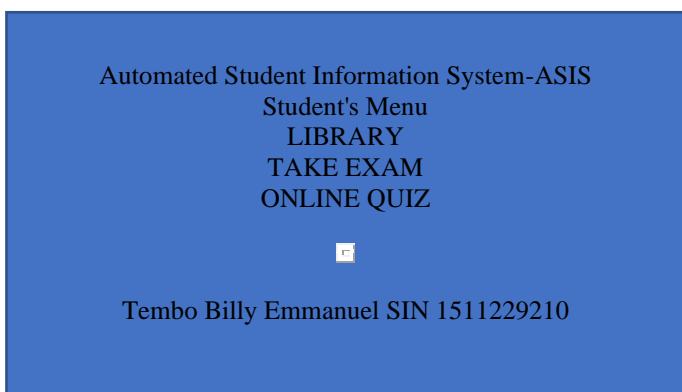
Admin panel is specially designed to facilitate all tasks that need to be done or attempted by the student user.

Microsoft word was used to design the templates about the system

Home page

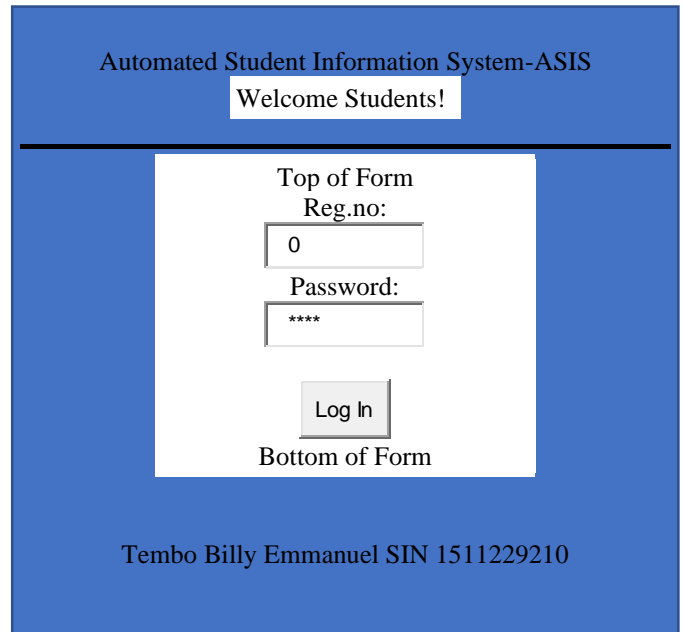


C. 3.3 System Design



Login page

Student menu



Library

INSTITUTE LIBRARY

MATERIAL	UNIT (s)	DESCRIPTION
----------	----------	-------------

Exams online Automated Student Information System-ASIS

COMPUTER STUDIES END OF TERM TEST

Top of Form

Remaining Time: Minutes

Bottom of Form

1. Which are the two binary numbers?

1 and 0

○ 2 and O

○ 1 to 9

2. It is a standard specifying a power saving feature.

○ PnP

○ ACPI

○ BIOS

D.

E. 3.5 System Design

Systems design is the process of defining elements of a system like modules, architecture, components and their interfaces and data for a system based on the specified requirements. It is the process of defining, developing and designing systems which satisfies the specific needs and requirements of a business or organization. The designer used a systemic approach for a coherent and well-running system.

Top-Down approach was considered all related variables of the system. The modelling languages were used to express the information and knowledge in a structure of system that is defined by a consistent set of rules and definitions. Design methods used include

- 1) Architectural design: To describe the views, models, behaviour, and structure of the system.
- 2) Logical design: To represent the data flow, inputs and outputs of the system. Example: ER Diagrams (Entity Relationship Diagrams).
- 3) Physical design: Defined as a) How users add information to the system and how the system represents information back to the user. b) How the data is modelled and stored within the system. c) How data moves through the system, how data is validated, secured and/or transformed as it flows through and out of the system.

1) 3.5.1 Context diagram

The context diagram was used establish the context and boundaries of the system which has been modelled. The context diagram shows things that are inside and outside of the system modelled, and what their relationship with the system and their external entities Nifty, (2015). It shows the system under consideration as a single high-level process and then shows the relationship that the system has with other external entities.

Sometimes it is also known as Context-Level Data-Flow Diagram or a Level-0 Data Flow Diagram. The contextual diagram plays a vital role in data designing because it den markets and clarify the boundaries of the system.

The context diagram also plays a significant role in the identity of information between the system and external entities as reflected in the diagram.

At the same time, it plays a role to sum up the findings in the system requirements as it depicts the framework, detailed investigation of the current system as planned. Each area under investigation is included.

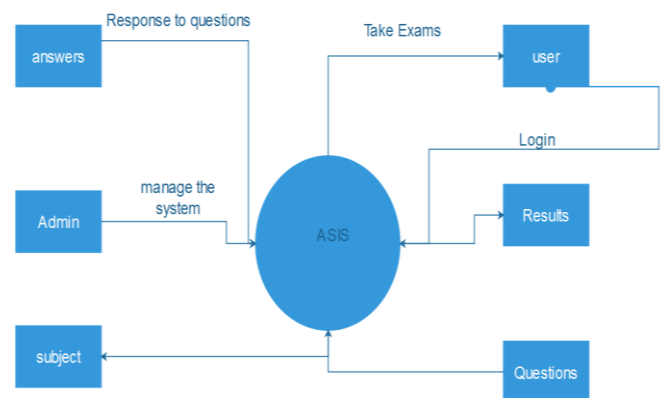


Figure 5 : context diagram

Structure of a context diagram

A DFD is process centric and depicts 4 main components.

- Processes (circle)
- External Entities (rectangle)
- Data Stores (two horizontal, parallel lines or sometimes and ellipse)

- Data Flows (curved or straight line with arrowhead indicating flow direction) this system y shows a number of processes with data flowing into and out of each process. Context Diagrams was created for systems analysis and design. But like many analysis tools it has been leveraged for other purposes to capture and communicate the

interactions and flow of data between business processes.

2) 3.5.2 System Software Level architectural design

The separate physical location of these tiers is what differentiates n-tier architecture from the levels. View-controller framework only separates presentation, logic, and data tiers in concept, (Anthony 2016).

Detailed system software architecture design

Presentation Tier

The presentation tier in this system was designed to meet several types of user interface protocols and platforms, in specific:

The Hotel reservation internal users, from both the front end back end the users are able to make changes to business rules and processes. Key users in the system-admin have to login in with authenticated, (Anthony 2016).

The presentation tier level is generally a Web server that hands static pages back to the client and fundamentally acts as a proxy of sorts for any active or dynamic content.

The Presentation tier manages the user interface and accepts all user inputs, (Anthony 2016).

Business Logic Tier

The business logic tier was designed to constitute several tiers of application server clusters distributed by multiple data centres. The Logic tier, is designed to coordinate the main business logic and houses the main application.it transmit instructions and data to the Presentation tier,

accepting input and sending data to the third tier (the data tier), (Anthony 2016).

Data Tier

The data tier is made up of an active database server cluster with multiple nodes (servers) each running its layer distributed by two data centres. The Data representation layer or data tier is responsible for storing and retrieving data from the database and pushing it to the Logic tier for the required processing. A simple overview of three-tier architecture is shown above, (Anthony 2016).

3) 3.5.3 Modular design of the system function

Modular design

When designing a system synthetically, the system could be designed by two broad ways. The first way would be to design the complete system using the known theories, and use the system, as it is designed, in the real conditions. An alternative way would be to design the different components of the system separately, and test each component in separate conditions.

Modular design, or "modularity in design", is an approach that subdivides a system into smaller parts that is independently created and then used in different systems to drive multiple functionalities of the system.

In this project the modular system is characterized by;

Functional partitioning into discrete scalable, reusable modules consisting of isolated, self-contained functional elements

Rigorous use of well-defined modular interfaces, including object-oriented descriptions of module functionality. Modular design purpose is to attempt to combine the advantages of standardization with those of customization. A downside to modularity is that modular systems are not optimized for performance.

The organization of in this system is represented by a tree like structure referred to as hierarchical diagram. These modules are controlled by other

modules using the character calls in structural programming.

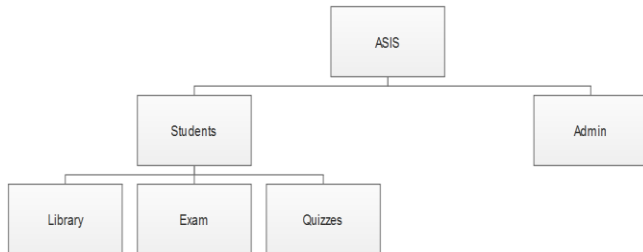


Figure 6 : Top down Tree like modules

To design this module, the top-down design approach was used. This approach involves breaking the programming into logical, manageable portions, or modules. This kind of programming works well with top-down design because it emphasizes the interfaces between modules and does not neglect them until later in systems development.

Ideally, each individual module was made to be functionally cohesive so that it is charged with accomplishing only one function.

Advantages

The Modular program design has three main advantages that made the programmer to adopt it.

- Modules are easier to write and debug because they are virtually self-contained.
- Tracing an error in a module was less complicated, because a problem in one module should can't cause problems in others.
- They are easier to maintain.
- They are easier to grasp, because they are self-contained subsystems.
- Guidelines used for modular programming;
- Each module to be kept to a manageable size (ideally including only one function).
- Attention to be paid to the critical interfaces (the data and control variables that are passed to other modules).

- Minimize the number of modules the user must modify when making changes.
- Maintain the hierarchical relationships set up in the top-down phases.

Structure chart (diagram).

A structure chart is made up of rectangular boxes, which represent the modules, and connecting arrows.

4) 3.5.4 System Class Diagram

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects, (Visual 2019).

Purpose of Class Diagrams

1. Shows static structure of classifiers in a system
2. Diagram provides a basic notation for other structure diagrams prescribed by UML
3. Helpful for developers and other team members too
4. Business Analysts can use class diagrams to model systems from a business perspective

A UML class diagram is made up of:

1. A set of classes and
2. A set of relationships between classes

What is a Class

A description of a group of objects all with similar roles in the system, which consists of:

1. Structural features (attributes) define what objects of the class "know"
2. Represent the state of an object of the class
3. Are descriptions of the structural or static features of a class
4. Behavioural features (operations) define what objects of the class "can do"
5. Define the way in which objects may interact

6. Operations are descriptions of behavioural or dynamic features of a class

Class Notation

A class notation consists of three parts:

1. Class Name
2. The name of the class appears in the first partition.
3. Class Attributes

In this project, database Classes are represented by a rectangle on a class diagram. The rectangle includes only the class name, but may also include the attributes and methods or function, (Visual 2019).

Attributes are what the class knows about characteristics of the objects, and methods (also called operations) are what the class knows about how to do things. Methods are small sections of code that work with the attributes, (Visual 2019).

Figure below illustrates a class diagram for this project.

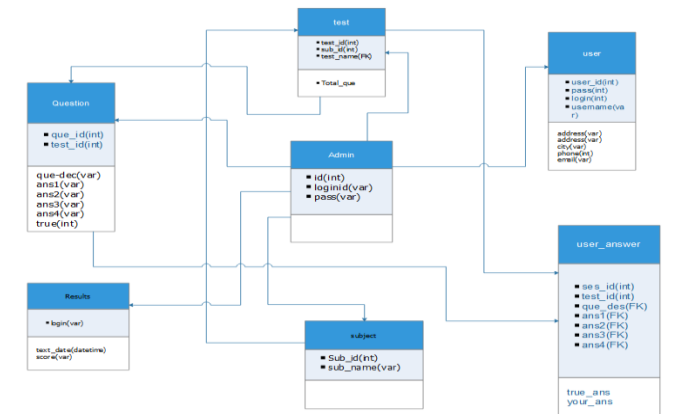
There is certain thing one need to do when making the class diagrams. These are stated below;

- The name is centered at the top of the class, usually in boldface type.
- The area directly below the name shows the attributes, and the bottom portion lists the methods.
- The class diagram shows data storage requirements as well as processing requirements.

Figure 7 : Class Diagram

The attributes (or properties) are usually designated as private, or only available in the object. This is represented on a class diagram by a minus sign in front of the attribute name. Attributes may also be protected, indicated with a pound symbol (#). These attributes are hidden from all classes except immediate subclasses. Under rare circumstances, an attribute is public, meaning that it is visible to other objects outside its class. Making attributes private means that the attributes are only available

to outside objects through the class methods, a technique called encapsulation, or information hiding,



(Scott 2019).

A class diagram may show just the class name; or the class name and attributes; or the class name, attributes, and methods. Showing only the class name is useful when the diagram is very complex and includes many classes. If the diagram is simpler, attributes and methods may be included. When attributes are included, there are three ways to show the attribute information. The simplest is to include only the attribute name, which takes the least amount of space, (Visual 2019).

The type of data (such as string, double, integer, or date) may be included on the class diagram. The most complete descriptions would include an equal sign (=) after the type of data followed by the initial value for the attribute, (Visual 2019).

The rules for creating sequence diagrams are that all interface classes must be connected to a control class. Similarly, all entity classes must be connected to a control class. Interface classes, unlike the other two, are never connected directly to entity classes, (Visual 2019).

5) 3.5.5 System Data Model Design

Adrienne W (2019), states that System data model is a diagram that displays the set of tables and their relationship between them. When designing the data model, the first aspect is to look at the list of tables in the database or entities the list of tables.

Secondly, we need to identify their dependence when designing them.

According to Abhishek (2019), to create and organize data in tables, there are several database models used to design the data into tables. Tables have the names which are referred to as entity while each entity has attributes. Relational database system is being used to avoid the duplication of and anomalies of data.

After identifying the entities, the three data model designing stages were followed. These include;

- Conceptual data model design
- Logical model design
- Physical model design.

Data modelling is the first step in the process of database design. The results obtained from one stage of model serves as a starting point for the next stage, and the last stage we have the desired result. Note that each of these data design models breaks down the system into small manageable parts that can be modelled to easily understand the process and data needed. The conceptual, logic and physical models can be are represented in a form of diagrammatic form which known as Entity relation Diagrams, (Adrienne W 2019).

Entity relation diagrams come into two styles: for the conceptual database design we will use the flow chart design diagram.

Conceptual data model design

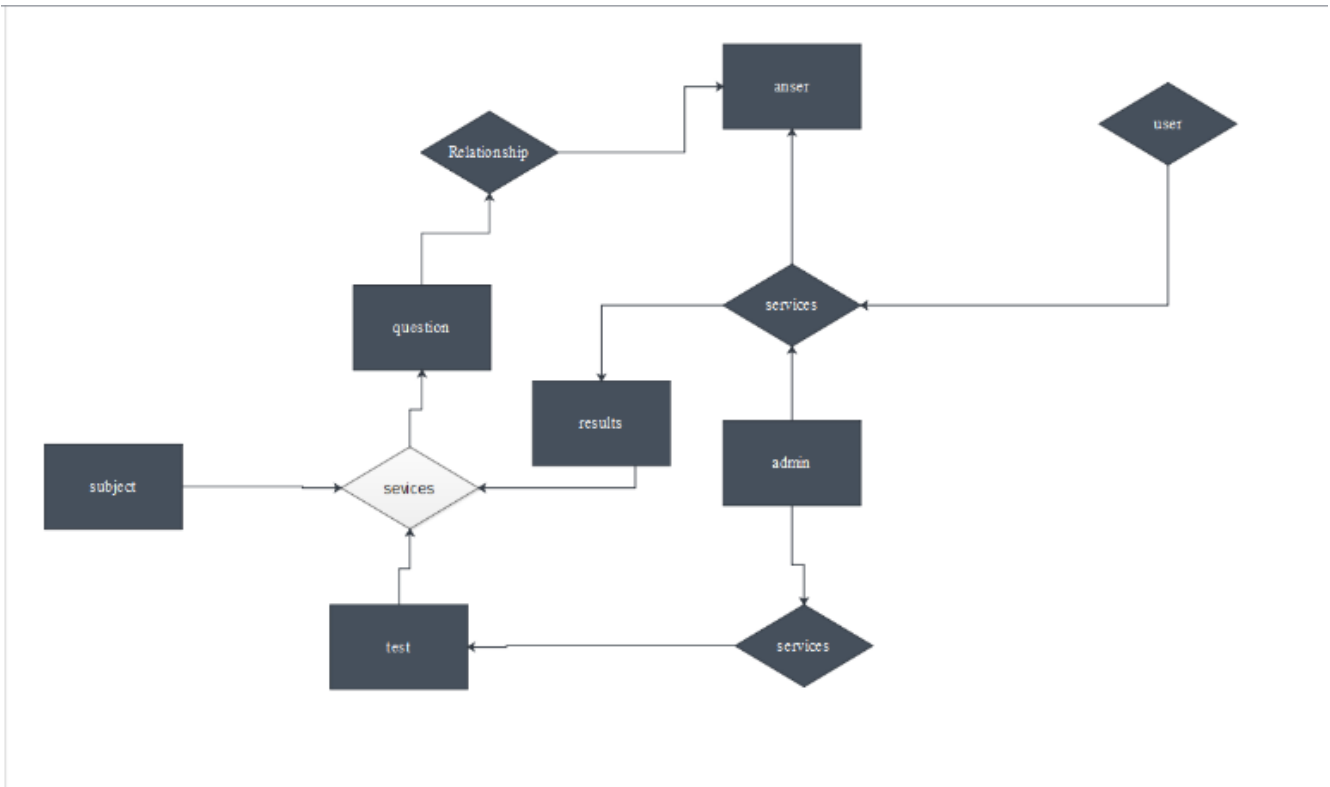


Figure 8 : E-R Diagram

Conceptual design expressed in the ER model

These models design move from the higher lever to a more detailed level. Conceptual data base model is in the higher lever and can easily interact with the users, as stated by Abhishek (2019)

This stage contains the set of squared rectangle shapes connected by a line. Attributes are highly

abstract with no much detail about the tables. A non-technical person would be easily understood because much of information is much hidden, (Abhishek 2019).

In other ways it has a structure for future information to be employed. It does not really consider what type of database is used. No database

specific language is implemented at this stage. Thus, the conceptual design stage allows us to concentrate solely on the problem of structuring information, without having to worry about at the same time to solve technical issues, (Data Prix 2016).

The results in this conceptual model data base design is the entities represented by the rectangular boxes and the lines showing the relationships. The type of relationships is reflected in the diamond shape, (Data Prix 2016).

Logical Design Stage:

Using the entities and the relationship in conceptual model design, at this stage the attributes and the keys are included. Bothe primary and foreign keys are determined at this stage, (Data Prix 2016).

In this system a class diagram in the Unified Modelling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects, (Adrienne W 2019).

The class diagram is the main building block of object-oriented modelling. It is used for general conceptual modelling of the structure of the application, and for data modelling.

The classes in a class diagram represent both the main elements, interactions in the application, and the classes to be programmed, (Adrienne W 2019).

In the diagram, classes are represented with boxes that contain three compartments:

In the design of a system, a number of classes are identified and grouped together in a class diagram that helps to determine the static relations between them. With detailed modelling, the classes of the conceptual design are often split into a number of subclasses.

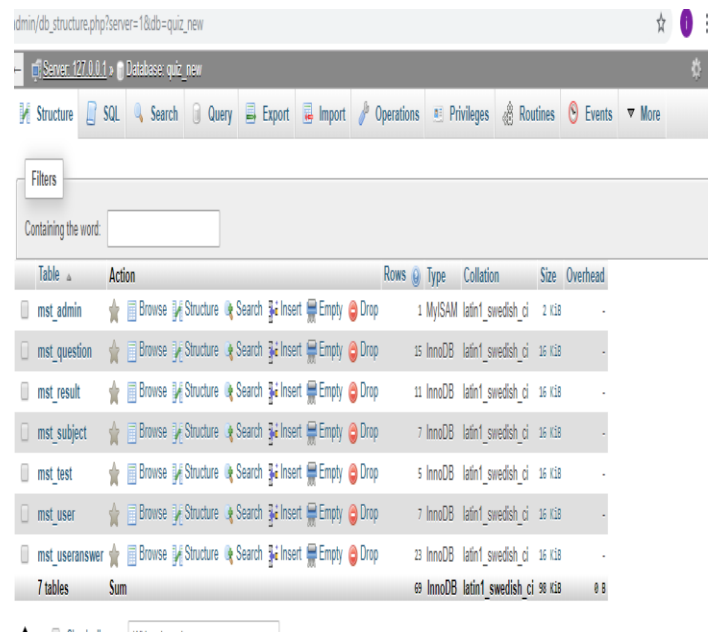
Physical data model design stage

At this point the developer is converts the logical system design into computer system using the database development tools. The name of the database in quiz new.

This now involves the stage that transforms the structure obtained in the logical design stage, with the view to achieving greater efficiency, in addition, complete with physical implementation issues will depend on the DBMS, (Adrienne W 2019).

Physical database design translates the logical data model into a set of SQL statements that define the database. For relational database systems, it is relatively easy to translate from a logical data model into a physical database, (Adrienne W 2019).

At this stage the entities are referred to as tables. Attributes are known as columns. Column names are no longer user friendly but compatible to table names in the database.



The screenshot shows a web-based database management interface. At the top, there's a navigation bar with options like Structure, SQL, Search, Query, Export, Import, Operations, Privileges, Routines, and Events. Below this is a table listing the structure of the database. The table has columns for Table, Action, Rows, Type, Collation, Size, and Overhead. The data rows are as follows:

Table	Action	Rows	Type	Collation	Size	Overhead
mst_admin	Browse Structure Search Insert Empty Drop	1	MyISAM	latin1_swedish_ci	2 Kib	-
mst_question	Browse Structure Search Insert Empty Drop	15	InnoDB	latin1_swedish_ci	16 Kib	-
mst_result	Browse Structure Search Insert Empty Drop	11	InnoDB	latin1_swedish_ci	16 Kib	-
mst_subject	Browse Structure Search Insert Empty Drop	7	InnoDB	latin1_swedish_ci	16 Kib	-
mst_test	Browse Structure Search Insert Empty Drop	5	InnoDB	latin1_swedish_ci	16 Kib	-
mst_user	Browse Structure Search Insert Empty Drop	7	InnoDB	latin1_swedish_ci	16 Kib	-
mst_useranswer	Browse Structure Search Insert Empty Drop	23	InnoDB	latin1_swedish_ci	16 Kib	-
7 tables	Sum	69	InnoDB	latin1_swedish_ci	96 Kib	0 B

Database 1

Unique identifiers become columns that are not allowed to have NULL values. These are referred to as primary keys in the physical database Relationships are modelled as foreign keys, (Adrienne W 2019).

Show all | Number of rows: 25 | Filter rows: Search this table | Sort

Options	test_id	sub_id	test_name	total_que
Edit Copy Delete	8	1	VB Basic Test	3
Edit Copy Delete	9	1	Essentials of VB	5
Edit Copy Delete	10	1	Creating User Services	5
Edit Copy Delete	11	7	function	5
Edit Copy Delete	12	6	44	44

Database 2

The SQL NULL is the term used to represent a missing value. A NULL value in a table is a value in a field that appears to be blank.

A field with a NULL value is a field with no value. It is very important to understand that a NULL value is different than a zero value or a field that contains spaces.

Identifies that column should always accept an explicit value of the given data type. There are two columns where we did not use NOT NULL, which means these columns could be NULL.

A field with a NULL value is the one that has been left blank during the record creation. The NULL value can cause problems when selecting data, (Adrienne W 2019). However, because when comparing an unknown value to any other value, the result is always unknown and not included in the results.

There are technical rules which must be followed when coming up with a logical diagram. These include;

- You must use the IS NULL or IS NOT NULL operators to check for a NULL value.
- Names are kept as short as possible
- No technical users can't understand the language used
- Spaces are not allowed in entity names in a physical schema because these names must

translate into SQL calls to create the tables, Rouse (2019).

- Table names should therefore conform to SQL naming rules.

Because primary key attributes are complete inventions, they can be of any index able data type. (Each database engine has different rules about which data types can be index able.) Making primary keys of type INT is almost purely arbitrary, (Adrienne W 2019).

Model relationships by adding a foreign key to one of the tables involved in the relationship. A foreign key is the unique identifier or primary key of the table on the other side of the relationship. The last remaining task is to translate the complete physical database schema into SQL. For each table in the schema, write one CREATE table statement. Typically, designers create unique indices on the primary keys to enforce uniqueness, (Adrienne W 2019).

Data models are meant to be database independent. These techniques and data models may therefore be applied not only to MySQL, but also to Oracle, Sybase, Ingres or any other relational database engine.

6) 3.5.6 User Interface Design

The user interface (UI) is the point of human-computer interaction and communication in with application or a website, (Jesse J.G 2019).

User interface designing tools

The web interface designing tool used in this system is Dreamweaver Cs6. Dream weaver help to do the work, code and create the interface faster. It is also flexible, (Adobe Creative Cloud, 2016)

User Interface (UI) Design in this system focuses on anticipating what users might need to do and ensuring that the interface has elements that are easy to access, understood, and use to facilitate those actions.

Choosing Interface Elements

The design of this system, the interface elements actions are consistent and predictable to the choice of the user. This helps them with task completion, efficiency, and satisfaction, (Jesse J.G 2019).

Interface elements

Input Controls: buttons, text fields, checkboxes, radio buttons, dropdown lists, list boxes, toggles, date field are consistent on all pages. Navigational Components: slider, search field, tags, icons are all also similar, (Jesse J.G 2019).

Informational Components: icons, progress bar, notifications, message boxes, modal windows

Containers: accordion

The following are the guidelines to be followed when designing the interface;

Keep the interface simple.

The interfaces are almost invisible to the user. They avoid unnecessary elements and are clear in the language they use on labels and in messaging.

Create consistency and use common UI elements.

By using common elements in your UI, users feel more comfortable and are able to get things done more quickly. There is a consistency patterns in language, layout and design throughout the site to help facilitate efficiency (Design Development Centre).

Be purposeful in page layout.

Consideration of spatial relationships between items on the page and structure the page based on importance. Important Items that can help draw attention to the most important pieces of information and can aid scanning and readability are placed in strategic areas.

Strategically use colour and texture. The colour scheme gives direct attention toward the items using colour, light, contrast, and texture, (Jesse J.G 2019).

Use typography to create hierarchy and clarity. Carefully consider how you use typeface. Different sizes, fonts, and arrangement of the text to help increase scan ability, legibility and readability.

Input and Output User Interface design

Once the database models and flow are identified, it is possible to design the output reports and input forms. The user interface involves the designing of both input forms and output reports. Although other output reports were designed as per system only a few will be illustrated. These forms are representing both the Front End and the back end of the system, (Jesse J.G 2019).

User Interface Design Basics

User Interface (UI) Design focuses on anticipating what users might need to do and ensuring that the interface has elements that are easy to access, understand, and use to facilitate those actions. UI brings together concepts from interaction design, visual design, and information architecture.

Choosing Interface Elements

Users have become familiar with interface elements acting in a certain way, so try to be consistent and predictable in your choices and their layout. Doing so will help with task completion, efficiency, and satisfaction.

Interface elements include but are not limited to:

Input Controls: buttons, text fields, checkboxes, radio buttons, dropdown lists, list boxes, toggles, date field

Navigational Components: breadcrumb, slider, search field, pagination, slider, tags, icons.

Informational Components: tooltips, icons, progress bar, notifications, message boxes, modal windows

Containers: accordion

There are times when multiple elements might be appropriate for displaying content. When this

happens, it's important to consider the trade-offs. For example, sometimes elements that can help save you space, put more of a burden on the user mentally by forcing them to guess what is within the dropdown or what the element might be.

Best Practices for Designing an Interface

Everything stems from knowing your users, including understanding their goals, skills, preferences, and tendencies. Once you know about your user, make sure to consider the following when designing your interface:

Keep the interface simple. The best interfaces are almost invisible to the user. They avoid unnecessary elements and are clear in the language they use on labels and in messaging.

Create consistency and use common UI elements. By using common elements in your UI, users feel more comfortable and are able to get things done more quickly. It is also important to create patterns in language, layout and design throughout the site to help facilitate efficiency. Once a user learns how to do something, they should be able to transfer that skill to other parts of the site., (Jesse J.G 2019).

Be purposeful in page layout. Consider the spatial relationships between items on the page and structure the page based on importance. Careful placement of items can help draw attention to the most important pieces of information and can aid scanning and readability, (Jesse J.G 2019).

Strategically use colour and texture. You can direct attention toward or redirect attention away from items using colour, light, contrast, and texture to your advantage.

Use typography to create hierarchy and clarity. Carefully consider how you use typeface. Different sizes, fonts, and arrangement of the text to help increase scan ability, legibility and readability.

F. 3.6 Summary

If it weren't for the field of user interface design, we might be having a very tough time using the

system. In this section, we learnt about user interface design and some of the technique's designers use to ensure hardware and software are easy to use.

communicate and coordinate with parents. It includes features from messaging, easy photo and video sharing, schedule coordination, signup forms for volunteers, meetings and field trips. It also holds a platform for students' behaviour management and personality portfolios. The app is available on mobile, (Shkurinalist 2018).

K-12 Features:

- Communication Management
- Parent Portal
- Progress Reports

School Administration Features:

- Independent/Private
- K-12
- Online Calendar
- Parent/Student Portal
- School District
- Special Education

IV. CHAPTER: FOUR RESULTS

- *4.1 Introduction*
- In this chapter the developer will give the analysis of the survey from the questionnaire before the system was made and after the development of the system as what impact it has brought to the school. The designer will further explain the cross-cutting issues patterning to the system and the strategies which will be used for implementation.
- *4.2 Baseline Study Results*
- The data collected was presented analysed and interpreted following the methodology stated
- Mode of Operation

Table 2

Options	Response	Percentage
Manual	5	10.0
Automated	8	16.0
Hybrid	37	74.0
Total	50	100.0

Table 5

Option	Response	Percentage
Easy Access	6	12.0
Efficient	8	16.0
All of the	36	72.0
Total	50	100.0

From the table above, it is observed that the mode of operation at Queens Academy is combination of both manual and automated approach.

Table 3

Options	Response	Percentage
Very efficient	8	16.0
Efficient	15	30.0
Faulty	27	54.0
Total	50	100.0

From the above table, it can be decalcified that the hybrid mode of operation is fairly (considerable) efficient, that is to say that system is efficient to an extent.

Awareness of Relational Database
Database system of HTTP server

Table 4

Option	Response	Percentage
Yes	15	30.0
No	25	50.0
Indifferent	10	20.0
Total	50	100.0

From the table above, it is observed that the relation data-based system powered by HTTP server is not well known to them.

Anticipated Benefit of RD-HTTP server

From the above table, it is observed that the anticipated benefit of the relational database and HTTP server induced easy access to information, efficient storage system, high level data security and control.

1) 4.2.1 Survey Results and Discussion

Result of Analysis and Interpretation

From the data analysis concluded, the following results were made:

1. The school is making use of both manual and automated approach, they have a database system that keep academic records, such as payment system and in addition to some paper, file work where the database could not be applied.
2. It was also conducted that the worker and student who knew about the new system is of the view that the anticipated benefits derivable from the new system which can be easily accessed, efficient storage and retrieval system it removes or reduced to the barest minimum. The delay and inconsistency associated with the database system in use.
3. It was also deducted that through operation involves some element of automations, using the convectional database system. The system could be said to be fairly efficient which causes some errors, time table clash during examination, difficult in accessing the registry system and a lot of other disadvantages or problems.

4. During the investigation and data collection, it was observed that the institution is not all that aware of the new system that is “the relational database system using HTTP server” this can be explained due to the numbers of the system and the technical involvement of it.

B. 4.3 System Implementation Results

With the proposal design, staff, students and any authorized persons can get all the available information from intranet integrated database. They can get record of pupils, results, register examination questions Including data transmission, information, communication and data storage by the existing system and that of a modern system that align

Benefits of The New System

It is believed that the new proposed system will bring about the following:

1. Efficiency in operations at the highest level due to the rational database prepared by the HTTP server.
2. It will enhance timeliness, accuracy, reliability and above all easy access to data and information.
3. It will accelerate decision making mechanism which will turn the whole system into modern and appreciative.
4. The system will help to reduce the high rate of labour using to its high level of automation and independency.

C. 4.4 Summary

User Interface Design is the discipline of designing software interfaces for devices, ideally with a focus on maximizing efficiency, responsiveness and aesthetics to foster a good user experience. This previous touch chapter explained on how to can make the user interface professionally.

V. CHAPTER FIVE: DISCUSSION AND CONCLUSION

A. 5.1 Introduction

In this chapter is where I will delve into the meaning, importance and relevance of your results. It should focus on explaining and evaluating what you found, showing how it relates to your literature review and research questions, and making an argument in support of your overall conclusion.

B. 5.2 Discussion

1) 5.2.1 The baseline study

From the analysis of data presented above, it is quite clear that Automated Student Information System. The need may arise when people go on retirement; quit the service as a result of gaining better employment elsewhere or due to disciplinary measures.

2) 5.2.2 Use of technology

Introduction

To create a Web system, a huge set of rules and technology are used so that the website looks and function as you wish them to, the familiarisation with web technologies help one to achieve it, (Mailos 2019).

The technological tools come down to knowing 3 main languages: JavaScript, CSS, and HTML. And while it sounds quite complicated, once you know what you are doing, understanding web technology and the way it works becomes significantly easier (Mailos 2019).

I present with an introduction to web technologies and the latest web technologies list hoping it will make things at least a bit easier for you.

What is Web Technology?

Web development technologies are the mark up languages and multimedia packages computers use to communicate. These are outlined below;

1. Browsers

Browsers request information and then they show us in the way we can understand. Think of them as the interpreters of the web (Mailos,2019). Here are the most popular ones which suit the system developed:

1. Google Chrome – Currently, the most popular browser brought to you by Google
2. Safari – Apple’s web browser
3. Firefox – Open-source browser supported by the Mozilla Foundation
4. Internet Explorer – Microsoft’s browser

2. HTML & CSS

HTML is the one of the one you should learn first. HTML, the web browsers know what to show once they receive the request. HTML works, with CSS.

CSS

CSS stands for Cascading Style Sheets and it describes how HTML elements are to be displayed on the screen (Mailos 2019).

3. Web Development Frameworks

Web development frameworks are a starting point where the system was built with items that a developer can use to avoid doing the simple or mundane tasks, and instead get right to work (Mailos 2019).

4. Programming Languages

As the developer explained before, since computers don’t use languages that are anything like human languages, they need a different way to communicate (Mailos 2019). Here are some of the most popular programming languages and were used to develop the system:

Javascript –

PHP

Php is one of the core web technologies and

3) 5.2.3 Development of the system as a solution

The programming language chosen for the development of the system is in the previous

section were used to develop the system. The languages were chosen because it enables the creation of applications with a graphical user interface, containing controls such as text fields, combo box, labels, command buttons etc. Below are the screen shots of the system developed.

Home page

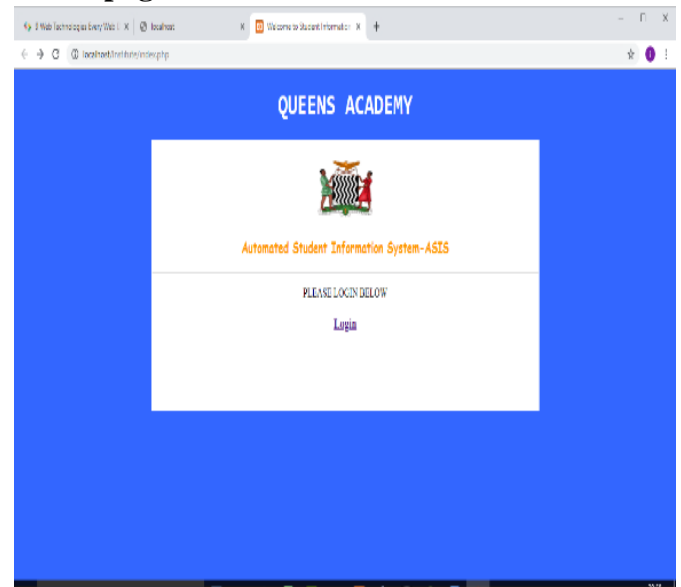


Figure 9 : Home page

This is the initial or main page of the system.

Login Page

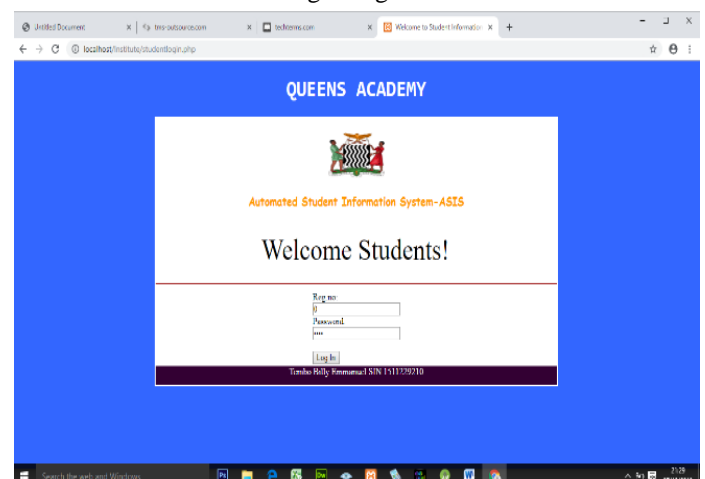


Figure 10 : Login Page

A login is a set of credentials used to authenticate a user. This system consists of a username and password.

Students menu page

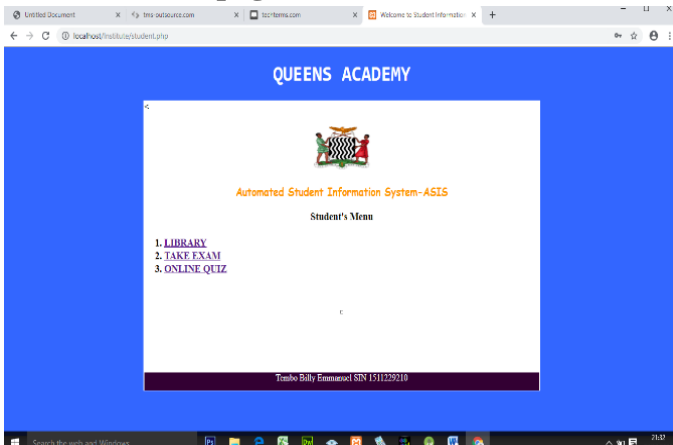


Figure 11 : Students menu page

Digital score sheet

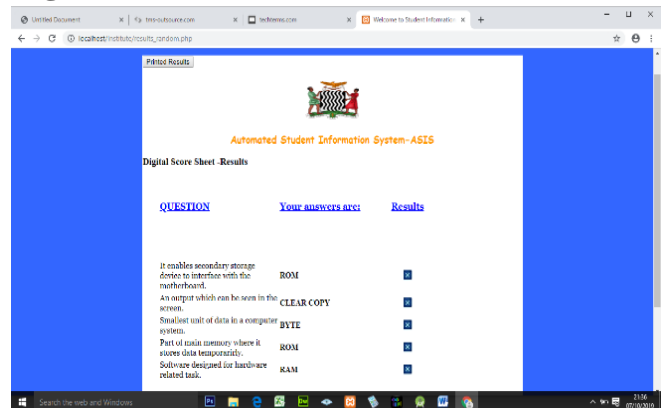


Figure 14 :Digital score sheet

Digital Library



Figure 12 : Library

Online Exam Digital Question paper

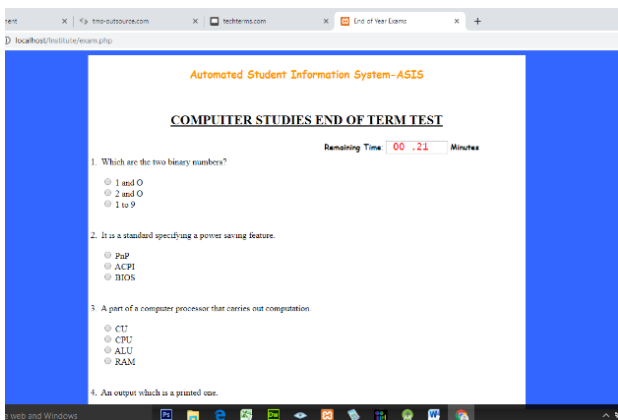


Figure 13 :Online Exam Digital Question paper

Online quiz

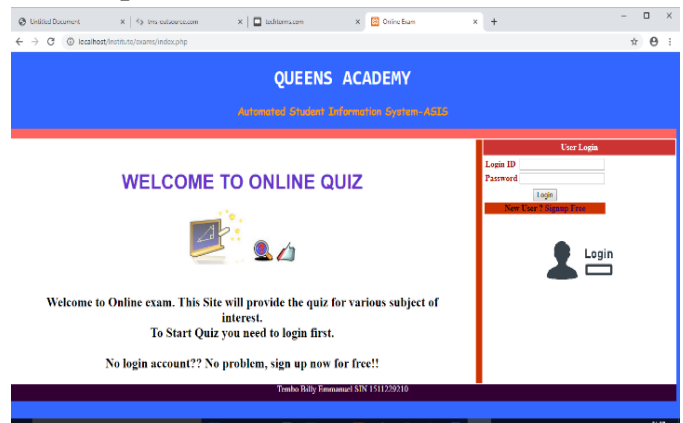


Figure 15 : Online quiz

4) 5.2.4 Comparison with other similar works

Today several companies are building electronic management of school system which are either web based or mobile applications.

AdminPlus

It is a cloud-based student information solution that helps schools collect, manage and analyse student information. The solution's core modules—which include attendance, scheduling, enrolment, discipline, student billing, grade book, report cards and parent and student portals.it is tied to into a customizable student information database, where critical student and staff data is stored and available for real-time analysis and reporting (Paget P 2019).

The report cards module provides a way for schools to record and edit both letter and number grades and create report cards and transcripts. It also integrates with both Teacher plus Web grade book and Parent plus Web portal to streamline reporting and communications (Redike 2019).

Within Plus Portals online communication modules, students and parents can view grades, submit course requests, review schedules, send and receive communications and more. Mobile access is available through apps for iOS and Android devices. Support is offered through an online support portal and via phone, (Redike 2019).

IGradePlus

IGradePlus is a cloud-based school management solution designed for individual instructors, schools and colleges. Key features include student and class management, school and district management, grade management, attendance and behaviour tracking, communication tool and more, (Nick 2019)

IGradePlus helps teachers and administrators to create custom student and parent profiles and store them in a central database. The solution's student and class management features include student document storage, seating charts, lesson plans, assignments, attendance and more, (Paget P 2019)

IGradePlus communication tools for parents, students and teachers include student and parent web portals, bulk email support, notifications, document sharing, event calendars, bulletin boards, lesson logs and teacher blogs. Additionally, the solution offers a custom report generation and distribution engine and encrypts data transfer via secure socket layer (SSL) encryption technology, (Paget P 2019)

Services are offered on an annual subscription basis that includes support via email

Orbund

Orbund is a cloud-based education management solution for training institutes, higher education, K-12 schools and universities. Primary features include an online application, lead forms, registration portal, instructor portal, administrator portal and a student portal, (Jonathan 2019).

It automates the online student enrolment processes and allows users to capture leads and applications from the website. The instructor portal allows teachers to manage classroom activities, online course materials, prepare and distribute assignments and broadcast messages to groups of students. They can track attendance records, the overall academic progress of students and generate assessment reports, (Jonathan 2019).

The student portal allows students to access communication, take tests, view and track progress in real time. The administrative portal provides admission management, alumni management, contact management, registrar's office management, student finance management and career services management features, (Jonathan 2019).

Orbund offers integration with QuickBooks, DocuSign, Moodle, Weber, Campus Ivy and LTI tools. Support is provided via email, live chat and over the phone. (Jonathan, 2019).

5) 5.2.5 Possible application

A Student Information System (SIS), also referred to as a Student Management System (SMS), Student Information Management System (SIMS) or Student Record System (SRS), (Paget P 2019).

The Automated Student Information system can also be used in the following areas;

- Serve as the core database for all school operations

- Can help to track and manage all their student data such as grades, attendance, behavioural information
- Admissions – Often SIS software is capable of managing the entire admissions process, from initial contact to full enrolment.
- Billing and Payments – Paying and being paid can often be managed through the SIS, as it holds all the data about parents, employees, suppliers, and contractors.
- Reporting – Reporting functionality allows schools to identify trends in student behaviour and analyse results to improve their performance.

C. 5.2 Summary

This chapter summarizes the research in Automated Student Information System. Therefore, the study was able to achieve the stated objectives and was able to address the issue delay inefficiency and inaccuracy of data processing and information storing accessing, retrieving and editing. The study also fostered good perception of information age and developed efficient and effective academic Automated Student Information System for school administration and examination.

D. 5.3 Conclusion

The need for available secure and reliable information solution is heightened by the increasing dependence on web like systems and database technologies to provide educational services, develop efficient academic products, administer daily activities and perform both short- and long-term management functions.

Queens Academy as a case study, this project has elaborated on the technical and operational requirements of developing an academic information system. Issues on web and database

concept and technologies, analysis and design tools, security and content maintenance were adequately explained, database and dynamic web page scripting are the communication means to live information content. These technologies have come to stay, no doubt that every organization, institution and government parasternal wants to join the e-race. Designing a functional academic website for Queens Academy was indeed a giant step in the right direction.

E. 5.4 Future works

The following are the future works of this project;

1. Automated SMS notification system
2. eLearning content
3. Blog
4. Payment system

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VIII.APPENDIX

A. Algorithm or code

```
1. <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
2. <html xmlns="http://www.w3.org/1999/xhtml">
3. <head>
4. <title>Welcome to Student Information Centre:: Institute of Computing</title>
5. <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
6. <script type="text/java script">
7. function validateForms()
8. {
9. var a=document.forms["login"]["username"].value;
10. var b=document.forms["login"]["password"].value;
11. if (a==null || a=="")
12. {
13. alert("Username must be filled out");
14. return false;
15. }
16. if (b==null || b=="")
17. {
18. alert("Password must be filled out");
19. return false;
20. }
21. }
22. </script>
23.
24. <style type="text/css">
25. <!--
26. .heading {
27. color: #F90;
28. font-family: "Comic Sans MS", cursive;
29. }
30. .options {
31. font-family: "Comic Sans MS", cursive;
32. font-size: 16px;
```



```
33. font-style: oblique;
34. color: #F93;
35. }
36. -->
37. </style>
38. <link href="style/style.css" rel="stylesheet" type="text/css" />
39. </head>
40. <body class="body">
41. <div class="container">
42. <h1 align="center"><tt>QUEENS ACADEMY</tt></h1>
43. <table align="center" cellpadding="0" bgcolor="#FFFFFF" width="800" border="0">
44. <tr>
45. <td>
46. <h1 align="center" class="heading"></h1> <h3 align="center" class="heading">Automated Student Information System-
  ASIS</h3>
47. <table align="center">
48. <tr>
49. <td>
50. <p align="center"><font size="14">Welcome Students!</font></p></td>
51. <td>
52. </tr>
53. </table>
54. <hr color="brown" height="20px"></hr>
55. <table align="center">
56. <tr>
57. <td>
58. <form action="/Institute/studentlogin.php" method="POST" name="login" onSubmit="return
  validateForms()"">
59. Reg.no: <h1><br><input name="regno" type="text" value="0" /><br>
60. Password: <br><input name="password" type="password" value="test" /><br><br>
61. <input type="submit" value="Log In" >
62. <input type="hidden" name="MM_insert" value="login" />
63. </form>
64. </td>
```

```
65. </tr>
66. </table>
67.
68. <div class="footer">
69. <div align="center">Tembo Billy Emmanuel SIN 1511229210</div></body>
70. </html>
```

B. Students.php

```
71. <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//E
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
72. <html xmlns="http://www.w3.org/1999/xhtml">
73. <head>
74. <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
75. <title>Welcome to Student Information Center:: Institute of Computing, BZU</title>
76. <style type="text/css">
77. <!--
78. .heading {
79. color: #F90;
80. font-family: "Comic Sans MS", cursive;
81. }
82. .options {
83. font-family: "Comic Sans MS", cursive;
84. font-size: 16px;
85. font-style: oblique;
86. color: #F93;
87. }
88. -->
89. </style>
90. <link href="style/style.css" rel="stylesheet" type="text/css" />
91. </head>
92.
93. <body class="body">
94.
95. <h1 align="center"><tt>QUEENS ACADEMY</tt></h1><table align="center" cellpadding=
    bgcolor="#FFFFFF" width="800" border="0">
96. <tr>
```

```
97. <td><
98. <h1 align="center" class="heading"></h1> <h3 align="center" class="heading">Automated Student Information System-
  ASIS</h3> <p align="center"><h3>
99. <div align="center">Student's Menu
100. <h3>
101. </div>
102. <table border="1" align="center">
103. <tr>
104. <ol>
105.
106. <li><a href="library.php">LIBRARY</a></li>
107. <li><a href="exam.php">TAKE EXAM</a></li>
108. <li><a href="exams/index.php">ONLINE QUIZ</a></li>
109. ><p align="left">&nbsp;</p></td>
110. </tr>
111. </table>
112. <h1 align="center" class="heading">&nbsp;</h1>
113. <div class="footer">
114. <div align="center">Tembo Billy Emmanuel SIN 1511229210</div></body>
115. </html>
```