

SEMINAR NOTE
ON
DESIGN AND IMPLIMENTATION OF
DEPARTMENTAL PORTAL
CASE STUDY
OF
(COMPUTER SCIENCE DEPARTMENT)

SUBMITTED

BY

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2020/HND/CPS/021

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INTRODUCTION

The Departmental Portal is a web based system that deals on registration of student, generating blacklist for student, generating quick result for each student, provides upload and download of course material and allocation of departmental courses. It is an affordable solution that gives the department more values as the system caters to the need of the department which includes: admission, online result, inquiry etc. It maintains all information of the department in a centralized

Aim and Objectives

The Aim of this project is to create a system whereby common educational challenge can be tackled without much stress from the students or staffs.

Objectives of the project include:

- a. Creating a system whereby students can copy and submit their assignments online.
- b. Gets information about their academic history without necessary going through the course lecturer.
- c. Keep records of all Students in all levels.
- d. Generates quick Result of each and every student.
- e. Automatic Generate student identification number which differs from the matric numbers.
- f. Generate black list for Students.
- g. The system can allow the administrator to select the unnecessary information and delete them from the database.
- h. Administrators have total control on Site; he can delete or edit information.
- i. Provide the facility like send mail for recover password.
- j. Upload course details.

LITERATURE REVIEW

There seems to be some controversy whether students today are technologically prepared for the 21st Century Digital Age. "Available evidence shows that American adults and children have a poor understanding of the essential characteristics of technology, how it influences society, and how people can and do affect its development. Neither the educational system nor the policy-making apparatus in the United States has recognized the importance of technological literacy" (National Academy of Engineering, 2002).

A computer is an electronic device capable of accepting data and instructions, processing the data based on the instructions to generate results or output in such a manner that is yet to be equalled by any other known machine to mankind (Anigbogu, 2000).

Department of Education, 2002). However, technology alone does not make a difference; rather the key element is how it is used. The National Education Technology Plan 2004 (U.S. Department of Education, 2004), reports that today nearly every public school has access to the Internet, but the real issue lies in the lack of adequate training and lack of understanding of how computers can be used to improve learning. This project examines and discusses the problems, challenges and Benefits of implementing web-based college management system in the country, by reviewing the consciousness and willingness of the selected Colleges. This study also identifies the enabling factors, the traffic-jam and, forecasts the future growth of web-based college management system in Nigeria colleges. Survey research method was adopted for the study, and questionnaire was the only instrument used for the data collection.

CHAPTER THREE

ANALYSIS AND DESIGN METHODOLOGY

3.1 Preamble

This chapter is a compendium of the methods of data collection, the critical analysis of the previous system which involves; the processes in the system, flowchart of the system and the problems of the system. Analysis of the new system which includes; aim and function of the system, input requirement specification of the system, the processing requirement specification of the system, the output requirement specification of the system and the advantages of the new system. It is also defined as the study of methods by which knowledge is gained. Its aim is to give the work plan of research.

This is concern with the set of methods and principles used to carry out this project work successfully. It deals with techniques applied in data analysis and design.

Examples of Research Methodologies include:

- ☐ YSM (Yourdon Systems Method).
- ☐ AIM (Application Implementation Method)
- ☐ OMT (Object Modelling Techniques)
- ☐ SSDAM (System Structure Analysis and Design methodology)
- ☐ OODM (Object Oriented Design Methodology)
- ☐ OOSE (Object Oriented Software Engineering)
- ☐ OOAD(Object Oriented Analysis and Design)

3.2.1 Methodologies Adopted for the Proposed System

In achieving our proposed system, we made use of the internationally accepted software engineering model, the Structured System Analysis and Design Methodology (SSADM). Structured System Analysis and Design Methodology (SSADM) is a systematic approach to the analysis and design of information systems. SSADM method involves the application of a sequence of analysis, documentation and design concerned with analysis of the current system, the logical data design, logical process design etc. The steps involved are; the use of the Use Case Diagrams, UML Activity Diagram, Sequence Diagrams and Class Diagrams which makes the presentation of data logical and easily understandable by even novice to get the desirable message. Based on the above reasons, Structured System Analysis and Design Methodology was adopted for this project work.

3.2.2 Method of Data Collection

Data collection is the process whereby the researcher gathers information related to his problem from different sources. In any research work, the method of data collection should be in conformity with the nature of the research work itself. The two types of data being carried out in this project are as follows:

- i. Primary method of collection
 - ii. Secondary method of collection
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- i. Primary Method of Collection: these consist of data that were collected through observation and research (Old Departmental portal) with the help of some administrative staffs in the department.
 - ii. Secondary Method of Collection: These constitute the use of the library and internet to check for new and improved system for departmental management. All these form the bedrock for the view of related literature of the research within the era of Information Technology age.

3.3 Description and Analysis of the Existing System

The Existing system is a manual process that has all its processes revolving round the departmental office. The departmental officer stands as the middle man between the students, lecturers and the archives. All informations pass through the

departmental officer and he is responsible for the safe keeping of the informations in the department.

3.3.1 Components of the Existing System

The manual system has three components:

1. The student/lecturer takes his/her records and details and submits to the administration office that verifies the details.
2. The administration Officer collects details form the students/lecturers and keeps the collected information in their corresponding files.
3. Archive is where all the information at the end of an academic year is kept for the purpose of record keeping. The informations are not kept in the same file,

thus making it very hard and nearly impossible to retrieve necessary information from.

3.3.2 How the Existing System Works

The manual system of departmental management is mainly overseen by the administration office of the department. The departmental administration office is in-charge of the registration, result printing, news, events and course registration of the students amongst others.

Once a new student has been admitted into the department by the Registry department, she/he is expected to register with the department or be ready to forfeit the admission. She/he is expected to approach the departmental administration office with copies of her/his credentials alongside a registration of fee which varies in amount. The credentials to be submitted includes: **Birth Certificate, Certificate of Origin, Hardcopy of O'level Results, School Fees Teller, Testimonial/First School Leaving Certificate and departmental registration form.**

After their credentials have been verified by the department, their details are now been entered manually into a list that contains the name of all the students admitted in that academic year that belongs to the same level. After which it is moved to an archive file that contains information of previous years. Hence, there is no database for all the record as they are all kept in different files.

3.3.3 Data Flow Diagram of the Existing System

The data flow of the existing system refers to movement on informations and how the informations are related within the student, lecturer, administration officer and the information bank (usually the file cabinet).

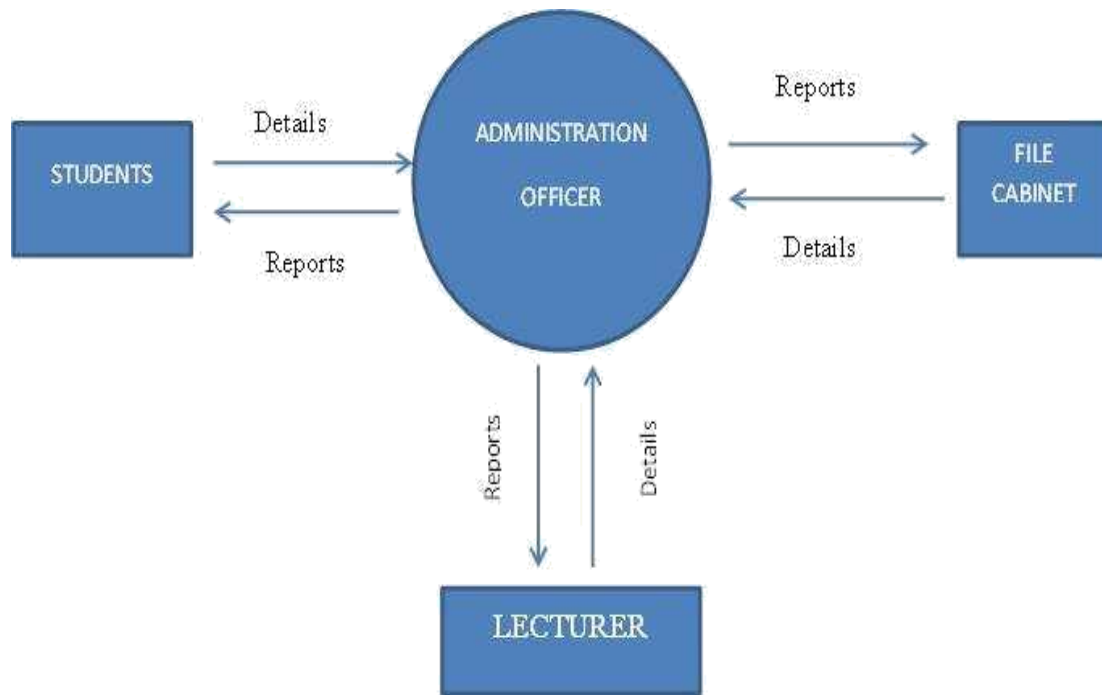


Fig 3.1 DFD of the Existing System

3.3.4 Advantages of the Existing System

- □ □ It gives room for students with special cases (i.e handicapped)
- □ □ It creates a student-administration relationship.
- □ □ It makes sure that the right informations are submitted.
- It gives the administrator a chance to help the student with information they are not cleared with.
- □ □ Students can make change to their information at any time.

3.3.5 Disadvantages of the Existing System

- It is very slow and tends to take long time for processing.
- It gives room for manipulation of student informations.
- Students can influence the administrator.
- It gives room for continuous error.

3.4 Description and Analysis of the Proposed System

The proposed system is intended to provide the facility of automating the administrative tasks such as student grade and information management, creating a general database for the safe keeping of the departmental informations amongst others. This system will be a web server system, meaning that all the transactions

would be carried out through the help of the internet the entire database used would be an online database. People who would access the system would include the administrator who is in charge of maintaining the system, the lecturers or staffs and most importantly the students at all levels. The administrative office of the department is responsible for managing details on the system including course, lecturers and students information.

3.4.1 Data Flow Diagram of the Proposed System

This refers to pattern at which informations are been related within the student, lecturer and the proposed system (departmental system).

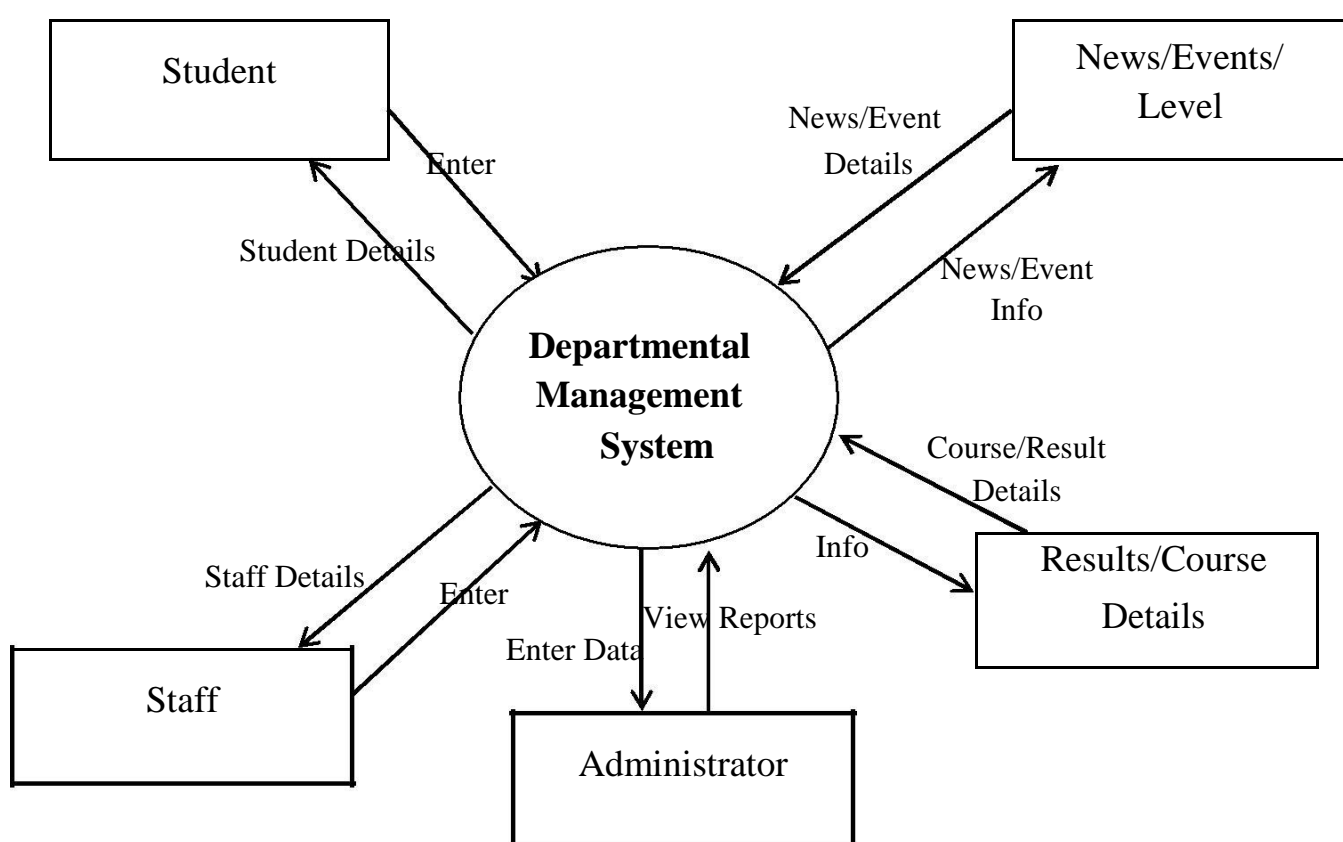


Fig 3.2Level 0 DFD of the Proposed System

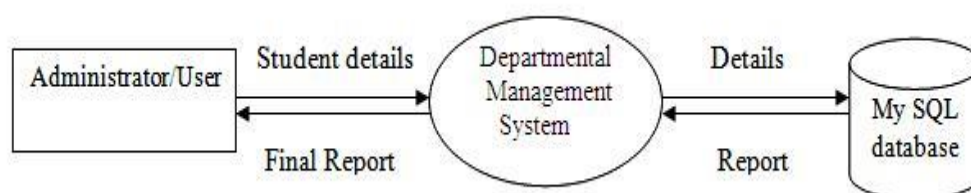


Fig 3.3 Level 1 DFD of the Existing System

3.4.2 Justification of the Proposed System

This includes some of the interfaces that is been used and their functionality and importance.

- ☐ **Password Recovery Page:** This page would be used by the student in-case she/he forgets his/her password. The new password would be sent to the email address provided.
- ☐ **Home Page:** This is the first page the user/visitor sees when visits the site.
- ☐ **Admin Setup Page:** This page is used strictly by the administrator to set up his/her parameters so as to enable him/her have total control over the system.
- ☐ **Admin Search Page:** The admin uses this page to search for student details which he/she wants to edit, delete or blacklist.
- ☐ **Database View:** This is the view of how the database looks like. This view is created with Phpmyadmin Panel.

3.4.3 Advantages of the Proposed System

The Advantages of the Proposed System includes:

- ☐ It unifies the entire process.
- ☐ It uses a central Database.
- ☐ It makes the departmental process faster and stress free.
- ☐ It reduces the rate of occurring error.

3.4.4 Disadvantages of the Proposed System

The Disadvantages includes:

- ☐ It does not give provision for student with special cases (i.e handicapped).
- ☐ Once the records are saved, it cannot be corrected by the students again except by the administrator only.
- ☐ If there is a problem with the internet connection the student cannot access the system.

□ □ It requires all the operators (i.e Admin, Lecturer and Student) to be □ computer literate.

3.4.5 High Level Model of the Proposed System

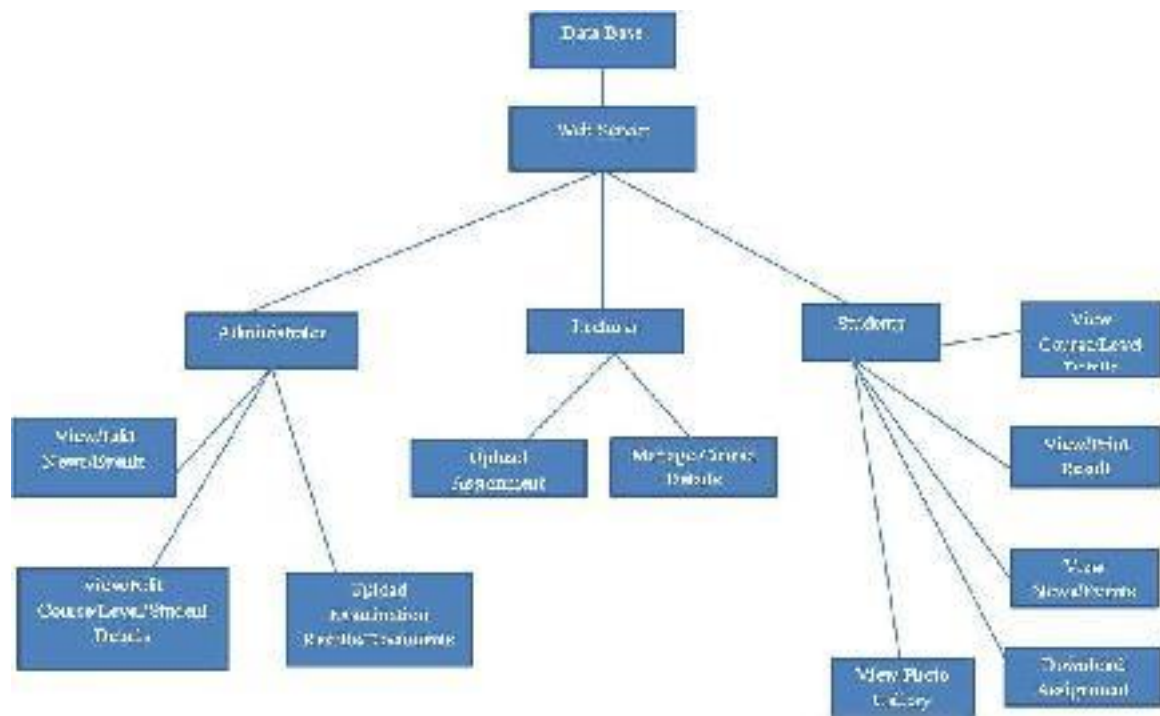


Fig 3.4 Hierarchical Diagram of the Proposed System

3.5 System Requirement

The requirements for the installation of the Departmental portal are mentioned in the following sections.

3.5.1 Hardware Requirement

The hardware requirements involve the following minimum resources:

- Processor Speed: Pentium III-class processor, 600 MHz processor
- Recommended: 1 GHz processor
- RAM: 192 MB or onwards Recommended.
- Hard Disk Space: 45 MB of available space required on system drive of available or more.
- Enhanced keyboard.
- Mouse.
- Uninterrupted Power Supply (UPS) Unit.
- Working Internet Connection.

3.5.2 Software Requirement

- ☐ Operating System (Windows XP Service Pack 2, Windows Server 2003 Service Pack 1, or later versions)
- ☐ Web browser (Mozilla Firefox 24 /Opera 20.0 onwards or any browser that supports HTML 5)
- ☐ Software (Mysql v5.1, Javascript, Chrome live server or Wamp server 2.0)

3.8 Research Design

A Research Design helps to decide upon issues like what, when, where, how **much, by what means, etc., with regard to an enquiry or adyresearch.**“A s

research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the conceptual structures

within which research is conducted; it constitutes the blueprint for the collection, **measurement and analysis of data” (Selltiz, et al 1962).**

3.6.1 Input Specification

The input to this system consists of the various forms through information inputted or supplied to the system, which includes the login interface, the password recovery interface, the admin set up interface, the admin search interface, interface where students can input the courses they prefer etc.

3.6.2 Output Specification

After the student must have supplied the information required by the system, the output produced by the system includes information put together display, which is the career that matches the information provided by the student.

CHAPTER FOUR SYSTEM DESIGN AND IMPLEMENTATION

4.1 Preamble

This chapter covers the processes involved in the design and implementation of the new system. Also, it contains the system flowchart, choice and reason for choosing the preferred programming language and steps of efficient maintenance to ensure

adequate functionality of the system.

4.2 Objectives of the System Design

As the new system is focusing on how to create a computerised educational database system, effort was made to present designs that will suite the research objectives. So, the design of the software will help the user achieve the following objectives.

- a. Have a workable form through which all the inputs will be made to the system.
- b. Generate a report that will present all queried records.
- c. Design of a menu driven program so that the forms will be neatly arranged and utilized.
- d. Create a modular programming interface for easy debugging.

4.3 Program Main Menu

The Main Menu is a page through which all other page can be accessed from, it contains all the navigation links that would enable the user to navigate to any page of his/her choice. This system has two main menus: the student main menu and the administrator main menu from which the student and administrator can access the content of the system respectively.

The diagram illustrates the layout of the Student Main Page. It consists of a sidebar on the left and a main content area on the right. The sidebar contains four input fields for 'Username' and 'Password', followed by 'Log In' and 'Reset Password' buttons. The main content area is a large, empty box.

Fig 4.1 Student Main Page

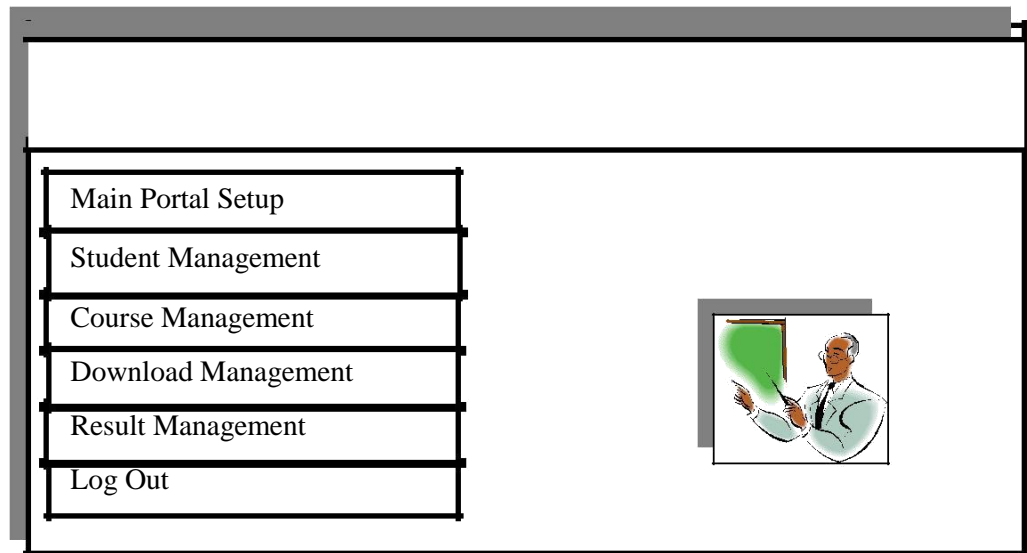


Fig 4.2 Admin Main Menu

4.4 System and Program Flowchart

A flowchart is a graphical or symbolic representation of a process. Each step in the process is represented by different symbol and contains a short description of the process step. The flowchart symbols are linked together with arrows showing the process flow direction. In other words, a flowchart is a diagrammatic representation of the logic flow of a program.

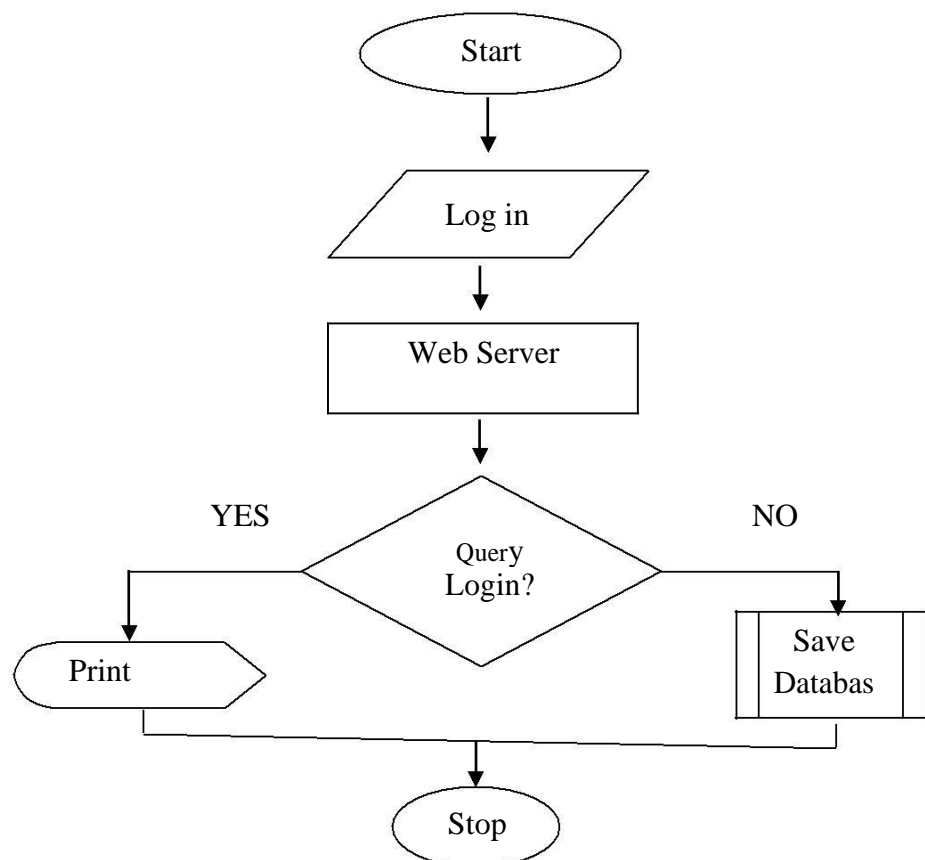


Fig 4.3 System Flowchart

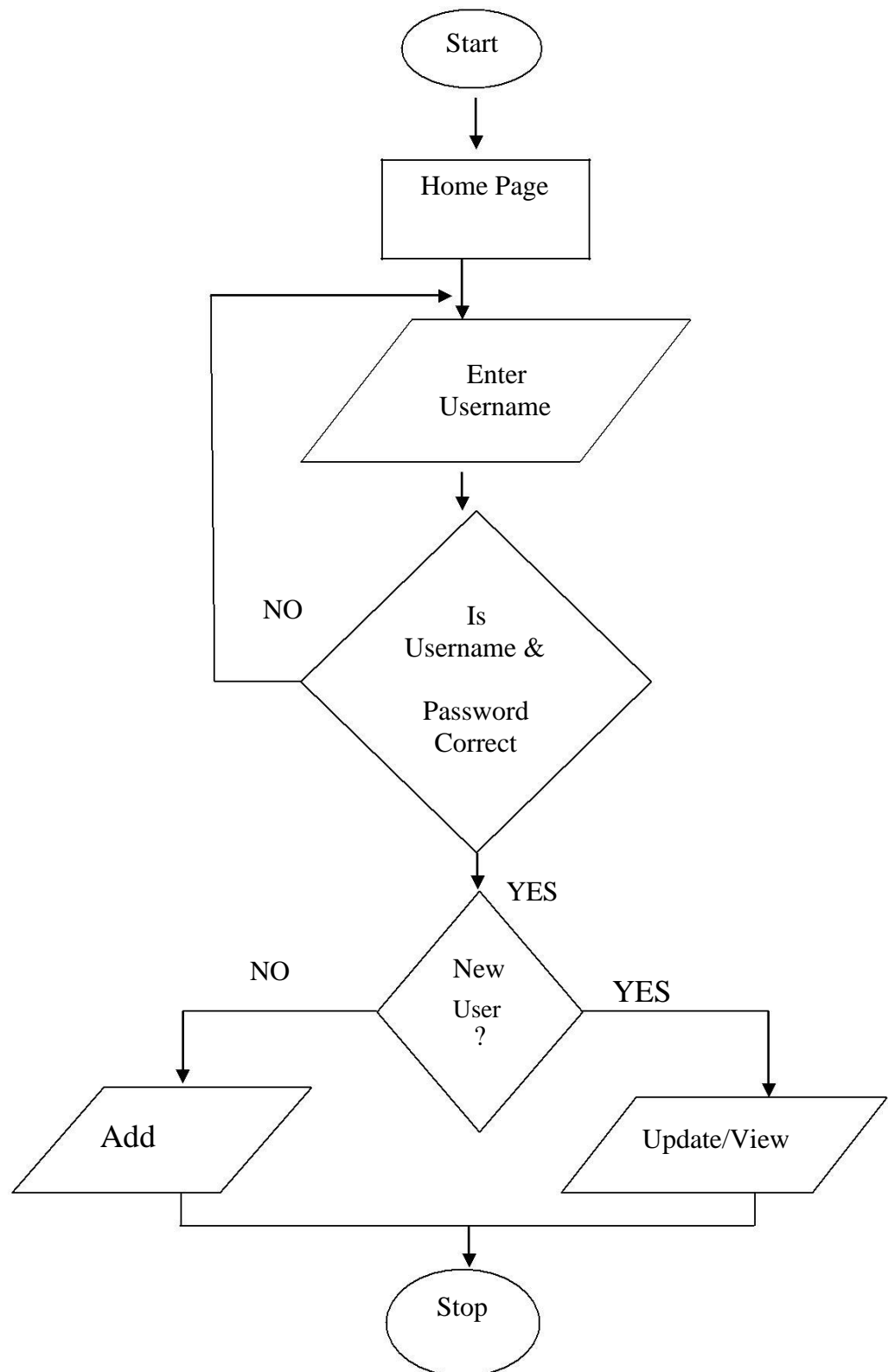


Fig 4.4 Program Flowchart

4.5 Choice and Justification of Programming Language Used

There are various languages used for the implementation of the website, these languages includes the following;

PHP: PHP stands for Hypertext Pre-processor. Taken directly from PHP's home, PHP.net, "PHP is an HTML-embedded scripting language. Much of its syntax is

borrowed from C, Java and Perl with a couple of unique PHP-specific features thrown in. The goal of the language is to allow web developers to write dynamically generated pages quickly" this is generally a good definition of PHP. When someone visits your PHP webpage, your web server processes the PHP code. It then sees which parts it needs to show to visitors (content and pictures) and hides the other stuff (file operations, math calculations, etc.) then translates your PHP into HTML. After the translation into HTML, it sends the webpage to your visitor's web browser.

CSS: This means Cascading Style Sheet. The layout of the document is taken care of by the CSS with the use of formatting tags, without the use of style sheets, the designing of a page would become more and more difficult to create as HTML documents were clearly separated from the document's presentation layout. Styles were created by the World Wide Web Consortium (W3C) a non-profit, standard setting consortium responsible for standardizing HTML in addition to HTML 4.0. Cascading Style Sheet is supported on Netscape, Internet Explorer, Firefox and other web browsers.

Java Script: JavaScript is used in millions of Web pages to improve the design, validate forms, and much more. JavaScript was developed by Netscape and is the most popular scripting language on the internet. JavaScript works in all major browsers that are version 3.0 or higher.

4.6 Program Code Listing

The source code of this program is made of: the package, main class, sub-class methods and variables. The source code showing the details of the program is here attached as an appendix I to this work.

4.7 Maintenance

With time and usage, the requirement of the individual may change, therefore, equipment installation and implementation of a working system is not the end of the system analysis and design, there is need for maintenance to ensure that the system continually meets the objectives or achieved its specific goals.

In order to achieve this maintenance goal, the system monitoring methods should be employed. These involves the monitoring of the system during/ or after implementation by observing and measuring the efficiency of the procedures.

In each run, for the procedure of monitoring, it is important to determine the following:

- □ The number of record input and /or
- output. □ □ □ The activity of modules.

- ☐ The time taken (measured by real time check).

In some cases the correction might include the introduction of a new module to substantiate the existing ones.

CHAPTER FIVE

SUMMARY AND CONCLUSION

5.1 Review of Achievement

This system has automated the existing manual system. It can be monitored and controlled remotely; it reduces the man power required. It provides accurate information always. Manipulations of records can be reduced. All gathered informations can be saved and can be accessed at any time. The data which is stored in the repository helps in taking intelligent decisions by the management.

The system can be accessed by every students/staff of the department through internet connected computers with the aid of his/her login details. Every user will have a home page with his/her profile management facilities. Through links that displays in the home page the user can access different options of the website assigned to him.

5.2 Suggestion for Further Research

System is so much flexible so in future it can be increased easily and new modules can be added easily. Addition of online student admission, online fees payment, computerized result processing, online hostel allocation and e-learning modules should be added. In future you can add new module like library management system, it can also include online accounting system.

5.3 Recommendation

Based on the research work carried out and on the experience gotten during this research work the following are recommended:

- ☐ Existing student should visit the site for necessary information.
- ☐ That the department should try to implement the new system, since it has a lot of advantage than the manual system so as to promote advancement in the technology of the department.
- ☐ That student should look into this research work and carry out further research on it.
- ☐ The system should be constantly updated.

5.4 Conclusion

The implementation of Departmental portal has been successfully created and the web interfaces have been successfully designed. The system designer has successfully achieved all the planned objectives. The administrators are expected to maintain the reliability and accuracy of database while inserting, editing and deleting of each **student's registration entries**. The implementation of the system would help tackle some of the problems associated with manual systems for

keeping of information as well as minimize processing time and accessing time of data.

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