Web Based Student Information Management System

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Abstract: Student Information Management System (SIMS) provides a simple interface for maintenance of student information. It can be used by educational institutes or colleges to maintain the records of students easily. The creation and management of accurate, up-to-date information regarding a students' academic career is critically important in the university as well as colleges. Student information system deals with all kind of student details, academic related reports, college details, course details, curriculum, batch details, placement details and other resource related details too. It tracks all the details of a student from the day one to the end of the course which can be used for all reporting purpose, tracking of attendance, progress in the course, completed semesters, years, coming semester year curriculum details, exam details, project or any other assignment details, final exam result and all these will be available through a secure, online interface embedded in the college's website. It will also have faculty details, batch execution details, students' details in all aspects, the various academic notifications to the staff and students updated by the college administration. It also facilitate us explore all the activities happening in the college, Different reports and Queries can be generated based on vast options related to students, batch, course, faculty, exams, semesters, certification and even for the entire college.

Keywords: Student Information System, Database, HTML,SQL

I. INTRODUCTION

The design and implementation of a comprehensive student information system and user interface is to replace the current paper records [1]. College Staff are able to directly access all aspects of a student's academic progress through a secure, online interface embedded in the college's website. The system utilizes user authentication, displaying only information necessary for an individual's duties. Additionally, each sub-system has authentication allowing authorized users to create or update information in that sub-system. All data is thoroughly reviewed and validated on the server before actual record alteration occurs. In addition to a staff user interface, the system plans for student user interface, allowing users to access information and submit requests online thus reducing processing time. All data is stored securely on SQL servers managed by the college administrator and ensures highest possible level of security. The system features a complex logging system to track all users access and ensure conformity to data access guidelines and is expected to increase the efficiency of the college's record management thereby decreasing the work hours needed to access and deliver student records to users.

Previously, the college relied heavily on paper records for this initiative. While paper records are a traditional way of managing student data there are several drawbacks to this method. First, to convey information to the students it should be displayed on the notice board and the student has to visit the notice board to check that information. It takes a very long time to convey the information to the student. Paper records are difficult to manage and track. The physical exertion required to retrieve, alter, and re-file the paper records are all non-value added activities.

This system provides a simple interface for the maintenance of student information. It can be used by educational institutes or colleges to maintain the records of students easily. Achieving this objective is difficult using a manual system as the information is scattered, can be redundant and collecting relevant information may be very time consuming. All these problems are solved using online student information management system. The paper focuses on presenting information in an easy and intelligible manner which provides facilities like online registration and profile creation of student's thus reducing paper work and automating the record generation process in an educational institution.

A. PURPOSE

The purpose is to design a college website which contains up to date information of the college. That should improve efficiency of college record management.

B. OBJECTIVES

- Providing the online interface for students, faculty etc.
- Increasing the efficiency of college record management.
- Decrease time required to access and deliver student records.
- To make the system more secure.
- Decrease time spent on non-value added tasks.

C. ORGANIZATION OF THE PAPER

The paper is organized as follows: Section II explains system design. Section III provides technologies used. Section IV covers the details of the testing results and Section V the conclusion.

II. SYSTEM DESIGN

This deals with data flow diagram, detailed flow graph, requirement analysis, and the design process of the front and back end design of the student information management system.

A. DATA FLOW DIAGRAM

A Data Flow Diagram (DFD) is a graphical representation of the "flow" of Student Information System. A data flow diagram can also be used for the visualization of Data Processing [2].DFD shows the interaction between the system and outside entities. This context-level DFD is then "exploded" to show more detail of the system being modelled. A DFD represents flow of data through a system. Data flow diagrams are commonly used during problem analysis. It views a system as function that transforms the given input into required output. Movement of data through the different transformations or processes in the system are shown in Data Flow Diagram of Fig. 1.
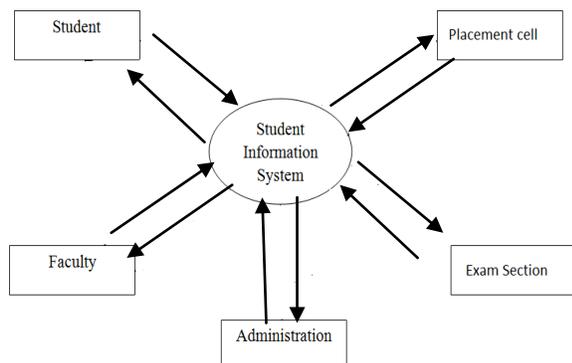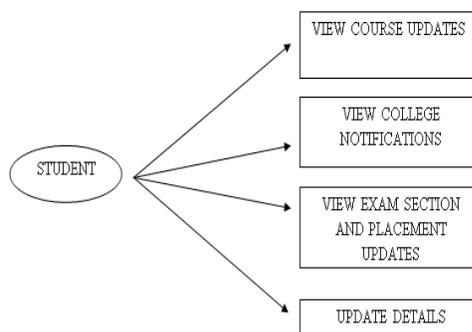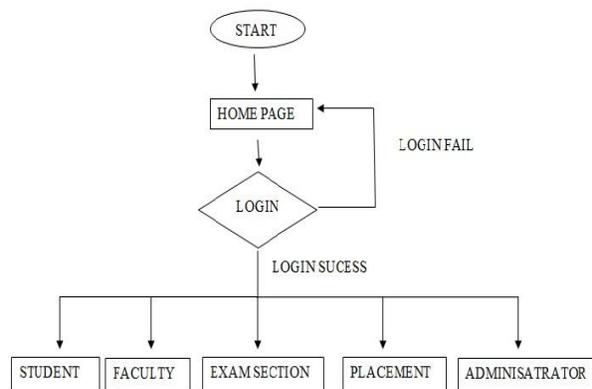
This paper mainly focuses on the managing the information of the students, faculty, placement cell information, exam section, related information of the college which is maintained by the college administration through various levels of controlling. The function of the individual entities will be explained in detail in the flow graph.

B. DETAILED FLOW GRAPH

The detailed flow graph is shown in Fig. 2 .The design of the student information management system includes the design of the home page which provides the way for all the students, staff and other user to access the SIMS. Every user of the SIMS has a unique username and password provided by the web master of the college. The home page mainly contains a login form through which a new user can register, or an existing user can login to the system by entering the username and password provided by the web master.
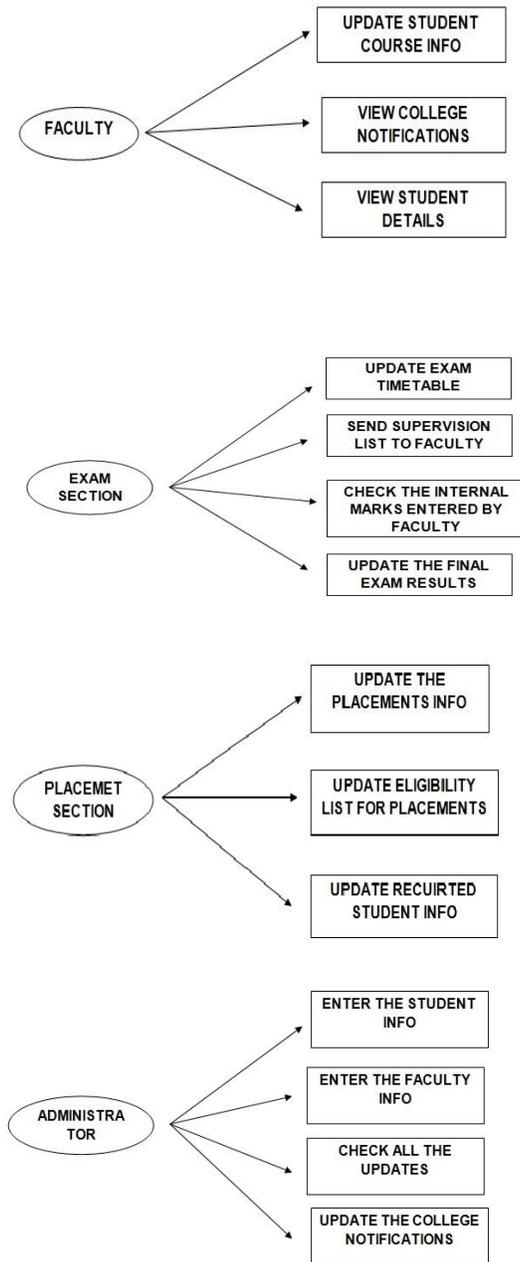

Fig. 1 Data Flow Diagram

Fig. 2 Detailed flow graph

STUDENT: The student is of center focus ,because in every college student plays the very important role . Student can acess the information of the college, course details, subject details, faculty details, training and placement cell information and exam section information.The course details include information regarding branch he is studying, the acadamic ciricuulam of the college, year wise subject offered by the branch, the subject details include the syllabus of the subjects, information regarding the staff handling the subjects, the subjects he presently registered for the semester

he is presently studying, attendance and internal marks of the subjects, he can also ask any queries to the staff regarding the subjects. The placement details include the information about the companies , the eligibility criteria for attending reciurtment of the companies, the process of recuritment, the date and time of the reciurtment. The placement cell updates the students information who got selected for a company. The exam section details include the internals and external time tables, the room allocation for the exams, it also contains the semester end results.

FACULTY: The staff can update the information regarding the students attendance, internal marks of the students and any information regarding the subjects they handle. They can also view the student details for better understanding the student performance and improving the efficiency of the student. The staff also gets the updates from the college regarding any events occuring in the college. They can also get the notifications from the placement cell and exam section.

EXAM SECTION: The examination section is responsible for updating internal and external examination time table. They are also responsible for the updating the supervision list for the faculty and class room allocation for the students in the examination. And they are responsible for the checking and approving the internal marks details updated by the staff.

PLACEMENT CELL: The placement officer is responsible for updating the placement related information like eligible criteria for a particular company, arriving date for the company which is coming for recruitment, the list of students who are eligible for attending the recruitment process. The list of student who got placed in a company and the placement officer can access the student information from the student database for selecting the eligible candidates list for placements. He also can send notifications to students regarding any information.

ADMINISTRATOR: The administrator is responsible for entering the new student, promoting the student from one class to another, from one semester to another and from one year to another. Managing the student accounts like any changes regarding to the name, address etc. The administrator also manages the faulty accounts like entering a new faculty, assigning the faculty to the subjects. The administrator also updates the college related information like calendar of events, information regarding any other events that occur in the college. The administrator will check the all the updates i.e. student updates, faculty updates, exam updates etc. The administrator has the highest level of power in the student information system.

C.   REQUIREMENT ANALYSIS

The basic requirements for the design of the SIMS are

- Every user should have their own identity
- Login facility.
- User can update his/her personal information and can view the notice, results ,placement and exam section updates etc.
- Faculty, placement and exam sections can update any of the information.

D.   FUNCTIONAL REQUIREMENTS

Student information management system aims to improve the efficiency of college information management, and the main function is managing and maintaining information [3]. The administrator and students are two major functional requirements in the system.

The Administrator will be given more powers (enable/disable/ update) than other users. It will be ensured that the information entered is of the correct format.For example name cannot contain numbers. In case if incorrect form of information is added, the user will be asked to fill the information again. Students use the system to query and enter their information only.

E.   NON- FUNCTIONAL REQUIREMENTS

- Performance Requirements:
The proposed system that we are going to develop will be used as the chief performance system for helping the organization in managing the whole database of the student studying in the organization. Therefore, it is expected that the database would perform functionally all the requirements that are specified.
- Safety Requirements:
 The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup [4].
- Security Requirements:
We are going to develop a secured database.
There are various   categories   of people   namely Administrator, Student who will be viewing either all or some specific information from the database. Depending upon the category of user the access rights are decided. It means if the user is an administrator then he can be able to modify the data, append etc. All other users only have the rights to retrieve the information about database.

F.   DATABASE DESIGN PROCESS
It is fair to say that database play a critical role in almost all areas where computers are used, including
business, electronic commerce, engineering, medicine, law, education, and library science. A database is collection of a related data.
A database has the following implicit properties:

- A database represents some aspect of the real world, sometimes called the mini-world or the Universe Of Discourse (UOD) changes to the mini world are reflected in the database.
- A database is a logically coherent collection of data with some inherent meaning. A random assortment of data cannot correctly be referred to as a database.
- A database is designed, built, and populated with data for a specific purpose. It is an intended group of users and some preconceived application which these users are interested.

 Database Management System (DBMS) is a collection of programs that enables users to create and maintain a database. DBMS is a general –purpose software system that facilitates   the   process   of   defining,   constructing, manipulating, and sharing database among various users and applications. Defining a database involves the specifying the data types, structures, and constraints of the data to be stored in the database. The database definition or descriptive information is also stored in the database in the form of dictionary; it is called Meta data constructing the database is the process of storing the data on the storage medium that is controlled by the DBMS.

Manipulating a database includes functions such as querying the database to retrieve specific data, updating the database to reflect in the mini-world, and generating reports from the data. Sharing a database allows a multiple users and programs to access the database simultaneously.

Application program accesses the database by sending queries or request for data to the DBMS [5]. A query typically causes some data to be retrieved; a transaction may cause some data to be read and some data to be written into the database.

III.TECHNOLOGIES USED

HTML
  HTML is a hypertext markup language which is in reality a backbone of any website. Every website can't be structured without the knowledge of html. If we make our web page only with the help of html, than we can't add many of the effective features in a web page, for making a web page more effective we use various platforms such as CSS. So here we are using this language to make our web pages more effective as well as efficient. And to make our web pages dynamic we are using Java script.

CSS
  CSS Stands for "Cascading Style Sheet." Cascading style sheets are used to format the layout of Web pages. They can be used to define text styles, table sizes, and other aspects of Web pages that previously could only be defined in a page's HTML. The basic purpose of CSS is to separate the

content of a web document (written in any markup language) from its presentation (that is written using Cascading Style Sheets). There are lots of benefits that one can extract through CSS like improved content accessibility, better flexibility and moreover, CSS gives a level of control over various presentation characteristics of the document. It also helps in reducing the complexity and helps in saving overall presentation time. CSS gives the option of selecting various style schemes and rules according to the requirements and it also allows the same HTML document to be presented in more than one varying style.

JAVA SCRIPT

JavaScript is considered to be one of the most famous scripting languages of all time. JavaScript, by definition, is a Scripting Language of the World Wide Web. The main usage of JavaScript is to add various Web functionalities, Web form validations, browser detections, creation of cookies and so on. JavaScript is one of the most popular scripting languages and that is why it is supported by almost all web browsers available today like Firefox,

We used the browser Opera or Internet Explorer. JavaScript is considered to be one of the most powerful scripting languages in use today. It is often used for the development of client-side web development. JavaScript is used to make web pages more interactive and dynamic. JavaScript is a light weight programming language and it is embedded directly into the HTML code. JavaScript, as the name suggests, was influenced by many languages, especially Java.

PHP

Precisely, PHP is a very powerful server-side scripting language for developing dynamic web applications. Using PHP, one can build interactive and dynamic websites with ease. PHP script can be embedded straight into the heart of html code. PHP is compatible with various web servers like Apache and the Microsoft's IIS as well. All the PHP scripts are executed on the server and it supports various databases like MySQL, Oracle, Solid, Generic ODBC etc; however, it is mostly used with MySQL.

SQL

SQL stands for Structured Query Language. SQL lets us access and manipulate databases. SQL is an ANSI (American National Standards Institute) standard. SQL can execute queries against a database ,retrieve data from a database, insert records in a database, update records in a database,   delete records from a database,   create new

databases , create new tables in a database , create stored procedures in a database,create views in a database, set permissions on tables, procedures, and views.

IV. RESULTS

Login Form:

The system starts with login page where the registered user can enter user name and password to be able to access the system. Fig. 3 shows login form which includes registration path also.

Fig. 3 Login form

Registration form:

Fig. 4 shows registration form which contains details of student information during admission.
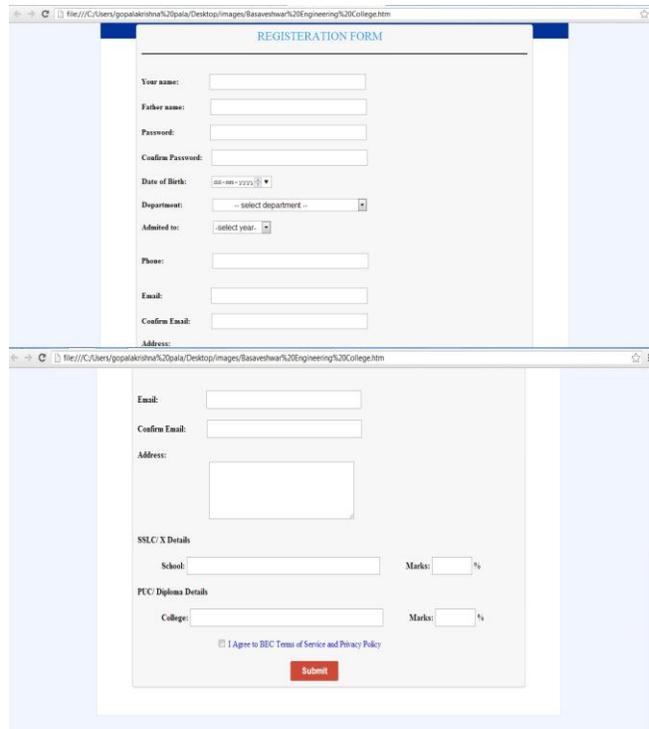

Fig.4 Registration form

After filling the registration form email will be sent to student to verify the E - mail address and consists of

UserName : 2XXEC005
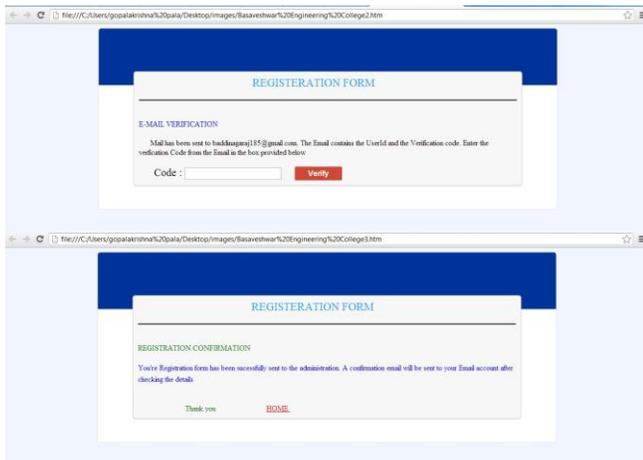Verification Code : KrzAy@f* is as shown in Fig. 5.

Figure5. Registration Confirmation

After entering verification code student completes the registration process then administration section will check student details if found correct then administration section will send the mail to email of student that: your Registration has been successful and you can login using the following details

Username   :   2XXEC005
PASSWORD :   sssssss123

List of student form:

Student basic information is as shown in Fig. 6 which consists of college serial number, university number, name father name, DOB, class, year and department.
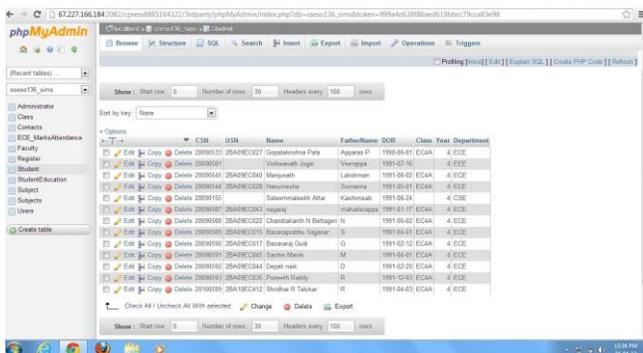

Fig. 6 Table of student basic information

Exam section form:

Fig. 7 shows exam section form. This form consists of test time table, final exam time table, room allotments etc.. If any changes will with respect to change it will be updated.
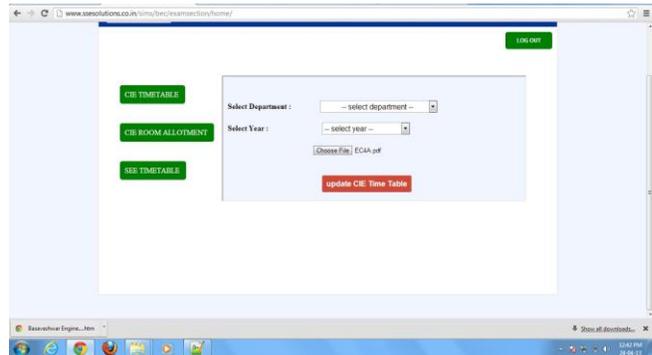

Fig. 7 Exam section form.

Faculty form:
Fig 8 shows faculty form which consists of Test marks entries for the students.

Fig. 8 Faculty form

V.CONCLUSION

This paper assists in automating the existing manual system. This is a paperless work. It can be monitored and controlled remotely. It reduces the man power required. It provides accurate information always. Malpractice can be reduced. All years together gathered information 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. So it is better to have a Web Based Information Management system. All the stakeholders, faculty and management can get the required information without delay. This system is essential in the colleges/hostels and universities.

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BIOGRAPHY

S.R.Bharamagoudar received her B.E degree in Electronics & Communication Engineering from Basaweshwar Engineering college, Bagalkot, Karnatak University Dharawad and received her Master's degree from Visveswaraiah Technological University ,Belgaum . She is a working as Assistance Professor in the department of Electronics & Communication Engineering , Basaweshwar Engineering college, Bagalkot, Karnataka.She is member of ISTE and IETE. Her research areas include image processing, error control codes and computer network. She is author for many papers on journal and conference proceedings.

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