CENTRAL MANAGEMENT SYSTEM FOR EDUCATIONAL INSTITUTIONS USING SPRING BOOT

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Abstract: The Central Management System for Educational Institutions using Spring Boot is an environment where all the process of the students in the institution is managed. It is done through the automated computerized method. Conventionally this system is done using papers, files, and binders. The word has been experiencing new paradigms in the way they handle and manage students' information due to the proliferation of Information and Communication Technology (ICTs) and its applications such as web-based student information systems. With the adaption of such systems as the Online Student Information System (OSIS) in academic institutions, the experience is that it has now become easy to manage and fast track all the students records in one centralized database via the internet technology. The mission of the Central Management System for Educational Institutions Using Spring Boot is to create an integrated information technology environment for students, Head of the Department, faculty, staff and administration. Our goal is to focus on services and integration for end users.

Keywords: Information and Communication Technology, Central Management System, Spring Boot.

I. INTRODUCTION

The Central management System is an Internet-based environment primarily for

university students, prospective students, and staff, an environment for processing administrative transactions for annual admissions, and an information environment for all levels of faculty and staff to prepare reports, extract data, and analyse information. It is particularly useful for academic institutions to control student records, which also allows information associated with all characters to facilitate daily navigation. It provides powers to enter student verification results and other assessment scores, create school schedules, monitor student attendance, and manage many other records desires associated with students in a university. The built-in easy-to-use college administration tool will be used to reduce time spent on administrative responsibilities, as well as taking care of other skilled practical sports besides intellectuals. You can accept, process and create reports at any time, as it should be in the future [1].

Purpose

The aim of the central management system is to allow the admin of any company to modify and know the private details of the trainee and to allow the trainee to keep his/her profile updated. It will also facilitate to keep all student information such as ID, call, postal address, cell phone

number, date of birth, etc. Thus, all student records can be obtained in a few seconds. Overall, it will make student information management a less complicated process for the administrator and student in any organization. The primary reason for this SRS file is to illustrate the project's student data system needs and is intended to assist any agency in maintaining and managing the personal records of its students[2].

The website Central Management System is aimed towards recording a considerable number of student records and needs online assistance for managing records of students. Website should be user-friendly, 'quick to learn' and reliable website for the above purpose. Central Management System is intended to be a stand-alone product and should not depend on the availability of another website. The system will also have an administrator who has full-fledged rights with regards to performing all actions related to control and management of the website.

II. LITERATURE SURVEY

Literature from different origins such as research papers, directories, current bibliographic records and advice is reviewed using the project dashboard. These survey sheets have provided us with sufficient amounts of data for the survey.

Hierarchical method is followed within corporate organisations. Teachers, staff, and students enjoy different privileges. So, we used this device's access to manage the method that corresponds to the classification, that is, the role-based access to control focus. Since there are a large number of users in an educational institution, it is necessary to grant certain privileges to each person according to their position, so that confidential records will not be abused. Position-based access control makes it easy to distinguish a device among its users, making the device faster and lag-free. Certain sports are restricted to certain customers in an effort to prevent breaches of the Code of Conduct. Ownership rights are retained within the device.

In [3]In this study by Mr. Sangamesh K, approach to develop and deploy the application is employing microservice architecture. The micro-service architecture is implemented using spring-boot which is the opinionated instance of spring application and also a rapid application development platform. The educational institution can be provided with an easy-to-use user interface centralized software in which all services associated with the institution can interact with each other and share the data. This

system consists of only student information like attendance, personal information etc

In this system [4] by Mr. Deepak, Mrs. Payal, they have used the process of software life cycle development model. since the requirement of the project was not exactly defined at the initial stage, they have used prototyping model approach for this system. In the prototyping model, the software is created with early requirements provided and further improvements are done as the requirements are made clearer. The interface provides user-friendly experience to everyone. Only verified users can access the information concerning students and faculties. at last, we may state that the performance of this new system is accurate, precise and it successfully performs the assigned tasks. This system consists of student information like attendance, results, staff can manage their student's attendance.

The design [5] Mr. Ritesh, Mr. Pranjal, the student information management system contains the home page which is the first page of the system. The home page provides the login page using which user can login in the system using their unique login credentials. The login page provides the registration form for the new users Through which they can register

themselves in the system. This system would definitely help the user by saving time and effort by reducing the processing time. The efficiency of the information handling done would be improved. The user satisfaction would be definitely higher when compared to old manual system. This system consists of only student information which is maintained by staff, but doesn't consist of staff information properly and small amount of management details.

In this study [6] by Mr. Dipin, Mr. Vivek, both quantitative and qualitative approaches will be used. The design phase was studied by examining documents and researching existing systems for clarity and verification of facts to be collected that are going to be adhered in our system. The overview of system elaborates the ease of information delivery at the tip of your fingers with precise data and increases the retention rate of student and teaches them how to manage their time efficiently. In this system each staff enables them to keep their schedules and information of students but not to add notes.

Approach [7] by Mr. Pavan, Dr. C. K. Gowthamy. This student information management system used to store the student information easily. It also used to manipulate student information. By this student information management system, we can maintain the student data efficiently. The basic goal of designing student information management database system is the database application system that is directed towards the evaluation content of students' work under office and departmental target responsibility system. In order to implement the function of student information management, we designed the functional requirement, overall structure, data sheets and fields, data sheet Association and software codes in this paper. Combining the contents of the student performance review for office and departmental target responsibility system in Wuhan University of Technology and the need of student information processing, we designed the student information management database application system by Visual Foxpro6.0 database management system. This paper exists in automating the existing manual system. This is a paperless work. It can be monitored and controlled remotely.

A social survey [8] by Mr. Simon Lubanga, Mr. Winner, research design was used in this study. In nature, the study applied the principles of both qualitative and quantitative research approaches. The study population was comprised of

students from the faculty of information science and communications and the Director of ICT services at Mzuzu University. In 2016, MZUNI enrolled 4,067 students (Mzuzu University 18t Congregation special report, 2017, p.5), and the sample for this study was composed of 17 Library and Information Science Students and 20 ICT third year students making a total of 37 respondents. The study used non probability sampling procedures, specifically purposive sampling. Question and follow up interviews were used to collect data from the purposively selected 37 third year students in the FOISC and the Director of ICT respectively during the data collection process.

In [9] To add meaning to the data collected from participants, the researchers analysed it into tables, frequencies, percentages and figures using such a package as Microsoft Excel application. Qualitative data collected were analysed through the process called thematic analysis. In this process, Braun & Clarke (2006) explains that it is a method which involves identifying, analysing and reporting patterns (themes) within data. The researchers interpreted the interview data in the way that it directly answered the set forth thematic areas or objectives of this

study. This paper has brought into limelight that MZUZU University student online management system has eased the registration process and it also speeds up the access to online examination results amongst the student community. This system offers many services like e-learning, attendance, webmail, results etc. to the students. They included only for students not yet introduced for staff and admin information but staff can add students and can manage the students. But there is no proper information for staff.

III. PROPOSED METHODOLOGY

Proposed system deals with few aspects of the problems like one stop for all (single system for staff/students with security role-based access). CMS is a web portal, student/staff/admin staff can login into the system based on the role user will be provide with appropriate screens. Based on the role we have provided few functionalities that they can do within the system. This will decrease the human effort and decrease the information time taken to reach the students/staff/admin Information can be tracked easily and retrieved easily. The proposed system doesn't allow any permanent delete operations on any data. The approach is to develop and deploy the application with ease using the instance of spring

framework., spring boot which is a rapid application development platform (framework). There are few of stages before developing the application they are Requirements, Design, Development, Testing & Improvement/Maintenance.

SYSTEM ARCHITECTURE

The CMS is a system which contain major part which include: student Detail, Student image and personal details
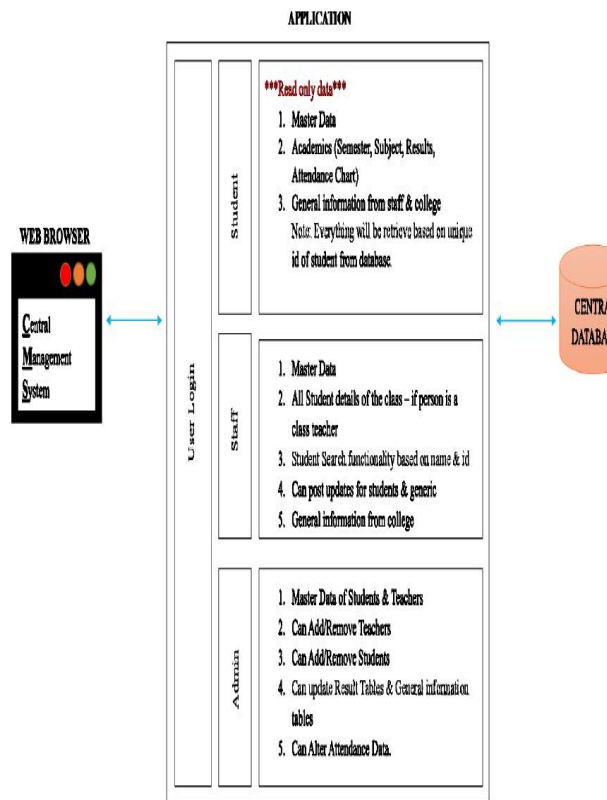

Fig.1 System architecture

SYSTEM DESIGN PROCESS

Registration process: Starting from the registration process, a student may come to the college for the admission in a particular faculty and for a particular course and subject matter. He/she submits the registration form and student registration form processing is handled by the College Administration Information Process.

College administration: College administration stores the student information in student information record. It too collects information from the account database to know about the student's payments records and from the faculty process about the faculty information. It sends the course information to the course information process for further processing.

Student Details: In Student Details the whole personal details of any student are stored. Which can be edited only by the authorized administrators. And can be used to viewed through anyone for any particular details

Faculties: Faculty information which will be useful for the instructors and separating the sections of the students • Attendance: College Attendance keep track of the total attendance of any particular student. It stores the attendance data of the students into the database. It too may access the student database for

updating the student attendance details and to categorize the students relating to various sections and semesters.

Course: Course Information accepts the course information from the College administration. It sends the course completed information to the course completed database. And offer schedules to the students, assignments to the faculty.

Examination: Examination takes the course details and course completed details from the Course examination database and prepares the examination

schedules and offers it to the students. It is responsible for processing all the information's related to the examination.
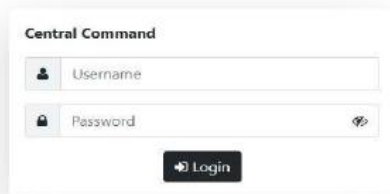
Decision Tree Diagram
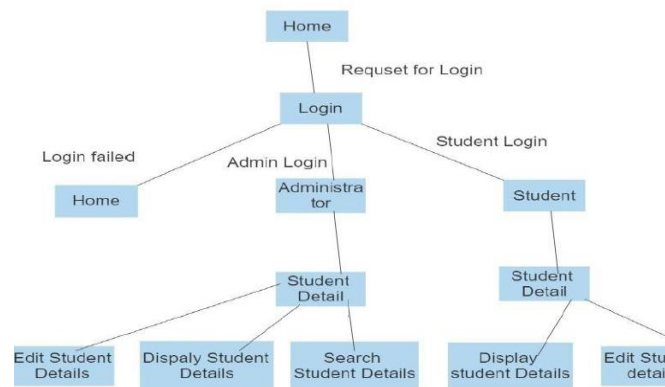
Fig.2 Decision tree diagram

IV. RESULTS

Login screen

Fig.3 Login screen

Admin Dashboard
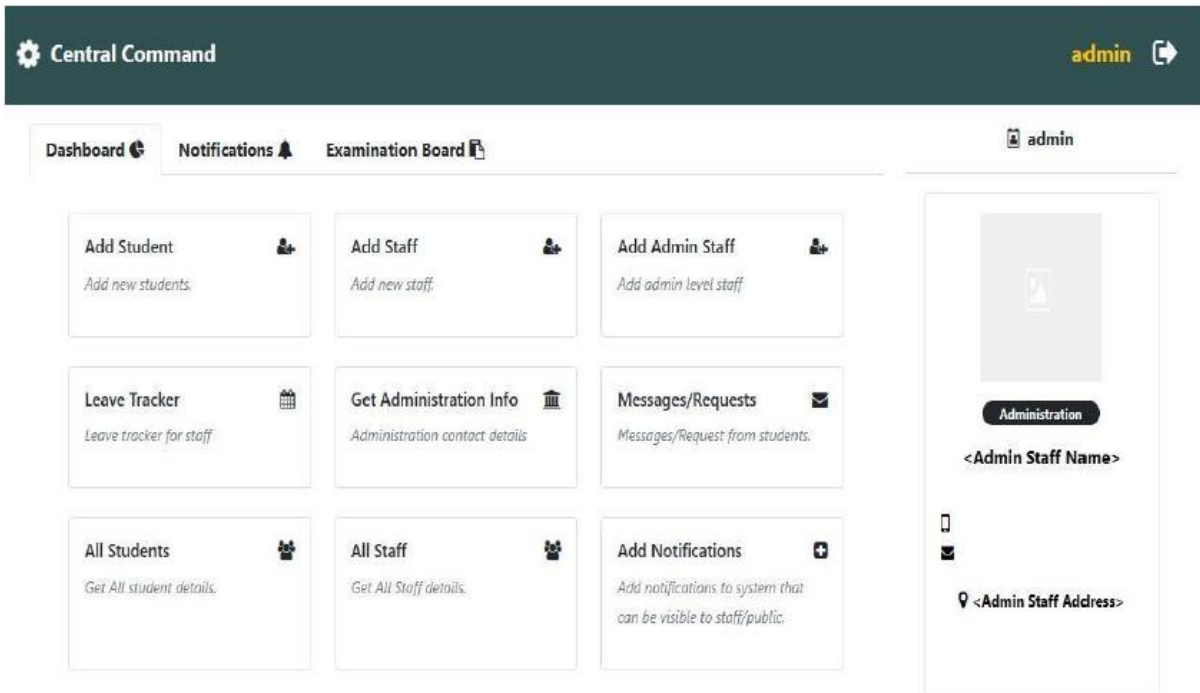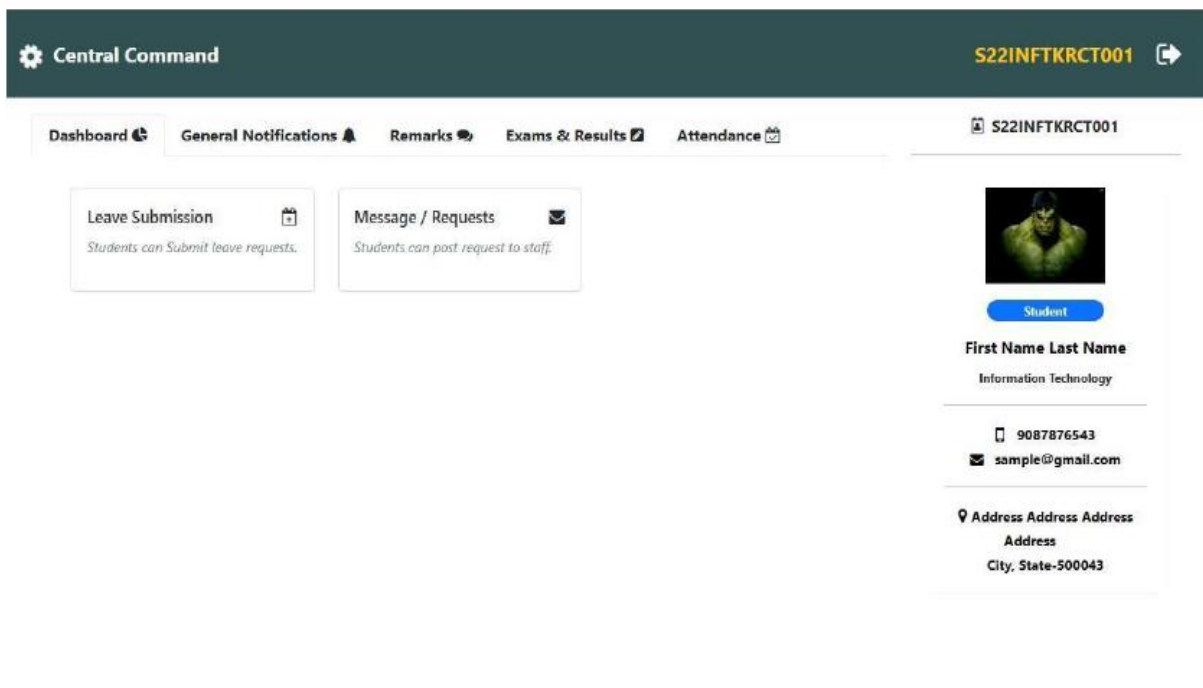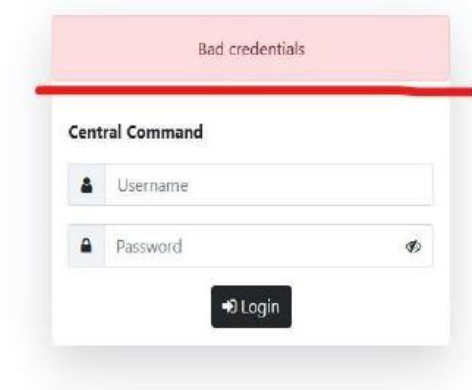
Fig.4 Admin dashboard

Fig.5 Student Dash board

Note: Error **underlined** in the picture (**Bad credentials**)

Fig.6 Invalid credentials

V. CONCLUSION

Hence, we can conclude that the design phase of the CMS gives us the information of all the processes used in the project and their relation. The project provides simple interface for maintenance of student information. The students will have their own user id and passwords to access their own information they can go through only their details such as attendance, marks etc. This will increase the transparency of the information, and the project avoid the confusion and make it simpler for the students to get their own data. It helps students connect with faculty and admin easily. It will be simple for teachers to manage their class schedules and time tables Accurate attendance tracking, complete data security, and simple and accurate student performance reporting. It is data privacy and sensitive information security for administrators, an easy access platform with role-based access and authenticated profiles, streamlined admissions, administrative processes, and non-administrative tasks. It provides open communication across all departments, complete control over the application, 24/7 access to records, and a centralised data repository.

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