Design and Implementation of Web base Automated Result Processing System in Edo State Polytechnic.

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Abstract

Transforming numerical data (scores, grade points, credit units, etc.) into a clear and comprehensible representation (statement of result, transcripts, etc.) is an ongoing process known as result processing. All of the students' grades in different classes are based on these results. Manual processing of these results in an Excel spreadsheet introduces numerous issues, including results insecurity, and is inherently laborious and prone to errors. The results will be processed online through a web-based application that will be built. The software is set to be built using a combination of client-side technologies like HTML5, CSS3, and Java Script, server-side technologies like PHP (Hypertext Pre-Processor), and relational database technologies like MySQL (My Structural Query Language Improved). This programming language will be used due to its adaptability and capabilities for creating web-based applications. A new piece of software is being developed that will allow for the calculation of GPA and CGPA for each student using their uploaded test scores. The programme will be made available online so that all users can access it easily whenever they want. Reduced processing costs, faster GPA calculations and transcript generation, more accuracy and efficiency, and no redundancies are just a few of the benefits of the new system.

Keyword: *Result, Examination Scores, CGPA, Transcript, GPA.*

Introduction

Exam administrators have been the target of multiple initiatives aimed at streamlining the processing and computation of results. The end product is a transcript detailing the student's academic history, including all courses taken and marks earned. The processes of admission, transfer credit units, and graduation all rely heavily on the student's result. The outcome of a student's academic endeavours serves as the yardstick by which their competence is evaluated. It is also utilised to evaluate the student's performance in several courses that the student has taken [1]. A well-designed result processing system is essential to ensure that the intended outcome of the results is met. Any error that occurs during the process has the potential to cause significant complications.

Manual processing of results has been found by numerous researchers to be prone to various issues, including computation errors, results insecurity, messy results after modifications, and excessive workload for examination officials, among others. Consequently, correct result processing necessitates a system that is effective, efficient, and error-free. In addition, these issues can be reduced by creating and using an online application for processing results and generating transcripts. Only authorised user(s) will be granted access using the password system. You can make modifications or corrections without messing up the job. Exam officers will also no longer have to worry about this.

In order to process the results online, a web-based application will be created. We will be utilising PHP and MySQL to construct the application.

With the use of the web-based programme, we can calculate the GPA and CGPA for every student using their test scores that they submit or upload. Edo State Polytechnic, Usen can streamline the processing of all test records with the use of this technology.

The current procedure for processing students' results in the institution is rife with mistakes. Because the current methods have several drawbacks, such as making the process tedious, error-prone, and time-consuming, it is not only desired but essential to use an online approach. They cause exams to be released later than expected, with incorrect grades being submitted and students' GPAs being calculated incorrectly as a result, and finally, incorrect conclusions being reached regarding the degree class that is granted. Dissatisfaction and animosity could ensue if some students receive degrees they did not merit while others are wrongly treated like victims. Therefore, it is necessary to have access that is effective, efficient, stress-free, quick, and error-free.

Literature Review

We take a look at some of the research that has been conducted on automated result processing and transcript production. To improve throughput and decrease reaction time in processing students' results right after they graduate, A. P. Beka and F. T. Beka (2015) developed an automated method for processing results. Students can sign up for classes and teachers can easily upload their students' grades at the end of each semester using the system. Researchers at [4] looked at the problems with students' CGPA (cumulative grade point average) calculations done by hand and came up with a software application to automate the procedure. The database was designed using the MYSQL Relational Database Management System, while the programme was written using the PHP scripting language. The programme that was developed was tested and it performed as intended.

These are some of the things that can be accomplished with the help of computers that process data: having instantaneous access to students' personal and course information, automatically calculating their grade point average (GPA), creating a list of students who have graduated, keeping tabs on which courses have failed, maintaining an accurate record of all students enrolled at the university, storing information about

courses (such as their codes, descriptions, units, and scores) for the purpose of calculating GPA, and making data entry screens that are easy for students to use [5].

The manual process of compiling students' results in secondary schools in Nigeria is flawed. Some chosen schools conducted preliminary inquiries about the current manual record keeping. We found several issues with the manual result processing and are now proposing, designing, and implementing a new system. An application for automating the processing of the results will be developed in this study. With the help of the relational database management system MYSQL and the hypertext processor PHP, the software will be developed and tested to ensure it produces the desired results [1].

The development of result processing software for computing students' GPA and CGPA can be accomplished using a variety of programming languages, programming packages, and database management systems. An Intelligent Knowledge-Based System (IKBS) can be constructed using the Excel spreadsheet programme by utilising the numerous programming features offered by Excel. Cell referencing and the programming are both hard-coded.

It might be used to keep tabs on how well kids are doing, including total points [6]. When interacting with the database, Personal Home Page Pre-Processor (PHP) is the language of choice. Graphic User Interface (GUI) design and code drafting are handled by Adobe Dreamweaver, an IDE. Data and tables for the database are created using MYSQL Server, an RDMS. Although this app has passed all tests and is functioning as intended, it is still not commonly used [7].

Java is an object-oriented, cross-platform programming language that may be utilised to create programmes that can run both locally on computers and remotely on the internet. The ability for the programmes to run on multiple platforms, including Linux, Mac OS X, and Microsoft Windows, is what we mean when we say that they are cross platform. The creation of database tables and data is facilitated by MYSQL, an RDBMS. MySQL is an excellent choice for accessing databases due to its reliability, speed, ease of use, and speed, as well as its security features [8]. On top of that, there are probably a plethora of alternative database management systems and programming languages that are very comparable. It turns out that a number of these programming languages and packages have been successfully used in earlier work in this domain. But there's always space for growth. The goal of this redesigned app is to make it easier to maintain while keeping performance and accuracy high through simplifying and streamlining its user interface.

Methodology

System design will follow the methodology of structured system analysis. On the web, the system will be constructed. While HTML5, CSS3, and JavaScript will be used to construct the front-end interface, PHP, a server-side scripting language, and MySQLi, a relational database management system, will power the backend functionalities. The database running on the web server is MySQLi. The goal of system design is to

accomplish research objectives through the integration of processes, procedures, and equipment.

Expected Outputs/Results

The application when done will required a valid username and password from User to be able to gain access into the software.

A. The Directors can create user account for Head of Department in his/her institute and assign role for them.

B. The Heads of Departments must have a valid user name and password and can perform the following functions:

1. Create users account for Examination Officer, Part time Coordinator and Data Entry Operator in his/her department as well as assigning roles for them.
2. Manage courses offered in the Department, manage students' data in the Department, view results and manage staff data in his/her department.

C. The Departmental Examinations Officer will have the authentication of the HOD. He/she can perform the following functions:

i. Enter student's scores (or bulk upload) and view students' grades as it is in the raw score sheet.
ii. Process student's results in the department, which includes calculating the GPA and CGPA.

The Exams and Record unit can only view available result and generate transcript when required.

After successful log-in as Departmental Examinations Officer, the User can:

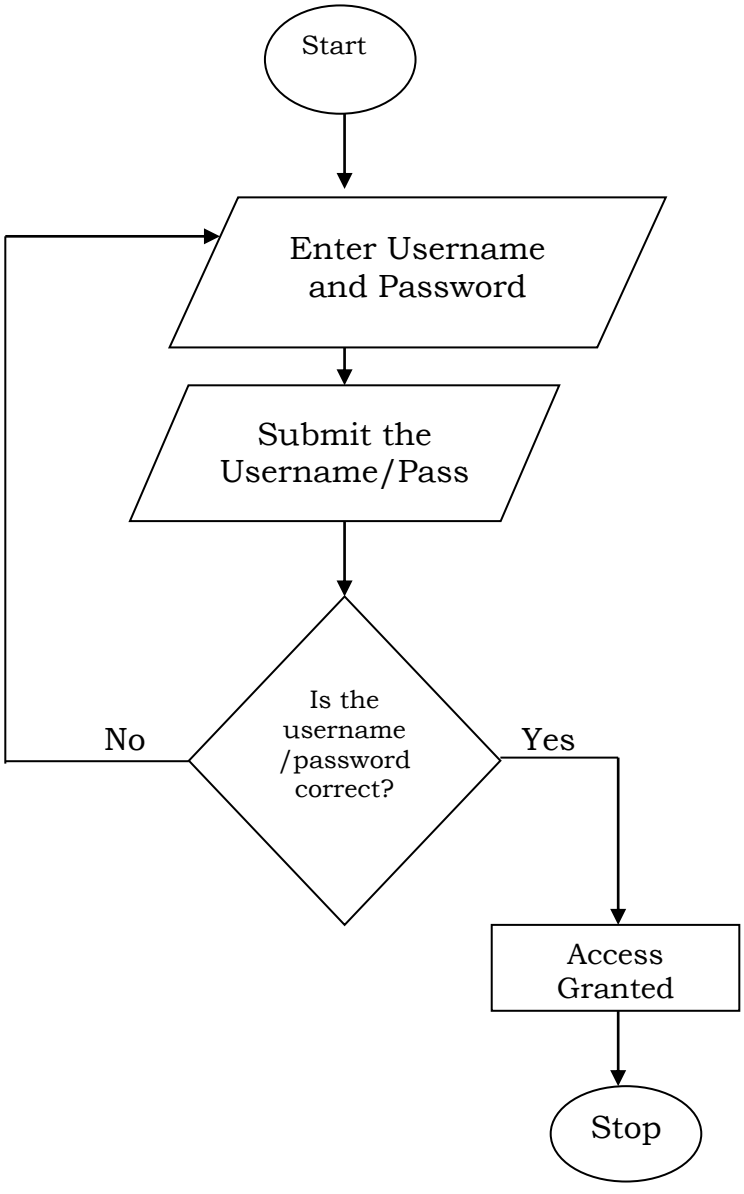
i. Manage Courses
ii. Manage Students Data
iii. Manage Results
iv. Modify Login Details

Advantages of the System

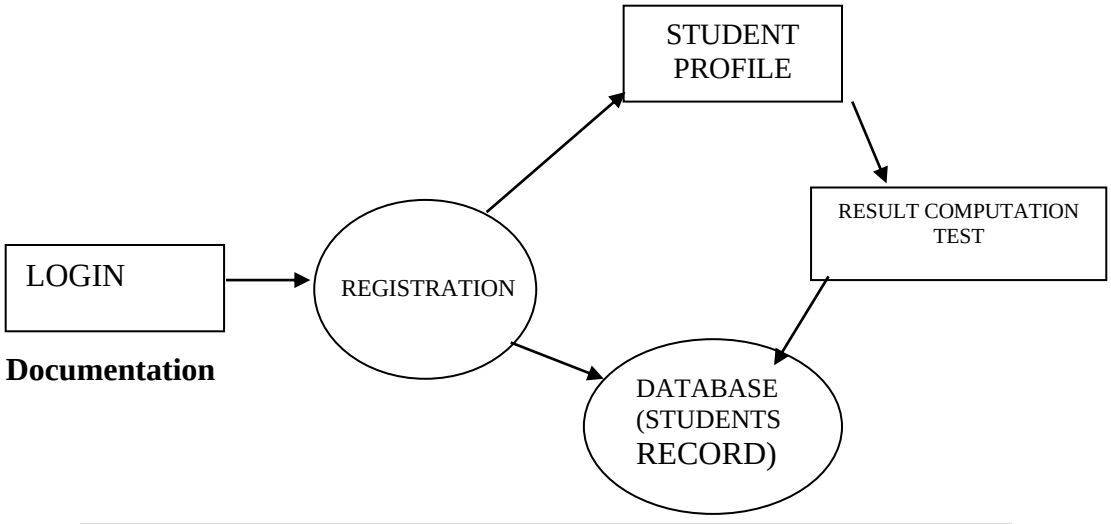
Certain merits have been associated with the proposed system which enhances the design of the system. Some of which are stated below:

1. Very effective and efficient result processing.
2. Accurate student registration.
3. Less time constraint
4. Cost reduction of paper used
5. Proper record keeping
6. Better and effective computation of student result

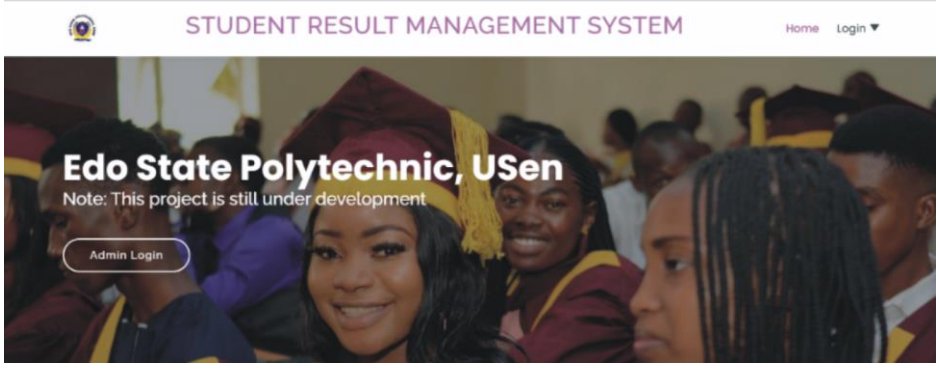
Login Module



Entity Relationship Diagram



Documentation



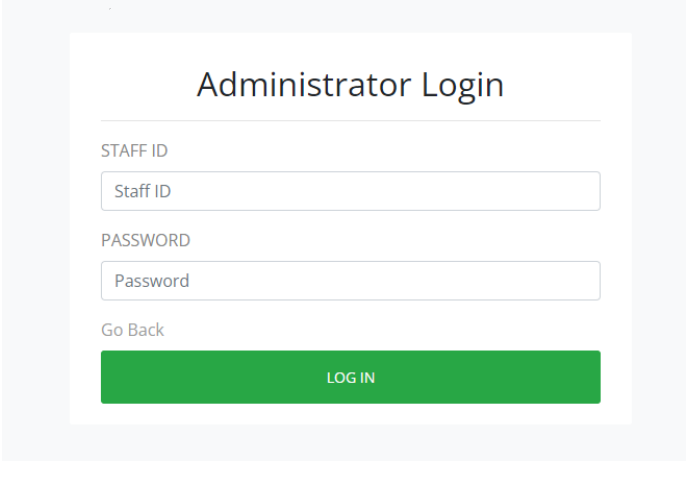


Figure 1: Screenshot of Login Page.

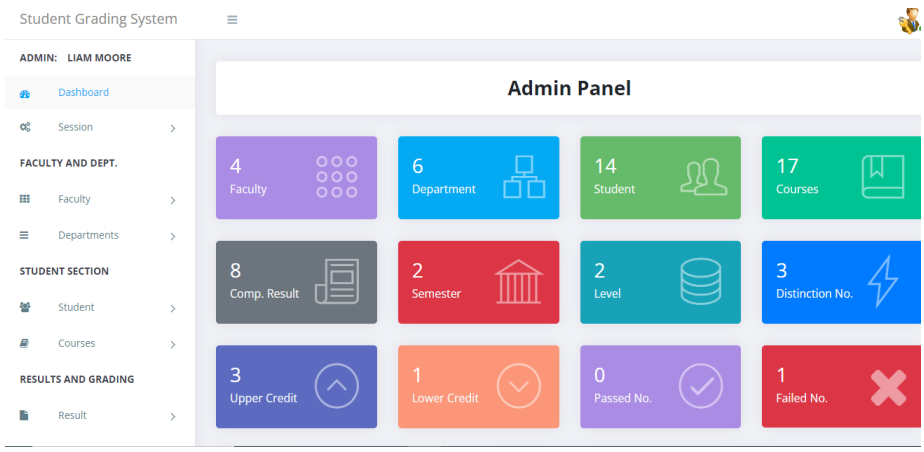
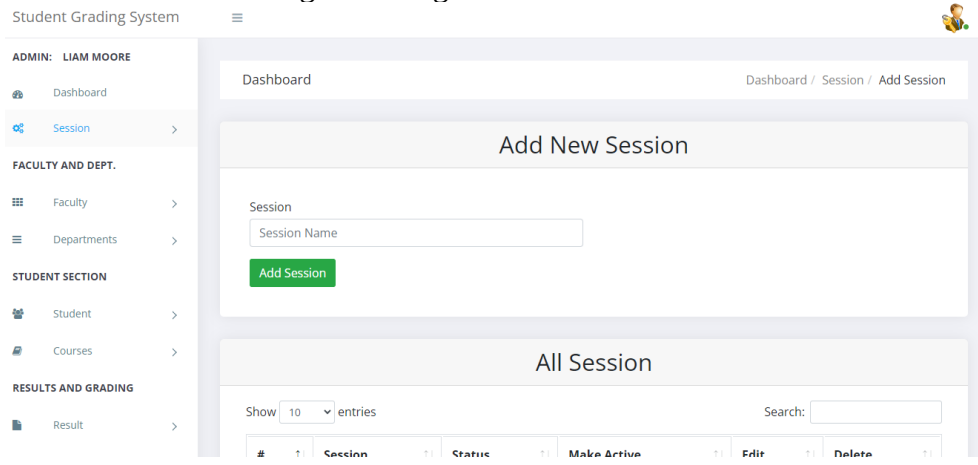


Figure 2: Login Screen Screenshot



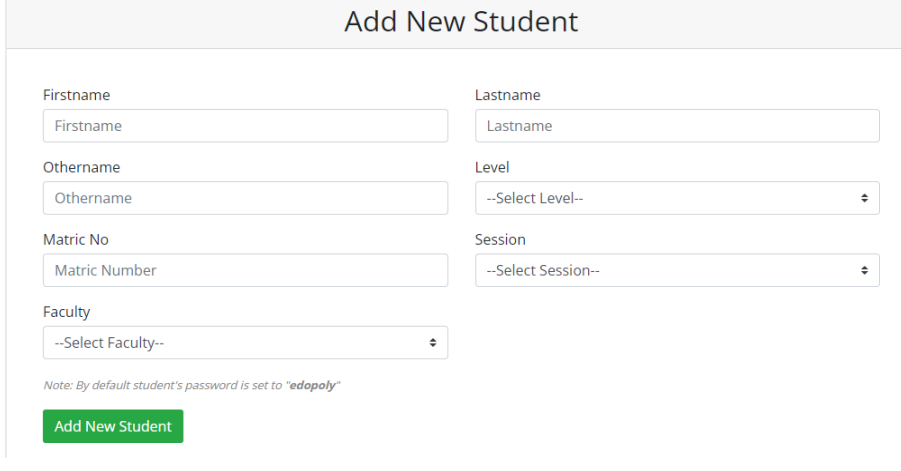
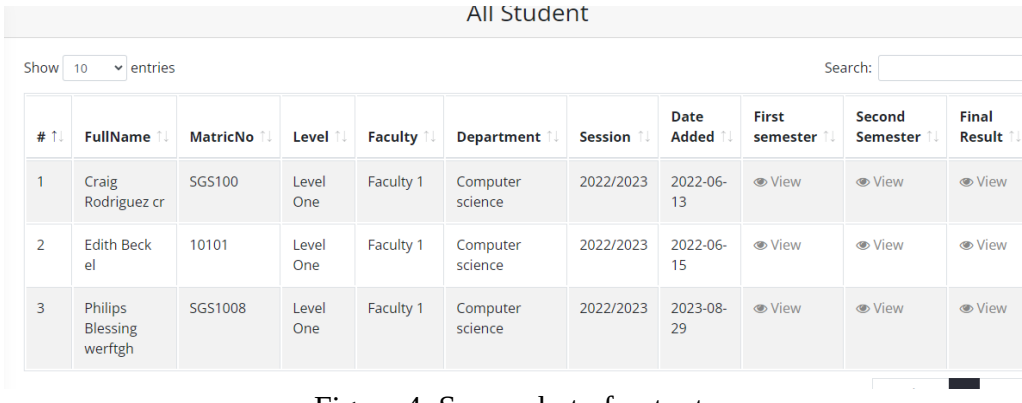


Figure 3: Screenshot of student Registration Form



All Student

Show 10 entries Search:

#	FullName	MatricNo	Level	Faculty	Department	Session	Date Added	First semester	Second Semester	Final Result
1	Craig Rodriguez cr	SGS100	Level One	Faculty 1	Computer science	2022/2023	2022-06-13	View	View	View
2	Edith Beck el	10101	Level One	Faculty 1	Computer science	2022/2023	2022-06-15	View	View	View
3	Philips Blessing werftgh	SGS1008	Level One	Faculty 1	Computer science	2022/2023	2023-08-29	View	View	View

Figure 4: Screenshot of output.

Conclusion

The following goals were met with the completion and implementation of this project: to improve the Department of Computer Science at Edo State Polytechnic's approach to result processing; and to accomplish the aforementioned changes.

i. Ensuring precise enrollment
ii. Improved and efficient calculation
iii. Accurate documentation
iv. Creating a consistent semester grade for each student.

Following investigations into more traditional forms of manual processing at Edo State Polytechnic's Department of Computer Science, this project's aims have emerged. This project will provide a more efficient and accurate approach to carry out the tasks, eliminating most of the problems that have been encountered in the past while using the standard manner.

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