

An Implementation Framework for Student Result Processing System

Adinarayana Salina¹, P. Maher Swaroop², P. Rupa Vathi³, P. Durga Prasad⁴, T. Sri Lakshmi⁵

Professor, Department of Computer Science and Engineering¹

Students, Department of Computer Science and Engineering^{2,3,4,5}

Raghu Institute of Technology, Visakhapatnam, A.P. India

Abstract: *Result Processing System forms the key activities in the life span of a student. The demand for effective and efficient result computation and output presents the need to automate existing manual result processing systems. The digitized process provides capabilities such as a centralized repository for storage, management and dissemination of result information to those concerned. This project will enhance the college's existing system of publishing results by providing students with easy and quick access to their results. This paper presents a case study on analyzing academic performance of students at the end of a university degree at an early stage of the degree program, in order to help universities not only to focus more on bright students but also to initially identify students with low academic achievement and find ways to support them. The results show that it is possible to analyze the graduation performance in 4th year at university using only pre-university marks and marks of 1st and 2nd year courses, no socio-economic or demographic features, with reasonable accuracy. The system is unique in that it can be adopted and adapted to suit the result processing.*

Keywords: Data backup and recovery, svelte technology, firebase database, web servers

I. INTRODUCTION

In the world of today, everybody notes that most authorities that manage colleges feel that the use of the Computer for college administration is only suitable for the production of letters, memos and other desktop related applications. Whereas the use of computers in colleges cannot be over emphasized. Among many other tasks it helps in the process of storing student records. For analyzing the marks obtained by students in an educational institution. This is done to replace the manual entering and processing of marks which are error prone and tedious. This system also maintains information about students. The system will have a Windows based desktop interface to allow the faculty to enter marks obtained by the students, update them and generate various reports. One of the most important features of the system is creating reports based on the given criteria. Overall Class, Department result, Individual student result. The report has to be generated by entering the register number of the student. These reports can also be viewed by the management and placement officers. The administrator is responsible for adding, deleting student details from the system and updating the marks to the system with the external queries.

The aim of this project is to model the process of processing and managing students' results so as to mitigate the challenges with the rigorous steps that exist in the existing manual method. This long time of search from the student information record book can be avoided. Even the possibility of misplacing a student's record and the vulnerability of a student record being accessed by unauthorized persons can be avoided with the use of modern information and technology tools. The specific objectives of the paper are to present possible designs of a case study result processing system, possible implementation of the models from the designs presented, and test the developed result processing system

II. BRIEF LITERATURE REVIEW

In recent years, post basic institutions have seen academic value of result processing and need for it to be done internally (Oyeyinka & Oladipo, 2015) [2]. Hence, a lot of documentation exists in line of the research. Emmanuel and Choji (2012) [3] stated that the introduction of computers into information technology has massively improved the

information needs of organizations. Anigbogu (2000) [2] therefore defined a computer as 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 equaled by any other known machine to mankind. The process of academic administration and in this case result processing is as already stated a time consuming and strenuous exercise prone to errors, if done manually, hence the need for us to seek out ways to lift this burden from the individuals involved in this exercise. Obiniyi & Ezugwu (2010) [4] observed that Student enrolment in tertiary institutions is increasing at a very alarming rate. The increase in students' population over the years has made the work of an administrative officer in charge of processing students' results a very tiresome exercise to deal with. The rise in the number of students in colleges today has made it imperative that we continue to seek out the best and most efficient ways to handle colleges and college administration. Mohini & Amar (2011) [5] indicated that Publication of student's results in the manual system takes a very long time owing to which students remain idle for months together. Sometimes the delay in declaration of results causes heavy losses to the students.

They further stated that the solution to these shortcomings lies in an efficient information management system, or simply, information system. Okonigene, Ighalo & Ogbeifun (2008) [6] further stated that, with the use of computers for information processing, the following are possible, instant access to students' personal and course information, instant student information updating, automatic computation of the Grade Point Average (GPA), generation of the graduating students list, monitoring of failed courses, keeping an up-to-date record of the entire student body in the University, storing course information such as course code, course description, course unit, and scores for the purpose of GPA computation, and producing user friendly data entry screens for ease of use. Generating and organizing data in a useful way is called data processing. Therefore, is to find a method of processing examination results that would be sufficiently accurate and reasonably timely. Eludire, (2011) [7] observed that a number of problems associated with student academic record management include improper course registration, late release of students' results, inaccuracy due to manual and tedious calculation and retrieval difficulties/inefficiency. According to him, the development of database concept is the answer to these problems.

III. RESEARCH DESIGN AND METHODOLOGY

In this paper, Methodology refers to a set of procedures, techniques and technologies employed in developing any system. This project as the requirements of the complete real-time e-result processing system are well defined and understood, although small requirements evolve over time but the major requirements are well defined. In this project we used technologies like svelte, firebase database, java script, HTM, etc., to develop this project. Using these technologies we developed a web application to track or to check the results of students in an online portal.

The design of the system was done using Unified Modeling Language (UML) tools such as use-case diagram, class diagram, activity diagram and sequence diagram. The frontend design of the system was implemented using the following technologies HTML, JavaScript, svelte and CSS where the coding was done and the various data input forms, window and menu objects were created. Svelte is a modern front-end JavaScript framework that allows developers to build web applications using a component-based approach. Unlike other frameworks like React and Angular, Svelte shifts a lot of the work that would typically be done at runtime to build-time, resulting in smaller bundle sizes and faster load times. The back end design of the system was implemented using the following technologies firebase database. Firebase is its real-time NoSQL database, which is a cloud-hosted, scalable database that allows developers to store and synchronize data in real-time across multiple clients. In addition to its real-time database, Firebase also offers a range of other services, including authentication, cloud storage, and hosting.

Activity diagrams are an updated and enhanced data flow diagram. The activity diagram specified for the E-result processing system shows some activities that can be performed by an authentic or authorized user (teachers or staff and or parent) that has already been defined by the administrator (precisely, vice principal academic).

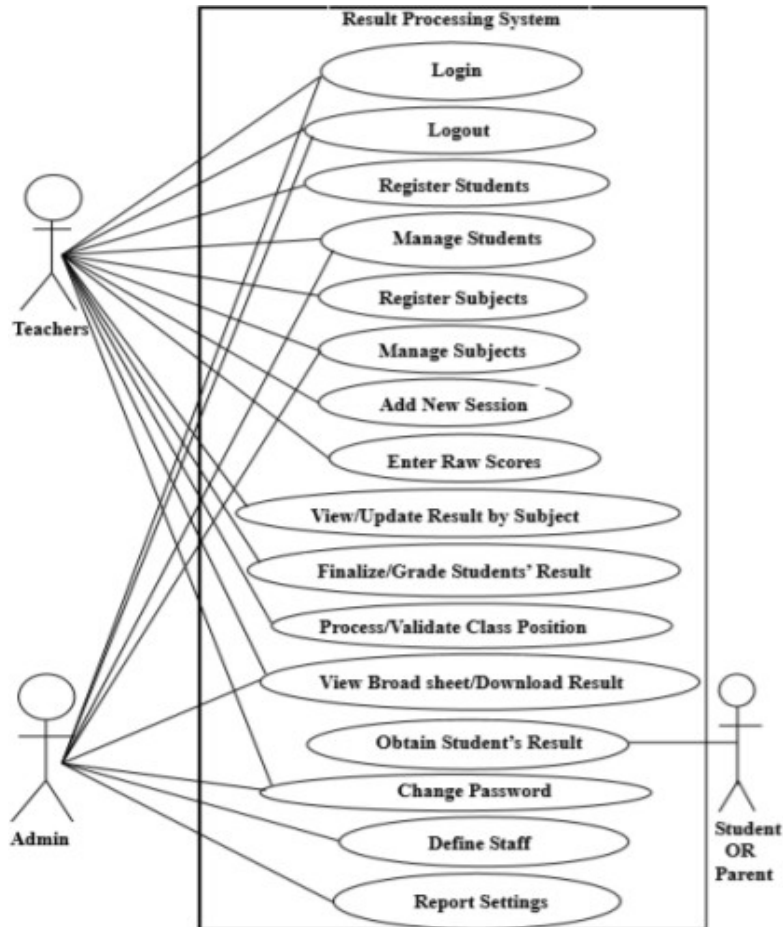


Figure 1: Use Case Diagram of the System

TABLE I: Challenges of the case study existing student result processing system

Challenges	Conception
<i>Poor Security of Documents</i>	Printed documents would often and always get lost at each point in time. Some of the documents may even destroy external elements such as termites and other insects. Intruders can have access to the manual files and that may be the end of the documents.
<i>Untimely Processing of Results</i>	The time available to process results makes the job tough for teachers. The time is always short. It often starts from the end of a school examination till the day of vacation. This means that teachers would work round the clock to ensure the results are ready.
<i>Production of Inaccurate Results</i>	Human errors due to human fatigue are sometimes made. Therefore, teachers may often make mistakes when calculating the total scores of each student in a particular subject. They may get the average scores and grades of a student's result wrong, and inaccurate results will be released.

IV. ARCHITECTURAL FRAMEWORK

Current system is bit time consuming as they require some amount of work to be done prior for example creating an excel sheet which contains student information like marks, personal details or enter all these details manually

Disadvantages of Existing System

- The current system is time consuming.
- In the current system, some manual work is to be done which makes it complex.
- In current system user must have some knowledge about creating and managing the particular file which is to be upload to the system for data extraction
- Some of the current software is not platform independent

This is the tracking system which is used to keep track of the students overall academic performance and generate its report. In this system, a user must upload the result of the student in the PDF form and then you can see the performance report of the student. System can also compare the student result with other students and the user can see the comparative analysis report of the batch of the student. In the proposed system, the user has to download the result in the PDF form and upload to it in the system and the rest of the things will be done by the system which makes it simple and fast

Advantages of Proposed Work

- As the proposed system is a web application so you can access it from anywhere in the world only you must remember your id and password.
- Faculty do not have to prepare the excel sheet of marks of each student, only upload the result excel is automatically created.
- It is very simple as users only have to upload the PDF of the result because the rest of the work is automated.
- No high configuration system required only

Registration and Login Module

Whether a student or staff member, the system policy requires that every user should register to create a user account and then use the user account to login each time the user wants to access the system functionalities. Below Figure shows the registration and login process for students and administrations.

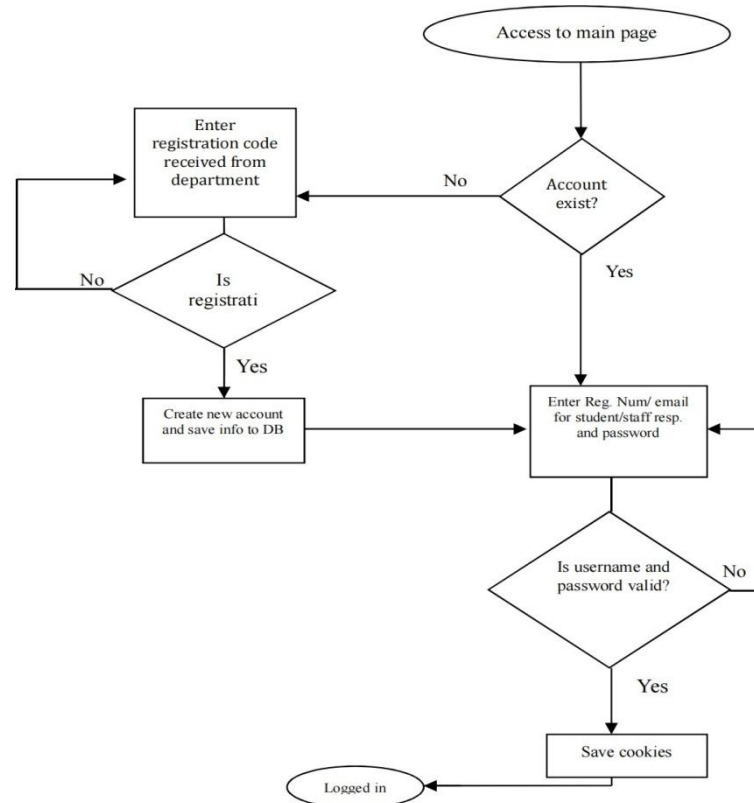


Figure 2: Registration and Login Module
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Graphs

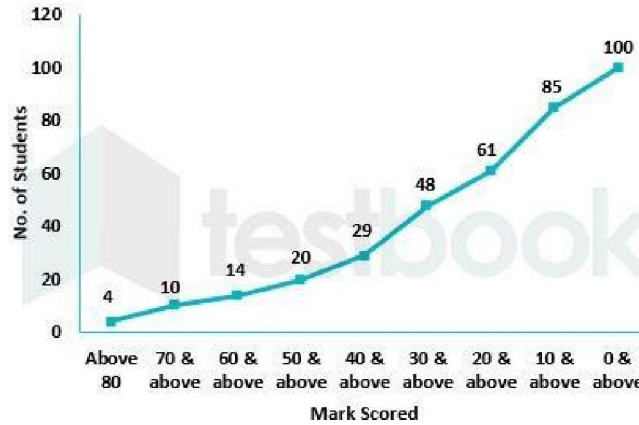


Figure 3: This graph shows the performance of a student according to their score.

V. RESULTS AND DISCUSSION

A functional result management system was developed using svelte and NOSQL as the side-server and HTML and CSS as the client-side. The database used in the Firebase was designed with NOSQL Database Management System (DBMS). The sample output/ results are shown in the various screen shots presented in this section.

Figure 4: Shows the student registration and login page.

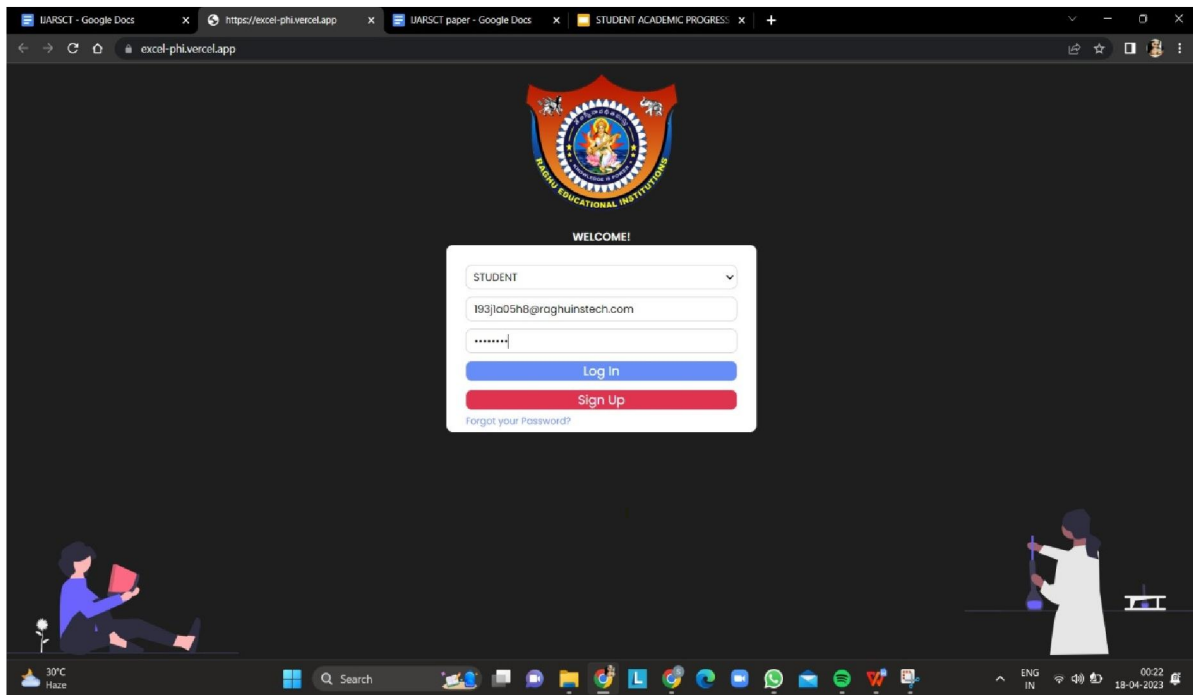


Figure 5: shows the registration module. For staff to register on the portal.

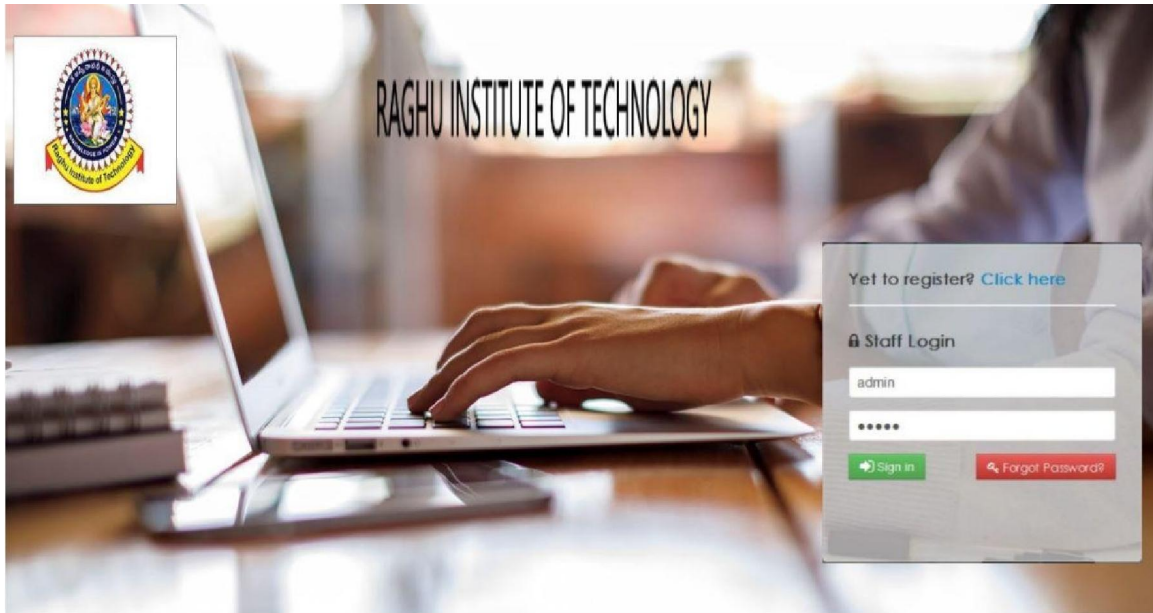


Figure 6: This below figure shows the year ,course, section, subject, section, semester of the students.

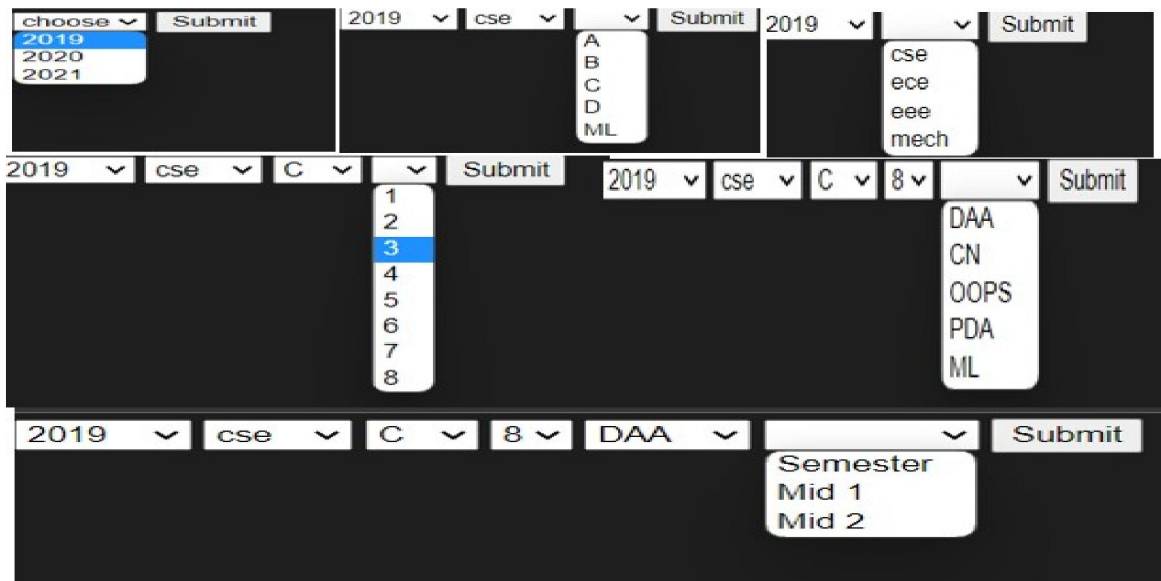


Figure 7: This figure represents the marks allotted to students by staff.

VI. CONCLUSION

The implementation of a student result processing system can provide numerous benefits to educational institutions, including improved efficiency, accuracy, and transparency in the evaluation process. By automating the process of collecting, storing, and processing student data, these systems can also reduce the workload of administrative staff and ensure that grades are available to students and faculty in a timely manner. However, it is important to ensure that these systems are designed and implemented with appropriate security measures to protect sensitive student information. Additionally, they should be user-friendly and accessible to all stakeholders, including students, faculty, and administrative staff. Overall, a well-designed student result processing system can be a valuable asset to educational institutions, helping them to better manage their resources and provide a higher quality education to their students.

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