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CBGS Result Generation System

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***Abstract*—**Microsoft Excel, which is currently used by the college, maintains the student and result database It has fewer resourceful facilities and is not portable. It does not support convenient data extraction thus our proposed system eliminates the rigidity of the database and makes it available across the local network of the institute. It is fast, easy to use, mobile and efficient. The proposed system gives flexibility to the admin of the institute to produce the system to suit their needs. The system will be secure and will prevent SQL injection attacks. This system will also implement the CBGS system to calculate the grades of the students in cooperation with University of Mumbai and is also helpful to the Training and Placement Officer in order to filter the list of students eligible for a placement drive, thereby removing the fuss of individual registrations. The system also allows the students to view their mark sheets online for quick viewing.

***Keywords*—** TPO; PDF; engineering; microsoft excel.

I. INTRODUCTION

Credit Based Grading System or CBGS is a new grading system intended to replace the previous percentage based grading system. It has many advantages over the conventional grading system. It represents a much-required shift in focus from teacher-centric to learner-centric education since the workload estimated is based on the investment of time in learning, not in teaching. The need for a fully convertible credit-based system acceptable to other universities has been fulfilled with the introduction of the "Credit Based Grading System". The aforementioned database system will act as a tool to keep track of the progress of students with ease and least amount of hassle. It is highly convenient to suit the needs of an institute, and also requires less maintenance.

II. REVIEW OF LITERATURE

The certificate generation system is flexible for generating progress reports of students. This application is mainly based on the database technology. The system is targeted to small enterprises, schools, colleges and universities. It can produce sophisticated ready-to-use reports, which would be ready to print. The development of a report is focusing at describing tables with columns/rows and sub-column sub-rows, rules of data selection and summarizing for report, particular table or column/row, and formatting the report in destination document. The report interpreter is independent of data source and destination. The adjustable data interface will be popular data sources (sql server/ms access) and report destinations (ms excel, ms word, pdf file). This report will be available to user via internet. The project aims at developing a certificate generation system which can be used in Institutes to automate the distribution of digitally verifiable student result mark sheets. The system accesses the student's results information from the local student database and generates the mark sheets in portable document format which is tamper proof. It then generates pdf mark sheet which provides the authenticity of the document. Authenticity of the document can also be verified easily (using Digital Signature). The system then uploads the generated mark sheet on a web server through which the student can download and save the mark sheet through internet and can print the generated document. The generated mark sheet will have the look and feel of the original mark sheet.

The Grading system will follow the guidelines of Mumbai University. For example, Grace Marks will be awarded to students with respect to their present score, accordingly the grade of the student will be calculated. The system will have three logins, one for the examination cell, one for HOD of each department, and one for the TPO cell. The student will be able to view their mark-sheets by providing their ID no. in the specified field. They will also be able to request a hard copy of their duplicate mark-sheet in case of loss by paying a fine. The Exam cell user will be able to input, alter results in case of any error. The HODs will be able to forward the results of revaluation of papers to the examination-cell which will be digitally signed, for security purposes.

The Credit Based Grading System awards the student a letter grade, based on the combined performance in all assessments in a particular semester as per the curriculum /syllabus. These letter grades not only indicate a qualitative assessment of the learner's performance but also carry a quantitative equivalent called the Grade Point. A learner who remains absent in any form of evaluation/examination, letter grade allocated to him/her should be AB and corresponding grade point is zero. She/he should re-appear for the said evaluation/examination in due course. The performance of a learner in a semester is indicated by a number called Semester Grade Performance Index (SGPI). The SGPI is the weighted average of the grade points obtained in all the courses by the learner during the semester. For example, if a learner passes five courses(Theory/labs/projects/Seminar etc.) in a semester with credits C1, C2, C3, C4 and C5 and learners grade points in these courses are G1, G2, G3, G4 and G5 respectively, then learner's SGPI is equal to

$$\text{SGPI}=\frac{C_1G_1+C_2G_2+C_3G_3+C_4G_4+C_5G_5}{C_1+C_2+C_3+C_4+C_5}$$

The SGPI is calculated to two decimal places.

An up to date assessment of the overall performance of a learner from the time she/he enrolled the University of

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Mumbai is obtained by calculating a number called the Cumulative Grade Performance Index (CGPI), in a manner similar to the calculation of SGPI. The CGPI therefore consider all the courses mentioned in the curriculum/syllabus manual, towards the minimum requirement of the degree learner has enrolled for. The CGPI is calculated at the end of every semester to two decimal places and is indicated in semester grade report cards. The CGPI will reflect the failed status in case of F grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPI will only reflect the new grade and not the fail grades earned earlier. The CGPI at the end of this semester is calculated as,

$$\text{CGPI}=\frac{C_1G_1+C_2G_2+C\ldots+C_iG_i+\cdots+C_nG_n}{C_1+C_2+\ldots+C_i+\cdots+C_n}$$

There will also be a final CGPI calculated which considers all the credits earned by the learner specified for a particular program.

- A learner shall be allowed to keep term for Semester II irrespective of grades obtained in each course of Semester I.
- A learner shall be allowed to keep term for Semester III if she/he passes each of Semester I and Semester II.

If she/he fails in more than five subjects in one semester, the learner will not be allowed to keep term

III. Problem Definition

Presently most institutes use Microsoft Excel as their default tool for managing records. The problem with Excel is that, there are fewer resourceful facilities than a proper database management system, like MySQL. Excel doesn't allow the students to review their profile from another machine. Every record is stored on a single machine, and can be accessed from that machine only. This limits the availability of the records. This also extends to the lack of ease in data extraction from Excel sheets. The data extraction comes in handy to filter eligible students during placement process. All of these limitations can be overcome by the proposed database management system. The proposed system is fast, efficient and highly customizable as per the needs. This system can be used by any Engineering college affiliated to Mumbai University, and it can be tailored to suit the needs of other Institutes as well. It can be adopted by various schools, colleges and universities.

The aim of this project is to provide the institute with a reliable and easy alternative way to use Microsoft Excel. It will work over the LAN providing access at all times, at the same time it will be secure in order to maintain data integrity. Objectives of the project include making the system efficient, reliable, secure and user friendly. It will also allow the students to print a duplicate of their mark sheet or get a PDF file of it for further use.

A software with the name 'Data Base Plus' allows the institute administrator to manage the student database with multiple user friendly features. It provides various customizability features and flexibility in use. The data is updated throughout the local network at a high speed, providing updated information as soon as it is uploaded. It possesses features such as, a central database that collects and reports all of your school's student and staff information, the program can be customized to meet the school's data collection and reporting needs. It allows the user to email any document, letter or report created in Data Base Plus using the inbuilt email module. It also allows the user to put information online for staff and families via Cloud Services or the Parent-Plus school web portal.

IV. Implementation Methodology

The formula for calculation of SGPI (Semester Grade Performance Index) is:

$$\text{SGPI}=\frac{C_1G_1+C_2G_2+C_3G_3+C_4G_4+C_5G_5}{C_1+C_2+C_3+C_4+C_5}$$

Where, C = Credit earned, G = Grade points

The formula for calculation of CGPI (Cumulative Grade Performance Index) is

$$\text{CGPI}=\frac{C_1G_1+C_2G_2+C\ldots+C_iG_i+\cdots+C_nG_n}{C_1+C_2+\ldots+C_i+\cdots+C_n}$$

Where, C = Credit earned, G = Grade points

Failed semesters are also considered while calculating CGPI & SGPI.

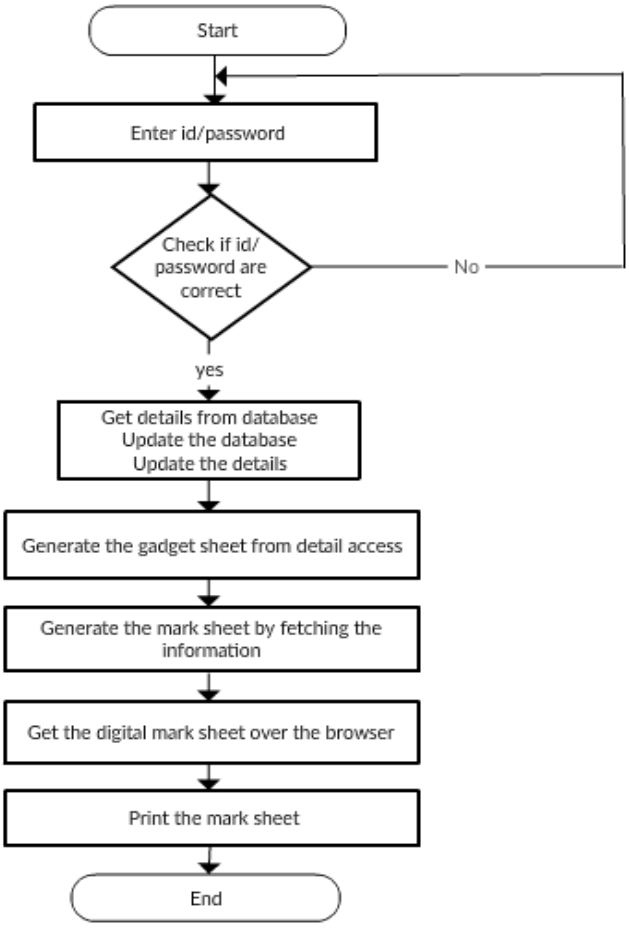

Fig. 1. Flowchart.

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Working

Steps for the implementation of system are as follows:

Step 1: If admin is operating the system, login id and password and if student is operating the system, they can access the system by providing the registration id.

Step 2: Check if provided login id and password or registration id is correct, if not go back to step 1 and if correct proceed for the step 3.

Step 3: If admin is operating the system, he can access the system by updating the database, changing the data in the database and can get the required information from the database. If students are operating the system, they can only view the data.

Step 4: Then system will generate the gadget sheet of all the students and it calculates the grade and grade point of each and every student as per the Credit based grading system (CBGS).

Step 5: Then this system will generate the mark sheet by fetching the grades, pointers and credits from the gadget sheet previously developed.

Step 6: Then this information about students' marks are available to access to students by providing authentication. Admin will get requested mark sheet in PDF mark sheet for printing purpose and only marks can be accessible to student.

Step 7: These mark sheets then can be made printable by converting it into portable document format.

V. CONCLUSION

The proposed system provides the institute with a reliable alternative way to use Microsoft Excel. The mark sheets can be easily viewed by students via internet and can also be downloaded in pdf format. It is efficient, secure, user and customizable as per needs. It can be adopted by various schools, colleges and universities. It allows the user view multiple results at a time.

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