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Design and Implementation of a System for University Automation Assessment

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ABSTRACT: The goal of this project is to create a web application that will capture internal assessment marks and feedback of the faculty's performance. Internal Assessment System will calculate average marks of the students in internals which is conducted in the college. A faculty typically keeps records of internal marks of each student and manually calculates the final average and stores this data in an Excel file, so this application provides a comprehensive solution to manage and enhance the internal mark evaluation. Feedback Analysis System provides a convenient channel for the college and the higher authorities, who are interested to conduct survey for the performance of the faculties based on student's feedback.

KEYWORDS: Internal Assessment System; Feedback Analysis System; IA marks; Student Feedback; Automation

I. INTRODUCTION

Currently in any education system the internal assessment and teacher's feedback analysis are processed manually. If we look into the literature, there exists many software for these processes, but they are of some generic standards which may not be suitable to any specific university policies. As students of this university, we made an attempt to automate these processes for our College School of Engineering and Technology-Jain University. As per the rules here, every semester students are allowed to take three internal test (Internal Assessment) for each subject. A teacher has to record the marks of each test of every student in their subject. At the final assessment stage, a teacher will consider the best two internal marks out of three internals. Then they will calculate the average marks and convert this into average to 30 marks [maximum] and these marks are stored in the Excel file.

In the current scenario, evaluating and calculating internal average marks of each students is time consuming as well as requires more human effort. This IAS application helps the faculty to reduce the overhead of marks calculation and to manage them. This application is to reduce the paper work, human calculation errors and gives results.

School of Engineering and Technology-Jain University collects feedback from the students for the respective subject teachers to evaluate the performance of the faculties at the end of each semester from the students. Our online system is the best place to find feedback report and analysed graph of individual teacher according to the university requirement.

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II. RELATED WORK

In the existing system, the internal marks are calculated after a heavy manual work. The work of entering marks after each exam, profile updating in each semester is a hard task. Moreover if it happens, when a new student joins the college or if someone discontinues, the whole data should be rearranged which is really tough task and hence the existing system will not provide the facility for profile creation and updating. All these problems are solved by using the proposed system. In the past, all the marks are collected by the faculties. Calculations and complex conversions are done manually which is a process where chance of occurring errors is more. Also, student profiles and staff profiles are written manually and stored in paper files.

Feedback is a vigorous tool which helps in detecting the teacher's performance in the classroom. If feedback is given correctly by the students then it states the quality of teaching that would increase the quality of the student achievements. A feedback system is one mechanism the university follows to motivate the young teachers by giving the enhancement points based on some attributes in feedback form [1].

As per literature, any feedback graph belongs to one of the three classes –

(1) Strongly Observable Graphs (2) Weakly Observable Graphs (3) Unobservable Graphs. The special cases of a general framework are full feedback and bandit feedback. Another name of feedback model is prediction with expert advice. After observing feedback, it helps the user or player to perform well in next rounds [2].

Education is like a coin, which has two aspects LEARNING and TEACHING. Education is often termed as a LIFE LONG PROCESS. A survey was conducted in Amasya University in which 60 teachers and students had participated. In this survey, all the participant agreed about the significance of giving and collecting feedback. The opinions of teachers and student did not differ in huge amount. According to teachers, taking the feedback is very necessary as it helps them to increase their teaching standards [3].

In current situations, colleges are using printed survey paper as the primary mechanism to collect feedback from students. In this scenario, records are kept manually. Feedback is taken in a sheet of paper. Here, calculation and conversation is done manually, its take more time and chance of getting error is more. To solve this problem, A web application is developed" ONLINE FEEDBACK ANALYSIS SYSTEM by which colleges can conduct students feedback online. By this, paperwork can be reduced and it make record maintenance easier. The online system saves a lot of time. Retrieving and updating the record is also easier here.[4] .

III. PROPOSED SYSTEM

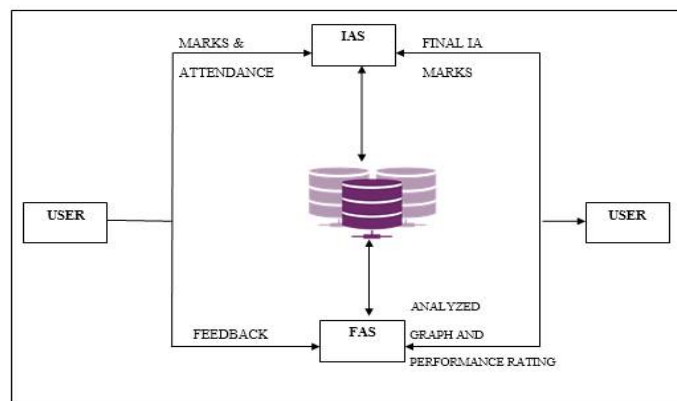


Fig. 1 System Architecture



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There are mainly two actors STUDENTS and FACULTY. For IAS module, faculty will be the user and for FAS module, students will be the user. In IAS module, faculty have to enter the attendance and internal marks. These marks and the attendance will be stored in the database and final internal marks will be calculated from them. A mark sheet will get generated in print format consisting of semester, name, USN, average attendance marks, average internal marks and finally then total marks.

In FAS module, students have to choose the subject, for which they want to give feedback. They have to answer 11 questions and also have to give overall rating. The rating given by all the students will be stored in the database after that analysed graph is prepared. The graph can be seen by teachers by logging in to their id and rating credits will be send to the faculty's email id

IV. METHODOLOGY AND IMPLEMENTATION FORMULAS

STEP 1: Username and a password are given to the actors to log into the system.

STEP 2: After logging in to the system the actors profile is displayed. There are two actors Student and Faculty.

❖ Faculty login:

- A faculty can update the internal marks for the students.
- A faculty can view their performance report which was given by the students.
- A faculty can upload the study materials.
- A faculty can change the password for their respective profiles.

❖ Student login:

- A student can evaluate the performance of the faculty.
- A student can view he marks sheet.
- A student can download the study materials.
- A student can change the password for their respective profiles.

STEP 3: In Feedback analysis system, the performance of the faculty is collected through feedback questionnaires which is rated by the students.

STEP 4: In Internal Assessment System, a faculty can update the internal marks for each student. In this module, the calculation and conversation for the internal marks is processed.

1. Calculation for Total Internal Marks

In our university, theory exam for each subject is evaluated for 100 marks. The external exam is evaluated for 70 marks at the end of the semester and internal is evaluated for 30 marks. In internal evaluation, 25 marks are the internal assessment which is conducted thrice a semester and 5 marks is for attendance that is classes attended by the student. The formula to calculate the total internal marks is

$$\text{Average Internal marks} + \text{Average Attendance Marks}$$

Fig. 2 Formula for calculating total internal marks

2. Calculation for Average Attendance Marks

Teachers enter the total number of class taken, total classes attended by the student, condoning classes, internal marks 1,2 and 3(internal marks 4 is entered if required). The formula for final attendance percentage marks is

$$\frac{\text{Total Number of classes attended by student} + \text{Condoning classes (if any)} + \text{Internal Attendance} * 100}{\text{Total Number of classes taken by the Teacher}}$$

Fig. 3 Formula for calculating final attendance percentage

In the above formula condoning classes means genuine reasons considered as per university norms, reasons may be like representing the university in terms of sports, intercollege fests or it may be genuine health reasons. Internal attendance is the number of internal attended by the student. One internal is equivalent to two classes of attendance.

The final attendance percentage is then converted into attendance marks which is generated automatically according to the percentage criteria of the student. In our university, the attendance carries 5 marks.

3. Calculation for Average Internal marks

The teachers enter Internal Mark 1, Internal Mark 2, Internal Mark 3 and Internal Mark 4(only if the student is absent for two internals for genuine reason). The system selects the best two marks out of four. The total of best two marks is added and multiplied



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by a number which the faculties wants to convert it. In our university, it is converted into 25. The converted answer is divided into the maximum marks of two internals that is 90(45+45).

$$\frac{\text{Addition of best two internal marks * marks which the faculty wants to convert (25)}}{\text{Maximum marks of two internals (90)}}$$

Fig. 4 Formula for calculating average internal marks

4. Formula for calculating credits for the faculty

Feedback analysis system evaluates the performance of the faculty. The feedback questionnaires are built in such a way that it helps the faculties to improve their skills and performance which can be helpful for effective teaching for the students. The student have to select one of the attribute of overall credit which can be poor, average, satisfactory, good and very good. The credits for the faculty is calculated by the formula

$$\frac{[(\text{poor} * 3) + (\text{average} * 4) + (\text{satisfactory} * 5) + (\text{good} * 6) + (\text{very good} * 7)]}{\text{Total feedback received}}$$

Fig. 5 Formula for calculating credits for the faculty

V. RESULTS

The output design phase is another very important one. The outputs are mainly used to communicate with user, processing the input data given by the user etc. It is documented in each stage of the project to ensure error free output. Output screens are designed in very simple and understandable format the main outputs are

FEEDBACK ANALYSIS SYSTEM

This system generates a report which gives the performance rating of each faculty. A graph is generated for 11 questionnaires and the average is calculated for the overall rating that is the credits. The generated graph and credits for each faculty is sent to their respective mail.

INTERNAL ASSESSMENT SYSTEM

This system generates the marks sheet for each semester in which the input data was given by the faculties from there profile. This marks sheet calculates the attendance percentage and final attendance marks and also it identifies the largest two marks out of four and converts these two largest marks into the final IA marks. The final attendance marks and final IA marks is added which give us the Final Average. This system also allows the student to download the study materials which was uploaded by the faculty from there profile. This system allows the faculties to entry, update the internal marks which will be conducted three times in a semester so that the calculation and conversation complex is solved. Here the input will be the total classes conducted by the faculties, total classes attended by the students which helps in the generation of the final attendance and average marks for attendance. The faculty will also entry the Internal Marks1, Internal Marks2, Internal Marks3 so that the marks will be calculated and converted to total IA marks. The



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final average marks are the addition of the final average attendance marks and total IA marks. The faculties, total classes attended by the students which helps in the generation of the final attendance and average marks for attendance. The faculty will also entry the Internal Marks1, Internal Marks2, Internal Marks3 so that the marks will be calculated and converted to total IA marks. The final average marks are the addition of the final average attendance marks and total IA marks.

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Semester : 8 | Subject : Green Technology And Sustainability | Subject Code : 13ce8403

ID	Sem	Usn	Name	Classes Attended	Condoning Classes	Internal Attendance	Total Attendance	Final Attendance Percentage	Attendance Marks	Internal Mark 1	Internal Mark 2	Internal Mark 3	Internal Mark 4	Internal Mark Average	Total Marks
1	8	13BT6IS001	ABHILASH U PRAKASH	45	0	0	0	0	0	0	0	0	0	0	0
2	8	13BT6IS003	ANKITA SHARMA	26	12	6	44	88	3	25	21	15	0	13	16
3	8	13BT6IS004	B SAIKUMAR	26	10	6	42	84	2	26	0	25	31	16	18
4	8	13BT6IS005	BIJENDRA SINGH	35	10	6	51	100	5	25	34	31	0	18	23
5	8	13BT6IS006	G GOKUL	32	5	6	43	86	3	32	15	36	0	19	22
6	8	13BT6IS007	GNANASHREE S	46	0	6	52	100	5	21	26	41	0	17	22
7	8	13BT6IS008	KAVYASHREE S	45	0	6	51	100	5	36	35	11	0	20	25
8	8	13BT6IS009	MD INZAMAMUL MISTRY	23	15	4	42	84	2	26	32	0	0	16	18
9	8	13BT6IS010	RAGHAVENDRA V	35	10	6	51	100	5	26	32	41	0	19	24
10	8	13BT6IS011	RAUNAK MAHESH	36	0	6	42	84	2	25	26	14	0	14	16
11	8	13BT6IS012	SAHIL JAKHAR	26	10	6	42	84	2	32	23	25	0	16	18
12	8	13BT6IS013	SHLOK MOTWANI	36	0	4	40	80	2	0	0	35	36	20	22
13	8	13BT6IS014	TEJASHREE GANAPATI	32	0	4	36	72	0	26	32	0	0	16	16
14	8	13BT6IS015	HARIMOHAN DAS	26	15	6	47	94	4	24	36	41	0	18	22
15	8	14TE6IS020	PUJIL BHAT	26	10	4	40	80	2	26	32	0	0	16	18

http://set-julogin.org/print.php

1/2

Fig. 6 Output of Internal Assessment System

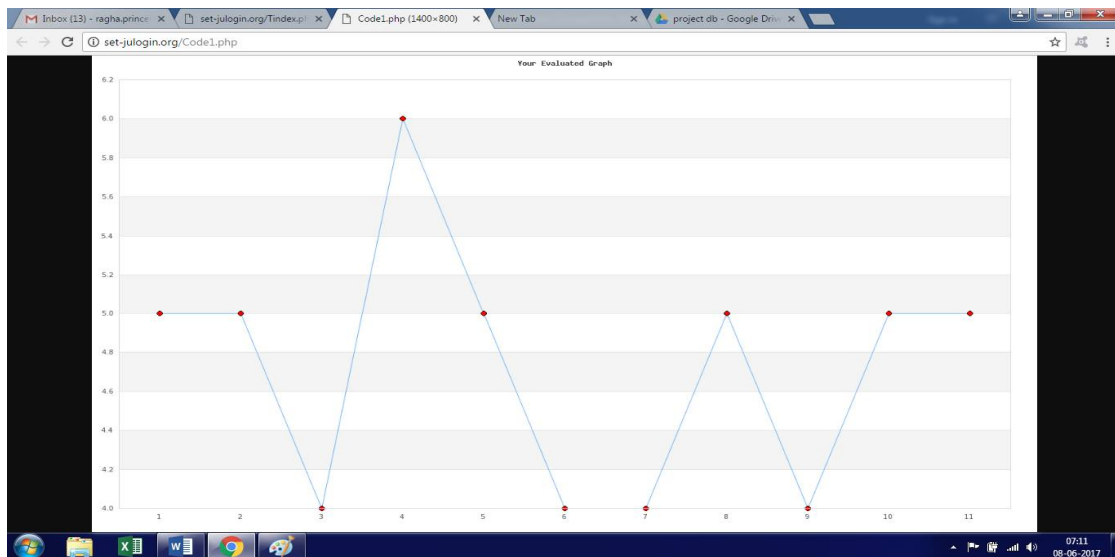


Fig. 7 Feedback Analysed Graph for teachers



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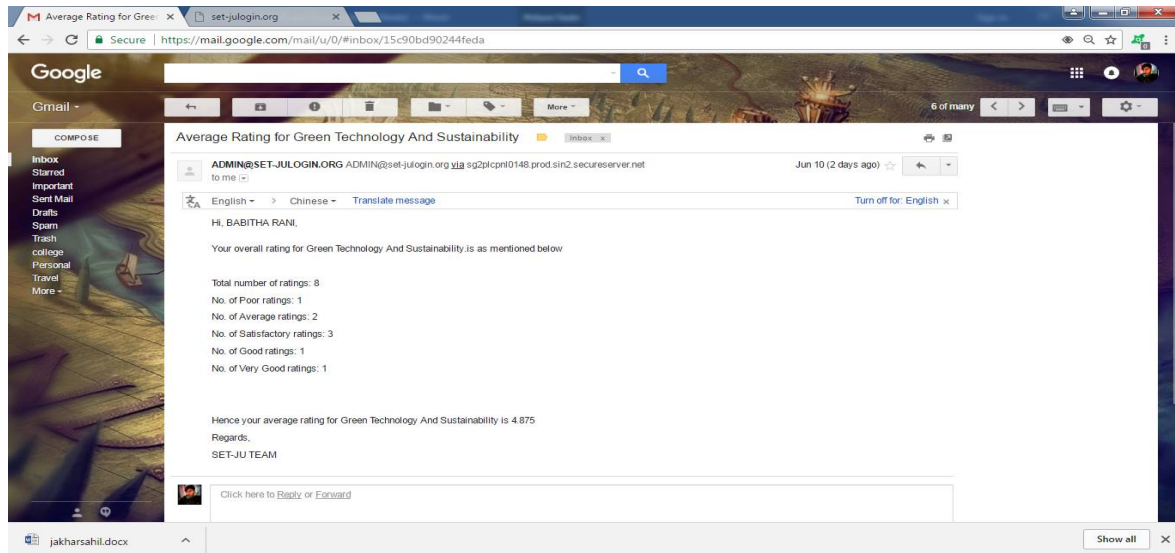


Fig.8 Credits for the performance of teacher is generated and sent to the teacher mail ids

VI. CONCLUSION AND FUTURE WORK

The IAS and FAS will capture the data given by the faculty and the students. The IAS will calculate the final attendance and final IA marks which is converted into the Final average IA marks. The FAS will analysis the teacher performance and generates a graph and rating to each teacher based on feedback given by the students which is later sent to teacher mail ids.

The future scope for our system can allow the faculty to enter the total class based on the subject credits. For instance, if the subject credit for a subject is 3, then the faculty has to take minimum of 45 classes for that subject in that semester. If the subject credit is 4, then the minimum classes will be 60. The classes taken by the faculty can be more than the credit classes but not less.

In our system teacher and student logs in from frontend to perform tasks whereas the data entry operator logs in from the backend to update, add or delete the records. So, in future we can make the data entry operator to log in from the front end.

In our system, the feedback is taken only once at the end of the semester. In future, the feedback can be taken thrice a semester that is session wise. Feedback can be taken after each internal. So, three internals three sessions. Feedback can be received in the month of September, October and November for odd semester. For even semester feedback can be taken in the month of March, April and June.

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BIOGRAPHY

Ms. Sowmya M S, Assistant Professor, Department of Information Science & Engineering, Jain University. She is Pursuing Ph.D in Bigdata Analytics, under JainUniversity. She has 6 Years of experience in Teaching. She has 7 National, and 1 International publications in her achievements. Her research interests include Programming, Data Mining, Big Data Analytics. She is the active Member of Professional bodies namely, CSTA, IAENG.

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