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Graphical Analysis of Feedback System using Web Technologies

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***Abstract*—** Feedback System is a performance evaluation system which is used by an organization to monitor all the activities happening in the organization. In this paper, we have proposed a feedback system which can be used by many stakeholders of our university such as admin, students, teachers, parents and non-teaching staff. We have provided fully dynamic nature for the system. This feedback system can be used by any non-programmer person such as admin and the feedback form will be available for all the concerned stakeholders of the organization. Some other facilities are also available in this system such as disabling of a specific form after a certain period of time, providing availability of feedback form for other faculties if it was not available initially. Feedback can be seen in the tabular form as well as in graphical form. In our paper, we have shown the result in bar graph so that analysis can be done perfectly and easily. Security is one of the main concerns in our paper as unauthorized users are not allowed to access the feedback system.

***Keywords*—**Feedback System, Dynamic, Security, Graphical Analysis

I. INTRODUCTION

Feedback system is one of the main concern of an organization to run all the activities in a proper and growing manner. Online feedback system is web based system which provides a way for colleges to allow students to give feedback for staff online to improve their teaching qualities [1]. Different kinds of feedback systems are used by many organizations according to their requirements. Evidence from a large lecture study shows that CFS (Classroom Feedback System) enhances interaction by addressing challenges to interaction [2]. In this paper, the proposed feedback system can be used by a university or an educational institution. Usually it is considered that a feedback form is for students only to provide the feedback of related teachers of their class regarding teaching qualities etc. But we have proposed the feedback system that can be used by many stakeholders such as admin, students, parents, teachers and non-teachers of the university. To get effective feedback regarding an activity, it is better to get feedback from different stakeholders.

Here admin is responsible for the following tasks such as designing a form, disabling a form after a certain period of time, enabling a form for the other faculties which was not selected earlier. The feature of enabling a form can be used if there are multiple faculties in the university but the form was opened for only few of the faculties so that it can be opened later for other faculties. The main responsibility of the admin is to generate the report that is available in tabular form and graphical form to analyze the feedback in a better way. Figure 1 and Figure 2 show works of admin and various stakeholders.

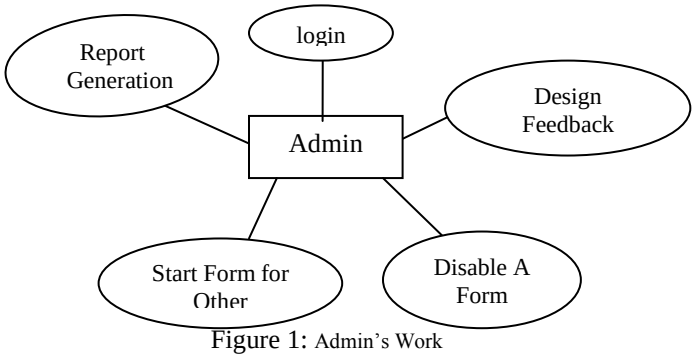


Figure 1: Admin's Work

Other stakeholders such as teachers, students, parents, staff members are required to fill the form designed for them specifically. Questionnaires are of primary importance in the dialogue with all kind of users, since they are the best tool for getting the feedback [3]. While designing the form, admin specify the category for it i.e. whether the form is for teachers, students etc. Past research on improving data entry is mostly focused on adapting the data entry interface for user efficiency improvements [4]. Therefore, we have strongly focused on the login panel as well as internal panel for all the users. So when a teacher login into the panel, he/she is required to fill the form. In a form, all questions are

mandatory to be answered. We have specified multiple options for a user to give answer of a question. Constraints are applied in terms of security for filling a form. Once a user has filled the form, the form will be disabled for that specific user. But the form will be available for other users belonging to the same faculty or department.

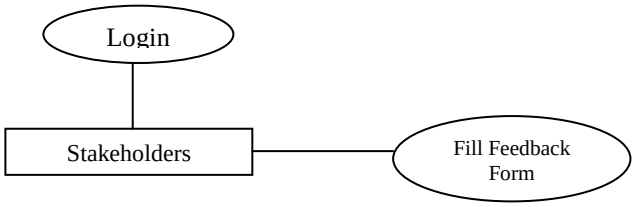


Figure 2: Stakeholder's Work

Once the form is filled by all the users before the form is disabled by admin then report generation takes place. There is a well designed interface for this task. Admin just has to select the form for which report is to be generated and then submit it. Report will be available in tabular form where the complete feedback can be seen. The main key point is that we have shown the feedback in graphical form also using bar graph so that analysis of the feedback can be done in a perfect and easy way.

Rest of the paper is organized as follows, Section I contains the introduction of the paper , Section II contain the proposed work, Section III contain the result, Section IV concludes research work with future directions.

II. PROPOSED METHODOLOGY

As we discussed earlier that our feedback system is not only for students but for other stakeholders also such as teachers, parents, admin and other staff members. So we have categorized the feedback system into two core modules. One is handled by admin and other is handled by all other users. So to implement this feature, initially we have designed a login panel as shown in Figure 3 for each user to allow only authorized users to access the system. Login panel scatter the user as per their category.

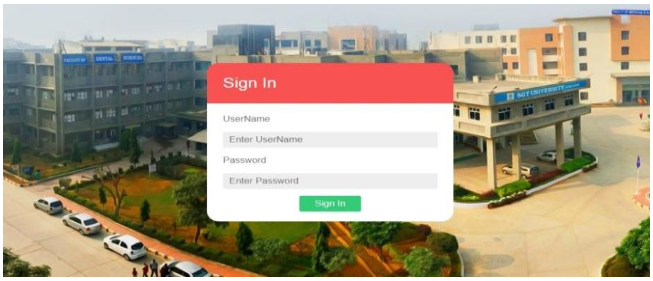


Figure 3: Login Panel

We have used web technologies such as CSS, JavaScript, Ajax, PHP etc. for the panel designing and verification etc. web-technology can provide students with more opportunities of peer interaction beyond the constraints from time and locations. The essence of self- and peer-assessment lies in personal interactions, such as students stating the strengths and weaknesses of each other's works and justifying the results of their evaluations [5]. Once the user is login, tasks can be performed further e.g. if the user is admin, the tasks for admin are designing a feedback form, disabling a form after a certain period of time, enabling a form for faculty and generating a report. While designing a form, admin types the questions and then select the faculty for whom the form is to be opened. Database used is MySql for all the data storage such as from questions, form id, category etc.

Similarly we have designed interface for other users e.g. if the user is student, he/she will have to login through the panel to ensure the authenticity. Web applications are permanently exposed to attacks, because of the particular nature of the potentially hostile environment where they operate [6]. So we have taken all security concerns by using various web technologies. Here we have developed a responsive feedback system which can be accessible on multiple platforms. In a world where technology is ever evolving, providing people with more convenient ways of living, the old-fashioned cellular phone has being replaced with the smarter and faster Smartphone[7]. Portio research estimates that mobile subscribers worldwide will reach 6.9 billion by the end of 2013 and 8 billion by the end of 2016 [8]. In today's world everyone has a smart phone and we find it very friendly to access everything on mobile phones. So keeping this thing in mind, we have developed a feedback system which has mobile based interface also. After logging in users will have all the forms available to fill as per their category and department. If a particular user has already filled a feedback form, he/she can not fill it again. Once a feedback form is complete, user will be logged out. If a form is not available for particular user then a message will display to him as no form available right now.

Figure 4 shows the flow diagram of feedback system. Firstly any user will open the login panel. If user name and password is correct only then login will be successful. If user category is admin then he/she will be directed to admin page otherwise will be directed according to his category as student, teacher, parents or non-teaching staff. Then admin can perform any operation according to his need similarly other stakeholders will do. Here any user can fill a particular form only once. We have implemented this feature by providing unique id to each and every form. After completion all will be signed out and process will stop.

Cookies that are exchanged between the client and the server may contain sensitive information like Username, passwords and other user credentials like e-mail address, contact info, credit card no, etc [9]. Here we have disabled all back buttons using client side programming so that load

minimization on server can be achieved. Strong session management is a key part of a secure web application [10]. So to provide security to each and every page we have implemented the concept of sessions so that any intruder can not access our feedback system and give wrong feedback.

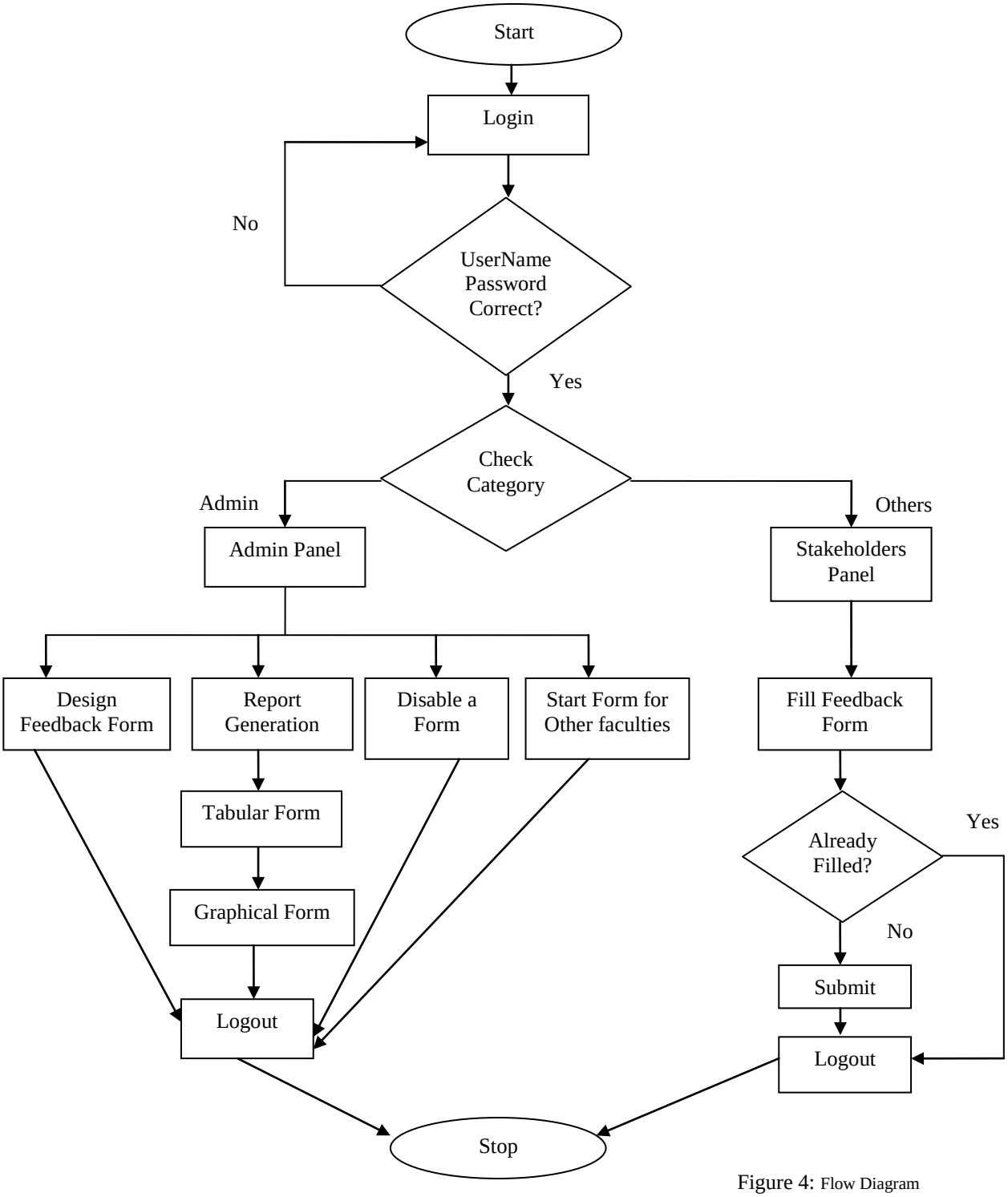
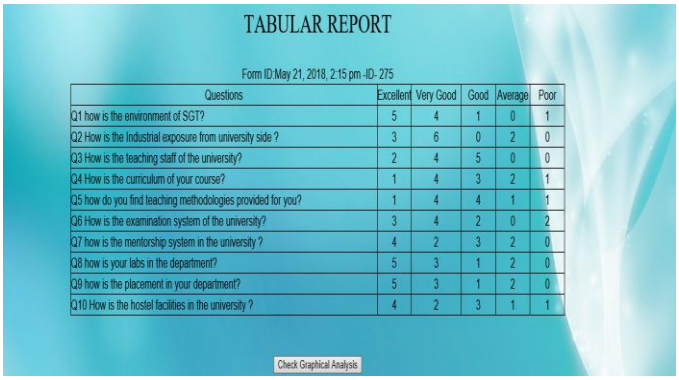


Figure 4: Flow Diagram

Here only admin will be responsible for generating questions for the feedback. Feedback can be given by the students for the point of view of teaching methodology implemented in their discipline or for providing feedback of the teachers teaching them. Teachers or Non-Teaching staff can give feedback in terms of the working environment of the university or extra activities done for them by the organization. Similarly parents can also give their feedbacks regarding the atmosphere of the university or their satisfaction level. In this paper Faculty specifies various disciplines available in the university. Once the result is analyzed, a report is prepared on the basis of features that are relevant to the problem. Using this analytical report, some actions or decisions can be made for the future point of view [11]. So here admin can generate any report based on the category or on the basis of a particular faculty to analyze it.

III. RESULTS

Figure 5 and Figure 6 show the generated report in tabular and graphical form respectively. Report contains the form id with all the questions and assigned score for each question by all the users. Number of users who have given feedback as excellent, very good, good, average, poor for all the questions can be checked in the table. Similarly, there is graphical representation of this table that can be used to analyze the report in a proper way.



Questions	Excellent	Very Good	Good	Average	Poor
Q1 how is the environment of SGT?	5	4	1	0	1
Q2 How is the Industrial exposure from university side ?	3	6	0	2	0
Q3 How is the teaching staff of the university?	2	4	5	0	0
Q4 How is the curriculum of your course?	1	4	3	2	1
Q5 how do you find teaching methodologies provided for you?	1	4	4	1	1
Q6 How is the examination system of the university?	3	4	2	0	2
Q7 how is the mentorship system in the university ?	4	2	3	2	0
Q8 how is your labs in the department?	5	3	1	2	0
Q9 how is the placement in your department?	5	3	1	2	0
Q10 How is the hostel facilities in the university ?	4	2	3	1	1

Figure 5: Feedback Form analysis in Tabular form

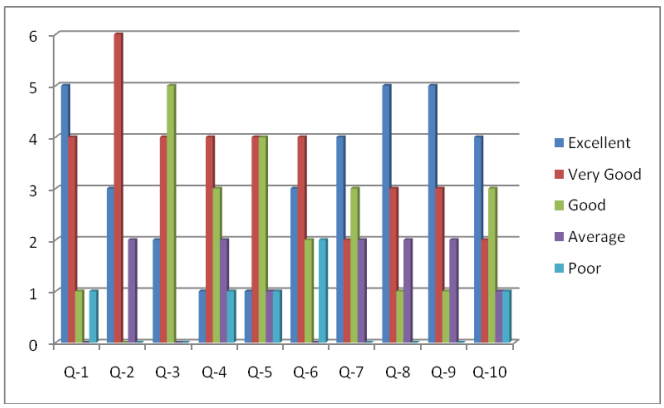


Figure 6: Feedback Form analysis in Graphical form

The development of a reliable and robust large scale system requires that design concepts are visualized in some digital form [12]. So here is the graphical representation of the above table in the form of bar graph to better understand it. There is a unique color representation for each kind of answer. X-axis of the graph is representing all the questions of the form and Y-axis is representing number of users as per their answers for each question. In the case of a multiple-input multiple-output feedback system, feedback can be used to specify a matrix of the overall summary, which shows the strongest way of representation [13].

IV. CONCLUSION AND FUTURE SCOPE

Today, during global economic downturn, exponential growth of any organization deeply require better and innovative techniques [14]. Here we can clearly see that our feedback system is not only for students but for all other stakeholders of the organization to keep the system in a growing and proper way. We have used latest web technologies to generate the graphical report of the feedback system. As it is not a great idea to work on feedback system only on the papers and analyze them. As security was the main concern in the feedback system, so we have applied authenticity nearly at all stages wherever required so that an unauthorized user can neither submit nor view the feedback in any case. The system can further be improved by providing more features for the admin as well as other stakeholders of the organization. One more dynamic feature can be added so that the admin will be able to add other users along with category as per requirement of the organization.

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