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Online Evaluation of Project Report and Technical Paper for Educational Institutes

Shweta Monde, Suyog Manore

Dept. of Computer Engineering, Ramrao Adik Institute of Technology, Mumbai, India

ABSTRACT: In this paper, we proposed the design of a web-based online module to efficiently and productively handle project reports and technical papers written by students during their academic tenure in an institute. The proposed system will allow students to upload their project reports and technical papers online and get them evaluated on diverse technical parameters by faculty members, belonging to different hierarchical ranks. A design of a system with optimized modules is the need of an hour and simultaneously a globally accepted fact. Consequently, we proposed a system that will largely benefit student community for evaluating their project work and technical papers by the institution's faculty and peers and at the same time, an institute's faculty will be able to handle the project work more effectively and in an innovative manner. This in- turn will play a crucial role for inculcating research interests in the minds of preceding standard's students, as they will be able to view the project reports and technical papers of their seniors. Thus the proposed system is carefully and meticulously designed to benefit student community belonging to different standards as well as faculty associated with an institute.

KEYWORDS: Technical parameters; Hierarchical ranks; Research interest

I. INTRODUCTION

Internet can be defined as - A technology using which one can get, send or share information at any-time and from any nook of the world. It has managed to change our lives rapidlyby changing ones way to access information and also has largely contributed to speedup process of sharing information and to connect to the other end of the world within seconds. As per PS et. al.[1], we are increasingly becoming dependent on technology for resources like audio/video files, images, documents etc. Thus he finds it important to develop more powerful and integrated Internet networks. Mathews et. al.[2] has described a term – 'Internetalisation', which is a process that has efficiently replaced the once slow and cumbersome process of international market expansion. Such is the importance of Internet these days. Internet can be viewed as Intranet and Internet, where Intranet forms a network or mesh of systems and resources which are accessed by a particular organization only while Internet consists of a network that exists between two or more organizations. Internet has been widely accepted as fast, secure and reliable way of communicating information and thus has been used in various public sectors, private sectors, educational institutes, telecommunication offices etc.

A general motive of an educational institute is to bring the best out of their students' community with respect to their professional work. In the final year major project, we get to see intellectual, innovative and creative ideas of students being implemented in real life applications. Also a brief project report and a technical paper are prepared and submitted in a form of hardcopy to the respective departments. These can be considered as extended assets of an educational institute, which needs to be handled in a most effective way. Thus understanding the need of an hour and scope of the system, we have proposed the system called as – 'An Online Project Report andTechnical Paper Management Module', which will constructively handle project reports and technical papers certainly with some additional features.

In many colleges, project reports and technical papers are reviewed and rated verbally i.e. there is an absence of a standardized method to evaluate them. It is difficult for students to reach out to the projects that are being implemented in an institute, professors associated with them and amount of work done in a particular domain. Thus, the main aim is to overcome these limitations and provide a system that standardizes the complete project management process. The important functions provided are – online rating and reviewing to minimize human errors and physical dependency, searching and rating of project reports and technical papers carried out by students, declaration of top 3 projects by HOD based on its ratings and faculty evaluation.

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In this paper, we proposed an online web-based module to manage the entire project work in an effective manner. Section 2 describes the literature survey conducted. The Proposed Sys- tem is explained in detail in Section 3. Section 4 gives implementation and analysis work done. Section 5 illustrates the results obtained. Section 6 explains future scope of the system and Section 7 states the conclusion.

II. LITERATURE REVIEW

A. Importance of Online Systems

Online Systems with the help of computers, hardware re- sources and other software tools, replace manual work with systematic computer procedures. With the advent of Internet, systems that communicate information using wired or wireless internet connections are developing rapidly. The main reasons being security, reliability and speed of these systems. As per Law et. al.[3], an organization must create and maintain an interactive and efficient website(online system) to maintain strong customer relations and to provide an evidence for an organization's popularity. Garrison Cleveland et. al.[4] de- scribes an online system to possess strong potential to sustain educational communication. Human communication has a slight potential to be misleading which can induce human errors to a great extent. Thus, online systems help to reduce human errors and always work in an expected manner.

B. Access ControlMethods

In the world of emerging sophisticated frauds, it has become very difficult to recognize the fraudulent activities with limited and conventional security measures. Even after implementing superlative and advanced security measures,hackersand attackers are coming up with even more destructive ideas day- by-day. Consequently, it is very important to keep data, information and resources safe. Thus to have a total control and to monitor the access activities, there are four models of Access Control. They are – Mandatory Access Control (MAC), Discretionary Access Control (DAC), Role-Based AccessControl, DomainType Enforcement (DTE). Chandramouliet. al.[5] finds RBAC model as one of the emerging and potential model that will replace traditional discretionary and Mandatory Access Model in near future. Ravi et al.[6] considers RBAC model as the most effective resource permission system be- cause of its ability to grant permission depending upon a user's hierarchy. After carefully studying each of these models, we found that Role-Based Access Control Model is the most suitable for our proposed system. In RBAC model, an individual is given access to a particular set of resources and data, as per his/her position in the hierarchy and level of accessibility assigned. Management Model in RBAC contributes to assign and manage access controls and it is monitors by the authorized person of an organization. The tasks and resources are assigned in accordance with the hierarchy of the employ- ees in an organization. The most important aspects of RBAC are – Role Assignment, Role Authorization and Permission Authorization.

C. Importance of Full TextSearch

In the proposed system, 'Full Text Search' methodology is implemented considering various advantages it has to offer. Before full text search algorithm, many other substring search algorithms were generated and studied. Daniel et. al.[7] has studied the substring search algorithm and has developed even more efficient algorithm by introducing different pattern string scan orders. It can be considered as a potential origin and history of 'Full Text Search' algorithm. Stemming is the feature of Full Text Search which gives an user, flexibility in the search process. Instead of focusing only on typed words, it also manages to search and represent results for extended and related words. Because of its stemming feature, it becomes difficult to use it for large databases as one typed word can have many related and extended words to display. Thisin-turn will lead to increased time complexity. Thus after careful analysis of our requirement and considering the size of data- base, we have decided to use 'Full Text Search' in the proposed system.

D. Rating Algorithm

Along with faculty rating, importance of student rating is recognized in the system. Efficient implementation of project is important similarly even its acceptance by the students is appreciated. Initially, ratings were given based on simple aver- age ratings. But along with that importance for both negative rating, positive rating and number of users that are rating must be given and thus it is not a self-efficient algorithm.

Score = Average rating = (Positive ratings) / (Total ratings)

This was a wrong method of calculating rate value of a product, performed by Amazon. 'Wilson's score confidence

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interval for Bernoulli parameter' algorithm improves the traditional rating strategy to a great extent.

$$\left(\hat{p} + \frac{z^2_{\alpha/2}}{2n} \pm z_{\alpha/2}\sqrt{[\hat{p}(1-\hat{p}) + z^2_{\alpha/2}/4n]/n}\right)/(1 + z^2_{\alpha/2}/n).$$

Where,

p : observed fraction of positive rating

z(alpha) = (1- alpha/2) [quantile of the standard normal distribution]

n : Total number of ratings

Laplace smoothing method is much simpler to calculate and there is no need of statistical analysis.

More efficient rating formula is Laplace Smoothing –

(up-votes + alpha) / (total-votes + beta)

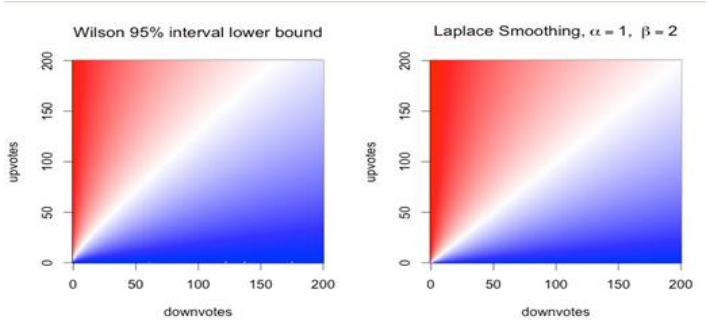

Fig.1 Comparison of Wilson's and Laplace formulae

But considering student's level of intelligibility, it might be possible that students' rating can't be fair and justified always. An algorithm is generated that carefully handles unpredictable rating and will surely lead to fair rating of any project report or technical paper. The algorithm gives 70% weightage to faculty rating and 30% weightage to students rating and considering both, average is taken and top to least rated projects are displayed in a proper manner.

III. PROPOSED WORK

The system is implemented with the help of integrating various defined modules. The modules are developed and integrated in following phases:

Phase 1 – Uploading Project Reports and Technical Papers

Phase 2 – Review/Rate Project Reports and Technical Papers

Phase 3 – Search and Rate for desired document

Phase 4 – Implementation of other services like notifications, technical article discuss platform, faculty evaluation, declaration of top 3 projects etc.

Each phase is explained in detail below –

Phase 1 – Uploading Project Report and Technical Paper
Initially, students visit and provide necessary credentials on the website and log into their account. They will get their project reports and technical papers reviewed by the project guide and other faculty members. After reviewing one or more times, when the document is completely ready,studentswill send it to the faculty members for rating. Thus a student can upload a document either to review or rate.

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Phase 2 - Review/Rate Project Reports and Technical Papers
Once a student requests to review/rate a document, faculty members will carry out the process of Review/Rate. A Review is given based on following technical parameters – Content, Organization, Knowledge Base and Intelligibility. After review is done it sends to the user in the form of email and notification in his/her account. As per the review a student can modify and improve their document and can send for more reviews, until a document is satisfactorily completed. Finally, it is sent for rating, where it is rated on a scale of 10 and gets saved in the database.

Phase 3 - Search and Rate for desired document
As the documents are now rated, students can search and rate them. Full Text Search is carried out and even students can present their view through rating. The search activity makes sure that the projects made are reached to the student community and they are able to understand the amount of work done in a particular domain or professor associated with it or aver- age rating of a document.

Phase 4 - Implementation of other services like notifications, technical article discuss platform, faculty evaluation, declaration of top 3 projects etc.

To make the system more promising and user-friendly, some other important features are added. After each review and rating activity, student gets notification through email and is also received in his/her account. Email notification is used, since it is easy to use and is quickly approachable. A student can also log into his/her account, write a technical article and post. Other students can read and comment on the same. This interactive platform is important to bring out the technical proficiency and create a healthy environment for students. The sys- tem offers a feature, where an HOD can find out top 3 highly rated project teams. This will create a sense of encouragement amongst students. Also the associated professors with the project teams get evaluated.

Overall features provided by the system are mentioned below-

- Standardization of Project Management Work
- Detailed Review/Rate given by faculty members and peers
- Improved reachability of projects to student community
- System to find top 3 project teams using faculty ratings
- Improved time required to manage project work
- Minimized human errors and physical dependency
- Interactive platform to discuss technical articles

Working of different modules and flow of data can be well understood considering the below mentioned workflow diagram.

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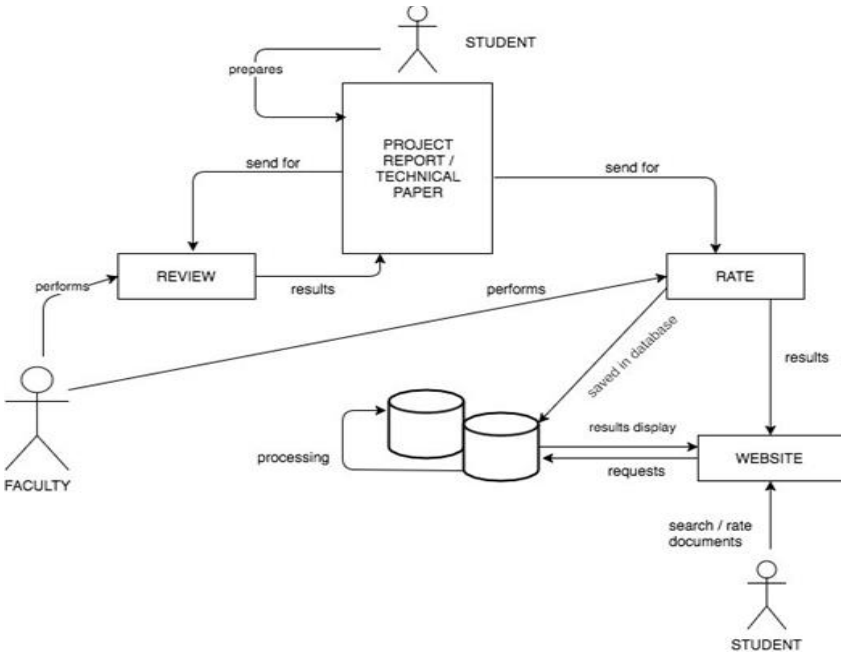

Fig.2 Workflow diagram

IV. SYSTEM DESIGN

The proposed system is configured with XAMPP as webserver PHP is used as scripting language and MYSQL as backend database.

Table1: Table displaying database tables and their functionalities

Database Modules	Functionality
Register	It contains all student de- tails. First-name, last-name, roll-no, email, password details attributes are mentioned.
Faculty-register	It contains all faculty de- tails. First-name, last-name, faculty-id, email, password, date of registration attributes are mentioned.
Project Report	It contains all details about the project report. Report- Id, report topic, domain, date, file name, roll-no of student, plagiarism value, faculty names attributes are mentioned.
Technical Paper	It contains all details about the technical paper. Technical id, topic name, domain, date, file name, roll-no of student, plagiarism value, faculty id attributes are mentioned.
Review	It contains all details about the review activities. Re- view id, domain, document type, topic name, date, roll no, faculty id, comment, content, organization, intelligible, knowledge base attributes are mentioned.
Rate	It contains all details about the rate activities. Rate id, topic name, domain, document type, file name, date, roll-no, faculty-id, rate, comment attributes are mentioned.

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Software Architecture diagram describes interconnection of different modules with software and hardware resources of the system.

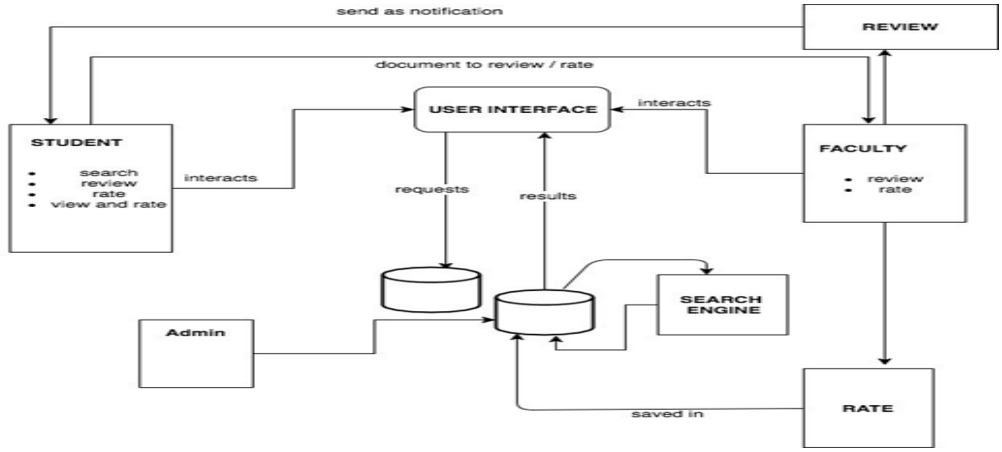


Fig.3 Software Architecture Diagram

V. IMPLEMENTATION AND RESULTS

Following results are obtained after successful implementation of the proposed system –

- *Uploading documents online* - Once a student logs into his/her account, a documented can be uploaded for review/rate. The document gets saved in the central database and is further used for review/rate processes.
- *Secure access control* – With the help of different resource platform, prevention against unauthorized access is guaranteed.
- *Task separation is achieved* – RBAC model efficiently separates tasks with respect to the level of hierarchy of an individual. Users belongingtodifferent hierarchical levels will access differentresourcesand will perform assigned tasks only. Thus it provides data privacy and controlled access to resources.

Results shown below indicate successful implementation of Student and Faculty module along with results of their important functionalities.

A. Student Module Results

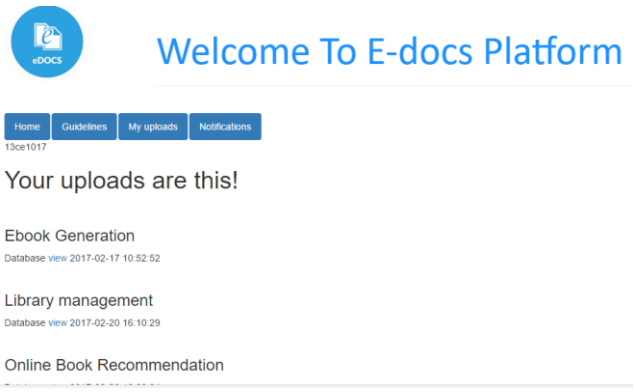
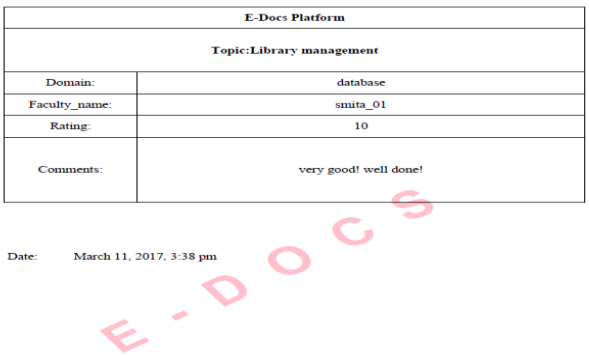


Fig.4 Student's uploaded file section
A student can view all his/her upload history in this 'My Uploads' Section.



E-Docs Platform	
Topic:Library management	
Domain:	database
Faculty_name:	smita_01
Rating:	10
Comments:	very good! well done!

Date: March 11, 2017, 3:38 pm

Fig.6 PDF of faculty reply via email
A student receivespdf document from faculty after 'Rating' process. Rating is done on a scale of 10.

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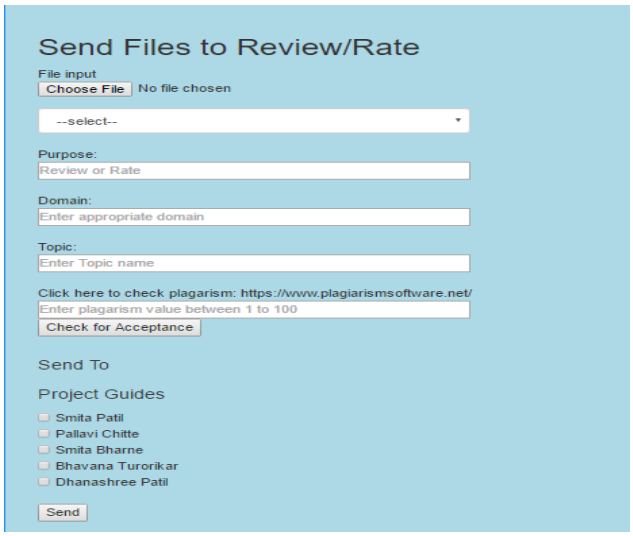

Fig.5 Student's file upload section

A student can upload his/her technical documents for Review/Rate and can send it to multiple faculties.

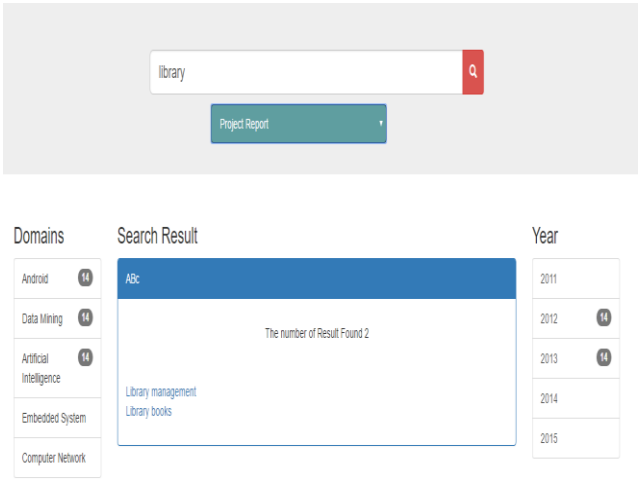

Fig.7 Student search results

A student can search for documents and are majorly classified based on Domain and Year.

B. Faculty Module Results

Fig.8 Faculty Database

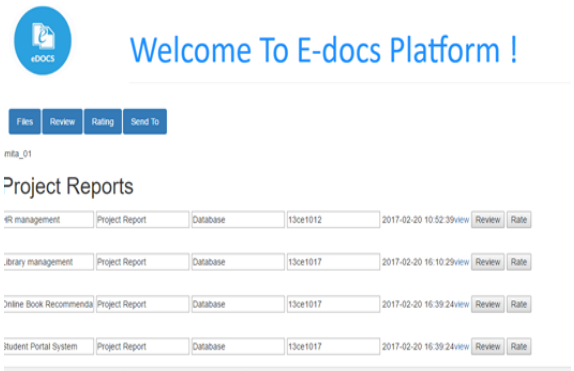

Fig.10 Faculty Notification Section

It contains details of faculty members like name, Faculty gets notifications when a student submits a Id, email-id etc. document to Review/Rate.

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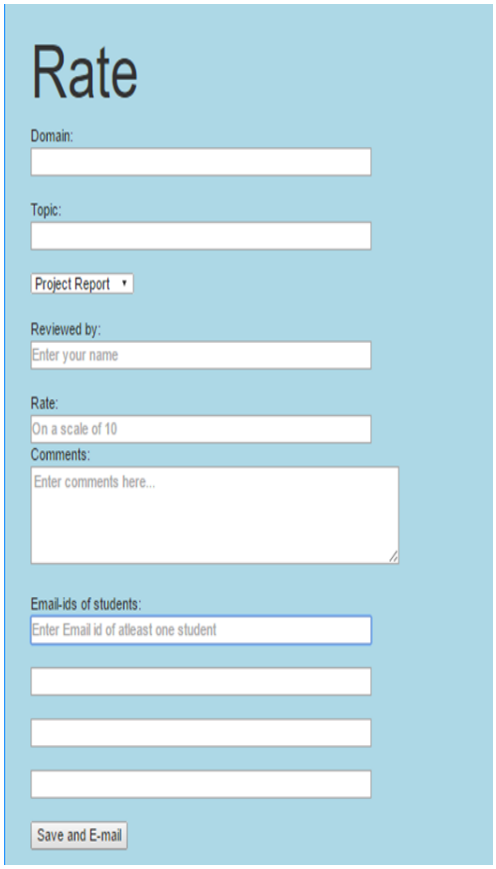

Fig.9 Faculty Rate Section

Faculty can rate a document on a scale of 10.

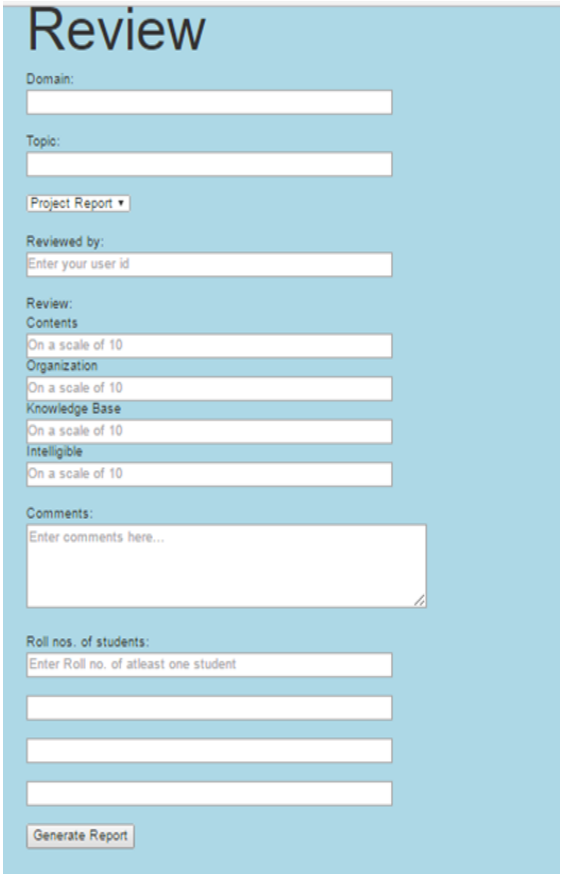

Fig. 11 Faculty Review Section

Faculty can give multiple reviews based on Contents, Organization, Knowledge Base and Intelligibility

VI. FUTURE SCOPE AND CONCLUSION

Technical papers can contain proposed systems unlike project reports. Thus, two important parameters – Acceptance Rate and Feasibility can be included in Review parameters for technical papers. Further, 'Automated Rating System' for project reports and technical papers can be considered to have a strong potential to enhance the system.

The proposed system brings an innovative change in the entire project management system. The main idea is to make projects reachable to student community and to standardize the reviewing and rating processes. Addition of some other features like notifications, declaration of top 3 project teams, technical discussion forum make the system more user-friendly and acceptable.

REFERENCES

[1] Professor P.S. Lokhande, Performance and security measure of highly performed enterprise content management system, 2012
[2]Mathews, Shane, and Marilyn Healy. "'From garage to global': theinternet and international market growth, an SME perspective." International Journal of Internet Marketing and Advertising 4.2-3 (2008):179-196.
[3] Law, Rob, Shanshan Qi, and DimitriosBuhalis. "Progress in tourism man- agement: A review of website evaluation in tourism research." Tourism man- agement 31.3 (2010): 297
[4] Garrison, D. Randy, and Martha Cleveland-Innes. "Facilitating cognitive presence in online learning: Interaction is not enough." The American Journal of Distance Education 19.3 (2005): 133-148.

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[5] Ramaswamy, Chandramouli, and Ravi Sandhu. "Role-based access control features in commercial database management systems." Proc. 21st Nat'l In- formation Systems Security Conf. 1998.
[6] Sandhu, Ravi S., et al. "Role-based access control models." Computer 29.2 (1996): 38-47.
[7] Sunday, Daniel M. "A very fast substring search algorithm." Communica- tions of the ACM 33.8 (1990): 132-142.