



---

## Question Bank using Crowdsourcing Model

*Abdul Rehman Tahami, Ankita Arya, Abhishek Sharma*

CSE Department, Acropolis Institute of Technology And Research  
Bypass Road, Square, Manglaya Sadak, Indore, Madhya Pradesh 453771  
[abdulrehmantahmani20168@acropolis.in](mailto:abdulrehmantahmani20168@acropolis.in)  
[abhisheksharma20465@acropolis.in](mailto:abhisheksharma20465@acropolis.in)  
[ankitaarya20550@acropolis.in](mailto:ankitaarya20550@acropolis.in)

---

### Abstract :

Question Bank - A Crowd-Sourcing Model where questions are set by a large number of anonymous stakeholders for online exams after verification. It is essential in electronic and interactive learning, however, most examinations are paper-based when computer's component fail.

Digitization and automation across all industries has resulted in improvements in efficiencies and effectiveness to systems and processes, and the higher education sector is not immune.

The Crowd Sourcing System offers a systematic and technological alternative to the old summative examination designed for final authentication and testing of student's knowledge retention, application, and extension. It is efficient and fast.

---

### KEYWORDS

---

## I. INTRODUCTION

Exams are a way to test the skills and knowledge of individuals, and this system can be used by almost everyone who wishes to test their knowledge and skills. Exams are conducted almost every day around the world. Question papers for examinations are generally set by people who have good knowledge in their field. For setting question papers, we propose a system, which will generate the question paper, which will hugely reduce the manual efforts of institutions.

Online Question Bank and Examination System is a relatively new and rapidly expanding system. The main idea of this system is to provide a system that will enable the teacher to author and store a bank of examination questions. The system will then assemble the questions to become an examination paper. Students can then access the system and take part in the exam. Upon exam completion, the system will be able to do a grading base submitted exam paper.

---

## Methodology

The program will work as a question bank which will store different types of questions, filtering them according to the different topics for the convenience of the users.

### ADMINISTRATOR

The administrator has a major role in the functioning of the system. The admin has to verify the "Proof of Identification". Based on the verification, the admin can approve a user or reject the user's registration request. The admin also has to notify the users about the various updates related to the system and also about the important notifications such as commencement of the submission of the question bank, last date for submission of the question bank, dates of the examinations, etc. The admin is also responsible for generating the question paper. The question paper generated is stored in a separate file and then sent to the respective Head of the Organization. This ensures that the question paper doesn't fall into the wrong hands and is kept confidential. The question paper can be generated a few hours before the examination to avoid any misuse of the question paper and preserve the motive of conducting an examination.

### TEACHER

The teacher has the job to create a question paper from the question bank. Teachers do this by choosing questions in the website. The teacher can choose which users in the website to give question to. Teachers also have the power to evaluate the answers given by the users and give marks according to

their performance of which a report is created and sent to the user. Teachers also have their special login access. They have every privileges a student can have on the website. Teachers can update and delete and questions in the question paper, assign students to certain question papers.

### ***STUDENT***

Anyone can register as the student in this website. The students can view questions, rate them by their preference and solve question papers given to them by their teachers. They can also see the results after giving their tests in their reports

### ***QUESTION PAPER***

The question paper generated would cover different topics of the syllabus and won't solely concentrate only on the important questions/topics. This is done by choosing only one question from every keyword from the question bank under each weightage category of marks. In simple terms, we instruct the system to select only a single question from every distinct keyword in the database. This is done for every weightage category of marks. To make sure that all the questions in all the keyword categories are selected. Also, the difficulty of the question paper can be selected by the admin (if required) in order to make the question paper fair to all the students or candidates appearing for the examination. This can be done by assigning a value for each difficulty type

### ***DIFFICULTY OF THE PAPER***

The difficulty of the paper will be determined by the teacher who is making the question paper from the question bank. There will be three levels of difficulties which are beginner, intermediate and advanced.

Beginner: Beginner level is there for students who are not experienced in the topic of the exam. It is the easiest level of the three.

Intermediate: Intermediate level is there for the students who have some experience in the topics.

Advanced: Advanced level is the highest level among them all. It is recommended for highly experienced students only.

### ***RATING SYSTEM***

For the rating system to work No. of views will be recorded and likes or dislikes will be taken by the program for the user

A system of Rating will be implemented as follows:-

Rating=(Likes/Dislikes)

Rating will be visible to all users

Every Question will have a rating system and the question will be preferred according to the given formula

Preference Ratio=Views\*(Rating)

The Question with the highest preference ratio will be shown on the top and questions will be arranged according to decreasing order of preference.

### ***LOGIN SYSTEM***

Login system is also develop in the system for students and teachers in which a person is given an id and password and can register and login to the site

### ***DEVELOPMENT***

Being an important phase of software development, the design of the application's architecture was highly considered.

The application has a front-end that acts as an interface to the users of the application and a backend that aids in the management of the application. The features of both are listed below.

#### ***Front-End***

The Front End of the Application provides several functionalities to the users:

Users can see the details of the course without registering.

They can access Module information and theories after registering for a particular Course.

Students will face multiple choice and textual questions.

They can view the progress report after going through in Examination.

#### ***Back-End***

The Back End of the Application is used by administrator:

Administrators can add/delete/edit the courses.

He can also change the launch status of Courses that will be affected in the Front End. Users, registered for a particular course can appear in that Examination and view Reports also.

Administrators can update the visual Interface for every Course.

In different Courses there may be the same Modules included.

He can add / edit / delete Modules

He can view reports.

He can change the status of a User.

He has to check out the textual answer of users

The programming languages used in development of the software were as follows:

Html was used in making the frontend of the software. Javascript was used in making the logic of the software. CSS was used to design and beautify the external look of the software. These Languages were used due to their popularity, how easy they were to learn and use and compatibility with each other. Microsoft Visual Studio Code was used as the code editor to program these scripts.

MongoDB and Node js were used to develop the server and the database for the website.

During the course of implementation, most of the functionalities were developed as small chunks of code.

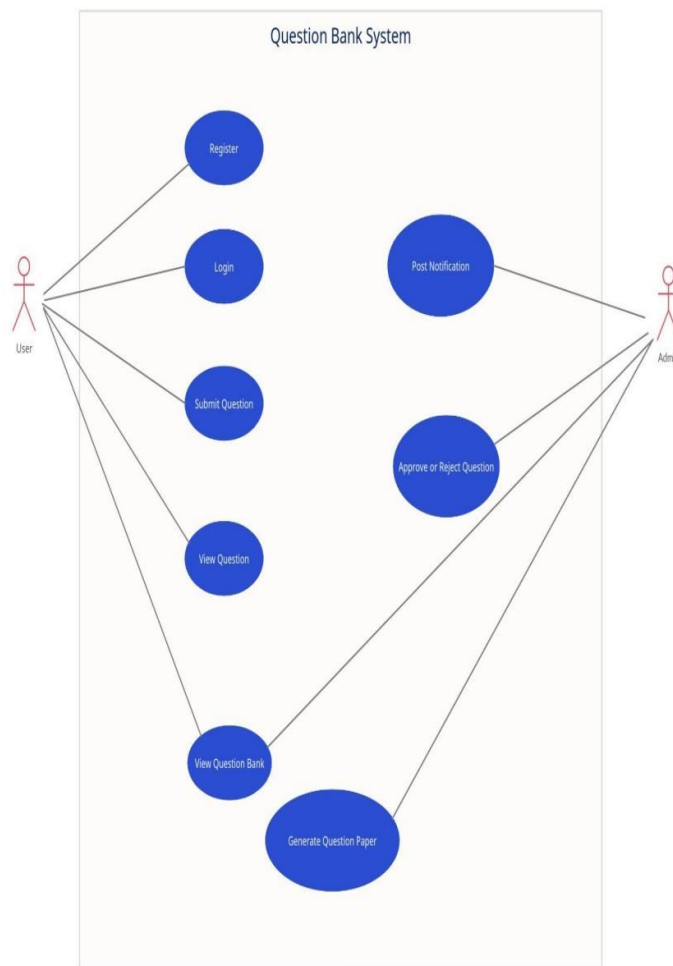


Figure: Use case diagram for the Question Bank System

We also did intensive testing and debugging to make sure our program was working correctly.

## RELATED WORK

### *MIND Online Evaluation System (OES)*

MotherSumi Infotech & Designs Ltd (MIND) has developed an online Evaluation System as a product for online examination and opinion polls, with key features like question bank, time control, security etc. The needs of OES were raised due to the fact that conducting exams, checking them and compilation of results take up lot of time in any organization; also different types of exams have to be designed for different purposes. Recording of exam results and controlling examination procedures is also a time consuming job. Organizations also conduct opinion polls from time to time for

various purposes and conducting these polls and then analyzing the results is a very tedious job and needs a lot of manpower and time. Thus a need exists which can make these tasks easy and manageable with least amount of manpower and time.

### ***UTS Online Examination System***

Business, Law and Ethics provides the foundation for all law subjects in the Bachelor of Business. It tries to achieve an appropriate blend of law and ethics for the 80% of business students who will need to understand the underlying legal issues of being in business in Australia (Michael Adam, 2001). For the 1,300 students who study the subject each year this may be the only law subject they study and as a result their only chance to receive information on legal compliance and professional responsibility.

### ***Exam Manager***

ExamManager is a web-based exam assessment system. Exam Manager enables students to review old and new exams setup by their lecturers, take a graded quiz to test themselves, setup their own review exams and quizzes from a database of questions in the subject category of their choice and review their own performance and scores.

### ***Existing System***

There are different methods, but Universities rarely use them because of their complexities. So they are forced to set the paper manually. However, this method has a lot of disadvantages.

#### **2.1. Disadvantages:**

1. It is more time consuming as the lecturer has to set them manually.
2. Selecting different questions can be tedious task as there is no specific question bank to choose questions.
3. Difficulty of the question paper can be predicted easily.
4. There are less variety of questions because question paper set by the knowledge of one or two Individuals.

If any of these situations arises motive, conducting examinations will compromise. This results in the examination being predictable. In other terms, there would be no point in conducting the examination. These issues cannot be overlooked. So some sorts of measures are taken by the Universities and Institutes to maintain the secrecy and confidentiality of the question paper.

However, this does not solve the chances of these challenges occurring.

---

## **Results and Discussion**

This system aids in decreasing cost, time and effort required to gather questions and generate question papers. In addition, it ensures that questions in question bank is authentic and generate question paper avoiding security problems. In addition, we plan to implement the same system for online-based exams as well.

---

## **Conclusion**

This system is designed for actual implementation of online examinations and question banks in universities and schools. The system should support concurrent access by a pool of lecturers as well as students. The useful information from this system will be the results from the examination, which can be used in assessment and projections of student performance.

### **References :**

1. <https://cse.buffalo.edu/~demirbas/publications/wwtbam.pdf>
2. [http://www.ijetsr.com/images/short\\_pdf/1525366525\\_40-44-118-CROWD SOURCING MODEL FOR GENERATING QUESTION BANKS AND QUESTION PAPERS.pdf](http://www.ijetsr.com/images/short_pdf/1525366525_40-44-118-CROWD SOURCING MODEL FOR GENERATING QUESTION BANKS AND QUESTION PAPERS.pdf)
3. Automatic Question Generation using Discourse Cues by Manish Agarwal\_, Rakshit Shah\_ and Prashanth Mannem
4. D. Brabham. Using Crowdsourcing In Government. IBM Center for The Business of Government, pages 1–42, 2013
5. <https://www.slideshare.net/ArchanaJha19/synopsis-on-online-examination-system-using-php>
6. <https://ignoupprojectguru.in/synopsis-of-online-examination-system-synopsis-of-online-examination/#:~:text=Online%20Examination%20System%20is%20an,register%20themselves%20through%20email%20id>
7. [https://www.researchgate.net/publication/272087006\\_Online\\_Assessment\\_System\\_Performance\\_Evaluation](https://www.researchgate.net/publication/272087006_Online_Assessment_System_Performance_Evaluation)
8. Automatic Cloze-Questions Generation by Annamaneni Narendra, Manish Agarwal and Rakshit shah LTRC, IIIT-Hyderabad, India.
9. Automatic Question Generation using Discourse Cues by Manish Agarwal\_, Rakshit Shah\_ and Prashanth Mannem.
10. <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.475.9237&rep=rep1&type=pdf>

---

### **Acknowledgement**

We would like to acknowledge the students and faculties of Acropolis Institute of technology and research for their efforts in making of this work.