Online Assignment System

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Abstract – *Online Assignment System is a web-based module which allows student and faculty to communicate about assign- ment and queries. Student can submit assignment and faculty can correct the answer and rate the best answer which would be uploaded as the best answer and the students can further refer that answer as notes. There will be certain keyword if the student's answer matches the maximum keyword provided by the faculty then the faculty will display that result as the best answer and the answer will be highlighted. Faculty can also generate question paper from the assignment questions. Many colleges are adopting this module as it is efficient and decrease the paper-work and human efforts.*

***Key Words*: Web-based Assignment Submission; University Question and Answer Repository**

1. INTRODUCTION

The problem arises from manual system used by colleges is that it has no record about the time or marks of student assignment. Some of the student hand over their assignment after the due date. Some of the assignments can be lost by students as well as faculty and as we do not have any record about it students have to write the assignment once again. As there is no record of assignment faculty would nd it difficult to check whether the student have submitted the assignment or not. After the faculty correct the assignment and return it back, some student does not get their assignment back as anyone can take it or misplace it, to avoid this we are cre- ating an online assignment system. The main motive of this project is to create a paperless environment by developing online assignment submission. This project also reduces the unnecessary workload of lecturers and student. The scope for the Online Assignment System is that student can submit their assignment anytime and anywhere there is no need of the presences of lecturer as the student is submitting the assignment online. The collection of the assignments will be kept by the lecturer and the student can view their marks anytime they want. This system is very useful as well as innovative because there is no paper involved and even this system is user friendly. Student and Faculty can use this system anytime anywhere. The answer is corrected automatically with the help of automated search engine and the keyword provided by the faculty. Faculty does not need to check the assignment answer manually as all the checking will be done through key word matching. The best answer will be highlighted as the most rated answer and that answer will be referred as notes by the student. This system generated question paper from the assignment question which student can referred for their examination. The generation of question paper is done by faculty and the faculty has to select the question from assignment question which he/she is going to add in the question paper.

2. Literature Survey

The teacher teaching the particular subject will decide which question will be added to the assignment. In file system, the created pdf of assignment is stored using same algorithm for generation of online assignment. This system is activated only after the student completely solves the question and submits the assignment. This system instantly calculates and display the score to the student and at the same time the system uploads the score in the college database

The paper [?] In this paper, there are three modules

- Login/ Registration Module: In this, if the user wish to use the system he/she has to login first.

- The Question Addition Module : In this, faculty will add Assignment question and the student has to answer it in given time period and the respective faculty has to also add the answer in his/her own words.

- Asignment Generation Module : The lecturer teach- ing the particular subject will decide the number of question that have to be added to the assignment. In file system ,the created pdf of assignment is stored using the same algorithm for generation of online assignment. This system is activated only after the student completely solves the question and submits the assignment.

- This system instantly calculate and display the score

to the student and at the same time the system uploads the score in the college database.

2.1 Weakness

- The system corrects the answer as the length of the answer is such that the length of the answer is not appropriate, indicating that the student was not able to write important information and if the length of answer is too long it indicates that the student has filled too much information respectively

- If length of answer written by student matches the required length, then the student will get suitable marks or else student will get less marks

2. 2 How to overcome

System corrects the answer in the form of keywords matching if the student answer matches the maximum keyword then the answer is displayed as correct. Our system is irrespective of the length, only checks the answer based on keyword.

The paper [?] There are three users in this system:

- Question Designer (QD): Question designer consists of questions based on different field / subject / subjects as per the specification given by the institute along with the scheme of evaluation.

- Question Paper Designer (QPD): Each submitted question will be verified by Administrator which is also called as special committee of institute for recurrence for equivalence, precision and realis- tic. History of questions in question paper is main- tained so there should not be any reiterating issues. A question that is to be added in the question paper, are divided in different types like question based on marks, difficulty level, type and topic. QPD is based on important features and parameters to smart system so that we can edit the question paper in given time.

- Administrator (for authentication): After the verifi- cation is done, the organization identifies the ques- tion paper designer (QPD) and the registered people as question designers (QD) and then provides them login credentials.

Based on the parameters of Question Paper Designer, it generates question paper by selecting questions from back- end. In our system we are inculcate intelligence by compress the concept locate with effectiveness of algorithm, good combination of questions is generated as result.

2.3 Weakness

- This system contains questions which is added to the question bank. They are divided into different types like question based on points, difficulty level, type and subject.

2.4 How to Overcome

- Our system will provide all sort of question, it depends on student which type of question he/she will attempt. Student does not have to add various dimensions, they have to only select the courses and the assignment will be displayed.

The paper [?]The proposed system provides only one intro- duction to all administrative systems of the University. This system greatly simplifies and accelerates the organization and management process. This crosses the boundaries of a desktop-based system because our cloud can be accessed via Android, iOS, and the Web. Good communication between university and students with the help of instant notification with email and SMS. Students can access all their information on their smartphone with just one tap. Human errors in computation can be eliminated. A large amount of papers was saved. Hence, the environmentally friendly system. The system provides reliability, time saving and easy control. It can be used as a basis for creating and enhancing applications for all of the above modules. This greatly simplifies and accelerates the process of preparation and management of results. Our system is protected with the latest security measures using Google Firebase Authentication. This reduces the amount of work and resources needed in the traditional process. Time consuming is reduced and manual calculations are also ignored, reports can be received regularly and to the extent of consumer demand. The proposed system provides a new way of computing and performing operations on mobile devices with a responsive and attractive user-interface.

2.5 Weakness

In this system student can challenge the lecturer by demanding the photocopy of the answer sheet and can also apply for revaluation based on the result provided by to them.

2.6 How to Overcome

Our system only checks the answer based on key-word matching, the answer will be displayed on the dashboard on need of demanding the photocopy

3. Methodology

3.1 System Architecture

3.1.1 Uploader

Uploader module allows faculty members to add assignments and allows students to upload answers for the assignments. The assignments and answers will be store in database for future usage. This stored answer can later be fetched by Question Bank Generator to generate question bank
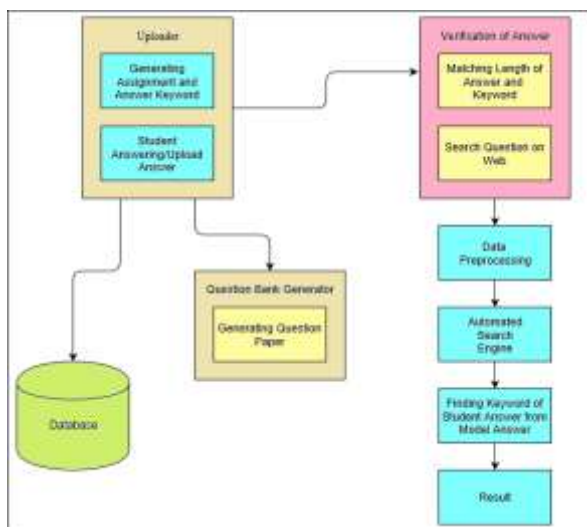

Fig -1: System Architecture

3.1.2 Question Bank Generator

Question bank Generator helps faculty members to generate Question Bank by selecting uploaded assignment questions. Depending on the number of questions selected, questions will be randomly taken from the selected assignment and inserted in the question bank

3.1.3 Verification of Answer

- In this module, we evaluate students answer by com- paring it with the model answer. The comparison is done with the help of cosine similarity algorithm. After the evaluation, the accuracy measure will be returned for that answer.

- The Model Answer is generated in following steps:

  – The question is searched over the web with the help of Google Search API.

  – The result returned from the Google Search API contains links of many websites. This links will be parsed in PRE-PROCESSING model. The content of the websites will be extracted, stripped off their html tags and other irrelevant contents and later merged together. After pre-processing, the model

answer is stored in the database for comparison with students answer.

3.2 Algorithm

3.2.1 Cosine Similarity

- We can directly compare two paragraphs and check the similarity between them by counting the maximum number of common words between them.

$$\cos\theta = \frac{\vec{a}\cdot\vec{b}}{|\vec{a}|\,|\vec{b}|} = \frac{\sum_i a_i b_i}{\sqrt{\sum_i a_i^2}\,\sqrt{\sum_i b_i^2}}$$

where, $\vec{a}\cdot\vec{b} = \sum_{i=1}^{n} a_i b_i = a_1 b_1 + a_2 b_2 + \cdots + a_n b_n$ is the dot product of the two vectors.

Fig-2: Equation for Cosine Similarity

- The problem with this approach is, when the size of paragraphs increases, the number of common words increases. This can affect the accuracy of result.

- To overcome this flaw, we are using Cosine Similar- ity algorithm.

- Cosine Similarity can help determine the similarity between two paragraphs irrespective of their size. In cosine similarity, the paragraphs are represented as vectors in a multi-dimensional space and the angle between this vector is measured. If the angle formed between this vector is higher, then there is lesser the similarity between two paragraphs.

- Cosine Similarity example There are two very short texts to compare this:

  1) Julie loves me more than Linda loves me.

  2) Jane likes me more than Julie loves me.

  We want to know that these texts are similar, purely in terms of word count (and ignoring word order). We begin by making a list of words from both texts:

  – me, Julie, loves, Linda, then, more, likes, Jane.

  Now, we count how many times each of these words appear in each lesson:

me	2	2
Jane	0	1
Julie	1	1
Linda	1	0
likes	0	1
loves	2	1
more	1	1
then	1	1

We are not interested in words ourselves, though. We are only interested in the two vertical vectors that matter. For

example, there are two examples of 'me' in each lesson. We are going to decide how close these two texts are to each other by calculating a function of those two vectors, that is, the cosine of the angle between them. There are two vectors, again:

- – a: [2, 0, 1, 1, 0, 2, 1, 1]

- – b: [2, 1, 1, 0, 1, 1, 1, 1]

The cosine of the angle between them is about 0.822. These vectors are 8-dimensional. One virtue of using the cosine analogy is clearly that it transforms a question that is beyond a person's ability to imagine.

In this case you can think of it as an angle of 35 degrees which is some 'distance' from zero or complete agreement.

4. Conclusions

A web based Online Assignment System facilitated submission of assignments by students. The system consists of modules where students could upload their answer. Notification are sent to students when new assignment is added and also when lecturer approve or disapprove the assignment.

The assignment answer is corrected using keyword matching, online assignment system also generates question bank from the remaining assignment question, online assignment system is user friendly and also reduce work load of faculty and student, even it minimizes paper work.

Evaluation of web based online submission of assignment was done through surveying among university students and lecturers. Test results of online submission concluded that system is very friendly and would be very helpful to UOM.

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