INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 7.542

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Question Paper Generator & Plagiarism Checker

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ABSTRACT: Student assessment is a crucial part of teaching which is done through the process of examinations. Preparation of exam question papers has consistently been a matter of interest. This system facilitates this task by identifying plagiarism in assignments thereby provides a strict learning environment for students. Here a teacher can generate a question paper by adding questions either through text or speech, can add and view assignments and check the assignments for plagiarism. Students can view previous year's question papers and can submit the assignments through this system. To generate a question paper, we input a set of questions along with the weightage and complexity for each question. After this, the questions are stored in a database along with their weightage. While generating a question paper, we just have to select the level of difficulty and the system selects questions randomly based on their complexity level. Plagiarism is found by using the cosine similarity concept. This function measures the similar text that matches and detects plagiarism.

KEYWORDS: Question paper, Randomization, Assignment, Plagiarism, Cosine similarity.

I. INTRODUCTION

Examination plays a significant role in education to assess the students' performance and every student can perform well in the exams when they learn the concepts. However, learning is a complicated activity. To understand a concept and learn it well, every student needs to practice and revise those concepts. Assignments make this task easier for a student. But it is a tedious task to find plagiarism among the students' assignments manually and so one of the important functionalities of our system is to identify the plagiarism between students' assignments.

Preparing the question paper is one of the primary tasks of a teacher. But the process of creating this question paper is a time taken and monotonous task. This system makes this task easier by generating the question paper automatically and also can generate the paper with the desired difficulty level that was selected while generating the paper. This also ensures the security and non-repetitiveness of question papers as the system follows a random approach to select the questions from the question bank (which is added by the teacher). Thus, QUESTION PAPER GENERATOR AND PLAGIARISM CHECKER helps both the students and the teachers.

II. EXISITING SYSTEM

Traditionally question papers are generated manually. Preparing any exam paper is a very challenging task for the educators because they have to check whether there is any repetition in the pattern or not, and other than that security is one of the major concerns for them, also due to lackof teaching staff in any institute, creation of paper is not at all an easy task. Assignments make the learning process easier. So, teachers assign students with assignments so that it facilitates them easier while preparing for exams. On submission, checking each and every student's assignment is a very tough task for teachers. Also, it would be not possible to determine whether the students have copied the assignment or they have written on their own as it requires reading all the submissions and comparing them. It requires the teacher to go an extra mile apart from their works.

III. PROPOSED SYSTEM

The system Question Paper Generator and Plagiarism Checker, is a web-based application system with several features and helps to produce unduplicated sets of the exam paper and generates the test paper according to the difficulty level chosen and checks the assignments for plagiarism.

The application requires the examiner to build a knowledge base of questions to generate the question paper. The teacher can add a question either by simply typing through the keyboard or can use the audio option to enter the question. When entered the question, details such as subject, difficulty level and marks awarded to that question need to be specified.

Admin will be adding the names of the subjects specified by the teacher so that they can select the subject from the drop-down list while adding the question. Teacher can select the difficulty level as **Easy/Medium/Hard** while adding the question to the knowledge base. In order to generate thequestion paper, teacher must select the name of the subject, marks and difficulty level of the question paper. The question paper will be generated in portable document format when clicked on the "Generate Question Paper" button. The generated question papers will be stored such that students can access previous year papers from their portal.

Teacher can add the assignment and check the submitted assignments for plagiarism. Students will be allowed to submit the assignment added by the teacher through their portal. Students will not be allowed to copy or paste while writing the assignment. A mail will be sent to the list of students identified to be plagiarized along with the percentage of plagiarism and with whom they are found to be plagiarized.

The features of the Question Paper Generator & Plagiarism Checker are as follows:

1. Login (Teacher, Student, Admin)

2. Question Insertion (via text or speech)

3. Choosing the difficulty level of question paper

4. Questions are selected randomly

5. Adding Assignment

6. Checking Assignments for Plagiarism

7. Submitting Assignment

8. Downloading previously generated question papers

The system uses basic HTML/CSS for user interface and JavaScript for validations during login, register and to enhance the behaviour of the website. MySQL database is used in order to store all the information related to both teacher and student. Django, a python based web framework is used for user login, registration, create, fetch and edit data.
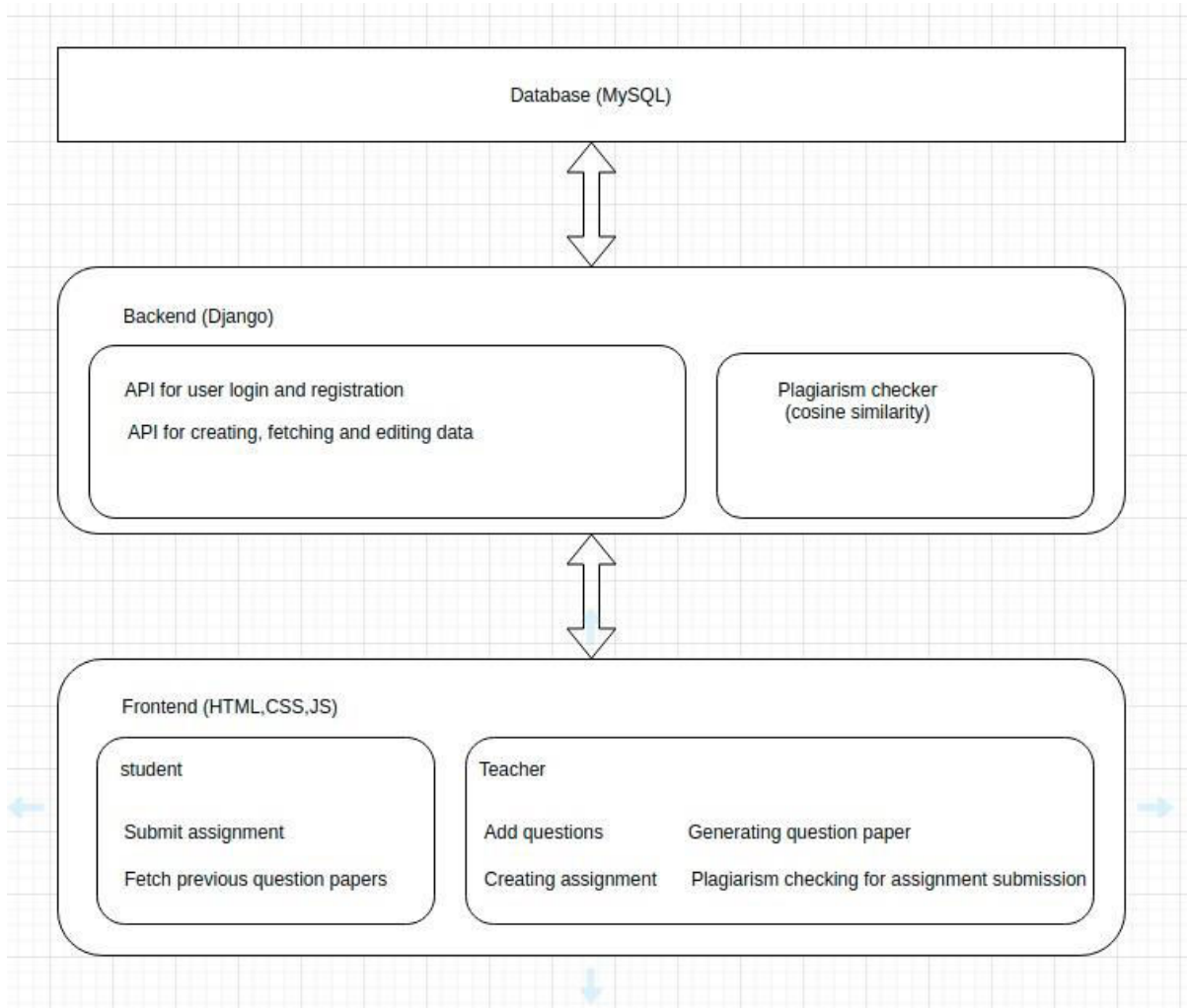
Fig. 1 Question Paper Generator and Plagiarism Checker System Architecture

Django is based on **MVT** architecture. MVT is a software design pattern for developing a web application.

Models: Models are Python objects that define the structure of an application's data, and provide mechanisms to manage (add, modify, delete) and query records in the database.

View: A view is a request handler function, which receives HTTP requests and returns HTTP responses. Views access the data needed to satisfy requests via *models*, and delegate the formatting of the response to *templates*.

Templates: A template is a text file defining the structure or layout of a file (such as an HTML page), with placeholders used to represent actual content. A *view* can dynamically create an HTML page using an HTML template, populating it with data from a *model*. A template can be used to define the structure of any type of file; it doesn't have to be HTML!

Existing System	Proposed System
Human effort is required to create a question paper.	Question paper can be created automatically.
Weak Security.	Generated papers are highly secured with encryption.
Repetition of patterns may occur.	Paper generation is random.
Plagiarism in assignments cannot be found easily.	Plagiarism is identified along with the percentage of plagiarism.
Repetition of the question paper might occur.	The questions are selected randomly by the system depending on the input given.
Generating a question paper might take some time.	Generation of the question paper will be quick provided all the necessary data.

IV. IMPLEMENTATION

4.1 WORKING
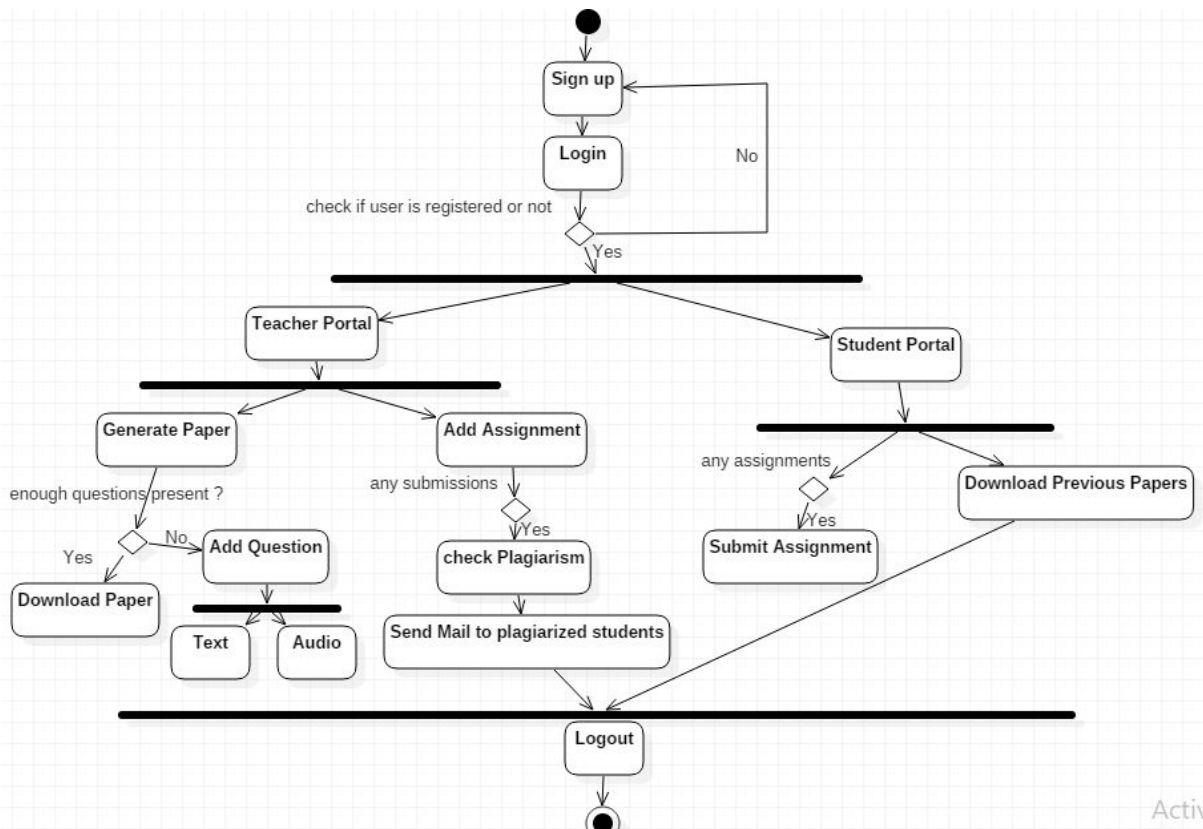
4.2 COSINE SIMILARITY

Cosine similarity measures the similarity between two vectors by calculating the cosine of the angle between the two vectors. Cosine similarity is one of the most widely used and powerful similarity measure in Data Science.

Similarity = (A.B) / (||A||.||B||) where A and B are vectors.
Usage of ***nltk*** module simplifies this task. Functions used:

***nltk.tokenize*:** It is used for tokenization. Tokenization is the process by which big quantity of text is divided into smaller parts called tokens. word_tokenize(X) split the given sentence X into words and return list.

***nltk.corpus*:** In this program, it is used to get a list of stopwords. A stop word is a commonly used word (such as "the", "a", "an", "in").

4.3 SPEECH TO TEXT

The Web Speech API provides two distinct areas of functionality — speech recognition, and speech synthesis (also known as text to speech, or tts). Speech recognition involves receiving speech through a device's microphone. When a word or phrase is successfully recognized, it is returned as a text string. The Web Speech API has a main controller interface SpeechRecognition. Generally, the default speech recognition system available on the device will be used for the speech recognition. Functions used are:
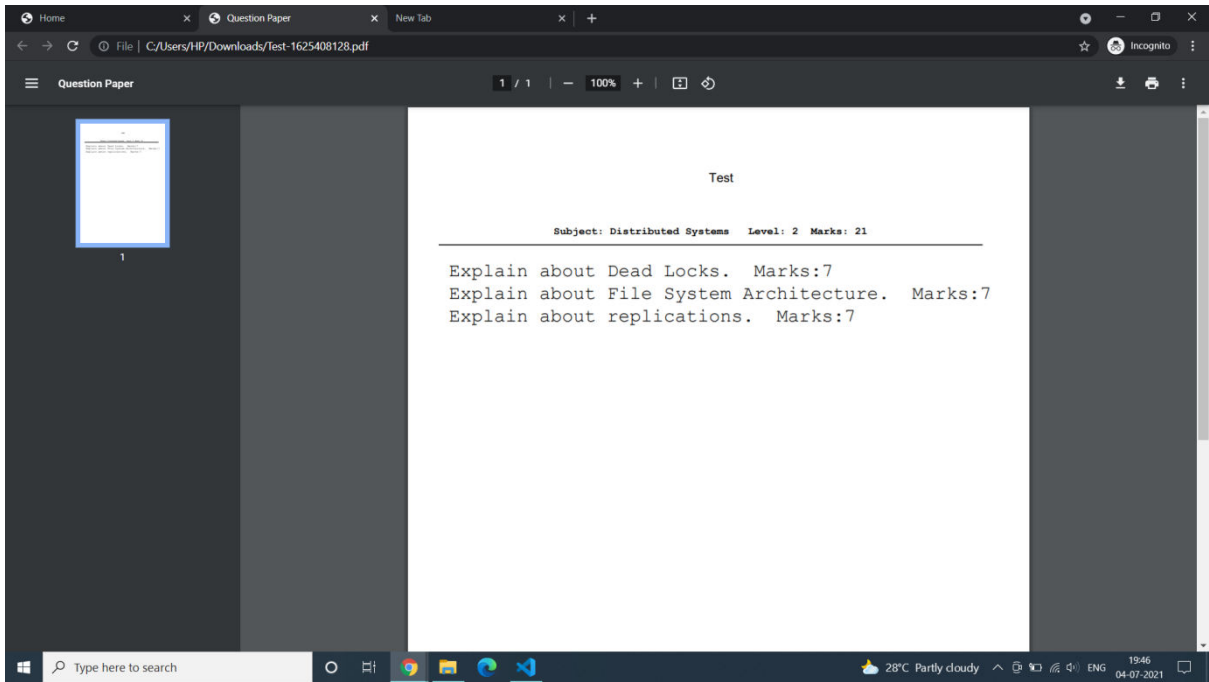
start(): Start the speech recognition process
stop(): Stop the speech recognition process
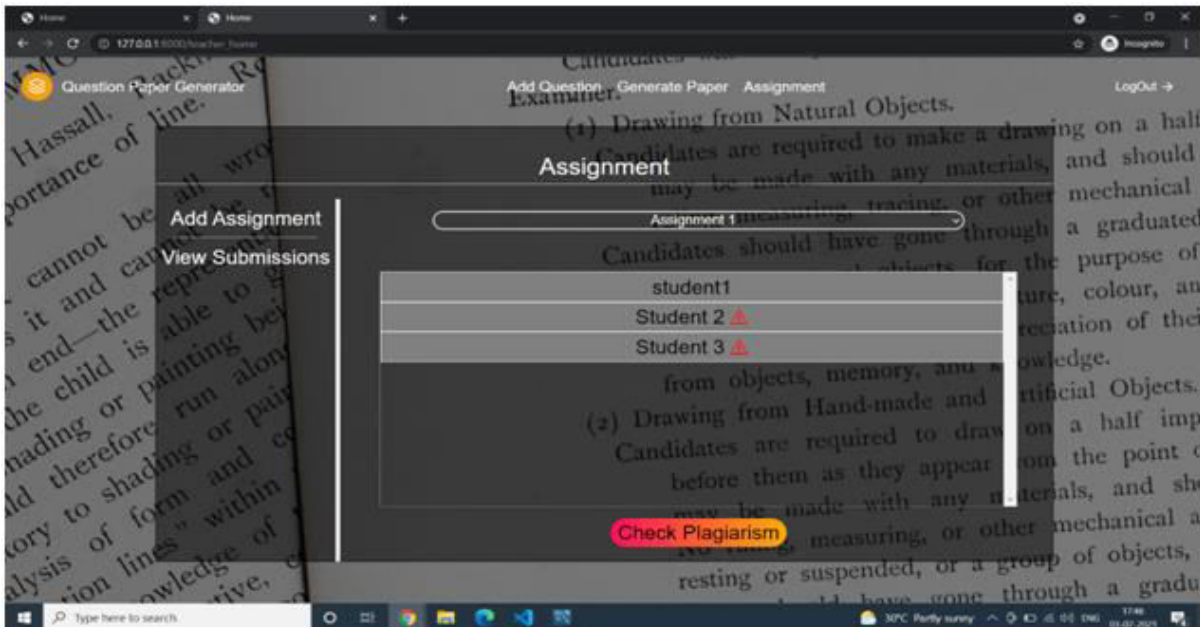
4.4 QUESTION PAPER GENERATION

A randomization algorithm is used for question paper generation to fetch questions from DB.
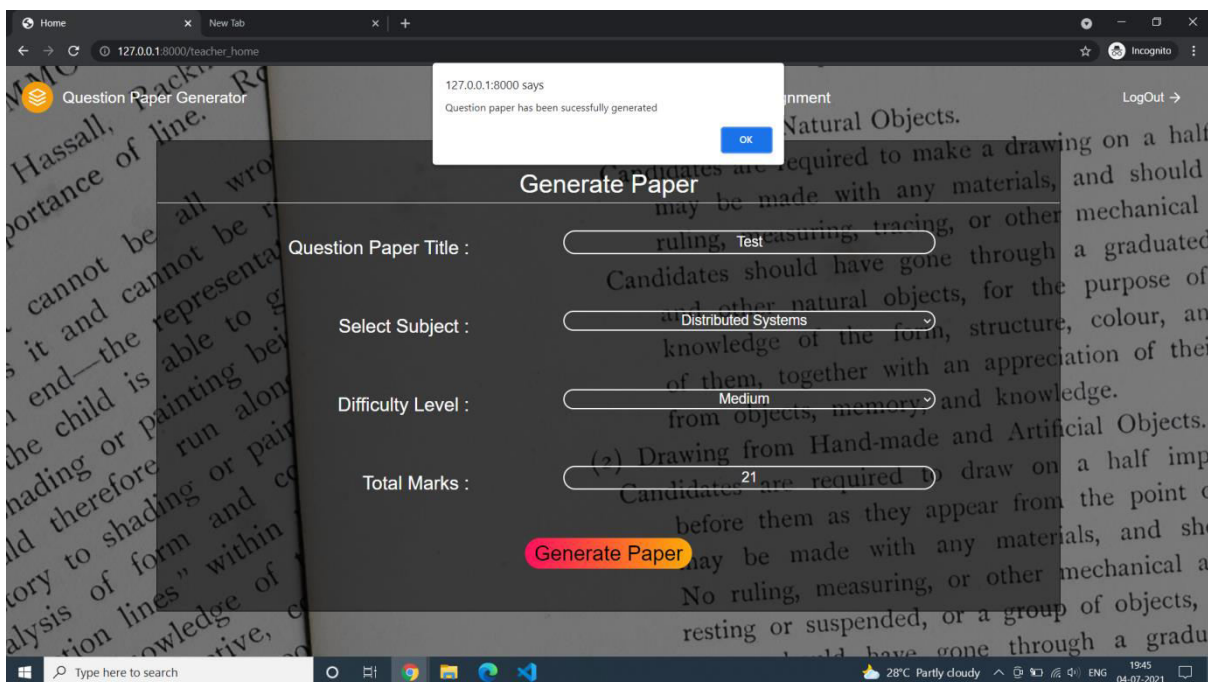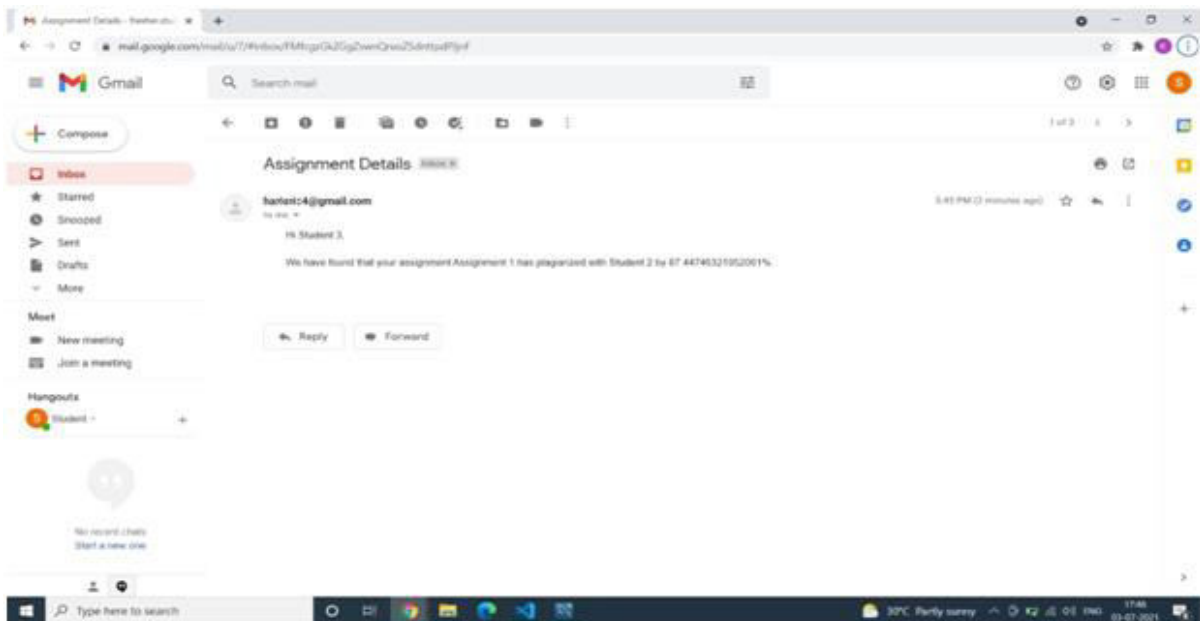
4.5 CHECK PLAGIARISM

The assignments that are plagiarized are indicated with an alert symbol.

Students will be notified through mail if their assignments are plagiarized.

V. CONCLUSION

Learning is an important aspect of individual's life. The base of learning is the instructors. Once the instructors have ways and tools that help them to do their task in a good way, the result is strongly generated. The system establishes a functionality to generate a question paper allowing the instructor to choose subject, level of difficulty and total marks. The system uses a logical algorithm which is absolutely *randomized* in nature. With the use of this system there are no chances of exam paper getting leaked as it is a secured platform. Another important feature provided by this system is regarding the assignments. Assignments make the learning process easier. So teachers may assign students with assignments so that it facilitates them easier while preparing for exams. The system uses *Cosine similarity* to compare the assignments submitted by the students. Teacher can check plagiarism in student submitted assignments. Plagiarized assignments will be highlighted with an alert thereby, making the identification easier. Students whose assignments have been plagiarized will be sent a mail. The usage of this system reduces effort from teachers end thereby improving the process of learning for students. It also saves time and resources to an extent.

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