

Evaluating System for Online Digital Answer Scripts

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ABSTRACT

This project's aim is to make a web application which will help educators keep track and also evaluate the answer sheet of the student. We have chosen Django as our main framework for this project. Django was chosen because Django was designed to help developers take applications from concept to completion as quickly as possible. Django includes dozens of extras you can use to handle common web development tasks. Django takes care of user authentication, content administration, site maps, RSS feeds, and many more tasks — right out of the box. Django takes security seriously and helps developers avoid many common security mistakes, such as SQL injection, cross-site scripting, cross-site request forgery and click jacking. Its user authentication system provides a secure way to manage user accounts and passwords. Some of the busiest sites on the planet use Django's ability to quickly and flexibly scale to meet the heaviest traffic demands. Companies, organizations and governments have used Django to build all sorts of things from content management systems to social networks to scientific computing platforms.

Keywords: Answer script, Digital system.

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I. INTRODUCTION

Technology has completely altered the educational system today. It has become more interesting and informative as a result of projector teaching, online tutorials, online teaching video and animation, and so on. There is extensive use of technology to teach the student. However, the evaluation process is still done in the traditional manner. There are various methods for evaluating students, such as viva-voce or oral exam, subjective exam, online and offline objective exam, group discussion, and so on. All of these

evaluation methods or exams are very important in today's educational system because each method has its own advantages. The oral exam allows students to demonstrate their knowledge, presentation/speaking skills, and communication abilities. They can also serve as good practice for job interviews. The goal of this project is to create a web application that will assist educators in keeping track of and evaluating student answer sheets. For this project, we've decided to use Django as our primary framework. Django was chosen because it was designed to assist developers in moving applications from concept to completion as

quickly as possible. Django comes with a slew of add-ons that can help you with common web development tasks. Django handles user authentication, content management, site maps, RSS feeds, and many other tasks right out of the box. Django prioritises security and assists developers in avoiding many common security flaws such as SQL injection, cross-site scripting, cross-site request forgery, and click jacking. Its user authentication system makes it possible to manage users in a secure manner.

There are various assessment strategies that are used to evaluate a student's performance. The most widely used technique is a descriptive question answering. In this technique, a student expresses his/her opinion in response to the question in a long textual way. The automatic descriptive answer evaluation system will be very cooperative for various universities and educational institutions to assess a student's performance very effectively. A student may answer a question by following different grammatical styles, and chooses different words similar to the actual answer. The motivation behind the automated answer script evaluation comes from less time consuming, less manpower involvement, prohibiting human evaluator's psychological changes, and very easy to keep record and extraction. It also assures that mood swings or change in perspective of the human assessor will not affect the evaluation process. The automatic answer script evaluation based on Natural Language Processing (NLP) will help us to overcome the difficulties faced in the manual evaluation. Here a student's written answer is provided as input and the system will automatically score marks after the evaluation. The system considers all possible factors like spelling error, grammatical error, and various similarity measures for scoring marks. The natural language processing technique is used to make the handling of used English language much easier. The natural language processing is an area of artificial intelligence which deals with the interaction between

human languages and computer. The most challenging task in natural language processing involves speech recognition, natural language understanding, and natural language generation. The NLP is widely used in machine translation, question-answering, automatic text summarization, answer script evaluation, etc. Text summarization helps to find out precise data from a longer text document, and speeds up the evaluation process.

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following different grammatical styles, and chooses different words similar to the actual answer. The motivation behind the automated answer script evaluation comes from less time consuming, less manpower involvement, prohibiting human evaluator's psychological changes, and very easy to keep record and extraction [2]. It also assures that mood swings or change in perspective of the human assessor will not affect the evaluation process. The text summarization is a process of creating a short, accurate summary of the longer text. It is very time wasting task to generate a summary of longer article manually. Hence an NLP-based automatic text summarization technique is used to facilitate and speed up the text processing. Two types of text summarization techniques are used for generating the summary. The extractive text summarization technique is used to select phrases and sentences from the source document, and generates a new summary. The abstractive text summarization technique is the opposite of extractive technique. It generates entirely new phrases and sentences to hold the meaning of the source document. The NLP-based strategies are very well suited for generating summary rather than the manual process. The summarized text will be fed as input to compute various similarity measures.

1. Related works:

NLP based Automatic Answer Script Evaluation: The answer script evaluation is an important part of assessing students' performance. Typically, an answer script evaluation is done manually that sometimes can be biased. The evaluation depends on various factors like mood swing of the evaluator, the interrelation between the student and evaluator. Additionally, evaluation is a very tedious and time-consuming task. In this paper, a natural language processing-based method is shown for automatic answer script evaluation. Our experiment consists of text extraction from answer script, measuring various similarities

between summarized extracted text and stored correct answers, and then assign a weight value to each calculated parameters to score the answer script. For summary generation from the extracted text, we have used keyword-based summarization techniques. Here four similarity measures (Cosine, Jaccard, Bigram, and Synonym) are used as parameters for generating the final mark. Automatic evaluation of answer scripts has been found very useful from our experiments, and often the assigned marks is the same as manually scored marks.

Automatic assessment of descriptive answers in online examination system using semantic relational features: The revolution in technology reduces the effort of manpower in many of the areas. The boon of the technology and rapid advancements in education industry has provided a good learning environment. It offers qualification and credits at the desktop through online courses and evaluation. The prevailing system has its own pause in terms of volume, staffing, variation in the strategies of assessing. As of now, the objective-type questions alone can be practiced and assessed through online examinations. Researchers strive to build systems for evaluating descriptive answer as it is challenging and could not take up its full sway for complete automation. The challenge lies in recognizing the natural language answers and extracting the precise meaning so as to appropriately evaluate the knowledge obtained by the student. The proposed method contains stages such as question classification, answer classification and answer evaluation for the answers given by the student and grade them with appropriate score. A syntactical relation-based feature extraction technique is proposed for automatic evaluation of descriptive-type answers. The system has also adopted a cognitive-based approach where the student answers are judged for its correctness based on the phrases used for answering the questions. The score and feedback are provided to make aware of the understanding level of the subject. The experimental analysis shows .85%

higher precision and recall when compared to the earlier systems.

Subjective Evaluation using LSA Technique:

Subjective Evaluation is an important part of education system. This paper reviews various computer-based, computer-assisted and web-based tools for evaluation of the Subjective Examinations. For subjective examinations, statistical and mathematical tools available for evaluation of short-answer, long-answer and essay-length answer questions are reviewed. The reviewed work is classified as clustering techniques, classification techniques, hybrid techniques, soft computing techniques and semantic techniques. The scope of evaluation done by these tools is limited to style and keyword presence. The paper also includes a discussion on the reviewed work. The subjective tools use a bag-of-words approach. Finally, it is concluded that though there are many tools available for subjective examinations still there is scope of research using latest techniques including soft computing techniques and semantic techniques.

Ontology Based Algorithm And Life Cycle For Subjective Answer Assessment System: Every year many examinations are conducted like competitive, intuitional, and non institutional which students apply for. Competitive and entrance exams typically contain objective or multiple choice questions. These exams are evaluated on machine as they conducted on machine and therefore their evaluation is easy. However as these exams accommodate only objective or multiple choice questions the ability to answer descriptive question is still not provided and evaluation of the same. It will be very helpful for educational institutions if the process of evaluation of descriptive answers is automated to capably assess student's exam answer sheets.

Measuring Sentences Similarity: A Survey: This study is to review the approaches used for measuring sentences similarity. Measuring similarity between

natural language sentences is a crucial task for many Natural Language Processing applications such as text classification, information retrieval, question answering, and plagiarism detection. This survey classifies approaches of calculating sentences similarity based on the adopted methodology into three categories. Word-to-word based, structure based, and vector-based are the most widely used approaches to find sentences similarity. Each approach measures relatedness between short texts based on a specific perspective. In addition, datasets that are mostly used as benchmarks for evaluating techniques in this field are introduced to provide a complete view on this issue. The approaches that combine more than one perspective give better results. Moreover, structure based similarity that measures similarity between sentences structures needs more investigation.

2. Methodology:

This project's aim is to make a web application which will help educators keep track and also evaluate the answer sheet of the student. The answer sheets are stored securely on the server and have no chance of misplacing. The web server can be accessed from anywhere if it is deployed on internet. The web application also keep track of the records of the student.

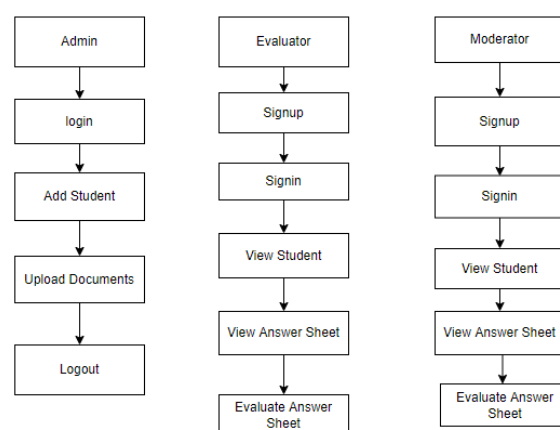


Figure 1: Block diagram of proposed method

3. Implementation:

The project has implemented by using below listed modules.

The project has contains 3 modules namely Admin, Evaluator and Moderator.

1. Admin:

Login: admin can login with their default credentials.

Add student: admin can add the student.

Upload documents: admin can upload the documents here.

Logout: after completion admin can logout.

2. Evaluator:

Sign up: evaluator can sign up here.

Sign in: evaluator can sign in into the page where they can login.

View student: evaluator can view the student.

View answer sheet: evaluator can view the answer sheet of that particular student.

Evaluate answer sheet: evaluator can correct that answer sheet and give marks for that.

3. Moderator:

Sign up: moderator can sign up here.

Sign in: moderator can sign in into the page where they can login.

View student: moderator evaluator can view the student.

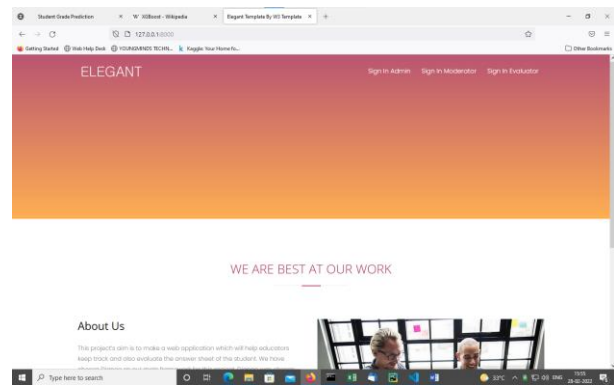
View answer sheet: moderator evaluator can view the answer sheet of that particular student.

Evaluate answer sheet: moderator evaluator can correct that answer sheet and give marks for that.

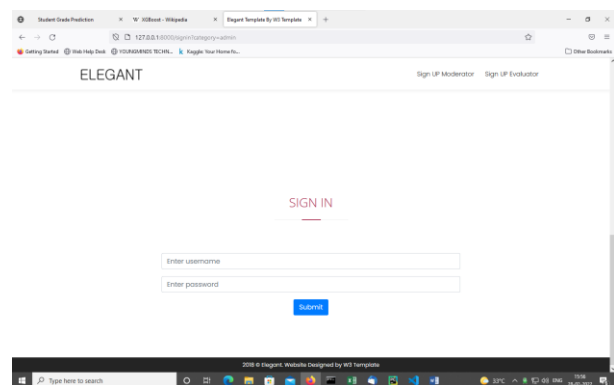
4. Results and Discussion:

The following images will visually depict the process of our project.

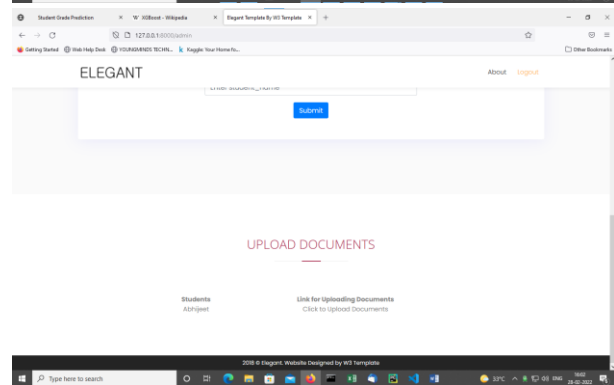
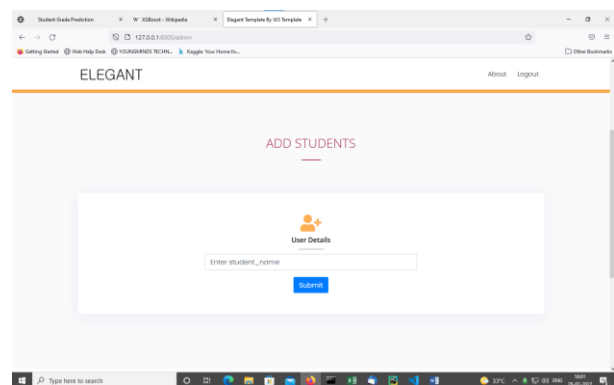
Home page: This is the home page of the project.



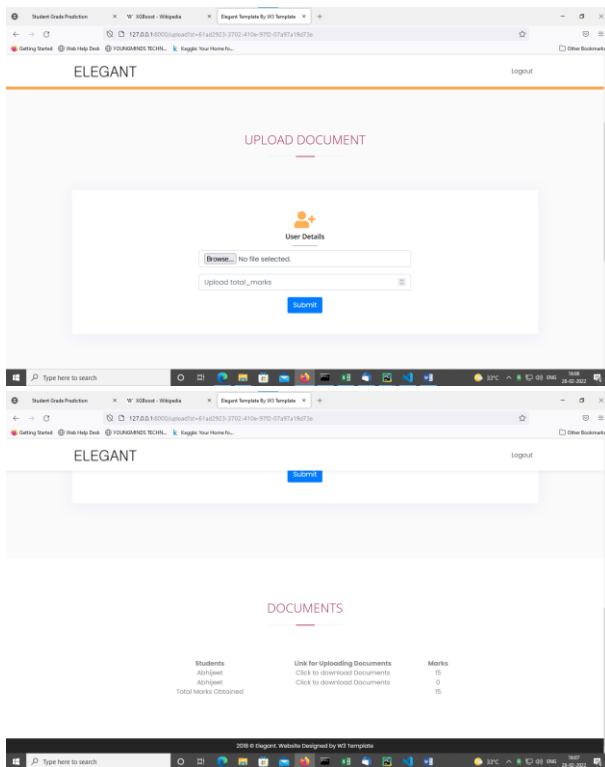
Admin Sign In: Here admin can login with default credentials.



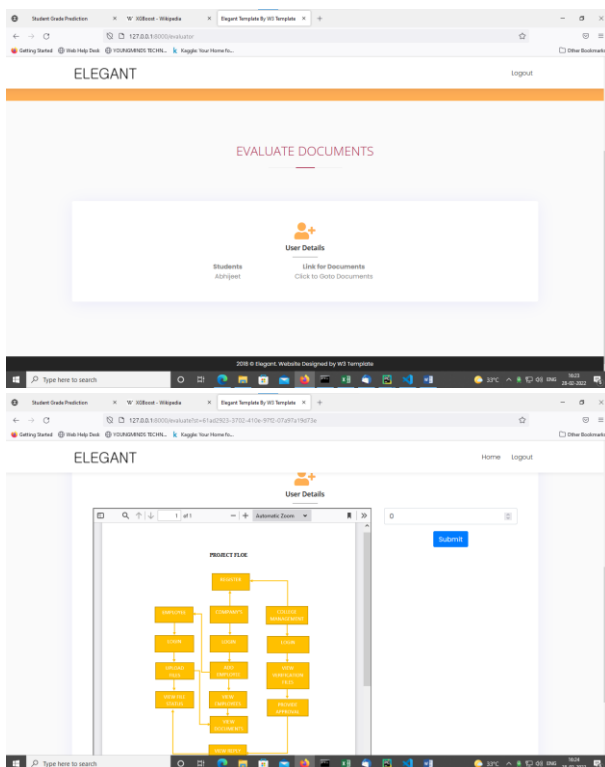
Admin: After successful login admin can view the home page.



Admin Upload Document: Here admin can upload the documents.

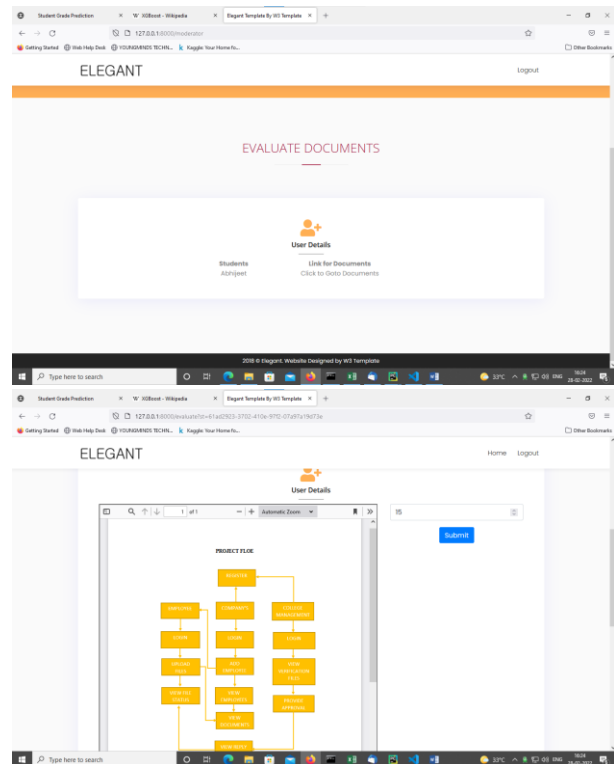


Evaluator: Evaluator can login with valid credentials and can view the students. Evaluator can correct the answer sheet and give the marks according to the correct answers.



Moderator: Moderator can login with valid credentials and can view the students. Moderator can

correct the answer sheet and give the marks according to the correct answers.



II. Conclusion

This project has concluded that, we have developed web application which will help educators keep track and also evaluate the answer sheet of the student. Django was designed to help developers take applications from concept to completion as quickly as possible.

III. REFERENCES

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