

EXAM PORTAL USING MACHINE LEARNING CONCEPTS

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Abstract - According to today's requirement Online Examination System is significantly important to the educational institution to prepare the exams, saving the time and effort that is required to check the exam papers and to prepare result reports. The current condition due to corona make the offline exams nearly impossible, so the online systems should be advanced to conduct any exams which may contain evaluation of listening, reading, writing or speaking ability of the candidate. Online Examination Portal with Machine Learning concepts is a webbased examination system where examinations are given online, having a goal to effectively evaluate the student thoroughly through a totally automated system that not only reduce the required time but obtain fast and accurate results. This system includes evaluation of listening, reading, and speaking, writing ability of student. Examination Portal with Machine Learning concepts is basically a python web application that incorporates machine learning concepts like spell checking, language provision evaluation and exploratory data analysis. This web application upholds the records related to candidate login, attending tests in different categories like multiple choice questions, descriptive questions, audio listening etc. The graphical and statistical view of their report and progress will be displayed. The main objective of the application is to incorporate machine learning to make the exams more advanced and user friendly. This application can be used for contesting any type of written examinations. This website can also be used by the

students who are preparing for exams and can practice and understand their progress.

1. INTRODUCTION

Online Examination Portal with Machine learning concepts is a web-based examination system where examinations are given online, having a goal to effectively evaluate the student thoroughly through a totally automated system that not only reduce the required time but obtain fast and accurate results.

Online examination system can be used in private institutes as well as educational institution. During a period where in-person comes with many risks due to Covid-19, online exams are great way of maintaining momentum in higher education and to ensure the learning process doesn't ground to a halt. In such a circumstance, more and more advanced systems are necessary to conduct all kind of examinations. Our project is an online examination system that can evaluate listening, writing and speaking ability of the candidate. Advanced exams like IELTS using such evaluations which has conducted offline till now.

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institution to prepare the Online Examination Portal with Machine learning concepts is a web-based examination system where examinations are given online, having a goal to effectively evaluate the student thoroughly exams, saving the time and effort that is required to check the exam papers and to prepare result reports. The current condition due to corona make the offline exams nearly impossible, so the online systems should be advanced to conduct any exams which may contain evaluation of listening, writing or speaking ability of the candidate. Online Examination Portal with Machine Learning concepts is a web-based examination system where examinations are given online, having a goal to effectively evaluate the student thoroughly through a totally This system includes evaluation of listening, reading, and speaking ability of student. Examination Portal with Machine Learning concepts is basically a python web application that incorporates machine learning concepts like spell checking, language provision evaluation and exploratory data analysis. This web application upholds the records related to candidate login, attending tests in different categories like multiple choice questions, descriptive questions, audio listening etc. The graphical and statistical view of their report and progress will be displayed. The main objective of the application is to incorporate machine learning to make the exams more advanced and user friendly. This application can be used for contesting any type of written examinations. This website can also be used by the students who are preparing for exams and can practice and understand their progress.

2. METHODOLOGY

Online Examination System is a python based web application that evaluates the listening, writing and speaking ability of the candidate through different stages.

The candidate is allowed to create an account and login

whenever needed. A timer is set to monitor the exam. The candidate login details, test reports etc. are stored in the database. The test results and progress will be displayed at the end of the test and in the dashboard too. Machine learning concepts like natural language processing, exploratory data analysis etc. are used in this application.

2.1 Listening

This will be the first part of the exam. An audio of a paragraph of contents describing a situation or information will be played. This audio will be saved in the database. The audio file can be manipulated only by the admin. The candidate then have to answer for certain set of questions related to that audio. The answers are then matched with the database and scores are marked. This will give the proper evaluation of the listening ability of the candidate.

2.2 Writing

The second part of the exam will ask the candidate to write an essay on the given topic. The essay will be given as the input for the machine learning code, automatic essay grader. AEG is an engine which automatically grades an English essay based on: Essay Statistics, Spelling, Grammar, Coherence, Frequent Phrases and Vocabulary. The techniques employed to achieve this encompass, not only a vast area of computer science, but also some 'abstract aspects' of the English language and grammar; the subtle points such as the deviation from the central topic, structure of the sentences, etc., that help determine the qualities of a good essay.

2.3 Speaking

The candidate is asked to speak on a given topic in English. The speech will be recorded and given as an input to speechat code. It takes either real-time streams of speech or a recorded speech and extracts the prosody features, does features engineering, building dataset. The

dataset is then plugged in the ML algorithms to predict intonations, prosody, stress, and structures of the spoken language. By using an ASR engine, it scripts the speech and sends to a language model for some further analysis to measure the pragmatic and sentimental expressions as well as mechanical/structural patterns of the speech.

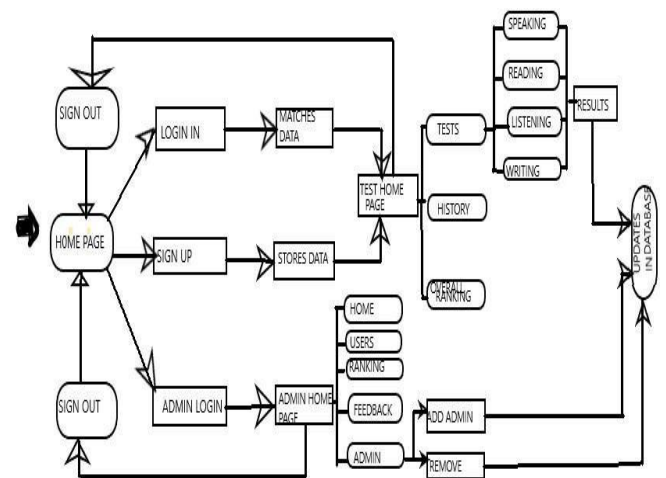
2.4 Reading

This is the last part of the process. There are three types questions we added. First one we have to read the given sentence and answer the multiple choices questions based on the given sentence. Second one based on the fill in the questions. And third one based on the sentence making in correct order. In each category we added five questions for each.

3. SYSTEM DESIGN

This web application upholds the records related to candidate login, attending tests in different categories like multiple choice questions, descriptive questions, audio listening etc. This system includes evaluation of listening, reading, and speaking ability of student. The main objective of the application is to incorporate machine learning to make the exams more advanced and user friendly.

The below figure depicts flow of the application. This diagram showing the interactions of users with the system.



There exist mainly 2 users.

- a).The candidates: They are the ones who is attending exams and viewing the results
- b).The admins: They are the ones who set the question papers and manipulate the contents of the application.

The users generally register or login (if already registered) to the application, answer the questions, submit the paper and view the results. This application is more concerned about the user experience of the candidates rather than the admins. The questions that the student has to answer is stored already in the database. The answers and other inputs are also stored in the database. The admins usually log in to the application. Their main function is to set the questions. Setting the questions include, adding, updating, viewing and deleting the questions. Other functions of the admin include, review student applications and declare results and so on.

4. RESULTS

Technology plays an important role in today's world. Online Examination System is significantly important to the educational institution to prepare the exams, saving the

time and effort that is required to check the exam papers and to prepare result reports. The current condition due to corona make the offline exams nearly impossible, so the online systems should be advanced to conduct any exams which may contain evaluation of listening, reading, writing or speaking ability of the candidate. This web application upholds the records related to candidate login, attending tests in different categories like multiple choice questions, descriptive questions, audio listening etc. The main objective of the application is to incorporate machine learning to make the exams more advanced and user friendly. This application can be used for contesting any type of written examinations. This website can also be used by the students who are preparing for exams and can practice and understand their progress.

5. CONCLUSION AND FUTURE WORK

According to today's requirement Online Examination System is significantly important to the educational institution to prepare the exams, saving the time and effort that is required to check the exam papers and to prepare result reports. The current condition due to corona make the offline exams nearly impossible, so the online systems should be advanced to conduct any exams which may contain evaluation of listening, writing or speaking ability of the candidate. Online Examination Portal with Machine Learning concepts is a webbased examination system where examinations are given online, having a goal to effectively evaluate the student thoroughly through a totally automated system that not only reduce the required time but obtain fast and accurate results. We are planning to add more questions based on Pearson Tests of English (NB: Academic is a computer based academic English language test aimed at non-native English speakers

wanting to study abroad. It tests reading, writing, listening, and speaking.).After the completion of basic work the API used is inefficient in terms of the requirement since we need to grade the essay with all aspects and this API can only do grammar correction. Since there is no API exists which satisfy the requirements, we are planning to add evaluation of reading too, keeping the writing part. For the writing part we are planning to add an extra page which shows which line has error and what is the error.

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