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SMART EXAM AUTOMATION WITH QUESTION PAPERGENERATOR AND ANSWER CHECKER SYSTEM USINGARTIFICIAL INTELLIGENCE

R. RAJASEKARAN[1], Dr. K. RAVIKUMAR[2], Associate Professor

Department of CSE, RRASE COLLEGE OF ENGINEERING

[1]raj.ashok81@gmail.com [2]dr.ravikumar@gmail.com

ABSTRACT:

An automatic answer checker application that checks answers similar to a human being. This application is built to check answers in an examination and appears the answer is correct or wrong. The system requires you to store the original answer for the system. This facility is provided to the admin. The admin may insert questions and respective subjective answers in the system. These answers are stored as Exel files. When a user takes the test he is provided with questions and area to type his answers. Once the user enters his/her answers the system then compares this answer to original answer written in database and gives result.

I. INTRODUCTION

In any educational course curriculum, the courses are defined with learning objectives. Teachers conduct assessments to know if students have achieved certain learning objectives or not. Teachers generate variety of question papers as per the universities‟ assessment

requirements. It is very challenging for the teachers to make question papers with varied questions and which meet learning objectives of the course. There are no standardized methods to ensure quality of question paper. Hence there arises a need to have a system which will automatically generate the question paper from teacher entered specification within few seconds. Researchers recommend different sets of tags such as cognitive level, difficulty level, type of question, content / topic for defining a question etc.

The existing tools are rigid and support very basic or limited tags. The proposed system will automatically generate a question paper from semantically tagged question repository. This system offers flexibility by supporting all four tags and allows entry of every property in the form of ranges i.e. lower bound and upper bound. The question paper is generated in xml format and as Microsoft Word document.

OBJECTIVE:

The main objective of the system is to reduce the answer checking time for staffs and they have to correct more number of students, So in this case our system plays a vital role and check the answer accurately and students also get the answers more faster when compared to the physical answer checking.

EXISTING SYSTEM:

The existing answer checking is method is manual one, so the respected subject‟s staffs are allowed to correct the answers, it takes more time to read everything and find out the answer is correct or wrong, and the possibility of wrong validation are very high. This kind of drawbacks are involved in the manual answer validation.

DISADVANTAGES:

- More time to correct
- Chances of wrong validation is high
- Manual work involved

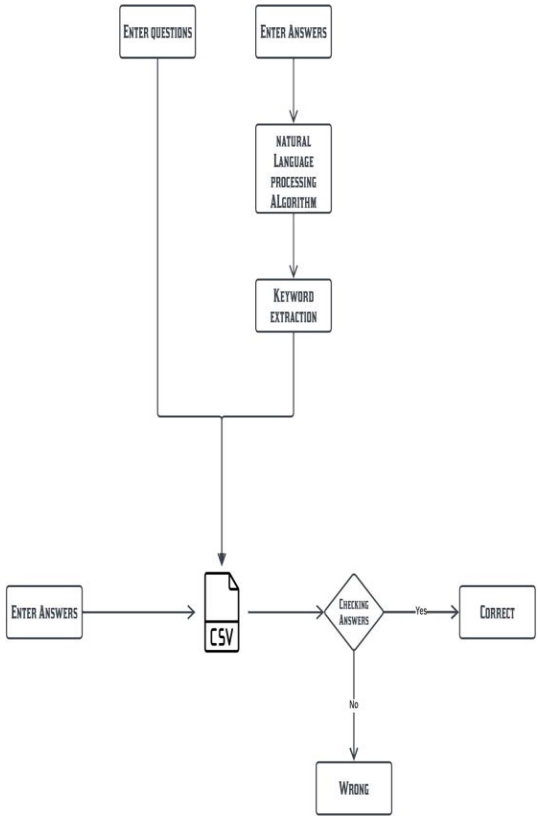
PROPOSED SYSTEM:

The proposed method of the system is to reduce the time and allows the system to check the given answer is correct or wrong in fully automatic method, so we can store the answers with the requested answers in exel file. The system asks the question for the student after entering the answer by student. The system can check the answers in exel file for the respected question and give us the result of entered answer is correct or wrong. It helps to reduce the time for answer correction and involves the automatic method. So, we never need manual method for answer checking.

ADVANTAGES:

- Reduce time for answer checking
- Involves fully automatic method for answer validation
- Get instant results when complete the exam

ARCHITECTURE DIAGRAM



MODULE DESCRIPTION:

MODULES NAMES:

- **Store Questions**
- **Answers in Natural Language Processing**
- **Answer validation**

STORE QUESTIONS:

In our system the questions plays a vital role. Because we are finding the correct answers based on the questions only so we store our questions in a excel file and we can use this stored questions whenever we need and allows the system for answer validation based on the questions. This is the beginning process in the automatic answer checking system.

ANSWERS IN NATURAL LANGUAGE PROCESSING:

After storing the questions in Excel file we move on to the storing answers section. we have to store the correct answers for letting the system check for the given answers is correct or wrong but we never store the answers directly. We process the answers in natural language processing for keyword extraction. In this section we use the NLTK package for keyword extraction using NLP methods because the way of answering for each student is different so we just extract the keywords from the correct answers and store the keywords in exel file based on the question.

ANSWER VALIDATION:

After storing the questions and correct answers in the Exel file. Now, we are almost ready for conducting test for students. So, we allows the users/students to answer the questions accordingly after getting the answers from the student, the system checks the answers in a keywords. If the students answer match the keywords the system returns the correct answer, else it throws the wrong answer. So this system can accurately check the answers for each student based on the question and keywords.

PROPOSED ALGORITHM:

NLP (NATURAL LANGUAGE PROCESSING):

- Today, one of the most popular tasks in Data Science is processing information presented in the text form. Exactly this is text representation in the form of mathematical equations, formulas, paradigms, patterns in order to understand the text semantics (content) for its further processing: classification, fragmentation, etc. The general area which solves the described problems is called Natural Language Processing (NLP).
- Among the tasks that Natural Language Processing solves the most important ones are:
- machine translation is the first classic task assigned to the developers of NLP-technologies (it is necessary to note that it is not yet solved at the necessary level of quality for today);
- grammar and spell checking – as a conclusion of the first task;
- text classification – definitions of text semantics for further processing (one of the most popular tasks to date);
- named-entity recognition (NER) – definition and selection of entities with a predefined meaning (used to filter text information and understand general semantics);
- summarization – the text generalization to a simplified version form (re-interpretation the content of the texts);
- text generation – one of the tasks that are used to build AI-systems;
- topic modeling – technique for extracting hidden topics from large text volumes.

- It is important to note that all these tasks in the modern and actual Natural Language Processing are often integrated into one, in creating interactive AI-systems: chat-bots. It is an environment (system) that helps to combine human requests with the software.

NLTK:

NLTK is a standard python library with prebuilt functions and utilities for the ease of use and implementation. It is one of the most used libraries for natural language processing and computational linguistics. Data pre-processing is the process of making the machine understand things better or making the input more machine understandable Tokenization is the process of breaking text up into smaller chunks as per our requirements. nltk has a cool submodule “tokenize” which we will be using.

Word Tokenization

Word tokenization is the process of breaking a sentence into words. word_tokenize function has been used, which returns a list of words as output.[]

Sentence tokenization is the process of breaking a corpus into sentence level tokens. It‟s essentially used when the corps consists of multiple paragraphs. Each paragraph is broken down into sentences Punctuations are of little use in NLP so they are removed.

Stop words are words which occur frequently in a corpus. e.g a, an, the, in. Frequently occurring words are removed from the corpus for the sake of text-normalization.

It is reduction of inflection from words. Words with same origin will get reduced to a form which may or may not be a word.

NLTK has different stemmers which implement different methodologies.

It is another process of reducing inflection from words. The way its different from stemming is that it reduces words to their origins which have actual meaning. Stemming sometimes generates words which are not even words.

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CONCLUSION:

In this system we introduce the Automatic answer checking system. The system allows the staffs to reduce the time for correcting the answers. So, the system gets the input from the students and checks the answer in a Excel file and gives result instantly. So it reduces time complexity and avoids the manual checking. This System can used in several educational institutions.

REFERENCES

[1] Saloni Kadam, Priyanka Tarachandani, Prajakta Vetal and Charusheela Nehete (March 2020), "AI Based E-Assessment System", Easy Chair.

[2] Birpal Singh J. Kapoor and Shubham M.Nagpure and Sushil S. Kolhatkar, "An Analysis of Automated Answer Evaluation System Based on Machine Learning "doi:10.1109/icict48**0**43.2020.9112429 ,June 2020.

[3] Sakshi Berad, Prakash Jaybhaye, Sakshi Jawale, "AI Answer Verifier, Int. Research Journal of Engineering and Technology," Volume 06, Issue 01, 2019.

[4] Y. Cao, M. Fang, and D. Tao, „„BAG: Bi-directional attention entity graphconvolutional network for multi-hop reasoning question answering,"" 2019, arXiv: 1904.04969.

[5] Z.-Y. Chen, C.-H. Chang, Y.-P. Chen, J. Nayak, and L.-W. Ku, „„UHop: An unrestricted- hop relation extraction framework for knowledge-based question answering,"" 2019, arXiv:1904.01246.

[6] Y. Lan, S. Wang, and J. Jiang, „„Multi-hop knowledge base question answering with an iterative sequence matching model,"" in Proc. IEEE Int. Conf. Data Mining (ICDM), Nov 2019, pp. 359–368.

[7] Y. Qiu, Y. Wang, X. Jin, and K. Zhang, „„Stepwise reasoning for multi-relation question answering over knowledge graph with weak supervision,"" in Proc. 13th Int. Conf. Web Search Data Mining, Jan. 2020, pp. 474–482.

[8] M. A. Borroto, F. Ricca, and B. Cuteri, „„A system for translating natural language questions into SPARQL queries with neural networks: Preliminary results,"" in Proc. 29th Italian Symp. Adv. Database Syst., 2021, pp. 1

[9] N. Bhutani, X. Zheng, and H. V. Jagadish, „„Learning to answer complex questions over knowledge bases with query composition,"" in Proc. 28th ACM Int. Conf. Inf. Knowl. Manage., Nov. 2019, pp. 739–748.

[10] P. Jain and M. Lapata, „„Memory-based semantic parsing,"" Trans. Assoc. Comput. Linguistics, vol. 9, pp. 1197–1212, Nov. 2021.