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III. DESIGN OF ALGORITHM

1. *Related Concepts*

To resolve the close degree of students’ answers and the standard answer that the problem can be seen as the student answer and standard answer string. The following will to define the concept of one-way nearness. Decomposed into an string to a single character, and they form an ordered collection is called a fuzzy set, U={u1,u2, u3,…,un} is called the domain. On the domain U of all fuzzy subset consisting denoted as F(U)(Also called fuzzy power set)[3].To measure the closeness of two fuzzy sets, introduce the concept of a one-way approach degree [5].

**Definition 1.** Let U={U1,U2,U3,…,Un},A,B∈F( U)。

If the mapping δ :F( U) × F( U) → [0,1],satisfies the

condition:

δ(A,A)=1

δ(B,B)=1

If the A B C or A B C, then δ(A,B)≥δ(A,C) and

said δ (A,B),A is close to the B unidirectional

closeness degree。

**Definition 2.** Let A,B is the string, A contain n

characters, δ(A,B) represent A close to the B unidirectional

closeness. In accordance with the order from left to right,

the effective sum number of set A in each element in the Set

B refers to m,δ(A,B)=m/n. It is easy to verify that it meets

the definition of a one-way approach degree.

The introduction of a one-way approach degree in the

scoring of subjective questions, the standard answer string

denoted by A0, students answer string is denoted by A, A0

and A are two fuzzy sets. So the standard answer the A0 and

students answer A, one-way approach degree δ(A0,A)。

*B. Analysis of Algorithm Thinking*

Generally, teachers in artificial reviewers subjective questions, first check the student answers a few score points, score points as many high scores. Then look at the student’s answer and standard answer close, close high the high score. Finally, consider the students answer whether the language fluent, clarity and other factors appropriate to adjust the score.

The rating rules give the corresponding score which is based on correct answers key words requirements corresponding to the keywords and score as much as possible.

1. *Implementation of Algorithm*

Function near(a,b)

m = 0

ml = 0

a=Trim(a)

do while(len(a)>0)

a asc=asc(a)

if(a asc>255)

k=2

else

k=1

end if

a char=left(a,k)

a=mid(a,k,len(a)-k)

l=strcomp(b,a char)

if (l>0)

m=m+1

else

m1=m1+1

end if

loop

i=m/(m+m1)

near=i

End Function

1. *Subjective Questions Score*



Each symbol is the following meaning:

S: The student’s actual score. Calculated based on the

student respondents saved to the library.

S0: Exam scores. The generated test paper when read

from the papers in the library.

A: The student’s actual answer. Students turned in their

poems saved in student respondents’ library.

A0: Standard answer of the questions. Generated when

the topic, read form the questions.

P: The proportion of share of key words in the subject

scores, 0 ≤ P ≤ 1.The test paper generated also be rated

modify, read form the papers in the library.

1-P: The proportion occupied score of the factors other

than the keywords in the subject.

Calculated by the program:

Ki: The keywords no i, 0≤i≤n.By the program split

based on the keywords in the exam;

E(Ki,A): A one –way approach degree of keywords

student answers the i, 0≤i≤n.Calculated by the program.

E(K,A): A one-way approach degree of keywords with

students answer the threshold.

δa(A0,A): A one-way approach degree of the standard

answer and student answer

IV. DESIGN OF SYSTEM

1. *Process of System*

It is easy to realize the comparison between the results

of its operation with the standard answers determination

score. However, when the result of the program and the

standard answer does not match or unable to compile and

run, then how to detect its program ideas are the main points

of the automatic scoring system.



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**III. PROPOSED MODEL FOR ONLINE SUBJECTIVE EXAMINATION SYSTEM**

In this work we will propose solution of aforementioned problems, precisely our system will solve the problem of

deducing knowledge represented by partially or grammatically incorrect sentences, we will interpret the meaning

conveyed by the student in different forms and sentences, propose a normalized strategy for grading the answers, ways

to interpret the mathematical formulas and expression however our system will be limited to non mathematical subjects

only. The proposed architecture of the system is:

Figure 1. Online Subjective Examination System model

In order to calculate the function point from UML diagrams, we use the sequence diagrams and class diagrams.

Because these diagrams includes the information about all functions and data manipulated in the system.

i. **Pre-processing**: It is normalization of the text includes throwing unwanted words, stemming etc. However,

this is domain dependent process and manual rules are, created to suit ones need. All relational operators are separated

by white space. The preprocessing is dependent upon the parsing algorithm’s ability to recognize the sentence tags in

desired format. Split compound sentences to simple sentences.

ii. **Part-of-Speech Tagging**: It assigning a part-of-speech to each word in a sentence, useful in information

retrieval, word sense disambiguation and it helps in parsing by assigning unique tags to each word thus reducing

number of parses . We use POS tagger that uses a model trained on English data from the Wall Street Journal and the

Brown corpus. The latest model created achieved more that 96% accuracy on unseen data. [3].

iii. **Grading System**: The Indian Institutes of Technology are under control of the Government of India and

therefor have strict rules for grades. Depending on the course the evaluation is based on participation in class,

attendance, quiz, exam and/or paper. Continuous evaluation is done by course instructors. The Evaluation System of

IIT Madras is the Cumulative Grade Point Average with a scale from 0 to 10 which is converted to letters [4].

iv. **Parse tree**: “A natural language parser takes a sentence as input and determines the labeled syntactic tree

structure that corresponds to the interpretation of the sentence” [Ratnaparkhi, A. (1998). Maximum Entropy Models for

Natural Language Ambiguity Resolution. Ph.D. thesis, University of Pennsylvania.]. We use shift reduce style parser

based on Adwait Ratnaparki's 1998 thesis [Ratnaparkhi, A. (1998). Maximum Entropy Models for Natural Language Ambiguity Resolution. Ph.D. thesis, University of Pennsylvania.] with the help of tool based on Penn Treebank to

generate the parse trees of each statement

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**3. INFERENCE PROCESS**

The inference process follows the following steps.

1) First the question style checked if it is yes / no format than the model answer related to those questions are called up for appropriate matching.

2) If it is one word answers then again the model answer are called up and a matching process is carried out. In case of spell mistake we applied hamming distance to calculate the rate of error, if its distance from the model answer is less than two we accept it as correct else the word is rejected an the answer is accessed as wrong.

3) One sentence based answer have to firstly check if they are in the same sequence [sequential form] as in the given model answer. Then we evaluate it as correct but for following case the process ignores if conjunctions or prepositions like ‘is’, ‘the’, ‘an’, ‘and’ if are missing are ignored and term the candidate answer as correct.

4) If sentential form is different then we check for its synonym representation provided in our knowledge base system.

 If sentential words used like “part” can be written as component such cases are checked using WordNet dictionary if appropriate meaning match is found the answer is accepted else rejected.

 The whole sentence, sentential meaning is checked with already stored information in our knowledge base, if those representations have same semantic structure then it is termed to be right else wrong. For considering the model answer in differential form are written and those are termed by ranking using the confidence factor provided using appropriate references like books articles for that answer.

**3.1 Assessment Process**

In our work we have considered Eight one word based, Twelve one sentence based question and Ten candidates were asked to answer the question, while evaluation in our work we have consider seven criteria that are related to discourse.

 Cohesion - grammatical relationship between parts of a sentence essential for its interpretation.

 Coherence - the order of statements relates one another by sense.

 Intentionality - the message has to be conveyed deliberately and consciously.

 Acceptability - indicates that the communicative product needs to be satisfactory in that the audience approves it.

 Informativeness - some new information has to be included in the discourse.

 Situationality - circumstances in which the remark is made are important.

 Intertextuality - reference to the world outside the text or the interpreters' schemata

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Implemented System