An Experimental Model of a Qualitative Decision Support System for Quality Assessment Support at Higher Education Institutions

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Abstract

Decision-support systems are essential technologies for addressing the numerous issues faced by decision-makers. These systems help decision-makers to obtain the necessary data and insight in a timely and precise fashion; particularly relevant to decisions that rely on quantitative information. Nonetheless, technologies for monitoring and arranging qualitative data could also be advantageous to decision-makers. The Institution of Literature has a vast array of e-texts and e-data, which means that physically assessing this data can be a lengthy process. Qualitative data plays an important role in decision making and as such it is important that this data is easy to comprehend and is well-organized. Creating a system that uses NLP and text mining methods to evaluate the data and help individuals make decisions is one of the main long-term objectives of this research. This system will ensure the standards of the data and comply with the Higher Education Institution's guidelines. This research will hopefully prove helpful to future decision-making systems. Such systems frequently need to identify and confirm data obtained from numerous places. Once evaluated, this data helps individuals at the Institution of Higher Education to make decisions.

Keywords: NLP techniques, Text Mining TM, document relevance, higher education, Qualitative Decision Support

1. Introduction

A decision support system (DSS) helps decision makers to make decisions that are unique, rapidly changing, and not easily specified in advance [1]. DSSs have been created since the middle of the 1970s [2]. There are new frameworks that are based on the traditional DSS. For example, intelligent decision support system (IDSS) adds artificial intelligence (AI) functions to traditional DSS in order to guide users through the decision-making phases and tasks or to supply new capabilities [3]. But most DSSs utilize data mining to do mathematical and statistical analysis rather than using text mining (TM) [3, 4, and 2]. A developing set of technologies that guarantee an incredible potential for the future of DSS come from the field of TM. TM is closely related to other fields of research on the intersection...
between computer science and linguistics, natural language processing (NLP) and computational linguistics. The aim in TM is surmise valuable data from written texts by using methods such as entity extraction, clustering, and categorization.

Academic accreditation is the process of quality assurance in which an educational institution is appraised against a set of criteria set by an accreditation body [6]. The attaining the accreditation of institution is the complicated task due to collection, handling of terabytes of data. And the data are heterogeneous. There are unstructured data like e-mails and teacher notes, structured data like forms, surveys and policies, and multimedia like e-Learning modules and recorded class sessions. Currently, the tasks for collecting evidence to verify the requirement of an accreditation body are done manually. The institution then analyzes the collected data and publishes a self-study report, which is reviewed by the accreditation body. The process of accreditation is effort-intensive and error-prone.

Quality Judgments based on general impressions could be accurate, but they could also be badly disfigured for a number of reasons. Thus general opinions without supporting evidence cannot be relied on in making assessments of quality. Because of this it is vital to consider appropriate forms of evidence whenever a judgment is made about quality of performance in relation to standards.

The appropriate evidence will vary widely for different things that are evaluated and an important element in any quality assessment is to decide on what kind of evidence is appropriate for the matter being considered. In numerous cases a few diverse shapes of evidence ought to be considered to make a solid judgment, and the evidence will require to be interpreted.

The accreditation reviewers verify the self-study report of universities and compare it with the evidence found by on-site visits. There could be large disparity between the report and the findings. To help institution associated with accreditation, the system isn’t planned to supplant the human factor in the gathering and examination of information, however to limit it however much as could be expected, while expanding the trust in the produced reports.

This work pretends theability of accreditation teams to appropriatelyselect text mining tools that are more relevant to the measurement and analysis of different types of data. The outcome of the measurement and analysis should be correctly interpreted and used as evidence to support the findings of the self-study report.

The appraisal of the quality of the extracted evidence is a crucial task in the process of evidence-based assessment generation, and its purpose is to designate the reliability of the recommendations that are made based on the evidence.

The quality of the best available evidence may depend on expansive number of variables. Moreover, the ministry of higher education in KSA has to activate the council of accreditation, and support it to start quickly and effectively. Accurate evaluation of the performance of any organization is an important requirement. Currently the decision in institution accreditation is taken randomly, not based on logical analysis. Our experiments also show that the difference between the performance of our system and that of human experts on the same data is not statistically significant. In this paper, a proposed system by utilizing NLP techniques and text mining methods, to help decision makers for automation for accreditation operations and taking accurate and swift decisions.

In this paper, we describe a DSS model to computerize the process of assessing the quality of the evidence. A DSS model endeavor to extract relevant information from Institutions texts and the associated meta-data, and use the information to foresee the quality of the evidence presented by the data. The system employ semantic modeling and semantic natural language processing (NLP) techniques to facilitate automated institution document analysis and processing for extracting requirements from these documents and formalizing these requirements in a processable format. NLP is a field that utilizes artificial intelligence to enable computers to process natural language text (or
speech) in a human-like manner [5]. Information extraction (IE) is a subfield of NLP that targets to extract desired information from text sources. IE could be based on the syntactic (i.e., grammatical) and/or semantic (i.e., meaning descriptive) features of the text.

The rest of the paper is organized as follows. We provide related work and background on quality evidence assessment including a discussion of the Higher Education Institutions Assessment model that we use, and discuss some related research in Section 2. System Development Methodology discussed in section 3. In Section 4, we discuss the structure of the proposed DSS, is given. Next, In Section 5 discusses the implementation of IDSS. In Section 6, we present the results of experiments along with discussions of the results. The article concludes with a summary of the main findings of this research and some possible future lines of research to be explored in Section 7.

2. Related Work and Background

The majority of previous studies employ the savvy techniques of higher education management. These studies primarily explore and put forward the process of accreditation [34]. One scholar suggested a technique, which could be used to support the Higher Education Ministry to make decisions regarding the distribution or approval of licenses (Naji, E 2010)[8]. This technique would employ guidelines, involving the information from universities, to help the Ministry to assess the operation of current organizations. Naji employed AI devices to uncover relevant information. These AI devices employed a C4.5 algorithm to develop a system for making decisions, which relied on information guidelines to forecast universities' potential accomplishments. By employing this technique, the ministry can assess the future performance of recently developed academic institutions and then decide if they should be given a license.

Another scholar suggested a method for assessing information about the University of Science and Technology's academic, administrative, and pupils' performances (Ahmed, N 2010)[9]. Ahmed employed a text-mining technique to uncover data. The outcomes revealed throughout the assessment indicate the standards of services, which are necessary for making the best decision about how to enhance the university's performance; for example, identifying expert professors or enhancing additional services. Ahmed's primary goal was to uncover data available online to help individuals make decisions. An examination conducted by Zhou, Han, and Kamber (2006)[10], developed an algorithm, which used attribution data. This data was gathered through impartial and personal assessments, which served to uncover essential categorization guidelines. Through using this algorithm, individuals could assess the benefits and disadvantages of each characteristic to determine their personal inclinations. Users could prioritize certain attributes to help uncover appealing categorization guidelines. However, these guidelines may not be completely precise and the process could be lengthy, particularly within extensive databases, as the algorithm must be employed for every category.

The majority of studies employed a training system to create guides about essential or new categories (11,10,12, and 13). As a result, these systems identified variations from the norm. Other examinations suggested employing guidelines created by STU (Science and Technology University) to ensure that the examinations into performance met global standards and complied with accepted techniques (Alhodaby D.A and Alkobati H.A, 2009)[15]. This examination suggested a technique, which used AIs to confirm data about institutions. This technique served to assist individuals in making decisions about granting these institutions license and meet the basic prerequisites. This approach attempted to categorize institutions according to their forecasted performance.

Mohamed Abd-ELfattah, Eslam Amer [14] proposed the Quality Decision Support System (QDSS) that refers to NCAAA standards. These studies revealed that it was feasible to implement a QDSS in NCAAA standards accredited universities. A QDSS reduces paperwork, cope with communication problems by using web facilities, and, finally, assists universities in attaining NCAAA accreditation. On the other hand, a QDSS encourages staff to perform their tasks in potentially the
shortest time, at the lowest cost and at the highest level so that they achieve higher performance. Further studies on QDSS can be conducted with respect to quantitative data. It would be interesting for future research to deal with unstructured information sources.

Universities can benefit from employing the WEAVE software to monitor pupils' achievements on exams and courses. It can also be beneficial for obtaining an overview, assessment, and accreditation of academic programs. The OATS (Online Assessment Tracking System), an open-source system, is used by Georgia Tech to record pupils' achievements and ensure constant enhancements. Georgia Tech's Enterprise Information System (EIS) created OATS, which utilizes inputs, goals, plans for achieving these goals, outcomes, and operations to monitor the courses' progress [17].

Numerous academic institutions, such as UC Riverside, University of Connecticut, and University of Texas Arlington, have recognized the benefits of employing OATS. Another open-source system is the openIGOR (Integrated Goals and Objectives Reporting). This system can be employed to store academic texts within medium academic institutions. Its primary objective is to develop an cache for the institution, which ensures the successfulness of the organization's planning literature. The openIGOR was initially created by Coker College, but has since become available at no cost. This system does not assess exam information, but exam scores are rather considered an input. In contact to other Internet evaluative programs, the advanced AIS system can oversee course schedules, gather immediate information about exams, process information, and create quantitative and qualitative reports about courses and programs [18].

As part of the AIS system, users must physically enter the information and structure the following report. This can be an extremely boring and lengthy process and makes it impossible to confirm the accuracy of the information. To correct this problem, AIS software has been created that streamlines the evaluation and makes the system easier to employ. This Internet device is primarily recognized for its EOU (ease of use), ability to create course schedules and the essential exam reports, a completely unified database, and the fact that it can be accessed by any computer on the University Intranet. Text-based intelligent systems (TBIS) utilize both state-of-the-art IR (information retrieval) and NLP (natural language progress). TBIS are advantageous as they can smartly assess extensive amounts of raw, unorganized text. TBIS typically are both pre-programmed indexing and hypertext, intelligent IR, text-mining, or synopsis and condensing systems. TBIS can successfully and systematically recognize essential words or subjects. As a result, these systems make the process of arranging extensive amounts of text feasible and cost-effective; particularly for large organizations that consistently generate/gather extensive information. While TBIS can successfully index information, there are superior methods for arranging unorganized text. These more superior methods can better assist decision-makers to identify particular (either unorganized or qualitative data) relevant to their challenges [16].

2.1 Higher Education Institutions Assessment Model

The evaluative systems employed by institutions primarily serve to help academic and administrative departments within higher education institutions to conduct self-assessment, establish goals and methods for achieving these goals, and enhance the standards of their current techniques. The criteria used to assess accreditation are founded on the basic notion of positive operations within these institutions. Staff members must comprehend how to achieve positive or ideal operating standards to allow the institutions to simply mention these practices within internal standardization methods and so that external assessors can employ these operating standards to conduct assessments. Determining the standard of an institution relies on facts instead of status or informal intuitions. Data that confirms the institution's standards include direct or indirect systematic evaluation and verification of data, which can help individuals to make sensible decisions.
When creating protocols for assessing an institution's standards, it's ideal to predict the type of data that will be gathered. Quality is typically dependent on how the higher education institutions, across the globe, define and achieve ideal operating conditions. These techniques are then altered to match the specific conditions within Saudi Arabian higher education institutions. Numerous factors must be assessed to determine the quality of an HE institution such as an overview of the eleven primary subject areas, the specific circumstances for ideal operating conditions within each primary component, and how these specific circumstances are achieved.

Any assessment of an institution must compare its overall achievements to operating circumstances. How the institution achieves ideal operating circumstances must also be thoroughly considered. Institutions can conduct self-assessments by following a system, which has been designed for this purpose. Within this system, the board and sub-boards conduct internal assessments by considering if specific protocols are upheld and ranking the extent that these protocols are upheld using a five-point scale. In order to determine the institution's standards, suitable data must, to the greatest extent, be employed. Such data should involve contrasts against other institutions in regards to essential aspects. It is important to create an internal method for gathering evidence in order to properly conduct a self-assessment. Without the relevant data, the institution will not be eligible for accreditation [20].

Different organizations and individuals may understand the facts differently. To address this issue, organizations should conduct quality assurance assessments and consider the individuals that participated within the process including if these individuals have direct interactions with the institution's services such as faculty or pupils that employ the central administrative systems. Such assessments should also consider individuals that have an awareness of the required functions, but may not immediately participate. An additional method of protection involves conducting an independent assessment of the ultimate results. The individual conducting this assessment should only be involved during this final stage and should seek to confirm if the proposed explanation of the results are appropriate based on the related data. Excellence is only possible through transparent assessments of achievements and the institution's dedication to enhancing their services through specific plans and actions. Staff members should conduct self-assessments of their achievements and compare their actions to the more commonly recognized methods for achieving ideal operating conditions.

Staff should strive to create accurate and appropriate assessments supported by facts and data. Some of these assessments might include biased opinions. In order to prevent a false impression of accuracy and deter deceptive results, a ranking scale should be employed within these assessments. Staff members should be asked to answer simple questions about the protocols within the institution using a yes, no, or not applicable system. They should then be asked about the areas where this protocol is applied within the institution by selecting either yes or no. They should then be asked to determine the standards and consistency of these protocols based on a five-point scale, which uses stars to rank results.

This format will be used within assessments for determining the degree and reliability that protocols are upheld, the standards of services or behaviors as determined by methodical assessments, and the successfulness of the institution's plans for accomplishing specific goals.

2.2 Ranking System & Scales

The self-assessment ranking system employs a five-star system. A further explanation is provided below:

- No star-- corrections are necessary as while the protocols are applicable, they are not upheld to any degree.
- One star – protocols are sometimes upheld. However, standards are inadequate or have not been assessed.
Two stars-- protocols are typically upheld. However, standards are not acceptable despite the positive efforts.

Three stars-- protocols are mostly upheld. The successfulness of these protocols can be demonstrated, which suggests that a high-quality is often accomplished. However, enhancements remain possible and plans have been created for this purpose. The advancements of these plans is being observed.

Four stars-- protocols are almost always upheld and methods for assessing the standards and achievements have been created. Results are mostly satisfactory, but additional enhancements are still required. In order to achieve these enhancements, plans have been created and put into place. The advancements of these plans is frequently observed and recorded.

Five stars-- protocols are always upheld to an extremely satisfactory quality. Immediate confirmation and objective evaluations can demonstrate these results. Plans for additional enhancements are in plan and include practical plans and deadlines.

3. System Development Methodology
The present study expects to outline and build up an IDSS to misuse the capability of text mining for evidence-based assessment - creation in the form business. This framework is built by consolidating the strategy for text mining and NLP into the four-organize frameworks development research approach.

The systems development process abide to the accompanying stages: (i) IDSS for quality assessment model is developed for the framework; (ii) the system architecture is developed; (iii) a prototype system is built to learn more about the framework, and design through the system-constructing process; and (v) the prototype system is assessed by potential users. Essentially, we follow these stages to acquire the IDSS prototype and the key results attained through the procedures are expounded in the accompanying sections.

4. System Framework
In this section, we first present an outline of our framework and the relevant procedure utilized all through this study. Our text based DSS incorporates four noteworthy parts: text preprocessing, textual relevance, extraction, and quality criteria of practices such the time of occurrence, plans, continuous monitoring, feedbacks and benchmarking.

The system architecture of the DSS is shown in Fig. 1. The analyzing each sentence in the text. Then Textual information is extracted via a shallow parser and semantic roles are allocated to it in the textual database module. In subsystem of user interaction is visualized results of analysis.
4.1 Document Relevance Module

For judging the quality of evidence, the evidences are usually divided on one hand into relevant and non-relevant ones with respect to a given problem.

A document ranking model provides the basic notion of what it means for a document to be relevant to practices. Among the many different document ranking models proposed such as, the vector space model (VSM) and statistical language model (SLM) are the most studied and widely used. The VSM is a similarity-based model that assumes that the relevance of a document to a query is correlated with the similarity between the query and the document at some level of representation [21]. In the VSM, a document and a query are represented as two vectors of terms, which are typical words and phrases. Each term is assigned a weight that reflects its “importance” to the document or the query. This model measures the relevance of a document to a query as the similarity between the query vector and the document vector. The cosine similarity and the inner-product between the two vectors are often used as the similarity measures [22]. The SLM is a probabilistic model that assumes that the documents in a collection should be ranked by the decreasing probabilities of their relevance to a query [23]. A document is generally viewed as a sample from a language model, which estimates the distribution of words in a given language. Based on this assumption, this model measures the relevance of a document to a query as the likelihood that the query was generated based on the estimated language model of each document [24].

In this model we use context-enhanced SLM-based method [28], (1) term relevance is measured by term probability, which is the probability that a document is relevant to a query at the term level; and (2) semantic relevance is measured by context probability, which is the probability that a document is relevant to a query at the context level. We employ Context-enhanced statistical language model-based method [28] on the implementation of prototype.

4.2 NLP Module: Rule-Based Approach

The proposed approach is rule based. NLP takes two primary types of approaches: a rule-based approach and a machine learning (ML) based approach. Rule-based NLP uses manually coded rules for text processing. These rules are iteratively created and purified to improve the accuracy of text processing. ML-based NLP uses ML algorithms to train text processing models based on the text.
features of a given training text [19]. Rule-based NLP tends to indicate better text processing performance. In this research, a rule-based approach is adopted.

The proposed technique Fig. 2 aims to introduce a methodology to automate the Rule-Based Approach. The technique have three main phases namely: (1) Preprocessing of the unstructured evidences text; (2) Extraction of main entities found in the processed text; and (3) Identify specific entities and its associated value. Each phase will be discussed in details

**Preprocessing of the unstructured evidences documents**

The purpose of document preprocessing is organizing input document for further processing. The main objective behind this phase is to keep important items (ex., nouns) and get rid of trivial non-important ones (ex., verbs, and stop words). Our preprocessing comprises of the successive use of three noteworthy segments in a pipeline as delineated in Fig. 2. The segments include tokenization, part-of-speech (POS) tagging, and morpho-syntactic analysis. Textual information that contains the most important information in the sentence and not the irrelevant information are the output of preprocessing.

The first stage of preprocessing is carried out by a tokenizer, which segments the input text into sentences and phrases. POS tagging is the task of assigning to each token its corresponding part of speech, that is, its syntactic word category, such as noun, adjective, verb, or adverb. The final step in text preprocessing is morpho-syntactic analysis, which is used to reduce the number of irrelevant and rare terms in the sentences. The outputs of the preprocessing step are set of nouns, which are the basic entities found in the evidences.

**Extraction of main entities found in the processed text**

Named entity recognition (NER) aimed to detect specific terms which refer to relevant entities. Named entity recognition (NER) is a technology for recognizing proper nouns (entities) in text and associating them with the appropriate types. In quality assessment of higher education domain; entities may refers to time of occurrence, Indicators of quality of performance, plans, Plans for improvement, and independent assessments. NER systems are incorporated into Parts-of-Speech (POS) taggers. Most NER systems are based on analyzing patterns of POS tags, they also often make use of lists of typed entities the output of the extracting of named entities is a set of all named entities found in the quality evidences.

**Identify specific entities and its associated value**

Extracting named entities found in quality assessment of higher education documents are of great importance, however, in quality assessment of higher education evidences, there are some entities that are favored over the others and considered as the main reference when a decision has to be made about the practices. The objective of identifying specific named entities along with its associated values is to gather the meaningful information from the evidences. To deal with this issue, regular expressions rules are used to extract such entities and the closest value associated with it.

The output of this step is a set of Stars for appraisal Performance shown on fig 2. The output stars will be classified against sets of criterions initially given and stored as a quality criteria database for given practice (s). In the proposed system, the similarity between extracted stars and stored criteria were calculated using cosine similarity function defined as:

\[
\text{Similarity} (A, B) = \cos(\theta) = \frac{A \cdot B}{\|A\| \|B\|} = \frac{\sum_{i=1}^{n} A_i B_i}{\sqrt{\sum_{i=1}^{n} A_i^2} \sqrt{\sum_{i=1}^{n} B_i^2}}
\]

Where \(A, B\) are components of vector \(A\) and Vector \(B\) respectively.

- Using Stars for appraisal Performance should be assessed by assigning from zero to five stars in accordance with the following descriptions:
- No star-- corrections are necessary as while the protocols are applicable, they are not upheld to any degree.
- One star – protocols are sometimes upheld. However, standards are inadequate or have not been assessed.
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4.3 Quality Dashboard Module

Quality Dashboards shown on fig 4 allow decision makers to “analyze the root cause of problems on quality standards by exploring relevant and timely information from multiple perspectives and at various levels of detail”. Dashboards can provide management a display of information to improve decisions, efficiency, streamline workflow, and reduce oversight [31].

5. Implementation

In this section, we indicate execution points of interest of our model framework to give an application case of the proposed plan shown in fig 3. We show how to setup a simple evidences assessment support task, defining thematic.

Figure 2:  flowchart Decision Support System for quality Assessment support at Higher Education Institutions
6. System Evaluation

The live results obtained through the proposed assessment system must be contrasted to the results obtained by industry professionals using identical information. This comparison will serve to provide insight to the relevance of the proposed system. As part of every trial, data was obtained from texts, which was then read and assessed to highlight essential suggestions, summarize the data within numerous applicable texts, assess the standards of this data, and then select a ranking according to the NCAAA's framework. The ultimate ranking was determined based on the text's overall understanding of the subject, contained data, and the authors' assessments of this data. As a result, the ultimate ranking is solely determined by the supporting texts employed by the authors. Nonetheless, other industry professionals, when presented with identical texts, must use their personal techniques for determining an ultimate ranking for the data. Therefore, it is extremely likely that different industry professionals, within this circumstance, may produce different results about the standards of the presented data. This would be particularly true within short deadlines. Thus, contrasting the results obtained by different professionals is essential for determining the overall standards and efficiency of
the proposed system. This examination will explore the degree that industry professionals produce identical results for assessing the identical data obtained by the presented system.

This examination analyses many figures to gain an enhanced insight into the system's functions and confirm the model's rationality. As previously discussed, the model's rationality derives from the system's design. This examination produced favorable outcomes that indicate that the system's techniques almost mimic manual efforts. Unfortunately, it remains unclear if this result stems from either a deficit in data or a positive amount of variations between authors when considering identical data. As a result, this examination will further explore the points of concurrence between the industry professionals by employing Cohen's Kappa [29]. Cohen's Kappa is further explained below and was employed within this examination to estimate the concurrences between industry professionals.

\[
\kappa = \frac{Pr(a) - Pr(e)}{1 - Pr(e)}
\] (2)

Within this equation Pr(a) indicates that two industry professionals concurred on an finding, while Pr(e) is the possible likelihood of random concurrence. This figure will be used in two distinct procedures to secure insight into industry professionals' concurrences. This technique allows us to calculate the matching concurrences solely between industry professionals, which provide insight into the degree that industry professionals concur on the presented information. The amount of concurrences confirm that industry professionals' opinions are never identical; especially, when ranking data. These results additionally indicate that the system's operation is advantageous based on the presented data. The matching concurrences between industry professionals including the mean and standard deviation are displayed in Table 1.

<table>
<thead>
<tr>
<th>Table 1: Matching concurrences (including mean and standard deviation) between industry professionals</th>
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<tbody>
<tr>
<td>Concurrences (k)</td>
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<tr>
<td>Industry Professionals #1 &amp; #2</td>
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<tr>
<td>Industry Professionals #1 &amp; #3</td>
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<td>Industry Professionals #1 &amp; #4</td>
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<td>Industry Professionals #3 &amp; #4</td>
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<tr>
<td>Mean Concurrence</td>
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<tr>
<td>Standard deviation (SD)</td>
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</table>

This examination concluded by contrasting the system's marks with industry professionals' marks. The matching concurrence between the systems and industry professionals' marks were calculated. The number of concurrences including mean and standard deviation are presented in Table 2. As evident, the mean concurrence is less than the mean concurrence amongst industry-professionals, which is regarded as an honest assessment [30].

<table>
<thead>
<tr>
<th>Table 2: Matching concurrence between the system and industry-professionals' marks</th>
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<tr>
<td>Concurrence(k)</td>
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<tr>
<td>Industry professional #1 &amp; System</td>
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<td>Industry professional #2 &amp; System</td>
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<td>Industry professional #3 &amp; System</td>
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<td>Industry professional #4 &amp; System</td>
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<tr>
<td>Mean Concurrence</td>
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<td>Standard deviation (SD)</td>
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Intriguing outcomes have been gathered through manual assessments. These assessments have indicated that the amount of concurrences between industry professionals and the system is substantially less than the amount of concurrences between solely industry professionals. It is hypothesized that this arises due to the fact that while the system has comparatively positive operations, additional enhancements continue to be feasible. Once these enhancements have been made, the results might slightly progress. Essentially, there continues to be a substantial variation between the system's estimated marks and industry professionals' given marks. Few concurrences occur between industry professionals and the system, which indicates that additional examinations are required involving methods for improving the Qualitative Decision Support System for Quality Assessment Support at Higher Education Institution's techniques. These enhancements would aid the system in more precisely reflecting manual decisions.

7. Conclusions
This essay explored the Qualitative Decision Support System for Quality Assessment Support at Higher Education Institution's issues; particularly, in regards to its models. The essay began by explaining that the methods for physically assessing the standards of data are not time-effective. While this system does not attempt to succeed humans within the process of gathering and evaluating information, it does attempt to decrease human efforts to the lowest level. It also serves to enhance the accuracy the resulting reports. This essay also explained the evaluative procedures, which were conducted to recognize the common elements that impact the evaluation of data. The NLP model was deemed appropriate for achieving this objective. Manual assessments were carried out and a contrast was created between the system and industry professionals' results. This assessment indicated that industry-professionals and the system rarely concur on the resulting marks when presented with identical information. In addition, this assessment also uncovered substantial differences between industry-professionals and the systems' marks.

As concurrences rarely occur between industry-professionals and the system, it is event that additional enhancements must be made to the system to reach better results. Significantly, this assessment indicates that the system may not be capable of evaluating data and the system must be substantially enhanced for better outcomes when assessing the presented information. Text-mining and NLP techniques may be advantageous to later examinations. However, the validity of these methods remains relatively low and may be unsuitable as an intermediate stage when evaluating data. Additional enhancements must be made to these methods so that they can be appropriately employed within the system's evaluations. It is hopeful that the user assessment may be further expanded at a later date through including examinations into the operation of applicable recording and NLP methods to obtain ideal techniques for conducting data evaluations within standard assessments. Later examinations could also examine the techniques or algorithms to achieve better, more ideal techniques for evaluating the data used within standard evaluations.

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