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Approach to Text Plagiarism Detection Technique Through Natural Language Processing

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Abstract –

Since we move in the digital communication era, the ease of information sharing through the internet has encouraged online literature searching. With this suffers the potential risk of a rise in academic misconduct and intellectual property theft. As concerns over plagiarism grow, or help more attention has been directed towards automatic plagiarism detection. This is a computational methodology which assists humans in judging whether pieces of text are plagiarized.

Keyword

Lexical analysis, Semantic Indexing, Term text Mining, Natural language processing, String matching .

Introduction

Plagiarism detection approaches are restricted to artificial, brute-force string matching techniques. If the text has undergone substantial semantic synthesis and syntacticsynthesis changes, string-matching approaches do not perform well. In order to identify such changes, linguist methodology which are able to perform a deeper analysis of the text are needed. To date, very limited research has been conducted on the topic of utilizing linguistic techniques in plagiarism detection.

This research paper provides perspectives on plagiarism detection and plagiarism direction identification tasks. The hypothesis is that original text and rewritten text exhibit significant but measurable differences, and that these differences can be captured through statistical and language indicators. To investigate this hypothesis, four main research objectives are defined. First, a framework & algorithm for plagiarism detection is proposed. It involves the use of Natural Language Processing techniques, rather than only have faith in on the traditional string-matching approaches. The objective is to investigate or discover and evaluate the influence of text pre-processing and statistical, shallow and deep linguistic methods using a quantity based approach. This will achieve by estimating or verifying the techniques in two main investigational settings. Second, the main role of machine learning in this proposes framework is investigated.

The objective is to decide whether the application of machine learning in the plagiarism discovery method is more helpful. This is achieved by comparing a edge setting approach against a supervised machine learning classifier. Third, the vision of applying the proposed framework in a large-scale state is discovered. The objective is to scrutinize the scalability of the propose algorithms and framework. This will succeed by experimenting with a large-scale corpus in three steps. The first two stages are based on longer lengths of text and the final stage is based on text segments. Finally, the plagiarism direction identification problem is discover as supervised machine learning classification tasks.

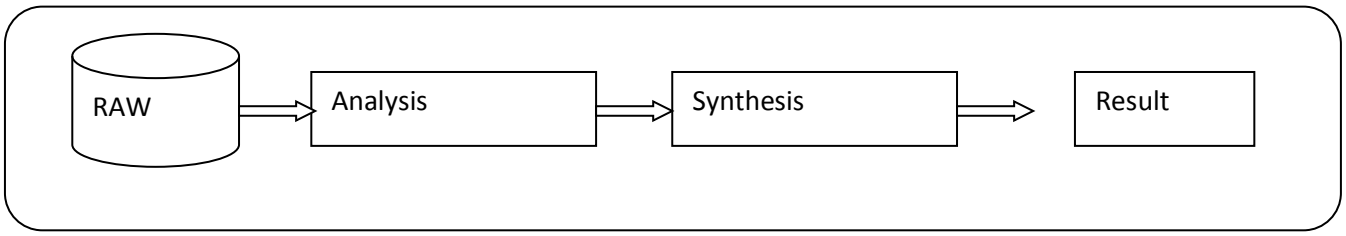
Statistical and linguistic features are explored individually and in various combinations. The aim is to introduce a new perspective on the traditional pair-wise comparison of texts. In its place of comparing original texts against rewritten texts, features are drawn based on texts to make a design for original and rewritten texts. Thus, the classification task is to it a piece of text into a simple pattern. The framework will test by empirical experiments, and the results from initial experiments show that synthesis linguistic analysis gives to solving the problems. Further implementation experiments show that combining analysis and synthesis techniques helps improve the classification of plagiarize texts by reducing the number of false. In addition, the experiment on plagiarism detection shows that copy or rewritten texts will be identify by statistical and linguistic . The conclusions of this study offer ideas for further research directions way and potential of applications to block the challenges that lie ahead in detecting text rewrite or reuse.

Literature review

There are few methods available for plagiarism detection. W. M. Wangn, C. F. Cheung had proposed- also Semantic based intellectual property system. It incorporated semantic analysis a, But, this method proposed a hybrid knowledge-based approach text mining techniques for processing and analyzing universal ASCII character set impression of keys to verifying differences of copy righted or patent documents. MOSS stands for ―Measure Of Software Similarity‖ was developed by Alex Aiken at UC Berkeley. MOSS to document fingerprinting technique to detect text similarity. YAP for Yet Another Plague, tries to find a maximal set of common connecting substrings to detect plagiarism. It has different versions -YAP1, YAP2 and YAP3. Chen et al discussed SID - stands for Shared Information Distance or Software Integrity Detection, detects similarity between programs by verifying the share information between them.

Authors will analyze the advantages over limitations of text that are currently unavailable with systems for detecting plagiarism and conclud that text detection technique can be us to check text papers of different languages base on their similarities

Overview of propose the Framework & Algorithm for Development Process



NLP Two Phase Process

The text Cleaning-processing techniques include:

Sentence segmentation	The sentences are dived into segment
Tokenization	Segment cover into single tokens like words
Lowercasing and ASCII	All character are uniform case with ASCII character code set
Functional word removal	This removes function words, which include articles, Prepositions, pronouns, and determiners

Filtering Processing

Parenthesis removal, Number replacement

Punctuation removal like as comma, full stop, exclamation mark or extra

The Analysis NLP techniques include:

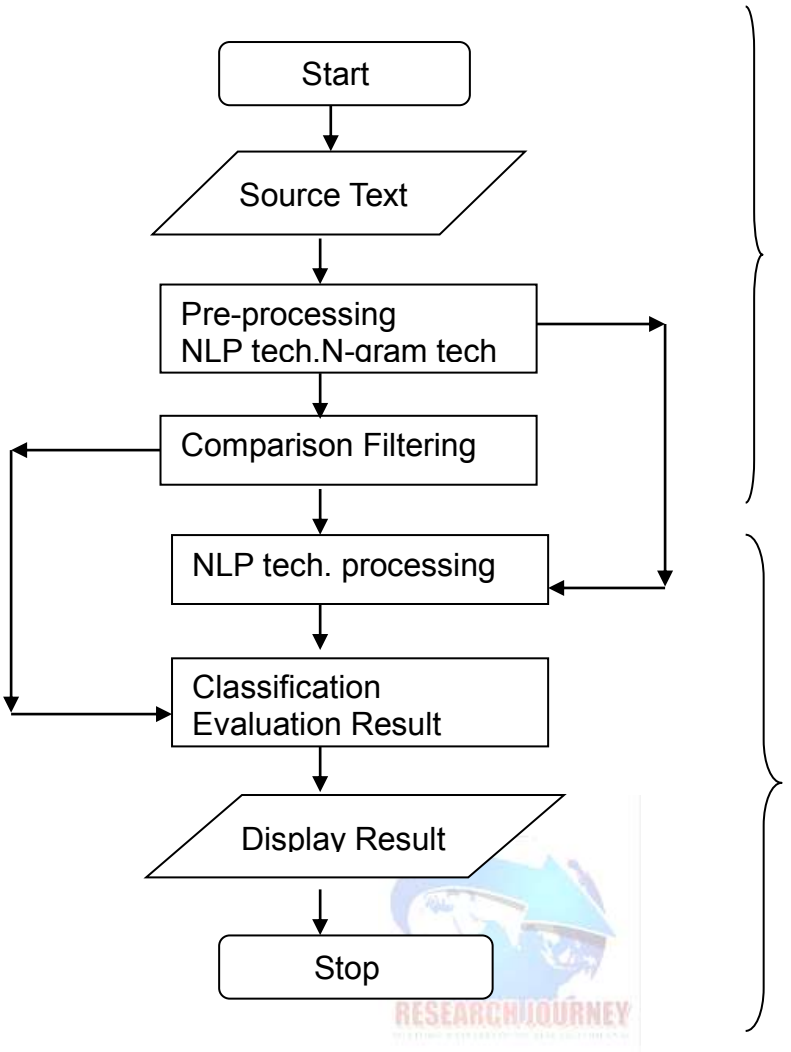
This process checks morphological text and clean. These techniques are Available from the NLTK toolkit or the Stanford CoreNLP toolkit.

Part-of-Speech tagging of grammatical words to differentiations.

Rooting - Checking stems and dictionary base replacement of synonyms.

Chunking.

Checking tenses contradiction.



The Synthesis NLP techniques include:

This phase describes the synthesis NLP techniques which help to analyze the syntactic and semantic of texts. These techniques are available from the tool VENSES which is a Recognizing Textual Entailment (RTE) tool.

- Lexical generalization
- Syntactic constituent extraction
- Dependency relation extraction

-simultaneously comparison occurs

Some shallow NLP or deep NLP techniques have prerequisite preprocessing

Techniques, for example, for lexical generalization, the processing techniques of tokenization, lowercasing, stop word removal and punctuation removal are require before lexical generalization can be perform. After applying these techniques, the output were further processed using

Web application

This application will provide self-analyzing text plagiarism for different languages, and interaction. Web applications will knowledge hub to gather all information regarding plagiarisms text any time anywhere for reference to improve the knowledge.

Conclusions:

Generally, this research will produce the useful finding for analyzing the Plagiarized text for web based Learning, and more specific:

i. This study will become another step in the path for the analyzing Plagiarized detection web portal by applying NLP.
ii. The outcomes from this study can be used by the administrator in order to way necessary enhancement, improvement and valuable actions to the institution's Research publications.
iii. The development and implementation of process for organization institution's learning portal may become the guide line for the Research development documentation avoidance of reuse of text .

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