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Prototype Application Hate Speech Detection Website Using String Matching and Searching Algorithm

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Abstract

Hate speech is now a problem for social media users such as Facebook, Twitter, Whatsapp and also Telegram. The current social media users are also a lot to post, share the content both consciously and unconsciously to various social media as well as even some hate speech postings are shared by irresponsible parties to gain profit from the chaos that he created, denigrating religion, vilify certain individuals even as an act of provocation. Prototype hate speech detection application created to detect hate speech on Facebook and it can give notification to users to be more aware of social media content and also careful in reading, share content that can trigger unpleasant actions.

Keywords: Hate Speech Detection, Prototype Application, Facebook Social Media

1. Introduction

Hate speech is now a common problem that is needs a special attention in the era of information technology [1]–[6] hate speech is growing more fasten with the presence of various social media such as Facebook, Twitter, Whatsapp, Telegram and Line[7]. Facebook is a social media that is most widely used for many parties to delivering the utter depravity today[8], [9]. One of the many hate speeches on facebook is a hate speech against a particular religion which is certainly very sensitive for its adherents. Resentment against one particular religion[10] can be exploited by irresponsible parties to divide unity of users who are not aware of information he/she read or even posted contains hate speech, to minimize hate speech information by user from social media like a facebook[9] it is an application by applying a string matching algorithm and searching algorithm that checks the content of a facebook website whether it contains hate speech or not. The prototype of application[11] runs on the desktop so that it is only limited to the website facebook which is running on Chrome, Mozilla and Opera browsers and it's limited only in browser and cannot check facebook on smartphone, string matching algorithm[11]–[13] and searching algorithm[14]–[20] can parse website content containing information before the website is fully read by the user then the application can detect and take action already in program first. There is no perfect application or filter to block posting of hate speech on facebook even with its own facebook technology[21] and facebook algorithms and also cannot solve a massive hate speech on facebook[22], [23], but at least it can minimize hate speech abuse from facebook.

2. Methods

Facebook already has good security by applying many cryptography algorithms[24]–[28] to handle user activity, but there is also an image processing algorithm[29] to check images whether it has adult content or any content that is not visible to users under 17 years old, and the last one applied is an algorithm for checking content that contains hate speech. Thus algorithms are applied to facebook to make users feel comfortable and satisfied[30] in their online activities, but some user posts on facebook like hate speech make users uncomfortable and hard to interact.
The process of examining the content of the facebook website is used with several steps as follows:

a.   Retrieve and read facebook content using HTTPWebRequest.

b.   Perform string parsing for reading information.

c.   Examining existing strings based on hate speech replay keywords that have been recorded first.

d.   If found content that contains disclaimer will be given a warning to the user.

The process of reading web content using httpwebrequest can be done using the script as follows:

Dim request As System.Net.HttpWebRequest = System.Net.HttpWebRequest.Create(URL)

   Dim response As System.Net.HttpWebResponse = request.GetResponse()

   Dim sr As System.IO.StreamReader = New System.IO.StreamReader(response.GetResponseStream())

   Dim sourcecode As String = sr.ReadToEnd()

   objText= sourcecode

Searching process and string comparison within prototype application obtained from web parsing using sequential searching algorithm with an example follows:

Table.1: String Table

S1	S2	S3	S4	S5	S6	S7	S8

S1 up to S8 is a variable representing the existing content inside the web to test whether it contains hate speech content or not, Suppose that the inputed character is (String) = S2 then the matching process is done by comparing the parsed string with the keyword, here is the process:

a.   The search starts from the first element data in the number sequence

Table.2: String Table First Element

S1	S2	S3	S4	S5	S6	S7	S8

Amount_Data = 8

String_to_Found= S2

Position = 1

Found= False

While (Position < = Amount_Data) And Not (False) → True

If (String_to_Found < > chr(Position)) Then

Position = 1 + 1 = 2

b.   Data not found and data sought (String_to_found) is greater than the first element data in the number sequence then the search process is continued to the second element data on the number sequence.

Table.3: String Table Second Element

S1	S2	S3	S4	S5	S6	S7	S8

While (Position < = Amount_Data) And Not (False) → True

If (String_to_Found - chr(Position)) Then

Found = True

c.   The data is found in the second position of the number sequence and successful matching.

String matching does not make any difference to the concept of search even interconnected due to the string matching process, the word input from the keyboard at the browser URL address must be compared to the word recognized by the system, in which process the search and match work.

3. Results and Discussion

Prototype hate speech application were made and test directly by accessing facebook and monitoring content at facebook in real time, here is the prototype of the application that has been created.
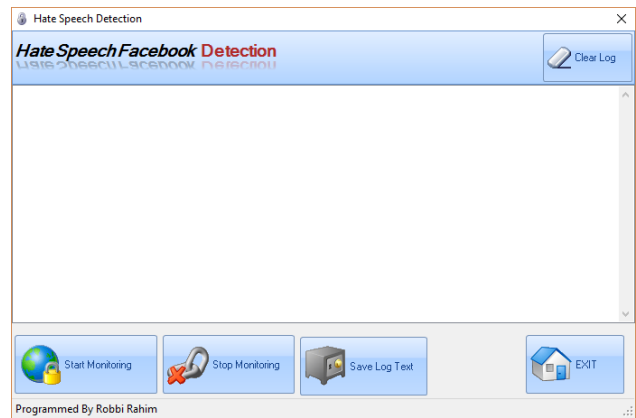

Fig.1: Prototype Application

Figure 1 is a prototype application that will perform the detection of hate speech from Facebook, to perform detection could be done by press monitoring button and the result as figure 2.
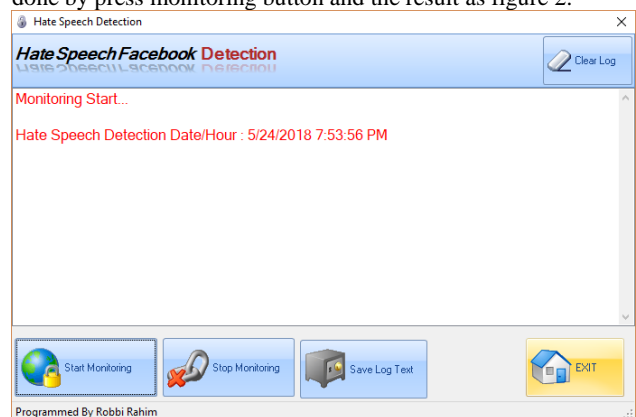
Fig.2: Start Monitoring

Figure 2 shows the prototype in the condition of doing the examination process on Facebook if there is hate speech, hate speech examination on Facebook done by reading web content from Facebook by way of parsing and comparing strings obtained from parsing with hate speech keywords that already exist in the system, figure 3 is the result of hate speech detection from Facebook.
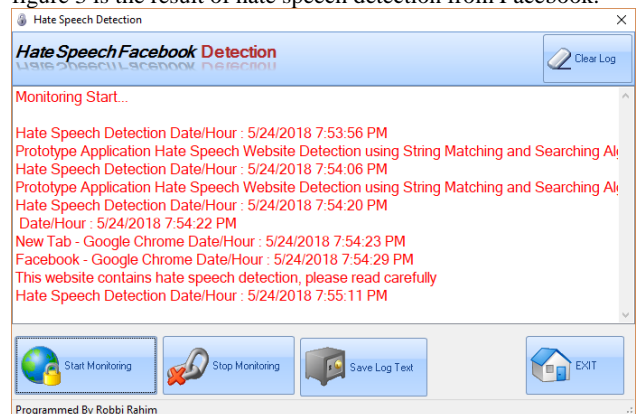
Fig.3: Hate Speech Detect

Figure 3 shows the results of hate speech detection available on Facebook and warning given to the user if found hate speech.

The test also does not escape from error, from some words hate speech in Indonesian which is detected is not hate speech but is considered hate speech.

4. Conclusion

Based on testing done prototype this application can recognize a few words in sentences that contain hate speech in Facebook by parsing content from Facebook by using HTTPWebRequest, the

content can be read well and filter only sentence and omitted tags on the web. The process of examination of words or sentences requires a relatively quick time if the content is not much and checks will be done repeatedly from the Facebook website, the more Facebook content were read and it will take more longer examination process are perform. The development that can be done is to apply a better checking algorithm and add features examination of Facebook content from the website such as the use of plugins on Mozilla or Chrome.

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