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Keylogger Application to Monitoring Users Activity with Exact String Matching Algorithm

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Abstract. The development of technology is very fast, especially in the field of Internet technology that at any time experiencing significant changes, The development also supported by the ability of human resources, Keylogger is a tool that most developed because this application is very rarely recognized a malicious program by antivirus, keylogger will record all activities related to keystrokes, the recording process is accomplished by using string matching method. The application of string matching method in the process of recording the keyboard is to help the admin in knowing what the user accessed on the computer.

1. Introduction

Security [1] [2] [3] is essential in an operating system, and there are many software vendors that provide antivirus software and other protection software so that the computer is free from threats or unwanted actions such as phishing, malware, keylogger and others.

Keylogger [4] is a tool that most progressed because this application is very rarely recognized as a malicious program by antivirus [5], the function of keylogger will record all activities related to the emphasis on the keyboard keys or activity on the operating system [4] [5]. Email addresses and passwords even up to a Facebook account with passwords can be stolen with keylogger apps without the realization of computer users.

String matching [6] [7] [8] is a method of character matching from input process like a keyboard, and matching process is done by checking every incoming character. The use of string matching algorithms on keylogger applications used to record user activity will be more comfortable and faster.



2. Methodology

Keylogger is a device either hardware or software used to monitor keyboard keystrokes [9] [10]. A keylogger will usually store the monitoring results of the keyboard keystrokes into a log/record/record file. Some specific keylogger can even send the recording to specific e-mail periodically [5] [11]. Keylogger can be used for the benefit of useful or even can be used for the benefit of evil. Right interests include monitoring employee productivity [12] for law enforcement and the search for evidence of the crime. Wrong interests include data theft and passwords [4] [12], see figure 1 below how keylogger work

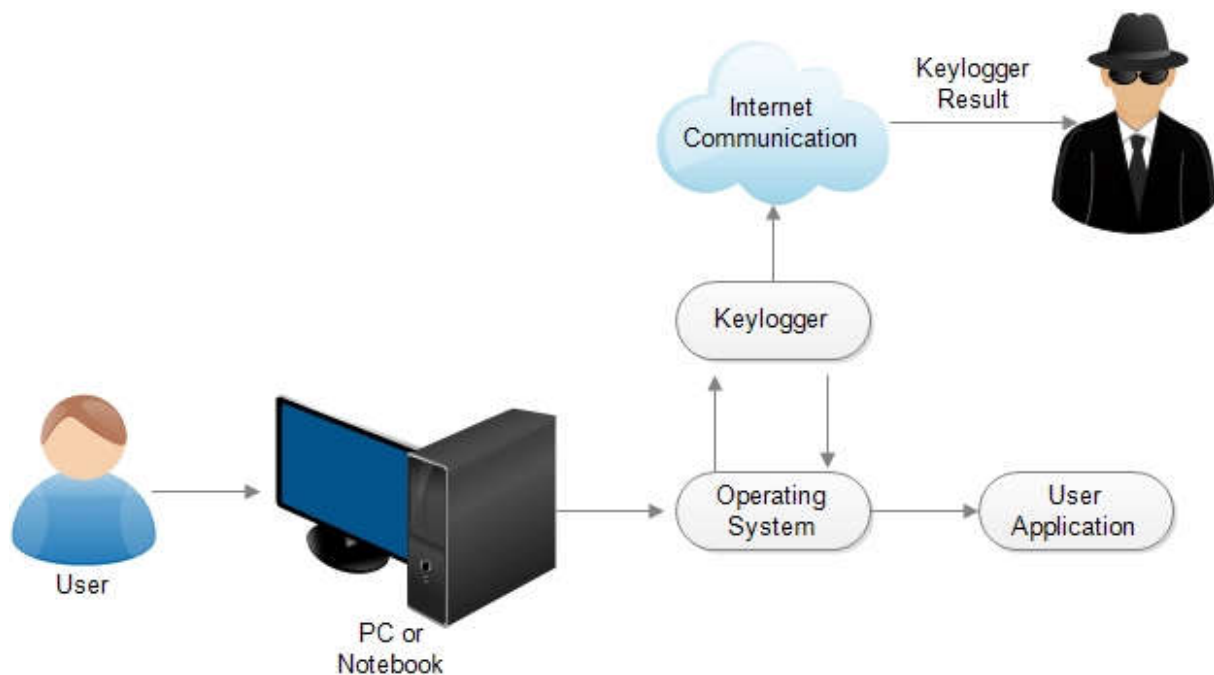


Figure 1. Keylogger Process in User Activity

The exact string matching algorithm is used to match keyboard input variables with input received from the keyboard, and exact string matching is a method that can be done to match input string variable with string comparison variable, for testing of exact string matching algorithm on keylogger application can be assumed in the following example:



Figure 2. Sample Word

The word will be identified as a word entered by the user, the word is "Password" as shown in Figure 2, the word is then changed to ASCII form, after changed the result is "80 97 115 115 119 111 114 100", the ASCII results characters will be compared to the ASCII code contained in the keylogger system, if found then the system will record the ASCII characters and convert them into letters.

The keylogger application in this article is designed using the Visual C # programming language and runs on the Windows 8.1 operating system, and the experiment is used in Microsoft Word applications and some of the activities on the browser.

3. Result and Discussion

Keylogger experiment by applying exact string matching algorithm accomplished by using application designed using Visual C # with an interface as follows:

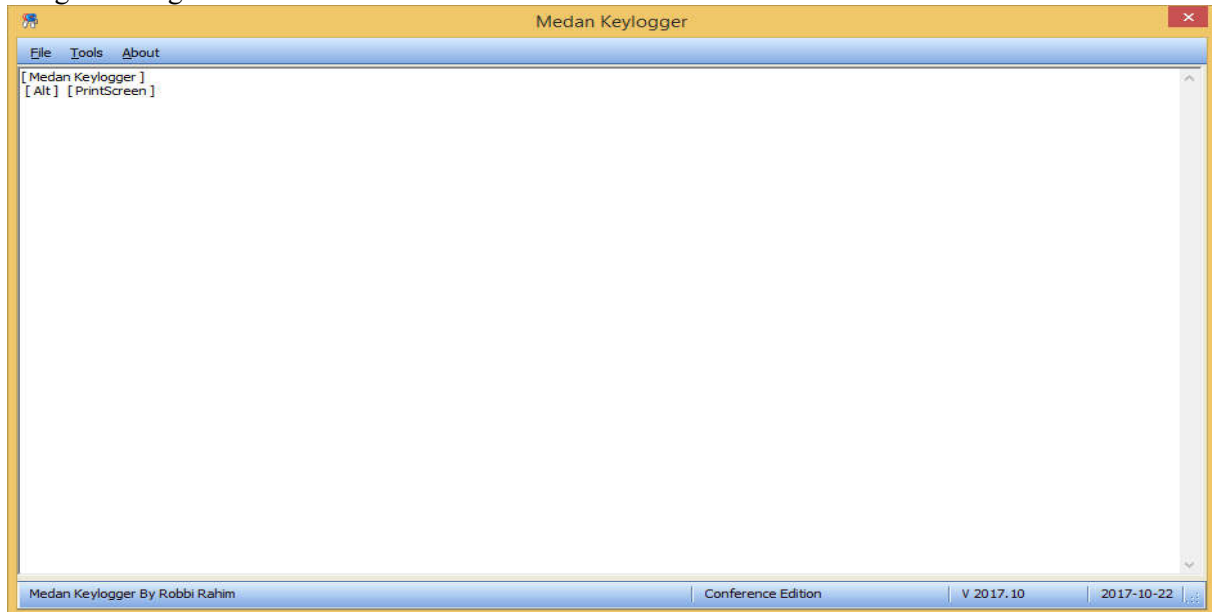


Figure 3. Main Keylogger Interface

Figure 3 shows the results of application interfaces designed to record activity on the user's computer, at the time this article is created the recording process is also being done to prove the application is running well and the application of exact string matching algorithm can be made well, to facilitate the examination of keylogger results all the recording will be stored in an encrypted file and cannot be accessed unless the party that embed the keylogger application, see Figure 4 below

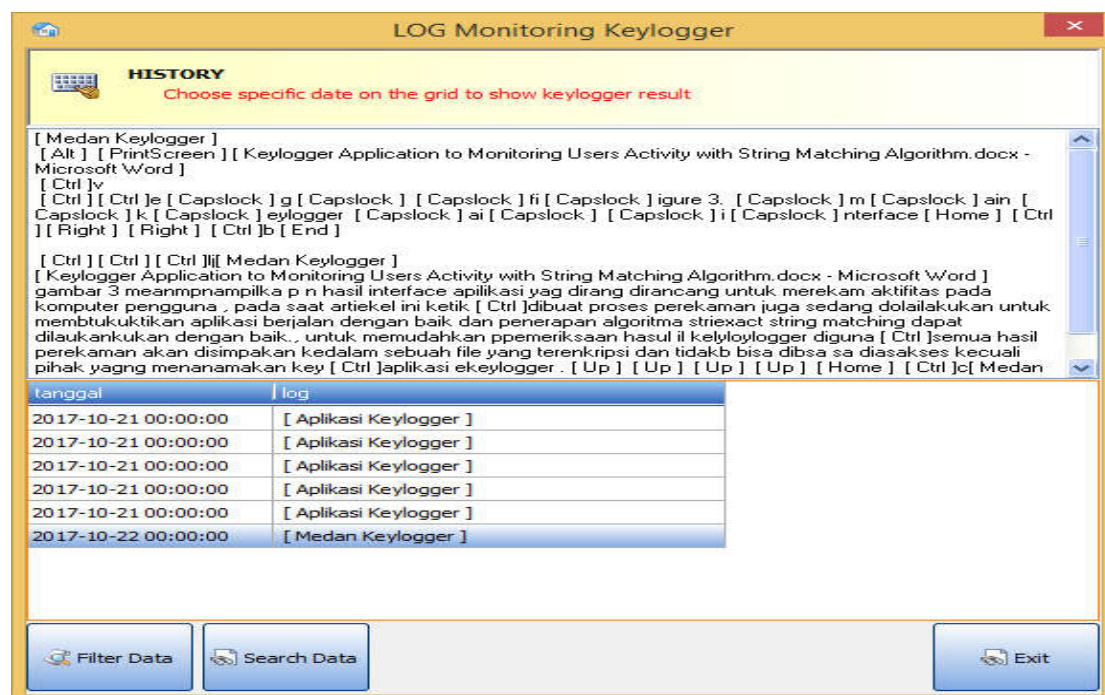


Figure 4. Keylogger Result

Recording of user activity when using software that exists in windows or online activity using a browser can be recording a well, and even function on a keyboard like a shortcut can also be recorded, and all of the keylogger results can be accessed directly by keylogger owner.

4. Conclusion

Keylogger applications designed by implementing the Exact String Matching algorithm can record all user activities related to the keyboard, and the results are stored automatically in a dedicated database that can only be accessed by the keylogger owner, the next development of the keylogger application can record the activity on the virtual keyboard or remote activity on the user's computer.

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