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An Innovative Technique For Authenticating The User An Experimental Result

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Abstract – – Authentication is required when a user tries to enter a database. It can be either for providing access control or for knowing whether the user is a valid one. This paper discusses the technique for generating a unique username and password.Technique is proved experimentally.

Keywords- username; password; unique; technique; access control

I. Introduction

Acess to a database should not be allowed to any one without a proper authentication . Sometimes the authentication is as important as encrypting a sensitive data in a database. Because the data that is stored , whether it is in normal form or in the encrypted form is always dear to the owner. We should also remember the fact that the authentication of a user not only help us to identify the user but also to give access right to him. The access right[1] can be defined as 'The permissions that are granted to a user, or to an application, to read, write and erase files in the computer. Access rights can be tied to a particular client or server, to folders within that machine or to specific programs and data files'. Therefore one can now understand the importance of authentication as far as any system is concerned.This paper is organized in such a way that it discusses about the need for authentication in a brief manner in introduction part and then it smoothly goes to the actual work done through the proposed algorithm .

II The Proposed Method

We propose a method in which a unique user name is generated always. The importance of this method is that we can be sure that the username generated is unique always and there is no need for checking whether the username to be allocated is already an existing one or not. The method proposed is a simple technique and it requires no rechecking from the side of software and hence frees our system from the hectic task of searching in the table or array or databse to find whether the username generated is unique or not. This feature makes the algorithm not only faster but also efficient in the sense that it always generates a unique value. Now we can have a look at how the algorithm works. The following section will have the algorithm followed by the result obtained by implementing the same. The details of implementation is also given .

A. The Algorithm For Generating The Unique User Name

The following are the steps used for generating the username.

1. Read the system time along with the date
2. Take the numeric value of the time generated
3. Encode the value with the Numero Table proposed below in section C

B. The Generation Of system Time

The first step of the algorithm claims to read the system time with the date .The format that we have used here is to retrieve the system time when the user first logs in for registration. The time is saved for the generation of username. Once we have retrieved the time we should take the numeric value of the time generated.

Of course by this time most of the readers might have a feeling that the value generated now is unique in nature. It was rather surprising to us that the time alone was not unique ,but the time along with date was unique. It was at most important to generate the time in this fashion because when we began doing the calculation we initially took the system time alone in this step .The surprising fact that we found during the progress of the algorithm was that there were duplicates of the time generated which we initially assumed for always giving us the unique values. We found that it was not completely avoidable situation that another person might log in to the system for the first time on any of the following days at the same time as already registered person.This made us think for another alternative to generate the value using the combination of system time and date. To generate the value we made use of the code given below and the inbuilt functions in .NET framework. We had worked in VB.Net to generate the system time using the function:

T1=System.DateTime.Now.Day.ToString()

Which implies that

T_i=$SD_i||ST_i$ i = instance of time t_i (1)

Where SD denotes the system date and ST denotes system time. The equation (1) will always return time which is a combination of date and time. From this value we retain the numeric value with the same format as that was generated.

C. Generation Of Numero Table- Table Of Confusion

The two dimensional Table Of Confusion (TOC) is introduced to avoid any unauthorised calculation to obtain the combination of numbers used to generate the user name/password. The row value of this table is kept to linearly increasing fromthe previous row value. The initial values of the row are decided at the time of encryption.

If α=TOC(1) then we can generalize the table and can define TOC(i) = α +s, where s ε S where S={x: 0< x<9, xε I}.

Here the position of each number is chosen randomly. Hence unpredictability is introduced inside the table.

D. Generation of username

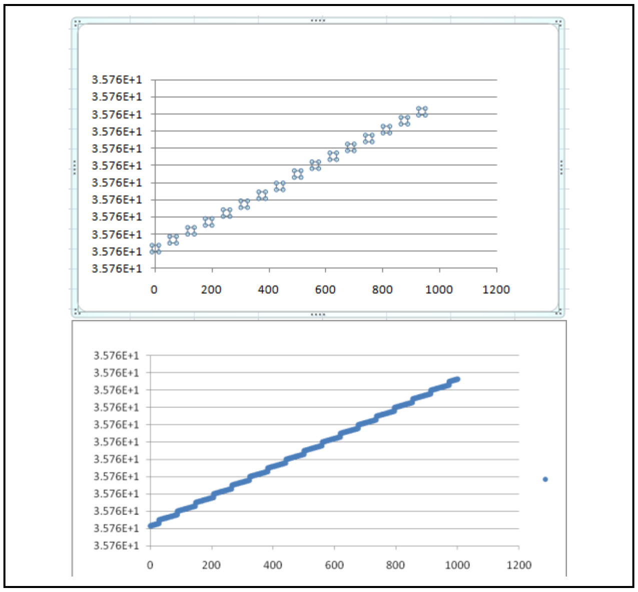
1. Read Ti mentioned in section B.
2. Select random position in Ti and introduce characters at those position
3. Result obtained is the username.

E. Generation of Password

1. Read Ti mentioned in section B.
2. Add 1 to this value to generate the keyword.
3. Using Ti as the column value and keyword as the row value generate the password.

F. Results

The experimental setup with above given procedures were setup using .NET and SQL Database and it was found that the username and password were generated without collission. Thosand values were generated and it showed the similar pattern. *The figure (1) shows the pattern in which the password was generated .The x –axis shows the time and y axis shows the value generated . It is seen that the username generated had no collision with the earlier generated username. The figure (2) shows the pattern in which the username was generated. The x –axis shows the time and y axis shows the value generated . Both of them shows no collisions.*



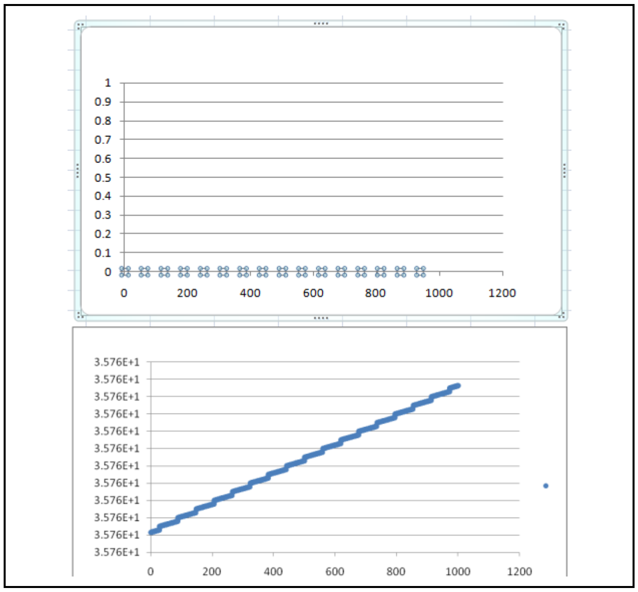


Figure 1. Pattern generated by Password generator , Figure 2. Pattern generated by Username enerator

The x –axis shows the time and y axis shows the value generated

III. Verification Of Results

The values obtained where passed into an array and a linear search was done on the array on the elements already selected . The element to be searched was the one which was generated at each pass. In computer science, **linear search** or **sequential search** is a method for finding a particular value in a list, that consists of checking every one of its elements, one at a time and in sequence, until the desired one is found.[9] The result showed no match found during each search process. The part of the username generated extracted from the array is shown in Figure 3.

Username
357e55806e323030
3575580632w30P31
35d755806323d032
35755806q3q23033
357O5E5806323034
35U7558063230c35
357558063ip23036
3575580632v30v37
357558JJ06323038
357W558063230H39
35755806323uu040
357558j0j6323041
3575W58063230W42

Figure 3 showing list Of Username Generated

IV. Conclusion

The experiment shows that the username and password were generated without collissionusing the above mentioned technique. We consider this as a major finding in our area of research because this technique doesnot require checking of the previous generated value ,for it will always be unique.

References

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