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Data Protection Using Random Number In Association With ASCII Values

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Abstract - *Data protection has become a major issue. There are several ways to protect data. One way of protecting data is by using their ASCII values. Proposed method is by generating a random number and combining the random number with the ASCII values of the plain text. Using a random number can create a complex situation to crack the information easily. The proposed algorithm generates a different number when combined with the ASCII values gives a new encrypted message which makes decryption a bit difficult.*

Key Words: **Data, security, random, encrypt, ASCII.**

1. INTRODUCTION

Communication is very important. At the same time protecting data is also equally important. In older days data was protected by using some code words. The code words are generated by using a key. This key plays an important role in generating the code words. These words are understood only to the one who knows the key. In order to keep the information more secure, the key has to be more complex. If the key is much complex, then it is very hard to convert into the code words. The process of converting plain readable text to non-understandable format is known as encryption. The process of converting non-understandable format to readable format is called decryption.

In order to encrypt some plain text, a key has to be used. This key must be kept confidential. The key must be in such a way that it cannot be guessed easily. Humans can guess for a key and crack the code. But this is a very time consuming process. In present days with increased usage of computers, guessing of such kind of keys is made easy through several programs. Complex keys can also be generated but which uses more computer resources. The main challenge is to protect data with less usage of computer resources.

2. RELATED WORK

Lot of work has been done and is also being done to protect data. Some uses sixteen bit encryption algorithms and some uses two stage authentication process. There are also some algorithms which encrypts text with the help of random numbers. Each of the technique has their own advantages and disadvantages. Some algorithms consume more time and some algorithms need more space. Plain text encryption was also done by the usage of ASCII (American Standard Code for Information Interchange) values and with the help of a random number. Using only ASCII values for encryption can be easily decoded. Combining a random number with ASCII values increases the efficiency of the algorithm and encryption can be done more effectively. Some of the algorithms convert the characters into binary form and also uses shift operations along with the combined usage of random number. Most of the algorithms encrypts very efficiently but utilizes the computer resources. Some algorithms also take the help of extra hardware to implement encryption techniques. Some algorithms use more random numbers for encryption. Performing XOR operations, performing divisions or multiplications also require most computer resources. Some algorithms also make use of matrix formats which involves two dimensional arrays, which increases the complexity of the algorithm. The final objective of all such kind of proposals is to protect the data from being lost and maintain confidentiality.

3. PROPOSED TECHNIQUE

The proposed algorithm is simple but expected to give a good result with less usage of computer resources. The proposed algorithm uses a single random number which is added to the ASCII values of the plain text to give the cipher text. In order to decode the cipher text is taken as input and the value of the random number is subtracted to get the original text. The proposed algorithm is simple but can be efficient because of the generation of the random number which is done by the algorithm.

3.1. ALGORITHM FOR ENCRYPTION

1. Accept plain text.
2. Generate a random number below hundred.
3. Copy the character's ASCII values added with random number value.
4. Output the encrypted text.

3.2. ALGORITHM FOR DECRYPTION

1. Accept encrypted text.
2. Subtract random number value from each character's ASCII value.
3. Output the decrypted text.

4. OBSERVATIONS

The proposed algorithm gives better results for a random number which is more than twenty five because all the characters ASCII values which is added with a value more than twenty five results in special characters which cannot be easily guessed. It is unpredictable to guess whether the generated random number will be more or less than twenty five.

5. RESULTS

Table -1: Observed Results

PLAIN TEXT	ENCRYPTED TEXT
This is a secret	¯ÃÄÎ{ÄÎ{¼{ÎÀ¾ÍÀÏ
This is a secret	\pq{(q{(i({mkzm|
This is a secret	š®⁻¹f⁻¹f§f¹«©¸«º
hai how are you	‰'H • —ŸH‰š • H¡— •
good morning	š¢¢—S ¢¥¡œ¡š
have a nice day	Å¾ÓÂ}¾}ËÆÀÂ}Á¾Ö
where are you going today	š‹^•^C„•^Cœ'˜CŠ'Œ'ŠC—'‡„œ
thanks	Áµ®»¸À

6. CONCLUSION

Data protection is important and to protect data there are a lot of ways. Encryption helps in converting the plain readable text into non understandable format. In order to encrypt a key is also needed. This proposed algorithm generates a key randomly and adds the value to the ASCII values of the characters. A small drawback in the proposed algorithm is that if the random number is zero, then the encrypted text is same as the given plain text. The proposed technique is simple but yields good results and consumes less computer resources. The algorithm can be further modified to obtain better results.

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