Conceal The Data with Ultra Advanced Smart Key Using Cryptography Algorithm

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Abstract: *Data is a game changer for any business all over the world. A portion of data leak benefits the companies, and they earn a huge amount out of it. It is our own responsibility to protect the data rather than to be a victim. In this paper, I present an advanced distinctive method of protecting the data using a smart key. The idea is any unauthorized third party cannot access the data. Only the party who has smart key can unlock to view the data. The algorithm is designed in such a complex method, which makes it difficult for any hackers to hack the data. Algorithm is developed with multiple techniques where the smart key has been integrated with it. Consolidation of multiple techniques makes it unique and complex to encipher the data. This has been tested on Images and Text Files. The research reveals the effective way of hiding the data and complex to decode the file when smart key is not known. Thus giving relief to a true data owners.*

Keywords: Smart Key, Cryptography, Images, Text Files

I. INTRODUCTION

Cryptography is a way to hide the data to make the original information unreadable and reveal when a right key is given. To encipher the data, a key is used that is known to the authorized personnel. A peculiar design has been made to have a smart key. Smart key is intelligent enough to encipher and decipher the data. Every day or the other, we share our details for a different purpose like text file, audios, images, videos through various internet medias for variety of purposes. There is a high possibility for a data leak and the victim suffers. My aim is to protect the data prior to sharing them to prevent the attacks that happens in internet world.

This research paper talk over the distinctive algorithm that is designed with multiple techniques such as Bee algorithm methodology, Smart Key and Indexed Arrays. This combination makes the algorithm complex to hack the data.

II. ANALYSIS AND RESEARCH

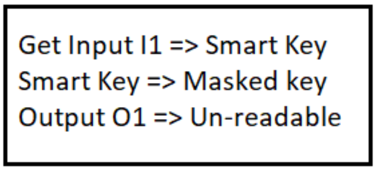
I would like to share my research paper experience here in this article. In general, there are many algorithms available to encode and decode the data. This method presents a unique experience due to its distinctive method of techniques followed for achieving thehighly secured data.

A user should provide and remember the smart key. Smart key can be a letter, digits or Alpha-numeric. This key plays an important role from customer perspective. This is used to encrypt and decrypt the data. When the encryption phase of algorithm is in execution stage, first step is to provide a smart key. This smart key will be masked for the security purpose andto protect the key. If user wants to view the data, unmask of the key should take place first to be successful.

As and whenText files or Image files isprovided as the input, the file will be converted to series of bytesand the values will be stored in the file itself. Stored values are non-readable and non-understandable. As the next action, masked smart key would be merged with the converted array of bytes. As mentioned previously the input smart key can be an Alphabets, Numeric or combination of Alphabets and Numeric. The entered input would be converted to the numeric values by a formula.

The converted numeric values would be merged with the series of bytes of the file. This produces new set of output that contains a different series of array of bytes. These values would be stored in the same file. At this stage the file is encrypted completely, and it cannot be opened.

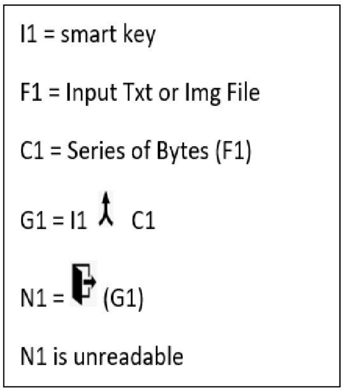
DOI: 10.48175/IJARSCT-7520



Get Input I1 => Smart Key
Smart Key => Masked key
Output O1 => Un-readable

Figure 2.1 Smart Key

This encrypted file shall be shared and sent through the internet. If the third party tries to hack the file and opens, it would be in a non-readable format. It is difficult to read the file or crack it, until the smart key is known. Smart key should be kept secret always as a mandatory and to be revealed only to the necessary authorized users.



I1 = smart key

F1 = Input Txt or Img File

C1 = Series of Bytes (F1)

G1 = I1 ⅄ C1

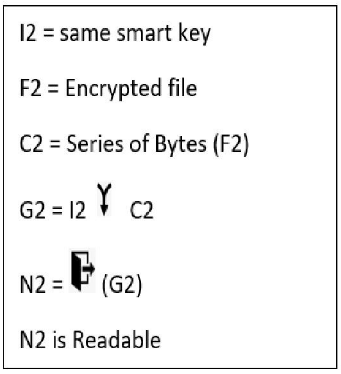
N1 = 🚪 (G1)

N1 is unreadable

Figure 2.2 Encryption with Smart Key

To make the file readable, we need to decrypt. User must provide the same smart key to decrypt the file. Wrong smart key won't decrypt the file. Provide the encrypted file as input and upload, then file will be converted to series of bytes and the values will be stored in the file itself. As the next action, smart key would be masked and provide the numeric values.

The converted numeric values of smart key would be merged with the series of bytes of the file. This produces original set of output that contains a series of array of bytes. These values would be stored in the same file. At this stage the file is decrypted completely, and it can be opened.



I2 = same smart key

F2 = Encrypted file

C2 = Series of Bytes (F2)

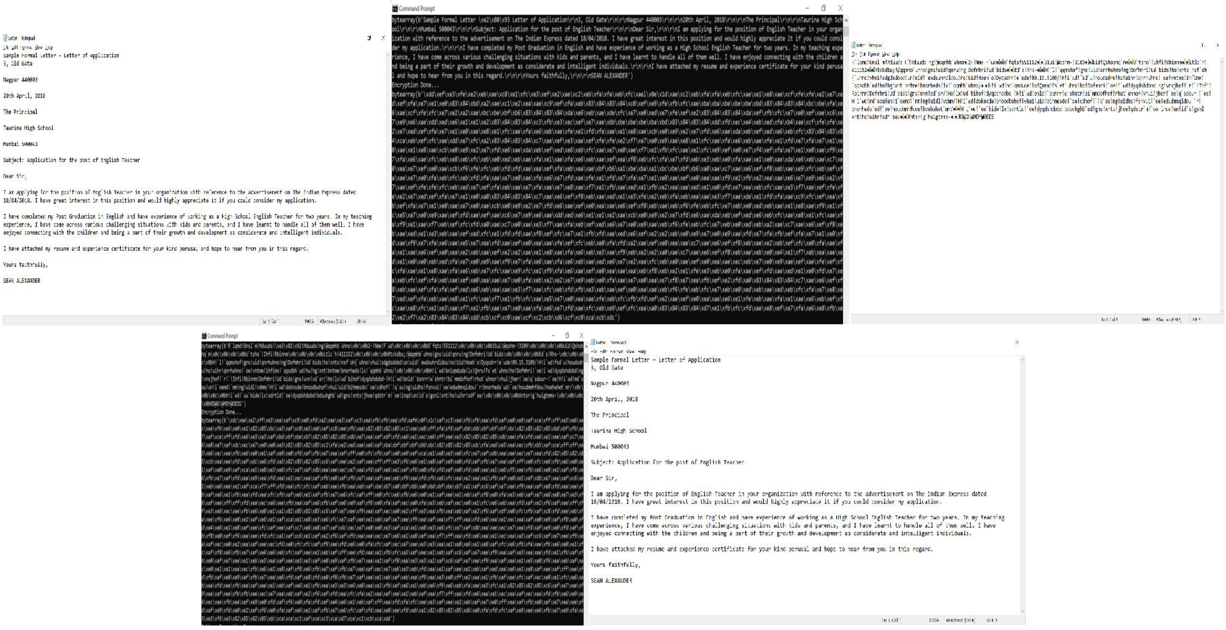
G2 = I2 Y C2

N2 = 🚪 (G2)

N2 is Readable

Figure 2.3 Decryption with Smart Key

III. SAMPLE RESULTS OF TEXT AND IMAGE FILES



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Sample Formal Letter – Letter of Application
3, Old Gate

Nagpur 440003

20th April, 2018

The Principal

Taurina High School

Mumbai 500043

Subject: Application for the post of English Teacher

Dear Sir,

I am applying for the position of English Teacher in your organization with reference to the advertisement on The Indian Express dated
18/04/2018. I have great interest in this position and would highly appreciate it if you could consider my application.

I have completed my Post Graduation in English and have experience of working as a High School English Teacher for two years. In my teaching
experience, I have come across various challenging situations with kids and parents, and I have learnt to handle all of them well. I have
enjoyed connecting with the children and being a part of their growth and development as considerate and intelligent individuals.

I have attached my resume and experience certificate for your kind perusal and hope to hear from you in this regard.

Yours faithfully,

SEAN ALEXANDER
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bytearray(b'Sample Formal Letter \xe2\x80\x93 Letter of Application\r\n3, Old Gate\r\n\r\nNagpur 440003\r\n\r\n20th April, 2018\r\n\r\nThe Principal\r\n\r\nTaurina High School\r\n\r\nMumbai 500043\r\n\r\nSubject: Application for the post of English Teacher\r\n\r\nDear Sir,\r\n\r\nI am applying for the position of English Teacher in your organization with reference to the advertisement on The Indian Express dated 18/04/2018. I have great interest in this position and would highly appreciate it if you could consider my application.\r\n\r\nI have completed my Post Graduation in English and have experience of working as a High School English Teacher for two years. In my teaching experience, I have come across various challenging situations with kids and parents, and I have learnt to handle all of them well. I have enjoyed connecting with the children and being a part of their growth and development as considerate and intelligent individuals.\r\n\r\nI have attached my resume and experience certificate for your kind perusal and hope to hear from you in this regard.\r\n\r\nYours faithfully,\r\n\r\nSEAN ALEXANDER')
Encryption Done...
bytearray(b'\xdd\xef\xe3\xfe\xe2\xeb\xae\xc8\xe1\xfc\xe3\xef\xe2\xae\xc2\xeb\xfa\xfa\xeb\xfc\xae ...
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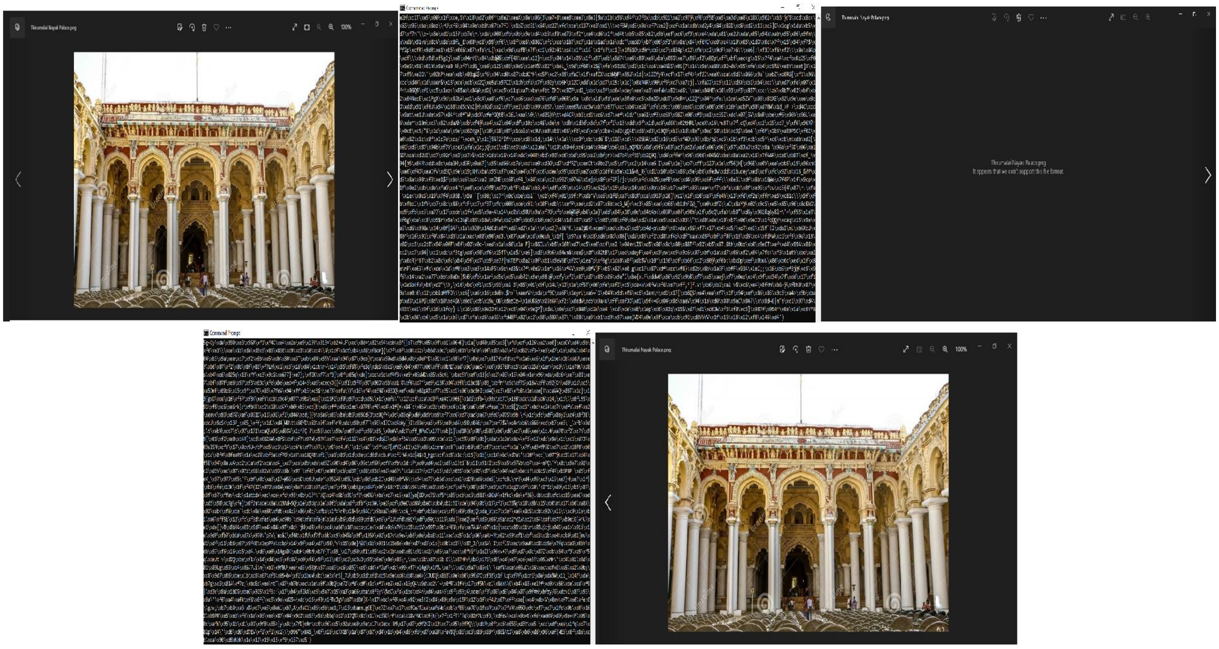
Figure 3.1: Encryption and Decryption Flow for the text file



Thirumalai Nayak Palace.png
It appears that we don't support this file format

Figure 3.2: Encryption and Decryption Flow for the .png Image file

IV. CONCLUSION

This research paper produces the distinctive algorithm method on how to safeguard the data at our own device and not relying on other vendors. Smart key plays a vital role to secure the file. Due to the key format nature, it makes difficult for the third party to hack the file. This makes the algorithm complex and difficult to crack due to its huge number in probability. Algorithm makes the work very simple to the user, as user need to provide and remember their own key, taking care of the rest of the work by algorithm. It helps the common man to share their files with their necessary parties without any reluctance and tension free.

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AUTHORS

Janaki Raman Palaniappan is a working as a Software Engineer. He obtained his B. Tech in Information Technology in 2009 from TCE, Madurai. He is currently a Researcher, Database Administrator and a Cloud Engineer. He has published in reputable Journals and Learned Conferences. His area of research is mainly on Cryptography, Information Security, Image Processing, Databases and Cloud.

DOI: 10.48175/IJARSCT-7520