Methodology Employed for Code Breaking

KEY LENGTH

Steps

1) Find the frequency of trigrams and the corresponding distances between them.
2) Trigrams with frequency greater than 2 is selected.
3) Factorise the distances of all trigrams and find the frequency of each factor.
4) Factors with frequency greater than 5 is selected.
5) The list of factors is sorted in descending order and displayed.

KEY

Steps

1) Divide the cipher text in to separate lines based on key length and characters of each column is combined to separate strings.
2) A dictionary file is used to find the standard frequencies of occurring of english alphabets.
3) The strings in step 1 is taken one by one and following steps are performed
    3.1) Shift all the characters in the string by each character in english alphabet and find corresponding chi-square value.
    3.2) The letter which produced the minimum chi-square value is selected and is assigned in the corresponding place in key.
4) Key produced during step 3 is displayed.

DECRYPTION

Steps

1) After finding the key each letter in the cipher text is shifted by corresponding keyword character to identify the plain text character.

Steps for Running the Code

- The input cipher text must be stored in a file named "**my_cipher.txt**"
- The output key will be stored to the file "**key.txt**"
- The output plain text will be stored to the file "**my_plaintext.txt**"

1) cipher_break.py

- Run : python cipher_break.py
- Output : Key and the plaintext will be saved to the above mentioned files.

2) key_modifier.py

- Run : python key_modifier.py
- Input : The key which is found out using cipherer_break.py
- Output : Modified key by shifting each character 25 times.

3) decrypt.py

- Run : python decrypt.py
- Output : Takes the modified key and decrypt the cipher text in my_cipher file.

4) encrypt.py

- Run : python encrypt.py
- Output : Produces the cipherer text back from plain text.