Methodology For Code Breaking

Finding the Key Length:

- Remove the special characters from the given cipher text and also convert uppercase letters to lowercase.
- Rotate the cipher text every time by 1 character and compare the characters with original cipher text and get the count of matched characters.
- The Shift in which we get the maximum count is our key length or to be more precise we can take top 3 or 5 maximum count and take its gcd which will give our key length.

Finding the Key:

- After getting the key length , we will make buckets which will be equal to length of the key.
- In each bucket we will put the corresponding characters for example in bucket we will put 0^{th} ,key length,2*key length .... characters(and similarly for others bucket as well. the distance will be of key length size between the characters.
- Perform Frequency Analysis in each bucket and get the count of each character.
- Multiply each character with its character in dictionary(The Dictionary contains the frequency of each

alphabets in English language) and get the value and store it.

- Rotate the corresponding bin and multiply again with the dictionary and perform similar operation 26 times and get the maximum value. The shift in which we get the maximum value is the key for that bin.
- Do the same process for every Bins. But for every bin we might not get the correct key.
- To get the correct key Decrypt the characters equal to the key length using the calculated key and get the plain text.
- Try To Intelligent Guess the words in the plaintext and then subtract the corresponding index of the cipher text with the plaintext and get the full key.

Steps to Decrypt the Text:

Subtract the Corresponding key index from the corresponding cipher text index and get the plaintext. The Key is shifted by 1 character after every some interval.

Steps for Running the Code

I have used java language to code the whole progam.The IDE used is NETBEANS.

There are two files named Decryption.java and Encryption.java

Open Net beans and the two java files in the project and Run the files.

Decryption.java will decrypt the cipher text and show the original key length and the Plaintext.

Encryption.java will encrypt the plaintext and produce the cipher text.