

# **CSC 483**

## **Final Project**

**Cipher Analysis Tool by :  
Nabin Lama and Gavin Singh**

[Cipher Analysis Tool](#)

**Website URL :** <https://master--lama-singh-cipher.netlify.app/>

**GitHub Repository Link :** <https://github.com/sgavin0813/decipherTool-Singh-Lama>

## Vigenere Encryptor(Home Page) :

Enter keyword, Plain Text and

- 1) Press “Encrypt” button to get Plain Text
- 2) “Index Of Coincidence” button to get Index Of Coincidence
- 3) Plain Text and Cipher Text frequencies can be obtained by pressing corresponding buttons.

### Vigenère Cipher Encryptor

Keyword:

codes

Plain Text:

THEGO VERNM ENTCO MMUNI CATIO NSHEA DQUAR TERSG CHOPR OVIDE SINTE LLIGE NCEPR OTECT SINFO RMATI ONAND INFOR MSREL EVANT  
UNITE DKING DOMPO LICYT OKEEP SOCIE TYSAF EANDS UCCES SFULT NTHEI NTERN ETAGE

EncryptIndex of Coincidence

Index of Coincidence:

0.0640059127864006

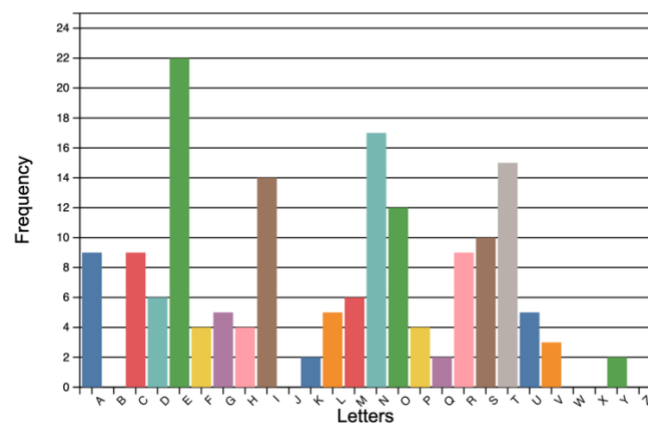
Encrypted Text:

VVHKG XSURE GBWGG OAXRA EOWMG PGKIS FEXEJ VSUNY EVTTJ QJLHW UWQXW NZLKW PQHTJ QHHGL UWQJG TADXA QBDRV KBISJ OGUID GJDRL WBLXW FYLRY FCPTG  
NWFCL QYHIH UCFMW VMVEX GQOHK WQFIK UTXPA PHKIA PHHVF GHDKW

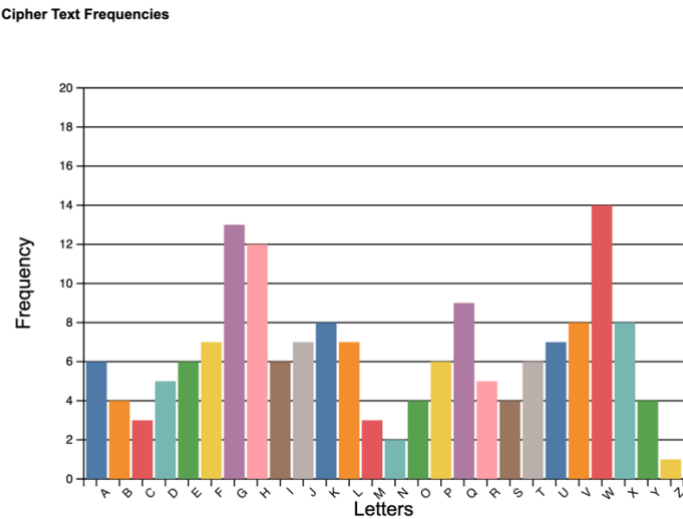
Plain Text FrequenciesCipher Text Frequencies

## Plain Text Frequencies :

Plain Text Frequencies



Cipher Text Frequencies :



## Vigenere Decryptor :

Enter keyword, Cipher Text and

- 1) Press “Decrypt” button to get Plain Text
- 2) “Index Of Coincidence” button to get Index Of Coincidence
- 3) Plain Text and Cipher Text frequencies can be obtained by pressing corresponding buttons.

### Vigenère Cipher Decryptor

Keyword:

codes

Cipher Text:

VVHKG XSURE GBWGG OAXRA EOWMG PGKIS FEJEJ VSUWY EVTTJ QJLHW  
UWQXW NZLKW PQHTJ QHHGL UWQJG TADXA QBDRV KBISJ OGUID GJDRJ  
WBLXW FYLRY FCPTG NWFCL QYHIH UCFMW VMVEX GQQHK WQFIK UTXPA  
PHKIA PHHVF GHDKW

Decrypt

Index of Coincidence

index of coincidence:

0.0417590539541759

Decrypted Text:

THEGO VERNM ENTCO MMUNI CATIO NSHEA DQUAR TERSG CHQPR OVIDE SINTE LLIGE NCEPR OTECT SINFO RMATI ONAND INFOR MSREL EVANT UNITE DKING DOMPO  
LICYT OKEEP SOCIE TYSAF EANDS UCCEB SFULI NTHEI NTERN ETAGE

Plain Text Frequencies

Cipher Text Frequencies

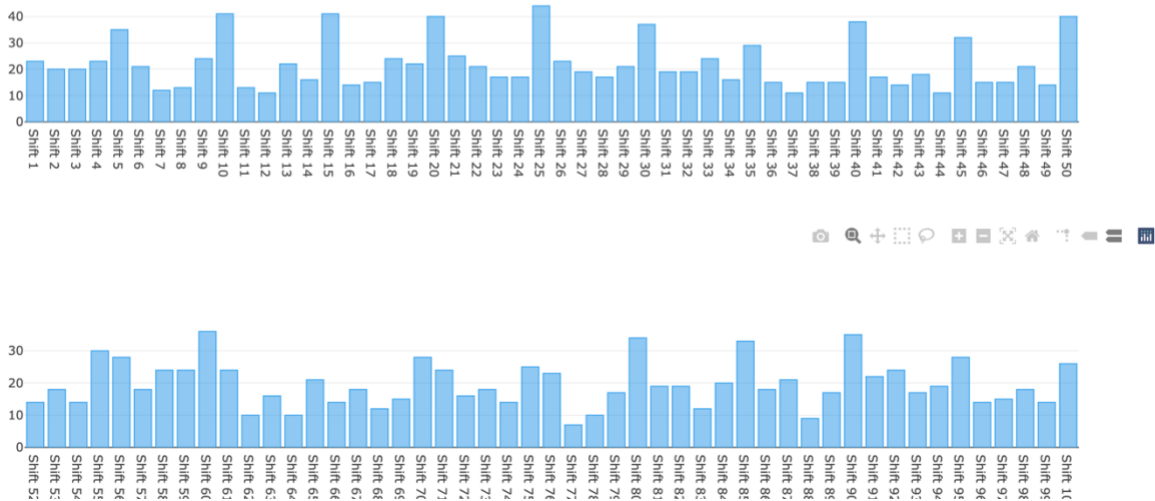
## Vigenère Shifter

- 1) Enter Cipher Text
- 2) Press Shift Button
- 3) Graph with the First 100 Shifts Will Be Displayed

### 3) Graph with the First 100 Shifts Will Be Displayed

UUSWA LFJEK SEWFT YSSNM ZSCMM BPGBB HUVEZ TSAAG USAEW MFFVB  
WFGIM QPILW BBJEU YFBEF VBFRT MTWNZ UORIG WPBVX HJSNM ZPFAG  
UHSNM NPLGB JBQRH MTTRH HUWEK MPFAK LJJEN HBBNH OQOEK VZDAK  
UDVUM YUCBX YQQUF VFFEW VZONX HJUMT LFGEF VMWNZ UXSIZ BUMAG  
XBBTB KVOTX XUMPX QSWTX L

Run Shifter



## Vigenère Depth Analysis :

1. Enter cipher text
2. Enter assumed keyword length
3. Table will appear showing elements enciphered by same alphabet in a Column.

### Vigenère Depth Analysis

**Instructions**

1. Enter cipher text
2. Enter assumed keyword length
3. Table will appear showing elements enciphered by same alphabet

UUSWA LFJEK SEWFT YSSNM ZSCMP BPGEB HVEZ TSAAG USAEW MFFVB  
WFGIM QPILW BBJEU YBFEF VBFRT MTWNZ UORIG WPBVX HJSNM ZPFAG  
UHSNM NPGLB JBQRH MTTRH HUWEK MPFAK LJJEN HBBNH OQGEW VZDAK  
UDVUM YUCBX YOQUF VFFEW VZONX HJUMT LFGEF VMWNZ UXSIZ BUMAG  
XBBDT KVOTX XUMPX QSWTX L

5

Depth Analysis

Column 1	Column 2	Column 3	Column 4	Column 5
N	I	F	O	N
A	I	C	U	M
N	I	S	W	T
L	U	V	E	T
V	X	S	H	K
N	I	S	S	X
W	S	S	T	B
H	U	S	L	E
C	H	S	N	V
Y	T	S	R	O
C	D	S	O	Y
N	I	S	G	X
L	N	O	N	A
C	H	V	C	H
G	N	O	N	W

## Autokey Cipher encryptor :

Enter keyword, Plain Text and

- 1) Select “Extended by Plain Text ” or “Extended by Cipher Text ”
- 2) Press “Encrypt” button to get Plain Text

### Autokey Encryptor

Plain Text:

themostfamousrotormachinewasenigma

Keyword

norse

Select an option:

Extend by Plain Text

Encrypt

Cipher Text

GVVESLAJMAGNXRAHIJDOVVZZEYHARREGEE

Changing from “Extended by Plain Text ” to “Extended by Cipher Text ”

### Autokey Encryptor

Plain Text:

themostfamousrotormachinewasenigma

Keyword

norse

Extend by Plain Text

✓ Extend by Cipher Text

Encrypt

Cipher Text

GVVESLAJMAGNXRAHIJDOVVZZEYHARREGEE



## Autokey Cipher Decryptor :

### Enter cipher text

1. Enter Length of Presumed Keyword length
2. Table will be displayed showing Cipher Text, Crib, and Plain Text.
3. Crib and Plain Text can be edited.

### Note:

Please hit enter to see changes made.

Every time "Length of Presumed Keyword" is changed, "Decrypt" button needs to be pressed.

As we can see, with “Presumed Keyword Length = 5”, our plain text message is “\_\_\_\_\_st famous rotor machine was enigma”

Cipher Text:

GVVESYOAEEEMISVSFWJHSHDRUWDDJYJLVY

Length of Presumed Keyword(Integers):

5

Decrypt

Cipher Text	G	V	V	E	S	Y	O	A	E	E	M	I	S	V	S
Presumed Key						G	V	V	E	S	Y	O	A	E	E
Plain Text						S	T	F	A	M	O	U	S	R	O

Cipher Text	F	W	J	H	S	H	D	R	U	W	D	D	J	Y	J
Presumed Key	M	I	S	V	S	F	W	J	H	S	H	D	R	U	W
Plain Text	T	O	R	M	A	C	H	I	N	E	W	A	S	E	N

## Crib Dragging :

Enter Plain Text and crib and :

- 1) Table will be displayed showing Cipher Text, Crib, and Plain Text.
- 2) Crib and Plain Text can be edited. Please hit enter to see changes made.
- 3) Use buttons to move Crib Left or Right.

### Note :

Please hit “enter” to see changes made.

The "**Shift Right**" button should be pressed initially to align the crib with the beginning of the ciphertext.

Cipher Text:

GVVESY0AEEMISVSFWJHSHDRUWDDJYJLVY

Enter Crib:

NORSE

Shift Left

Shift Right

Cipher Text	G	V	V	E	S	Y	O	A	E	E	M	I	S	V	S
Presumed Key	N	O	R	S	E	_	_	_	_	_	_	_	_	_	_
Plain Text	T	H	E	M	O	_	_	_	_	_	_	_	_	_	_

Cipher Text	F	W	J	H	S	H	D	R	U	W	D	D	J	Y	J
Presumed Key	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
Plain Text	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_

Cipher Text	J	L	V	Y
Presumed Key	_	_	_	_
Plain Text	_	_	_	_

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## Columnar Transposition Cipher:

Enter Plain Text and Keyword and :

- 1) Table will be displayed showing Cipher Text in table format and also as 5 letter block.

### Columnar Transposition Cipher

Assumes that if there are multiple characters, the column corresponding to the last occurrence of the character will have blank spaces (Padding), if any.

#### Encryption

Text to Encrypt:

The nose is pointing down and the houses are getting bigger

Keyword:

analyst

Encrypt

Cipher Text(5-Letter):

TIIAO EGEPG DSEIN ODTET GHSNN UGBSN WEAIE ETNHR NROIO HSTG

A	A	L	N	S	T	Y
T	E	N	H	S	E	O
I	P	O	S	N	T	I
I	G	D	N	W	N	O
A	D	T	N	E	H	H
O	S	E	U	A	R	S
E	E	T	G	I	N	T
G	I	G	B	E	R	G

Columnar Transposition Decryptor:

Enter Cipher Text and Keyword and :

- 1) Table will be displayed showing Plain Text in table format and also as 5 letter block.

Columnar Transposition Decryption

Assumes that if there are multiple characters, the column corresponding to the last occurrence of the character will have blank spaces (Padding), if any.

Enter Keyword:

analyst

Enter Cipher Text:

TIIAQ EGE PG DSEIN ODTET GHSNN UGBSN WEAIE ETNHR NRQIQ HSTG

Decrypt

Decrypted Text:

THEN0 SEISP 0INTI NGDOW NANDT HEHOU SESAR EGETT INGBI GGER

A	N	A	L	Y	S	T
T	H	E	N	O	S	E
I	S	P	O	I	N	T
I	N	G	D	O	W	N
A	N	D	T	H	E	H
O	U	S	E	S	A	R
E	G	E	T	T	I	N
G	B	I	G	G	E	R