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## **Implementation of Vigenere cipher with key K**

The vigenere cipher uses the polyalphabetic substitution technique

### **Algorithm**

1. The user inputs the plaintext and the key to be used.
2. The plaintext and the key are capitalized to ease encryption.
3. The plaintext and the key are stored in ASCII format.
4. The key is repeated to make it the length of the plaintext
5. The ASCII value of the Encrypted is gotten by adding the plaintext to the key
6. Encryption:  $E = (\text{ASCII of the plaintext}) + (\text{ASCII of the key}) + 'A'$
7. Decryption:  $D = (\text{ASCII of the Encryptedtext}) - (\text{ASCII of the key}) + 'A'$
8. Display the Encrypted and Decrypted text

### **Working principle**

Let's suppose Key = CIPHER, So

$K = (2, 8, 15, 7, 4, 17)$

Also, suppose plaintext,  $P = \text{"he is a good boy"}$ .

Now Encryption is done by grouping plaintext into groups of 6 letters.

So,  $P = \text{heisagoodboy} = (7, 4, 8, 18, 0, 6, 14, 14, 3, 1, 14, 24)$

Since,  $C = P + K$

$C = (9, 12, 23, 25, 4, 23, 16, 22, 18, 8, 16, 17) = \text{JMXZEZQWSIQR}$

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Select C:\Users\djeut\OneDrive\Desktop\Antana\Vigenere1.exe

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Viginere Encryption and Decryption
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1: Encryption
2: Decryption
3: Exit

Enter your choice : 1
Enter a string : transport
Enter a key : car

Your string is : TRANSPORT
The key is : CAR
Vigenere Cipher text is : VRRPSGQRK
Enter your choice : 2
Enter an Encrypted text : VRRPSGQRK
Enter the key : car

Your Encrypted text is : VRRPSGQRK
The key is : CAR
The plaintext is : TRANSPORT
Enter your choice : 1
Enter a string : university
Enter a key : time

Your string is : UNIVERSITY
The key is : TIME
Vigenere Cipher text is : NVUZXZEMMG
Enter your choice : 2
Enter an Encrypted text : NVUZXZEMMG
Enter the key : time

Your Encrypted text is : NVUZXZEMMG
The key is : TIME
The plaintext is : UNIVERSITY
Enter your choice : 
```