VIGENER CIPHER

Vigenere cipher is an encryption method that transforms plain text in to cipher text using a word as a keyword.

Algorithm

1) Enter the plain text and the key.
2) Repeat the keyword to make it the length of the plain text.
3) Encryption

   Perform the modular addition of the repeating keyword and the plaintext.

$$C_i = P_i + K_i (mod\ m)$$

Where Ci is the cipher text, Pi is the plain text, Ki is the repeating keyword and 'm' is the length of the alphabet.

The C function for encryption is as shown below

```
void encrypt(){
   unsigned int i, j;
   char plain[200];
   char key[80];
   printf("\nEnter the plain text: ");
  scanf("%s",plain);
   printf("\nEnter the key: ");
  scanf("%s",key);

   for(i=0,j=0 ; i < strlen(plain); i++,j++){
      if(j >= strlen(key)){
         j = 0;
      }
      printf("%c" ,65 +( ((toupper(plain[i])-65) +(toupper(key[j])-65)) % 26
));
   }
   printf("\n");
}
```

4)Decryption:

Perform modular subtraction of key phrases from cipher text.

$$P_i = C_I - K_i (mod\ m)$$

The C function for dencryption is as shown below

```
void decrypt(){
   unsigned int i, j;
   char plain[200];
   char key[15];
   int value;
   printf("\nEnter the cipher text: ");
   scanf("%s",plain);
   printf("\nEnter the key: ");
   scanf("%s",key);


   for(i = 0,j = 0 ; i < strlen(plain) ; i++,j++){
     if(j >= strlen(key) ){
        j = 0;
     }
     value = (toupper(plain[i])-64) - (toupper(key[j])-64);
     if(value < 0){
        value = value + 26 ;
     }
     printf("%c" , 65 + (value % 26));
   }
}
```