#include<stdio.h>

#include<string.h>

int main(){

char msg[] = "THECRAZYPROGRAMMER";

char key[] = "HELLO";

int msgLen = strlen(msg), keyLen = strlen(key), i, j;

char newKey[msgLen], encryptedMsg[msgLen], decryptedMsg[msgLen];

//generating new key

for(i = 0, j = 0; i < msgLen; ++i, ++j){

if(j == keyLen)

j = 0;

newKey[i] = key[j];

}

newKey[i] = '\0';

//encryption

for(i = 0; i < msgLen; ++i)

encryptedMsg[i] = ((msg[i] + newKey[i]) % 26) + 'A';

encryptedMsg[i] = '\0';

//decryption

for(i = 0; i < msgLen; ++i)

decryptedMsg[i] = (((encryptedMsg[i] - newKey[i]) + 26) % 26) + 'A';

decryptedMsg[i] = '\0';

printf("Original Message: %s", msg);

printf("\nKey: %s", key);

printf("\nNew Generated Key: %s", newKey);

printf("\nEncrypted Message: %s", encryptedMsg);

printf("\nDecrypted Message: %s", decryptedMsg);

return 0;

}

Output

Original Message: THECRAZYPROGRAMMER

Key: HELLO

New Generated Key: HELLOHELLOHELLOHEL

Encrypted Message: ALPNFHDJAFVKCLATIC

Decrypted Message: THECRAZYPROGRAMMER