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Pro 3

```
#include <stdio.h>
#include <string.h>

int main() {
    char msg[] = "Cryptography";
    char key[] = "Monarchy";
    int msglen = strlen(msg), keylen = strlen(key), i, j;
    char newKey[msglen], encryptedMsg[msglen], decryptedMsg[msglen];
    for (i = 0, j = 0; i < msglen; ++i, ++j) {
        if (j == keylen)
            j = 0;
        newKey[i] = key[j];
    }
    newKey[i] = '\0';
    for (i = 0; i < msglen; ++i)
        encryptedMsg[i] = (msg[i] + newKey[i]) % 26 + 'A';
    encryptedMsg[i] = '\0';
    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;
```

}