#include <stdio.h>

#include <string.h>

#include <ctype.h>

#define SIZE 26

char key[SIZE] = {

'Q', 'W', 'E', 'R', 'T', 'Y', 'U', 'I', 'O', 'P',

'A', 'S', 'D', 'F', 'G', 'H', 'J', 'K', 'L', 'Z',

'X', 'C', 'V', 'B', 'N', 'M'

};

void encrypt(char message[], char encrypted[]) {

for (int i = 0; message[i] != '\0'; i++) {

char ch = toupper(message[i]);

if (ch >= 'A' && ch <= 'Z') {

encrypted[i] = key[ch - 'A'];

} else {

encrypted[i] = ch;

}

}

}

void decrypt(char encrypted[], char decrypted[]) {

for (int i = 0; encrypted[i] != '\0'; i++) {

char ch = toupper(encrypted[i]);

if (ch >= 'A' && ch <= 'Z') {

for (int j = 0; j < SIZE; j++) {

if (key[j] == ch) {

decrypted[i] = 'A' + j;

break;

}

}

} else {

decrypted[i] = ch;

}

}

}

int main() {

char message[100], encrypted[100], decrypted[100];

printf("Enter a message (letters only): ");

fgets(message, sizeof(message), stdin);

message[strcspn(message, "\n")] = '\0';

memset(encrypted, 0, sizeof(encrypted));

memset(decrypted, 0, sizeof(decrypted));

encrypt(message, encrypted);

decrypt(encrypted, decrypted);

printf("Original Message: %s\n", message);

printf("Encrypted Message: %s\n", encrypted);

printf("Decrypted Message: %s\n", decrypted);

return 0;

}

