#include <stdio.h>

#include <string.h>

#include <ctype.h>

void generateFullKey(char \*key, char \*fullKey, int messageLen) {

int keyLen = strlen(key);

for (int i = 0; i < messageLen; i++) {

fullKey[i] = key[i % keyLen];

}

fullKey[messageLen] = '\0';

}

void encrypt(char \*message, char \*key) {

char fullKey[1000];

generateFullKey(key, fullKey, strlen(message));

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

if (isalpha(message[i])) {

char base = isupper(message[i]) ? 'A' : 'a';

char k = isupper(fullKey[i]) ? fullKey[i] : toupper(fullKey[i]);

int shift = k - 'A';

message[i] = ((message[i] - base + shift) % 26) + base;

}

}

}

void decrypt(char \*message, char \*key) {

char fullKey[1000];

generateFullKey(key, fullKey, strlen(message));

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

if (isalpha(message[i])) {

char base = isupper(message[i]) ? 'A' : 'a';

char k = isupper(fullKey[i]) ? fullKey[i] : toupper(fullKey[i]);

int shift = k - 'A';

message[i] = ((message[i] - base - shift + 26) % 26) + base;

}

}

}

int main() {

char message[1000], key[100];

int choice;

printf("Enter a message: ");

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

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

printf("Enter a keyword: ");

scanf("%s", key);

printf("\nChoose operation:\n1. Encrypt\n2. Decrypt\nEnter choice: ");

scanf("%d", &choice);

getchar();

if (choice == 1) {

encrypt(message, key);

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

} else if (choice == 2) {

decrypt(message, key);

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

} else {

printf("Invalid choice.\n");

}

return 0;

}

