#include <stdio.h>

#include <string.h>

#define MODULUS 256

unsigned char encrypt(unsigned char plain, unsigned char key) {

return (plain + key) % MODULUS;

}

unsigned char decrypt(unsigned char cipher, unsigned char key) {

return (cipher - key + MODULUS) % MODULUS;

}

int main() {

char plaintext[100];

unsigned char ciphertext[100], decrypted[100];

unsigned char key;

printf("Enter a key (0-255): ");

scanf("%hhu", &key);

printf("Enter plaintext: ");

scanf(" %[^\n]", plaintext);

int len = strlen(plaintext);

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

ciphertext[i] = encrypt((unsigned char)plaintext[i], key);

}

ciphertext[len] = '\0';

printf("Encrypted text (in ASCII codes): ");

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

printf("%d ", ciphertext[i]);

}

printf("\n");

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

decrypted[i] = decrypt(ciphertext[i], key);

}

decrypted[len] = '\0';

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

return 0;

}

