Teacher: Md. Arshad Wasif	Lab #03	Topic: Symmetric Cryptography

There are 2 tasks. Complete each task.

Task 1

Take an array of characters with values of English Alphabet of all capital letters. Convert all of them into small letters and print the array.

Example:

Input: A, B, C, D, …,Y, Z

Output: a, b, c, d, …, y, z

Task 2

Complete the code logic to implement symmetric cipher.

```cpp
1    #include<bits/stdc++.h>
2    #include <cctype>
3    using namespace std;
4
5    string encrypt(const string& text, int key) {
6        string result = "";
7        for (char ch : text) {
8            if (isalpha(ch)) {
9                // Determine the case (uppercase or lowercase)
10                bool is_upper = isupper(ch);
11                // key the character
12                char keyed_char = (   Fill up your code logic here   ) + (is_upper ? 'A' :
     'a');
13                result += keyed_char;
14            } else {
15                result += ch;
16            }
17        }
18        return result;
19    }
20
21    string decrypt(const string& ciphertext, int key) {
22        // Decryption is the same as encryption with a negative key
23        return encrypt(ciphertext, -key);
24    }
25
26    int main() {
27        string plaintext;
28        cout<<"Write a message: ";
29        getline(cin, plaintext);
30        cout<<"Enter a secret key: ";
31        int key_value;
32        cin>>key_value;
33        string encrypted_text = encrypt(plaintext, key_value);
34        string decrypted_text = decrypt(encrypted_text, key_value);
35
36        cout << "Original Text: " << plaintext << endl;
37        cout << "Encrypted Text: " << encrypted_text << endl;
38        cout << "Decrypted Text: " << decrypted_text << endl;
39
40        return 0;
41    }
```