

```
1. #include <stdio.h>
2. #include <cs50.h>
3. #include <stdlib.h>
4. #include <string.h>
5. #include <ctype.h>
6.
7. int main(int argc, string argv[])
8. {
9.     // Declare variables
10.    string plaintext = "";
11.    int key = 0;
12.    bool valid_key = false;
13.    int length = 0;
14.
15.    do
16.    {
17.        // Incorrect usage
18.        if (argc != 2)
19.        {
20.            printf("Usage: ./caesar <key number>\n");
21.            return 1;
22.        }
23.        // Count the true key
24.        else
25.        {
26.            key = atoi(argv[1]);
27.            valid_key = true;
28.        }
29.    }
30.    while (!valid_key);
31.
32.    // Get the input from the user
33.    plaintext = GetString();
34.    // Get the length of "length"
35.    length = strlen(plaintext);
36.
37.    for (int i = 0; i < length; i++)
38.    {
39.        if (isalpha (plaintext[i]))
40.        {
41.            // Upper case
42.            if (isupper (plaintext[i]))
43.            {
44.                printf("%c", (((plaintext[i] - 65) + key) % 26) + 65));
45.            }
46.            // Lower case
47.            else
48.            {
```

```
49.         printf("%c", (((plaintext[i] - 97) + key) % 26) + 97));
50.     }
51. }
52. else
53. {
54.     // Spaces
55.     if (isspace (plaintext[i]))
56.     {
57.         printf(" ");
58.     }
59.     // If it isn't a letter or a space
60.     else
61.     {
62.         printf("%c", plaintext[i]);
63.     }
64. }
65. }
66. // print a necessary \n
67. printf("\n");
68. }
```