11. Write a C++ program that demonstrates a basic Caesar cipher.

```
#include <iostream>
#include <string>

// Function to encrypt a message using Caesar Cipher
std::string encryptCaesarCipher(const std::string& message, int key) {
    std::string encryptedMessage = "";

    for (char ch : message) {
        if (isalpha(ch)) {
            char base = (isupper(ch)) ? 'A' : 'a';
            encryptedMessage += static_cast<char>((ch - base + key) % 26 + base);
        } else {
            encryptedMessage += ch; // Preserve non-alphabetic characters
        }
    }

    return encryptedMessage;
}

int main() {
    // Input plaintext message
    std::string plaintext;
    std::cout << "Enter the plaintext message: ";
    std::getline(std::cin, plaintext);

    // Input the Caesar cipher key
    int key;
    std::cout << "Enter the Caesar cipher key (an integer): ";
    std::cin >> key;

    // Encrypt the message using the Caesar cipher
    std::string encryptedMessage = encryptCaesarCipher(plaintext, key);

    // Display the results
    std::cout << "\nCaesar Cipher Encryption:" << std::endl;
    std::cout << "Plaintext: " << plaintext << std::endl;
    std::cout << "Key: " << key << std::endl;
    std::cout << "Encrypted Message: " << encryptedMessage << std::endl;

    return 0;
}
```

Output:

```
 PS C:\Users\stargaly galaxie> cd "d:\Desktop\System Security\System Security\" ; if ($?)
{ g++ 11.cpp -o 11 } ; if ($?) { .\11 }
Enter the plaintext message: real
Enter the Caesar cipher key (an integer): 2

Caesar Cipher Encryption:
Plaintext: real
Key: 2
Encrypted Message: tgcn
```