# Lab: Encryption and Decryption

## Learning Objectives

By the end of this lab, you should be able to:

- Encrypt and Decrypt messages from the user using a Caesar's Cipher for a cipher code from 1 to 9
- Be proficient with the use of operators

## Details

This project will be fun! Your job is to write a program to encrypt and decrypt messages from the user using the Caesar's Cipher described in the videos. Your project should accept either encrypted

messages and output the decrypted version or accept plain text messages and a key and output the encrypted version.

This lab will require the use of all that you have learned so far this semester: conditionals, for loops, variables, and operators. Make sure you use all of these in your answer!

The change between encryption and decryption is very small so if you code is much more complicated for one than the other, you are doing something wrong.

You only need to handle cipher keys from 1 to 9. You also do not need to handle multiple keys in the same message. Both of these require additional programming tools that we have not covered yet (but we will soon!). For now, just ensure your program works for any key from 1 to 9, inclusive.

## Milestones/Steps

1. Write the program for encryption first. Ask the user for a key and their message and then encrypt it and output it or save it to a variable that is visible, as I did in my demo video.
2. Duplicate the code for decryption and give it a different trigger key (I did e for encryption and d for decryption). Change the code to properly decrypt messages (this should be a small change).
3. Export the program as an XML file and upload it to your teacher electronically for grading

## Point distribution/Rubric

- 40 points for properly encrypting messages using Caesar's Cipher for keys from 1 to 9
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  - 30 points for one major error or several minor errors
  - 20 points for several major errors
  - 10 points for getting something working that encrypts but perhaps can only handle one letter messages or something similar
  - 0 points if you do not use for loops

•40 points for properly decrypting messages using Caesar’s Cipher for keys from 1 to 9


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- •20 points for several major errors
- •10 points for getting something working that decrypts but perhaps can only handle one letter messages or something similar
- •0 points if you do not use for loops

•5 points for error handling. Ensure your user is not confused if they type something wrong or out of bounds for your keys

•15 points for a short writeup describing your program. This must include what user input you can handle, how to trigger encryption and decryption, and a description of how you encrypt and decrypt

- •15 points for a writeup that is spelled correctly, uses proper grammar, sentence structure, and capitalization and describes the game including the rules, the use of variables and control.
- •-2 points per spelling error
- •0 points if you don’t describe the drawing or use any non-G rated words

•Up to 10 points of extra credit are available for very creative projects