

# CISC 211 Final Project

## **Task 1: Encrypt and decrypt using an XOR logical operator.**

- ✓ 1. Initialize some title messages. Such as "Plain Text: ".
- ✓ 2. Initialize an array "array" to store a split secret message word "Hello".
- ✓ 3. Initialize another array "key" to store a split secret message word "World".
- ✓ 4. Print all title messages.
- ✓ 5. Create "output" procedure to print single character.
- ✓ 6. Create "next\_loop" to loop through array and call "output" to print them out.
- ✓ 7. Call "next\_loop" to print "array" array ("Hello") and "key" array ("World") on terminal.
- ✓ 8. Use XOR operation to get result and store them into an uninitialized array "encrypted".
- ? 9. Print the encrypted message in hexadecimal.
  - No external resources allowed, Such as YouTube.
  - Multiple attempts applied but failed.
  - Too late to cooperate find a teammate.
- ✓ 10. Print the encrypted message in ASCII character.
  - Unprintable characters are not showing.
  - Only newline character returns a new line.
  - Add values to elements will make them shown like English characters but must add different values. This will make code not generic. If add same values, still some of them are not English characters, which is weird and unnecessary.
- ✓ 11. Confirm the encrypted message by decryption.
  - perform XOR key array elements with manually calculated hexadecimal number.
  - perform XOR key array elements with complied encrypted elements in "encrypted" array.

## **Task 2: Write a function and recursion to count to 20000 and analyze the performance of time consuming.**

- ✓ 1. Create blank files to hold output. <counter\_txt.asm>
- ✓ 2. Print a single digit number 8 from variable on terminal. <abc.asm>
- ? 3. Print a multiple digit number 20000 from variable on terminal.
- ? 3. Create a function to decrement 9 to 8 and append it to the text file. <fun.asm>
- X 4. Modify the function to decrement number 9 to 0 and append them to the text file.
- X 5. Modify the function to decrement number 20000 to 0 and append them to the text file.
- X 5. Modify the function to decrement number 20000 to 0 and append them to the text file.
- X 6. Calculate the execution time of function by using the time command.
  
- X 7. Repeat 2-6 process above to create a recursion to generate the counter.
- X 8. Calculate the execution time of recursion by using the time command.
- X 9. Compare the code performance of function and recursion.