Course:	**INFO-6001-23W**
Project:	**Assignment #2 v.C**
Due Date:	**See FOL Submissions / Dropbox**
Submitting:	**Please see the instructions at the bottom of the page.**
Professor:	**Steve Spencer**
Student Name /	_____
No:	_____
Section number	_____

This project accounts for 3.75% of your final mark but it will be marked out of 100 as follows:

Marks	What are the Marks Awarded For?	Mark Assigned
20	Part 1 a	
20	Part 1 b	
20	Part 2	
40	Correct answers	
100		

EXAMPLES

This assignment covers encoding and decoding a message using a double transposition cipher. This is done by using a combination of the plaintext phrase, keywords, and numeric values to encrypt / decrypt.

The table below shows the keyword FALCON, each letter is given a value A=1, C=2, etc. This is done by the lowest letter receiving the lowest number. When two letters are the same the first occurrence gets the lowest number. The plaintext message is written with one letter per box left to right, spaces are removed.

Encoding starts at column A or 1 and is written top to bottom and the result is written in groups of 5 characters. Then move to column C or 2 and repeat until complete.

To complete a double transposition cipher, do the same as before with the next keyword.

Example 1:

F	A	L	C	O	N
3	1	4	2	6	5
T	H	I	S	C	L
A	S	S	I	S	G
R	E	A	T	A	N
D	C	H	A	L	L
E	N	G	I	N	G

Encoded text: HSECN SITAI TARDE ISAHG LGNLG CSALN

Example 2:

This example uses the keyword STINGRAY each letter is given a value A=1, C=2, etc. - the same as example 1. The plaintext message is written with one letter per box left to right, spaces are removed in this example.

Encoding starts at column A or 1 and is written top to bottom. Usually the table is complete with each table field having a character. However in this case some fields are blank.

Again start in column A or 1, there are only three letters (AAL) - to create a group of 5 character add the first two characters from column G or 2. The next set of characters starts at the next character in column 2, in this case H.

S	T	I	N	G	R	A	Y
6	7	3	4	2	5	1	8
T	H	I	S	C	L	A	S
S	I	S	G	R	E	A	T
A	N	D	C	H	A	L	L
E	N	G	I	N	G		

Encoded text: AALCR HNISD GSGCI LEAGT SAEHI NNSTL

Part 1: 1) Using a double transposition cipher and the keywords below. Encrypt the following, make sure to show your work as the example above

Plaintext to encode: Two local Olympians won gold in PyeongChang Korea
Keywords: canada
village

a. **Encode the plaintext phrase above and show your work in the same format as the examples**

b. **Describe how the double transposition cipher works, including the process to allow each block to be the same length? (IE: Hashing)**

Part 2:
2) The cipher below was encoded using the keywords listed. Using the same keywords decode the cipher.

Cipher to decode: **UKLISTENAQYWSOIYCPRGECNOMASNSDIAAK**
Keywords: Summer

Winter

a. Make sure to show your work in the same format as the examples

Output 1st round

Round 2

Output 2nd round

Decoded plain text

Mandatory

1) This is an individual assignment
2) All work must be submitted in a single Word document with the title box and marking sections from page 1 copied over and completed showing your Name, student Number and Section number (01, 02, 10). If you create tables to work in, create it in the Word doc, or Insert the OLE object from Excel.
3) Any assignments submitted in compressed format (.zip, rar, 7z, etc.) will not be marked and receive a grade of zero (0).
4) All plagiarized assignments will receive an academic offence.

How should I submit my Assignment?

Electronic Submission (mandatory):

This is an independent assignment. You will submit a .doc file which includes your completed header, any tables and the responses to the questions. Upload it to the Submissions / Assignment Dropbox – Assignment 1 by the due time listed.