**Name:** _____

# Introduction to Information Assurance
# Cryptanalysis Lab

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**Lab: Analyzing encrypted texts**
For this lab, you will use the Cryptool 2 program to help you determine the type of encryption used on the given text. Once you figure out the type of encryption that was used you may use the skills you learned earlier to decrypt them and make sure they are correct. These skills will be applied later during the CTF portion of the day.

You may want to save each workspace to use for decrypting CTF problems later.

**Investigation/Specific Questions**

- These are found in the lab instructions. Questions in bold are to be answered.

**Name:** _____

**Caesar Cipher**

1. Begin by pressing + R
2. Type **`C:\Program Files (x86)\CrypTool 2\CrypWin.exe`** into the Run window – this will open up Cryptool 2.
3. In the Main Functions section, click on the "Create a new workspace" button.
4. Let's take a look at the frequency of the letters used. This information can be helpful in many determining many different types of ciphers.
5. To do this, drag a new Frequency Test from the Cryptanalysis tab on the left hand toolbar, into your workspace.
6. Drag out the input arrow from the Frequency Test to create a Text Input box and insert the following text into the box:

   N mfaj f iwjfr ymfy tsj ifd ymnx sfynts bnqq wnxj zu fsi qnaj tzy ymj ywzj rjfsnsl tk nyx hwjji: "Bj mtqi ymjxj ywzymx yt gj xjqk-janijsy, ymfy fqq rjs fwj hwjfyji jvzfq."

7. Run the program and you should get a graph on the frequency of the letters. Now lets figure out how to crack this. There are multiple methods of how this can done but we are going to take a look at using the frequency of the letters to crack this code.
8. Looking at a table of the frequency of letters in the English language, we can see that "E" is most commonly used in English, and looking at our chart from the cipher, we can see that "J" is most commonly used in the encrypted text. So we use the position of our most used ciphertext character minus the most used letter in the English language. In this case, it would be 10 - 5 = 5, so 5 would be our key. This means that every letter is being substituted by a letter 5 positions down. So, E is being substituted with J.

   Using this as the key, try and decrypt the given ciphertext. You may use the Caesar cipher module to decrypt.

9. **What is the decrypted text? [1 point]**

   _____

10. **What is another strategy you could use to figure out what the key is? [2 point]**

    _____

***DON'T FORGET TO HIT STOP AFTER THE PROCCESS IS COMPLETED***

*You cannot make any other changes until you hit stop.*