U4L8 APCS

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Part 5: Evaluate the Process

**1.** What difficulties did you run into writing the frequency analysis program? How did you resolve those problems?

a. Most of the problems I encountered while writing the frequency analysis program were related to lack of foresight and failure to plan the structure of my program in advance of writing it. It took me two attempts to reach a solution I was confident in.

**2.** How closely did the frequencies of letters in the plaintext and the ciphertext correspond? What could be done to improve the accuracy of the correspondance?

a. The frequencies of letters in the plaintext and the ciphertext corresponded usually within 0.1% of each other. If the both texts were longer, the correspondances could be more precise.

**3.** This assessment involved writing a program and then interpreting the results the old fashioned way. Propose an extension to this project that would allow the computer to do all the work so that you only have to evaluate whether the decoded message makes sense.

a. A program could find the most common single letter (A), bigram (AB), and trigram (ABC) in the encrypted message and substitute them with the most common \*grams in the english language. Continuing from these initial assumptions, the program continues to correlate encrypted letter frequency to plaintext letter frequency until (hopefully) an unencrypted message is obtained.