Bhargav Pappu

CPSC 4200

Homework 1: Frequency Analysis

1. Refer to python script submitted on canvas.
2. Para1.txt and para2.txt should serve as the two test files for frequency analysis
3. The 2 different texts produced for part (b) were very slightly similar for the single letter frequency. The letter e was the most frequent letter used in both of the passages, and the rest of the letters were similar in order but not the exact same. The reason that the frequencies were around the same/similar, was because of the natural frequency of letters in passages. As it turns out, the letter e is the most common letter to be found in any passage. This makes it such that decrypting the text given is a bit easier. In fact, the frequency of all letters exists on a curve which can allow someone to decipher a text by using the natural frequencies of each letter as a starting point/guide.
4. The decrypted text is:
   1. In the same hour came forth fingers of a man's hand, and wrote over against the candlestick upon the plaster of the wall of the king's palace; and the king saw the part of the hand that wrote. Then the king's countenance was changed, and his thoughts troubled him, so that the joints of his loins were loosed, and his knees smote one against another. the king cried aloud to bring in the astrologers, the chaldeans, and the soothsayers. And the king spake, and said to the wise men of Babylon, whosoever shall read this writing, and show me the interpretation thereof, shall be clothed with scarlet, and have a chain of gold about his neck, and shall be the third ruler in the kingdom. Then came in all the king's wise men; but they could not read the writing, nor make known to the king the interpretation thereof. then was King Belshaxxar greatly troubled, and his countenance was changed in him, and his lords were astonished. Now the queen, by reason of the words of the king and his lords, came into the banquet house; and the Queen spake and said, O King, live forever; let not thy thoughts trouble thee, nor let thy countenance be changed; there is a man in thy kingdom, in whom is the spirit of the holy gods; and in the days of thy wisdom of the gods, was found in him; whom the King Nebuchadnexxar thy father, the king, I say, thy father, made master of the magicians, astrologers, chaldeans, and soothsayers; forasmuch as an ezcellent spirit, and knowledge, and understanding, interpreting of dreams, and showing of hard sentences, and dissolving of doubts, were found in the same daniel, whom the king named belteshaxxar; now let daniel be called, and he will show the interpretation.