Problem 5:

**How does the value of n affect the decipherment accuracy it achieves? Speculate as to why this pattern occurs.**

In general, the value of n for the most optimal decipherment accuracy seems to be low, with most of them being optimal with bigrams. The reasoning could possibly be that the frequency of n-grams, where n is greater than 2, are not that common in the texts, where the higher n is, the more susceptible the frequency dictionary is to overfitting. If n is a high enough number, the corresponding n-grams may not appear as frequently in wells.txt, which would worsen the decipherment accuracy as most if not all n-grams would have very low frequencies.

Hill climbing solver seems to have more accuracy than the textbook solver for all ciphers. Using n in the right most column, the hill climbing algorithm produces the following Key/Deciphering accuracies:Table

Description automatically generated