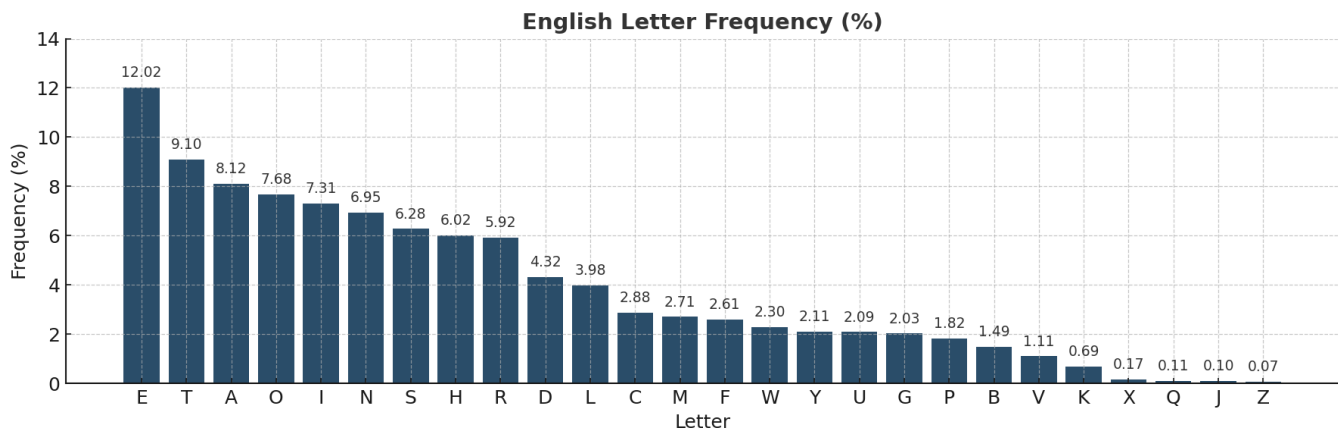# CodeCrackers Instruction Manual

Frequency Analysis Reference Sheet

Frequency analysis is a technique used to break substitution ciphers by studying how often certain letters and patterns appear in the encrypted message. This method relies on the statistical properties of English.

Letter Frequency in English (40,000-word Sample)

English Letter Frequency (%)

Common Letter Rankings

```
Most Frequent: E, T, A, O, I, N, S, H, R
Least Frequent: Q, J, Z, X
```

Common Patterns

```
Top Digraphs (pairs): TH, HE, IN, ER, AN
Top Trigraphs (triplets): THE, AND, THA, ENT, ION
Double Letters: LL, EE, SS, OO, TT
```

How to Use Frequency Analysis

- Step 1: Count how often each letter appears in the ciphertext.

- Step 2: Compare it to the chart above.

- Step 3: Make educated guesses and test substitutions.

- Step 4: Look for common words like THE, AND, or short filler words.

- Step 5: Adjust and refine as more text becomes readable.