Chafetz, Paul

APCS

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Original:

OAXFI A MZSAZPZ IQKI IQAF WKIAYW FQYHSV GYNNAI AIFZSO IY KGQAZPAWT

IQZ TYKS MZOYXZ IQAF VZGKVZ AF YHI YO SKWVAWT K NKW YW IQZ NYYW KWV XZIHXWAWT QAN FKOZSR IY IQZ ZKXIQ

Decoded:

FIRST I BELIEVE THAT THIS NATION SHOULD COMMIT ITSELF TO ACHIEVING

THE GOAL BEFORE THIS DECADE IS OUT OF LANDING A MAN ON THE MOON AND

RETURNING HIM SAFELY TO THE EARTH

A = I

B = null

C = null

D = null

E = null

F = S

G = C

H = U

I = T

J = null

K = A

L = null

M = B

N = M

O = F

P = V

Q = H

R = Y

S = L

T = G

U = null

V = D

W = N

X = R

Y = O

Z = E

**Questions**

1. The hardest part of writing the frequency analysis program was the logic behind counting the counts of the letters. I solved this by setting up an array, and whatever position the element is in the array, it would increment when it matched the next read character.
2. The frequencies were generally close to each other, but there were some notable deciphering issues. It would be more accurate if each and every letter was encoded properly by their highest frequencies.
3. The deciphering program would first be set up to read both frequency files in the same format. Once done, it would need to sort the arrays in either ascending or descending order. From there, it would compare the two ordered lists by frequency to make matching pairs. For example, ciphertext[0] = plaintext[5]. Then, it would substitute the letters and display the corresponding message, letter by letter.