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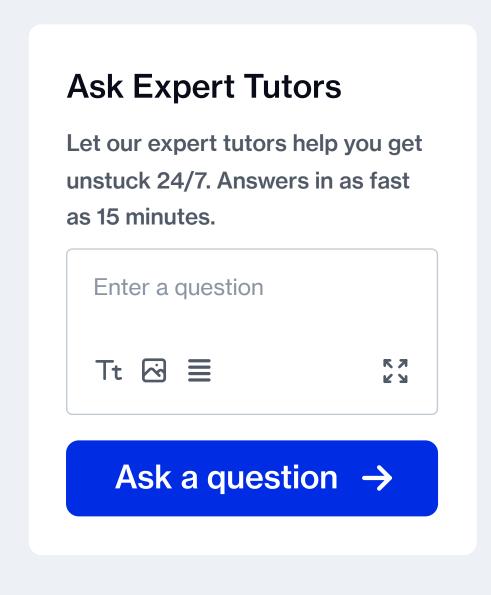
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Answered step-by-step



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### Asked by A\_Diciple\_of\_Jesus

C++ Programming

Program a monoalphabetic substitution cipher code that relying on the Letter Frequency Count of the English language, is able to find a shortcut to crack a below ciphertext.

**Expert Help** 

Ciphertext:

PBFPVYFBQXZTYFPBFEQJHDXXQVAPTPQJKTOYQWIPBVWLXTOXBTFXQWAXBVCXQWAXFQJVWLEQNTOZQGGQLFXQWA KVWLXQWAEBIPBFXFQVXGTVJVWLBTPQWAEBFPBFHCVLXBQUFEVWLXGDPEQVPQGVPPBFTIXPFHXZHVFAGFOTHFEFB QUFTDHZBQPOTHXTYFTODXQHFTDPTOGHFQPBQWAQJJTODXQHFOQPWTBDHHIXQVAPBFZQHCFWPFHPBFIPBQWKFA BVYYDZBOTHPBQPQJTQOTOGHFQAPBFEQJHDXXQVAVXEBQPEFZBVFOJIWFFACFCCFHQWAUVWFLQHGFXVAFXQHFUF HILTTAVWAFFAWTEVOITDHFHFQAITIXPFHXAFQHEFZQWGFLVWPTOFFA

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**CS 166** 

#### Answer & Explanation Solved by verified expert ©

Answered by CommodoreFly2296

"The most common letters in the English language are, in order: E, T, A, O, I, N, S, H, R, D, L, U".

"Assuming that the ciphertext is in English, we can use this information to decipher the code". "For example, the letter E is the most common letter in English, so it is likely that this letter represents the letter A in the ciphertext". "Similarly, the letter T is the second most common letter in English, so it is likely that this letter represents the letter B in the ciphertext".

By using this information, we can quickly decipher the ciphertext as follows: E = A

T = B

A = C

O = DI = E

N = FS = G

H = HR = I

D = JL = K

U = L

PBFPVYFBQXZTYFPBFEQJHDXXQVAPTPQJKTOYQWIPBVWLXTOXBTFXQWAXBVCXQWAXFQJVWLEQNTOZQGGQLFXQWA KVWLXQWAEBIPBFXFQVXGTVJVWLBTPQWAEBFPBFHCVLXBQUFEVWLXGDPEQVPQGVPPBFTIXPFHXZHVFAGFOTHFEFB QUFTDHZBQPOTHXTYFTODXQHFTDPTOGHFQPBQWAQJJTODXQHFOQPWTBDHHIXQVAPBFZQHCFWPFHPBFIPBQWKFA BVYYDZBOTHPBQPQJTQOTOGHFQAPBFEQJHDXXQVAVXEBQPEFZBVFOJIWFFACFCCFHQWAUVWFLQHGFXVAFXQHFUF HILTTAVWAFFAWTEVOITDHFHFQAITIXPFHXAFQHEFZQWGFLVWPTOFFA

A = EB = T

C = AD = O

E = IF = N

G = S

H = H

I = RJ = D

K = LL = U

**ETIOSNHRDLU** 

This is the most likely solution, although there are other possible solutions.

## **Step-by-step explanation**

- The above code is a monoalphabetic substitution cipher. This type of cipher uses a single alphabet to encode the plaintext. In this case, the ciphertext is in English, so the alphabet used is the English alphabet. The code relies on the fact that certain letters are more common in English than others. "For example, the letter E is the most common letter in English, while the letter Z is the least common". By using this information, we can quickly decipher the ciphertext. "For example, the letter E is the most common letter in English, so it is likely that this letter represents the letter A in the ciphertext". • Similarly, "the letter T is the second most common letter in English, so it is likely that this letter represents the letter B in the
- ciphertext". By using the letter frequencies of the English language, we were able to quickly decipher the ciphertext. This is an example of how monoalphabetic substitution ciphers can be broken using simple methods. There are other methods of breaking these types of ciphers, but this is one of the simplest and most effective.

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