
LEVEL 5

CIA Agent: The aliens found out that we have been spying on them. They changed their encryption tables.

Your task: Find a valid decryption table.

Given multiple messages and a dictionary, both following the rules from previous levels, **find a decryption table for each message,** that will produce only words in the dictionary. There will always be exactly one correct decryption table. **Sort the decryption table alphabetically based on the alien alphabet** (just like in level 3).

The order of the **5** most occurring letters, was the same in the message and the dictionary before encryption (Visualization can be found on the last slide).

The rest of the letters will not necessarily be in that order.

	Input	Output
Format	M message N word (line is repeated N times)	cipherChar plainChar (line is repeated M * A times, with A being the number of letters in the alien alphabet)
Types	**M (int): number of messages** message (string): a sequence of words separated by spaces N (int): number of words in the dictionary word (String): a word in the alien language	cipherChar (char): the letter in the ciphertext that has to be substituted plainChar (char): the letter that the ciphertext letter has to be substituted with

	Input	Output
Example	3 IADEI EEAD EKAIAAAAE ICAAAEEE DIEFAAI LLGCKAKHEE HKDLC IADEI HKDLC EKGABA … JCFFFIII IKAFGF JCFFFIII KKFKI IKFJFFFFI IFFFCGHK GECLKAFKIH BKELC KFIFCGIFF … HHJB BLHCJJL CJG BLHCJJL DIBAG CJG HIFJEJ AAFGIJIDHH ILJG GJKJJL LGJJJHHH … 25 DDJDA DAJCF DJAJIEAJJ DGJI KGABJJG BJI EKIFDHJDAC ADHJEJ ADJGJJJJA AAJK AJJJIECD AJJJLDK IHA IJCJJG LDKFI HJAD CFALK JEEIKEJAJ JIAJJGJJ JCHGFJ JJDDI JGLID GIJJJAAA GJKAG FFHIDJDLAA	D K K D B E E A A J I G L F H L C I J C G H F B D B K D B L E K A H I A L F H C C I J G G E F J D L K C B K E E A F I D L G H A C B J J G I F H Explanation: There are 3 different decryption tables in the output, one for each message in the input

Histogram visualizing example file

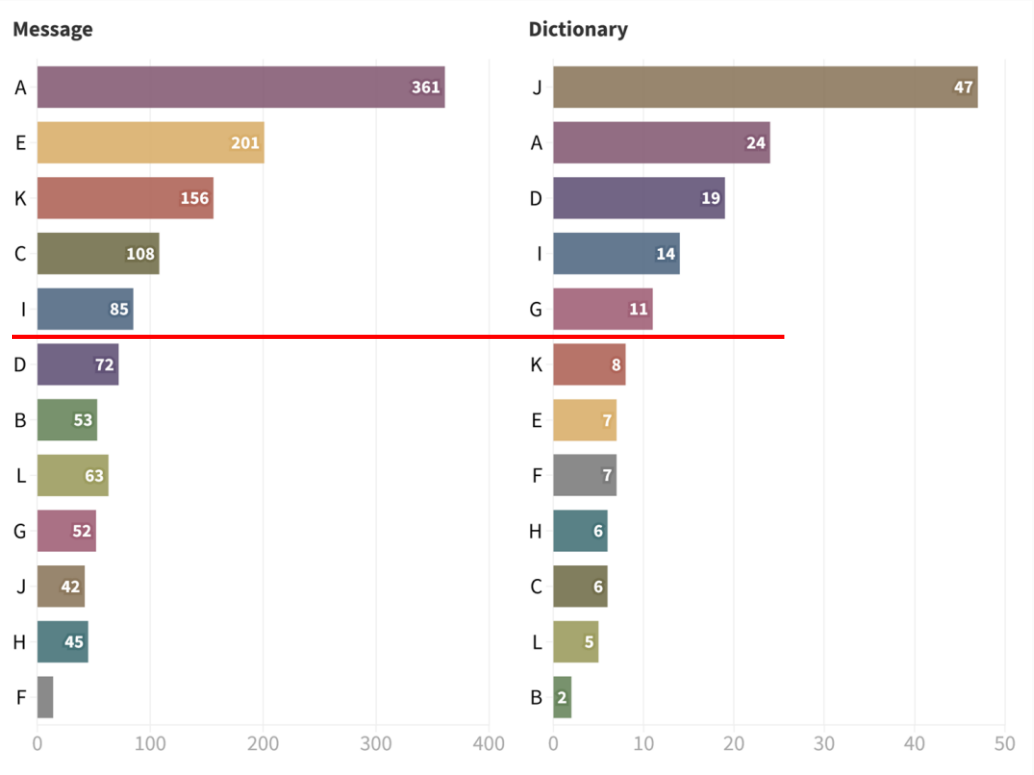
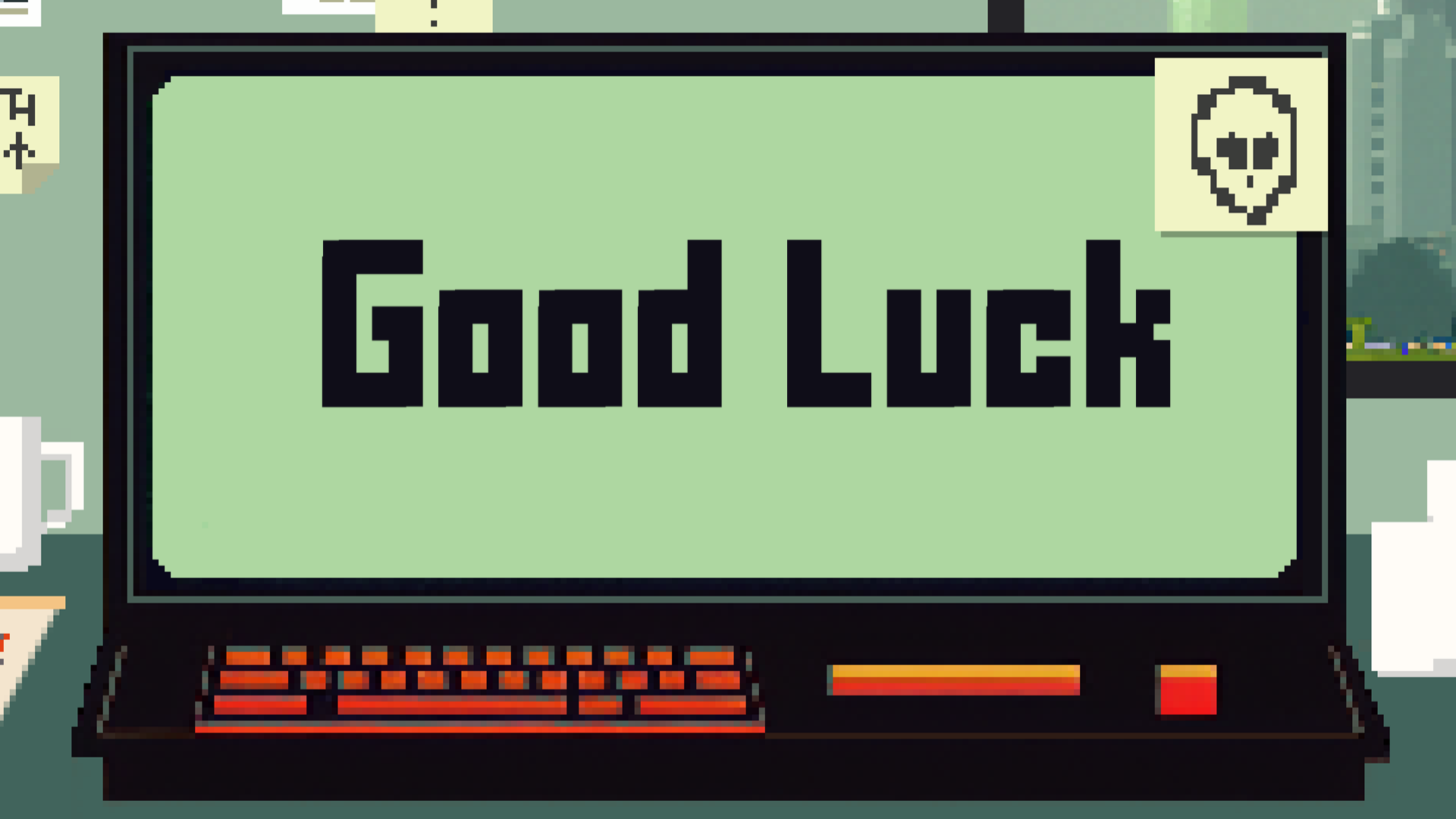


Diagram made with [Flourish]

The histogram refers to the first message in the example. Please note that the messages on the previous slides are abbreviated. A full version of them can be found in the example file that you downloaded together with the other input files.

Please note that the letters in the same row correspond to each other. The diagram is sorted by frequency of occurrence in the dictionary. ‘J’ was not as often as ‘H’ in the message, but corresponds to ‘C’ which was more often than ‘L’ in the dictionary.

In this case the 6th letter is still matches but only the first 5 are guaranteed to match.


Good Luck