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Compression Code Puzzles 1

Big files take a long time to transfer from one place to another. The more data the longer it takes, and the more memory is needed to store the information. We therefore compress files first, creating zip files for example to send. Data on computers is stored as long sequences of characters - ultimately as binary 1s and 0s. The idea with compression is that we use an algorithm to change the way the information is represented so that fewer characters are needed to store exactly the same information.

That involves using special codes. Each common word or phrase is replaced by a shorter sequence of symbols. A long file can be made much shorter if it has lots of similar sequences, just as the message below has been shortened. A second algorithm can then be used to get the original back. We've turned the idea into a puzzle that involves pattern matching patterns from the code book. Can you work out what the original messages were?

For example, given the message

32223111

With codebook:

1 [Da]
2 [Do]
3 [De]

By repeatedly replacing 1s in the message with "Da " from the codebook, 2 with "Do " and 3 with "De ", we would recover the title of the 1980s Police song about abusing words:

De Do Do Do De Da Da Da

Try and solve the compression code puzzles overleaf. Then make up your own from a passage with lots of repetition.

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Repeatedly replace the characters in the following compressed messages by those from the corresponding codebook (the characters between the square brackets) to reveal a computing quotation, a computing joke and a poem credited to Augustus De Morgan, the great mathematician and tutor of 'first programmer' Ada Lovelace.

Message 1
76FB5D
7CCCF0B9D

Codebook 1
0 [...]
1 [,]
2 [aim]
3 [approach]
4 [development).]
5 [fast]
6 [fire,]
7 [Ready,]
8 [software]
9 [slow]
A [to]
B [(the]
C [21]
D [3A84]
E [ ]
F [2E]

Message 2
C
C
46A7B5DF
7GHE9.

Codebook 2
0 [little]
1 [code]
2 [in the]
3 [ninety-nine]
4 [one]
5 [compile]
6 [bug]
7 [and]
8 [s hiding]
9 [06821]
A [is fixed ...]
B [we]
C [39,]
D [it all]
E [hundred]
F [again,]
G [there are]

H [a]
I [fixed]

Message 3
9JI
D8CA
37 JI
35AE

369IB
K40F8A
G6HK41A
341A 35 8.

Codebook 3
0 [fleas]
1 [still]
2 [have]
3 [and]
4 [greater
5 [so]
6 [those]
7 [lesser]
8 [on]
9 [great]
A [,]
B [themselvesA in turnA]
C [their backs to bite 'em]
D [up]
E [ad infinitum.]
F [to go]
G [while]
H [again]
I [0A]
J [0 K7]
K [2]