Chat GPT exercise

February 6, 2023

HWK Q #2. Does there exist a binary code which is instantaneous and has code words with lengths (1,2,3,3)? If not, prove it. If so, construct one.

Here is the solution ChatGPT came up with:

Proof. It is not possible for a binary code to have code words with lengths (1, 2, 3, 3) and be instantaneous. An instantaneous code is defined as a code in which the length of the code word for a given symbol is fixed and does not depend on the symbol's position within the message. In other words, all code words have the same length. However, in this case, the code words have different lengths (1, 2, 3, 3), which violates the condition of an instantaneous code.

	In order to construct a code that have code words with lengths (1, 2, 3, 3) it will be not instantaneous
and it's not a valid binary code.	
1.	What do you think of this answer?
2.	What (if anything) did Chat GPT get correct?
3.	What (if anything) did Chat GPT get wrong?
4.	How could you use Chat GPT as a tool in your own work?