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## The 7 Bit Hamming Code

1. Consider the following code:

0	0	0	0	0	0	0
0	0	0	1	0	1	1
0	0	1	0	1	0	1
0	0	1	1	1	1	0
0	1	0	0	1	1	0
0	1	0	1	1	0	1
0	1	1	0	0	1	1
0	1	1	1	0	0	0
1	0	0	0	1	1	1
1	0	0	1	1	0	0
1	0	1	0	0	1	0
1	0	1	1	0	0	1
1	1	0	0	0	0	1
1	1	0	1	0	1	0
1	1	1	0	1	0	0
1	1	1	1	1	1	1

- (a) Fact: the minimum Hamming distance between any two codewords in the above code strictly greater than 2. Find the minimum Hamming distance between any two codewords. Hint: Use the fact given and look at the first two codewords in the code.
- (b) How many corrupted digits can the code detect?
- (c) How many corrupted digits can the code correct?