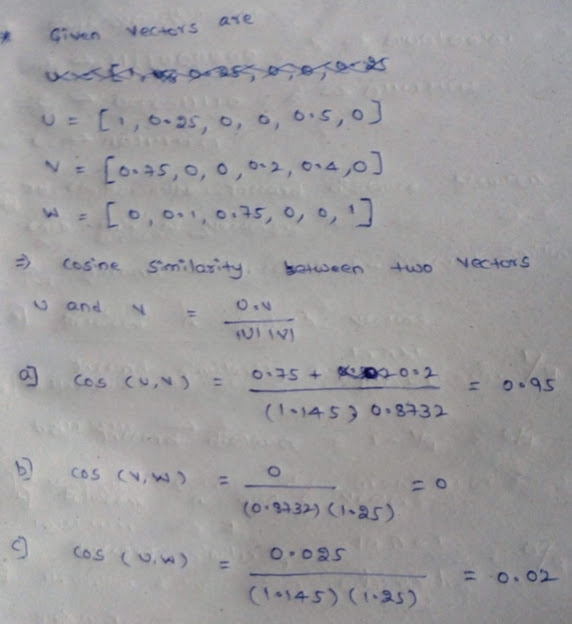
### **Distance Measures**

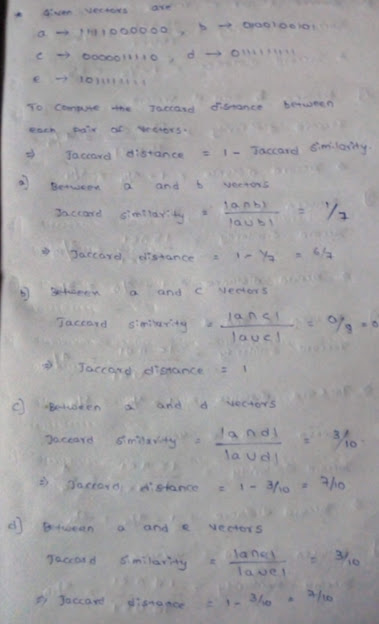
**Question 1**:

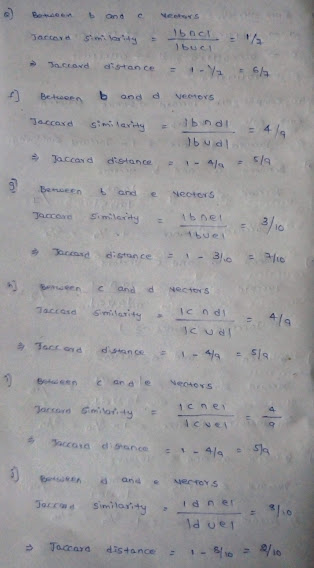
Consider the following three vectors u, v, w in a 6-dimensional space: u = [1, 0.25, 0, 0, 0.5, 0]   
v = [0.75, 0, 0, 0.2, 0.4, 0] w = [0, 0.1, 0.75, 0, 0, 1]. Suppose cos(x, y) denotes the similarity of vectors x and y under the cosine similarity measure. Compute all three pairwise similarities among u,v, w.

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**Question 2**:

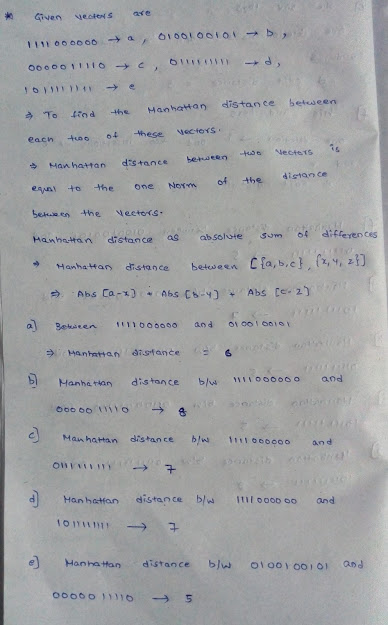
Here are five vectors in a 10-dimensional space: 1111000000 0100100101 0000011110 0111111111 1011111111. Compute the Jaccard distance (not Jaccard "measure") between each pair of the vectors.

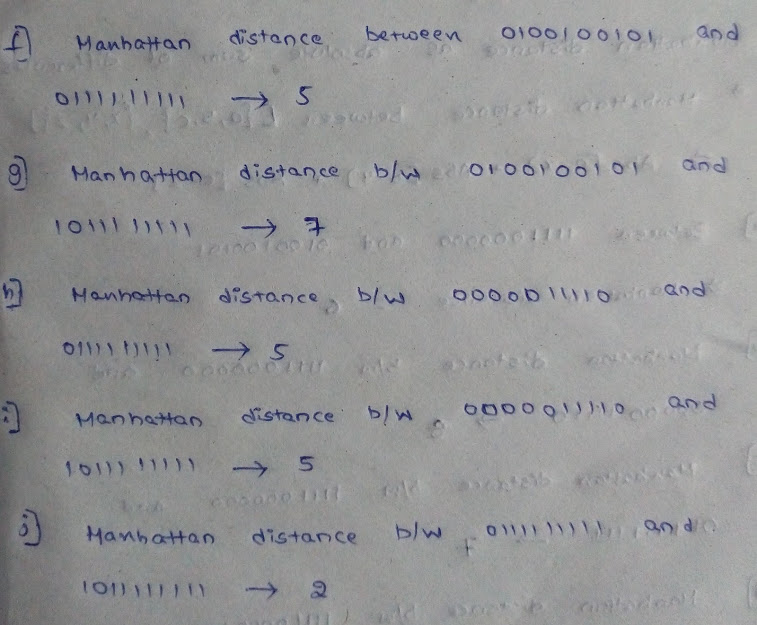




**Question 3**:

Here are five vectors in a 10-dimensional space: 1111000000 0100100101 0000011110 0111111111 1011111111 . Compute the Manhattan distance (*L*1 norm) between each two of these vectors.





**Question 4**: The edit distance is the minimum number of character insertions and character deletions required to turn one string into another. Compute the edit distance between each pair of the strings **he**, **she**, **his**, and **hers**.

