

Assignment -5

Tabreed

Challenge 1:

The only way to solve this problem is by using probability because we cannot have 100% correct answer of the following question. As we know there are majority of trustworthy as compared to liars = trustworthy > liars ratio = 51:49

We can find the truth teller in less than <200 questions. as we can make a pair of them

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In case 1: if the both are truth teller we will take one of them and other as his representative

CASE 1		
Trust worthy	Trust worthy	1

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IN CASE 2: if both are liars we will discharge the both of them

Case 2		
liars	liar	0

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In case 3: as in if we get one truth teller and one liar we will also discharge them

CASE 3

Trust worthy	Liar	0
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As we pair the people the people our question will be reduce as we discharge the a pair
 We will ask 100 question from from the first pair then it will reduce to 50 question then to
 25, 12, 6,3,2,1

As if we get the odd number of people we will take one of them aside and ask everyone
 about him if the majority says he is a truth teller then we can ask about the rest of them
 From And if the majority says he is a liar we will take a pair again to get a odd number

Challenge 3:

We can use HashMaps to solve this problem

1. Traverse the nuts array and create a hashmap
2. Traverse the bolts array and search for it in a Hashmap.
3. If it is found in the Hashmap of nuts then this means bolts exist for that nut.