

Five pirates of the Caribbean and one hundred diamonds

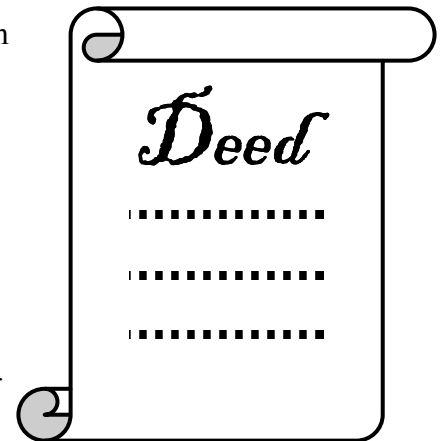
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Five pirates of the Caribbean, A, B, C, D, E, get a loot of one hundred diamonds. The Captain of the pirates, A, proposes the following method to divide the diamonds. All pirates then agree.



Firstly, Pirate A makes a Deed to share the diamonds, subject to the following rules:

- (1) If half or more of the number of pirates agree with the Deed, then the diamonds have to be divided according to this Deed.
- (2) However, if less than half of the pirates agree, then the pirate proposing the Deed is killed by other pirates.



If pirate A is killed, then it is pirate B's turn to make a Deed. The rules (1) and (2) still apply. The procedures continue for the rest of pirates until the diamonds are shared.

It is assumed that the pirates :

- (a) are greedy so as to maximize their own share of diamonds,
- (b) are ruthless and vote against the Deed if they cannot get any diamonds,
- (c) obey the rules (1) and (2) and the final Deed on sharing the diamonds.

If you are the Captain of the pirates, A, how do you make the Deed so as to get the maximum number of diamonds ?

See Page 2 if you really want the answer.

Solution

	A	B	C	D	E
(1)	☠	☠	☠	100	0
(2)	☠	☠	99	0	1
(3)	☠	99	0	1	0
(4)	98	0	1	0	1

Refer to the above table :

- (1) If A, B, C are killed. The Deed that pirate D makes is: " I get 100 diamonds and E gets nothing." Of course, D agrees with the Deed and E not. However, since there are two pirates and half of them, that is, 1 pirate agrees. The Deed should be obeyed.
Note that pirate E does not like this situation and does not let pirate C to be killed.
- (2) If A, B are killed. The Deed that pirate C makes is: " I get 99 diamonds, D gets nothing and E gets one diamond." Obviously, since E does not let C to be killed, he is forced to vote for the Deed to get 1 diamond. The Deed can be passed since 2 pirates out of 3 pirates agree with the Deed.
Note that pirate D does not like this situation and does not let pirate B to be killed.
- (3) If only A is killed. The Deed that pirate B makes is " I get 99 diamonds, D gets one diamond, C and E get nothing." Obviously, since D does not let B to be killed, he is forced to vote for the Deed to get 1 diamond The Deed can be passed as 2 out of 4 pirates agree with the Deed.
Note that pirates C and E do not like this situation and does not let pirate A to be killed.
- (4) Finally A makes the Deed : " I get 98 diamonds, C and E can each get one diamond, B and D get nothing. " The Deed can be passed as 3 out of 5 pirates agree with the Deed!

Believe it or not, the captain of pirates of the Caribbean, A, can get 98 diamonds!