Activity 1. [Execution times]

Argument: 1000

n	tGreedy1	tGreedy2	tGreedy3
100	-	71	61
200	-	95	107
400	-	259	420
800	-	728	864
1600	45	2285	2227
3200	85	5979	6698
6400	146	22123	24460
12800	304	87575	67249
25600	569		
51200	1133		

Activity 2. [Answer the following questions]

Explain if any of the greedy algorithms involves the optimal solution from the point of view of the company, which is interested in maximizing the number of "pufosos".

Yes, the second one because it is always the one with more "pufosos".

Explain if any of the greedy algorithms involves the optimal solution from the point of view of the player, who is interested in minimizing the number of "pufosos".

Yes, the third one because it is always the one with the smallest number of "pufosos"

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Explain the theoretical time complexities of the three greedy algorithms, according to the implementation made by each student, depending on the size of the problem n.

Greedy1: O(n)

Greedy2: O(n^2)

Greedy3: O(n^2)

Explain if the times obtained in the table are in tune or not, with the complexities set out in the previous section.

To check if the complexity of the greedy1 is O(n):

N1 = 6400   t1 = 146

N2 = 128000   t2 = ?

T2 = k * t1 = (n1/n2) * t1 = 2 * 146 = 292

The value that I measured is 304 that is almost the same as 292 so we can say that is correct.

To check if the complexity of the greedy2 is O(n^2):

N1 = 6400   t1 = 22123

N2 = 128000   t2 = ?

T2 = k^2 * t1 = (n1/n2)^2 * t1 = 4 * 22123 = 88492

The value that I measured is 87575 that is almost the same as 88492 so we can say that is correct.

To check if the complexity of the greedy3 is O(n^2):

N1 = 3200   t1 = 6698

N2 = 6400   t2 = ?

T2 = k^2 * t1 = (n1/n2)^2 * t1 = 4 * 6698 = 26792

The value that I measured is 24460 that is almost the same as 26792 so we can say that is correct.

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