Activity 1. Table made manually.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 (value 1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2 (value 3)	1	2	1	2	3	2	3	4	3	4	5	4	5	6
3 (value 6)	1	2	1	2	3	1	2	3	2	3	4	2	3	4

	Student information	Date	Number of session
Algorithmics	UO: 271407	16/03/2020	4
	Surname: Llera		
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Activity 3. ExchangeTimes.

n	time
10000	55ms
20000	84ms
40000	161ms
80000	332ms
160000	594ms
320000	1150ms
640000	2230ms
1280000	4386ms
2560000	9215ms
5120000	22480ms
10240000	46428ms

This method calculates the number of coins necessary to obtain the value indicated in n with addition of coins in set {1, 2, 5, 10, 20, 50, 100, 200}. For measuring porpoises, nTimes=100 (that is, the times are equivalent to the algorithm executing 100 times).

If we have a look at the code, we can see that, other than conditions and matrix management, the core of the algorithm is formed by two nested loops. That may lead us to think that the complexity is square. However, one of the loops doesn't depend of n, but on m (being m = number of different possible coins). This means that the complexity is O(n·m), and since m is a constant which value is assigned in the creation of the Exchange instance, the final complexity is O(n).

CPU: Intel® Core™ i5-3470 CPU @ 3.20GHz

RAM: 8GB