Algorithmics	Student information	Date	Number of session
	UO:294866	14/4/24	2
	Surname: Menendez		
	Name:Javier		

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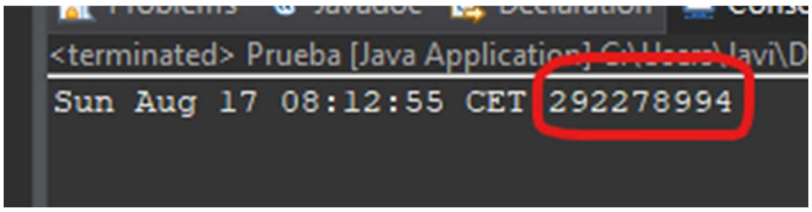
Activity 1. [Calculate years]



The number surrounded by the red is the maximum number of years that can be represented with a long so considering that the measure started in 1970, 54 years have already been so we can continue using this way of counting for 292278940 years.

Activity 2. [Measurements]

In this activity is asked what it means that the time measured is 0, and it mean that as it does it so fast that it doesn't consider because times under 50 milliseconds, are not considered. I started to get reliable times with an n = 650000.

Activity 3. [Complexities]

If the size of the problem is multiplied by 2, the time which we are going to get is also the time we got before by 2. If any other number is used it doesn't change, for example is the size is multiplied by 3 the times that we get are the same as before by 3, the same happens for 4, 5,6…

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n	Tsum(ms)	Tmaximum(ms)
10000	1	0
20000	2	1
40000	3	12
80000	8	14
160000	41	40
320000	178	123
640000	887	684
1280000	4473	3965
2560000	22439	20879
5120000	Oot	59765
10240000	Oot	oot
20480000	Oot	oot
40960000	Oot	oot
81920000	Oot	oot

n	Tmatches1	Tmatches2
10000	670	1
20000	2675	1
40000	10727	1
80000	42857	1
160000	Oot	1
320000	Oot	2
640000	Oot	6
1280000	Oot	11
2560000	Oot	23
5120000	Oot	46
10240000	Oot	92
20480000	Oot	185
40960000	Oot	370
81920000	Oot	746

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Measurements were done with:

- CPU: Intel® Core™ i5-9400 CPU @ 2.90GHz
- RAM: 16,0 GB 2666mHz

With these results we can see that tMatches2 is much more powerful than tMatches1 this is because it has a very better complexity.