Algorithmics	Student information	Date	Number of session
	UO: 300047	10/02/2025	2
	Surname: Rodríguez Torres		
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Activity 1. Calculate how many more years we can continue using this way of counting. Explain what you did to calculate it.

Since TimesMilis() returns a long(64 bits) the hightest number it can return is 2^63 –1, or 9,223,372,036,854,775,807 milliseconds, which in years is 292,471,208. If we take into account it is now 2024 and the method was created in 1970. The time remaning in years is: 2024 – 1970 = 54 years passed, 292,471,208 – 54 = 292,471,154 years.

Activity 2.

Why does the measured time sometimes come out as 0?

The currentTimeMilis() function provides the current time in milliseconds. However, ifor very quick operations, the difference in time between the start (`t1`) and end (`t2`) could be less than 1 millisecond, resulting in the measurement showing 0 milliseconds.

From what size of problem (n) do we start to get reliable times?

n = 1000

Activity 3.

- **For k = 2**: If you double the problem size, the time should approximately double as well, if the complexity is linear.
- **For k = 3**: If you multiply the problem size by 3, the time should roughly triple.
- **For k = 4**: Similarly, if the problem size is multiplied by 4, the time should increase approximately four times, assuming linear complexity.

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n	Tsum (ms)	Tmaximum (ms)
10000	0.0385	0.056
20000	0.0768	0.115
40000	0.1537	0.221
80000	0.2992	0.444
160000	0.6053	0.914
320000	1.2126	1.842
640000	2.4017	3.626
1280000	4.8535	7.424
2560000	9.9061	14.572
5120000	19.9338	29.439
10240000	39.41	59
20480000	80.88	119
40960000	160.34	239
81920000	319.50	480

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n	Tmatches1 (ms)	Tmatches2 (ms)
10000	508	61
20000	2110	120
40000	8427	238
80000	33775	473
160000	133615	941
320000	OoT	1892
640000	OoT	3768
1280000	OoT	7457
2560000	OoT	15240
5120000	OoT	30704
10240000	OoT	59943
20480000	OoT	120731
40960000	OoT	OoT
81920000	OoT	OoT