


Algorithmics	Student information	Date	Number of session
	UO: 300084	3-2-2025	0
	Surname: Seijo Martinez	 Escuela de Ingeniería Informática Universidade do Porto	
	Name: Sergio		



Activity 1. Factor 1: problem size

	10000	20000	40000	80000	160000	320000	640000
PC1	1556 ms	6393 ms	25789 ms	OoT	OoT	OoT	OoT

Activity 2. Factor 2: computer performance

PC1: RAM (16,0 GB), CPU (12th Gen Intel(R) Core (TM) i5-12400 2.50 GHz)

PC2: RAM (16,0 GB), CPU (AMD Ryzen 5 3600 6-Core Processor 3.59 GHz)

	10000	20000	40000	80000	160000	320000	640000
PC1	1556 ms	6393 ms	25789 ms	OoT	OoT	OoT	OoT
PC2	2397 ms	9743 ms	39325 ms	OoT	OoT	OoT	OoT

Activity 3. Factor 3: implementation enviroment

	10000	20000	40000	80000	160000	320000	640000
PY	1556 ms	6393 ms	25789 ms	OoT	OoT	OoT	OoT
Java	452 ms	1668 ms	6210 ms	26723 ms	OoT	OoT	OoT

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Activity 4. Factor 4: algorithm that is used

Python:

	10000	20000	40000	80000	160000	320000	640000
PYA1	1556 ms	6393 ms	25789 ms	OoT	OoT	OoT	OoT
PYA2	319 ms	1208 ms	4461 ms	16483 ms	59909 ms	OoT	OoT
PYA3	138 ms	529 ms	2070 ms	7618 ms	28219 ms	OoT	OoT

Java without optimization (DJava.compilation=NONE):

	10000	20000	40000	80000	160000	320000	640000
JA1	452 ms	1668 ms	6210 ms	26723 ms	OoT	OoT	OoT
JA2	191 ms	795 ms	3155ms	12921 ms	50757 ms	OoT	OoT
JA3	121 ms	483 ms	1984 ms	8279 ms	33899 ms	OoT	OoT

Java with optimization:

	10000	20000	40000	80000	160000	320000	640000
JA1	175 ms	693 ms	2776 ms	11128 ms	44538 ms	OoT	OoT
JA2	4 ms	1 ms	2 ms	1 ms	2 ms	2 ms	9 ms
JA3	3 ms	1 ms	2 ms	1 ms	2 ms	3 ms	10 ms

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Conclusion :

What we can see with the results obtained is that when we run the algorithms in python is slower than java, even if we set the compiler to none in java. The main time difference is when we use java with the compiler. This is due to some functions of the compiler that when you are not storing results as we are doing here, that code is not run so we get the absurd times lower than 10ms.