Algorithmics	Student information	Date	Number of session
	UO: 293693	08/02/2024	0
	Surname: Castro Álvarez		
	Name: Ana		

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Activity 2. Factor 1: problem size

RAM: 16 GB

CPU: 13th Gen Intel(R) Core(TM) i7-13700H 2.40 GHz

N = 10000

N	Time
10000	5 038
20000	21 625
40000	80 944
80000	OoT
160000	OoT
320000	OoT
640000	OoT

Activity 3. Factor 2: computer performance

RAM: 8 GB

CPU: Intel Core i7-4790 3.6 GHz

N	Time
10000	2 427
20000	9 693
40000	39 743
80000	OoT
160000	OoT
320000	OoT
640000	OoT

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Activity 4. Factor 3: implementation environment

N	Time Java	Time Python
10000	236	5 038
20000	1 014	21 625
40000	3 748	80 944
80000	14 555	OoT
160000	59 053	OoT
320000	OoT	OoT
640000	OoT	OoT

The times in Java are significantly better than those in Python as Java has built-in improvements

Activity 4. Factor 4: algorithm that is used

N	Time PythonA1	Time PythonA2	Time PythonA3
10000	5 038	583	314
20000	21 625	224	1 114
40000	80 944	8 332	4 436
80000	OoT	28 635	1 5780
160000	OoT	118 877	5 3554
320000	OoT	OoT	OoT
640000	OoT	OoT	OoT

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With optimizations

N	Time JavaA1	Time JavaA2	Time JavaA3
10000	236	34	19
20000	1 014	101	5
40000	3 748	380	18
80000	14 555	1 582	737
160000	59 053	5 314	284
320000	OoT	19 479	10 017
640000	OoT	71 953	36 711

Without optimizations

N	Time JavaA1	Time JavaA2	Time JavaA3
10000	1 035	118	78
20000	4 502	429	243
40000	17 162	1 885	975
80000	68 037	6 664	3 635
160000	OoT	23 458	13 225
320000	OoT	85 645	46 958
640000	OoT	OoT	OoT

The optimizations can be seen perfectly, as for example for an N of 80000 times without optimizations are more or less 6 times slower than times with optimizations