Algorithmics	Student information	Date	Number of session
	UO:		
	Surname:		
	Name:		

Escuela de Ingeniería Informática
Universidad de Oviedo

Universidad de Oviedo
Universidá d'Uviéu
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Activity 1. [POWER OF THE CPU´s]

Task 1

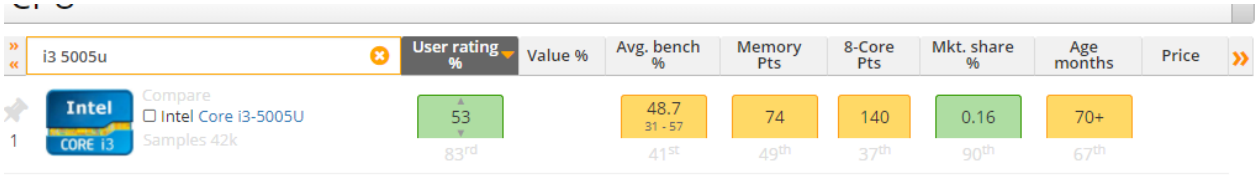
1. Find the model of the processor of your computer. For this, the simplest thing is to open the details of the system provided by Windows (Win + Pause). Write down the processor model and the system memory

Intel(R) Core(TM) i3-5005U CPU @ 2.00GHz 2.00 GHz

2. Look for that processor model on the User Benchmark page

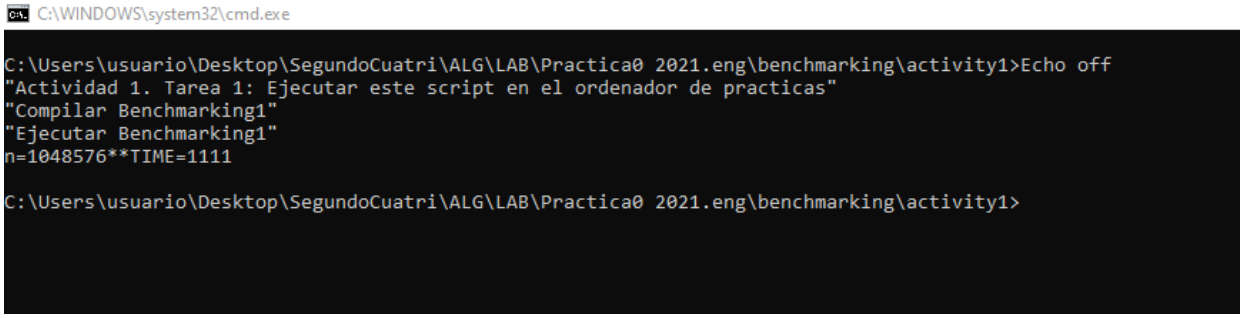
3. Find and take note of the average index of integer and float operations per unit of time (SC Mix Avg) performed by your processor model.

48.7%



4. Compile and run the Benchmarking1 program. Write down the time it took to execute.

The time is 1111ms but after doing the following exercises, I realized that it was because I was using the economizer plan.



5. Calculate the approximate index of integer and float operations performed by the program. To do this, we multiply the execution time by the SC Mix Avg value for that processor.

48.7% * 1.111s = 54.105

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Task 2

1. Complete the following table with the execution times and SC Mix Avg of each CPU. Then, calculate the index of integer/float operations. Important Note: Although the resulting index of operations is theoretically the same for all configurations, in practice there will be certain differences. Record your results.

2. Extend the table with data from other computers to which you have access (for example, your own computer).

	CPU	MILISECONDS	SC MIC(AVG)	OPERATIONS(APROX)
1	**i7-4500U**	**285**	54.5	15532.5
2	**i3-3220**	**267**	58.9	15726.9
3	**i5-4590**	**219**	73.7	16140.3
4	**i7-4790**	**207**	77.2	15980.4
5	**Intel Pentium Gold G5400**	**215**	65.3	14039.5
6	**i3-5005U**	**1111**	48.7	54105.7
7				

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Activity 2. [Influence of the operating system]

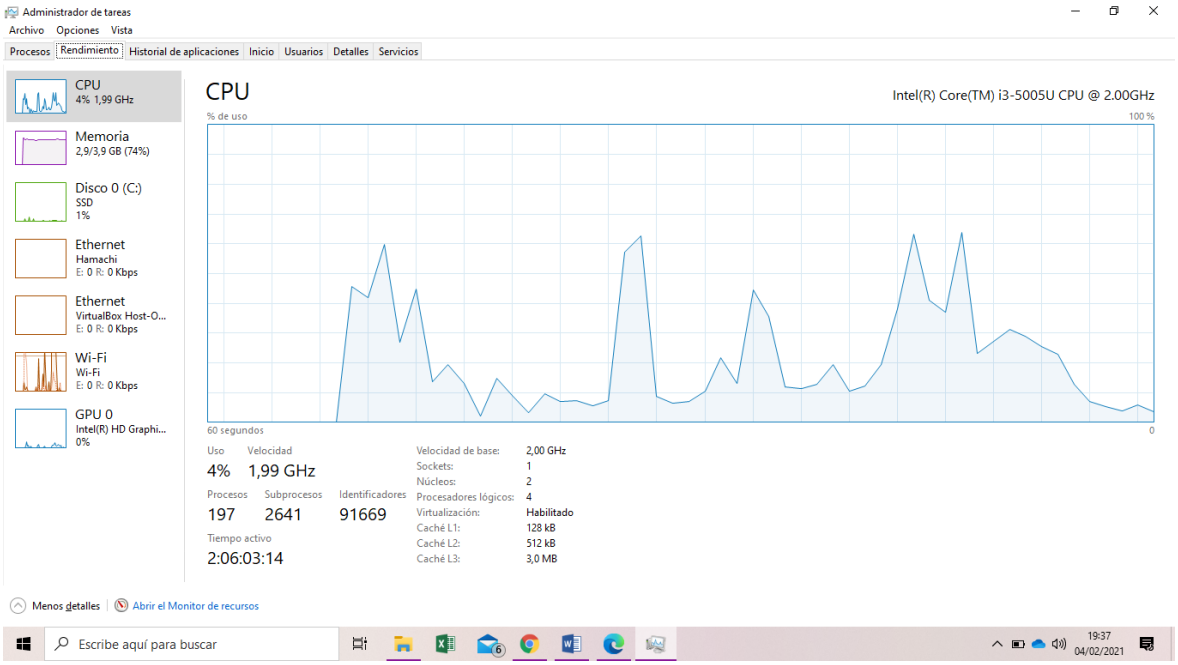
Task 1

1. Open the Task Manager and go to the CPU tab.

2. Open the Windows power configuration: Control Panel\Hardware and sound \Energy options

3. Change between the different plans: High performance, Balanced and Economizer. See how the CPU frequency varies.

Balanced:



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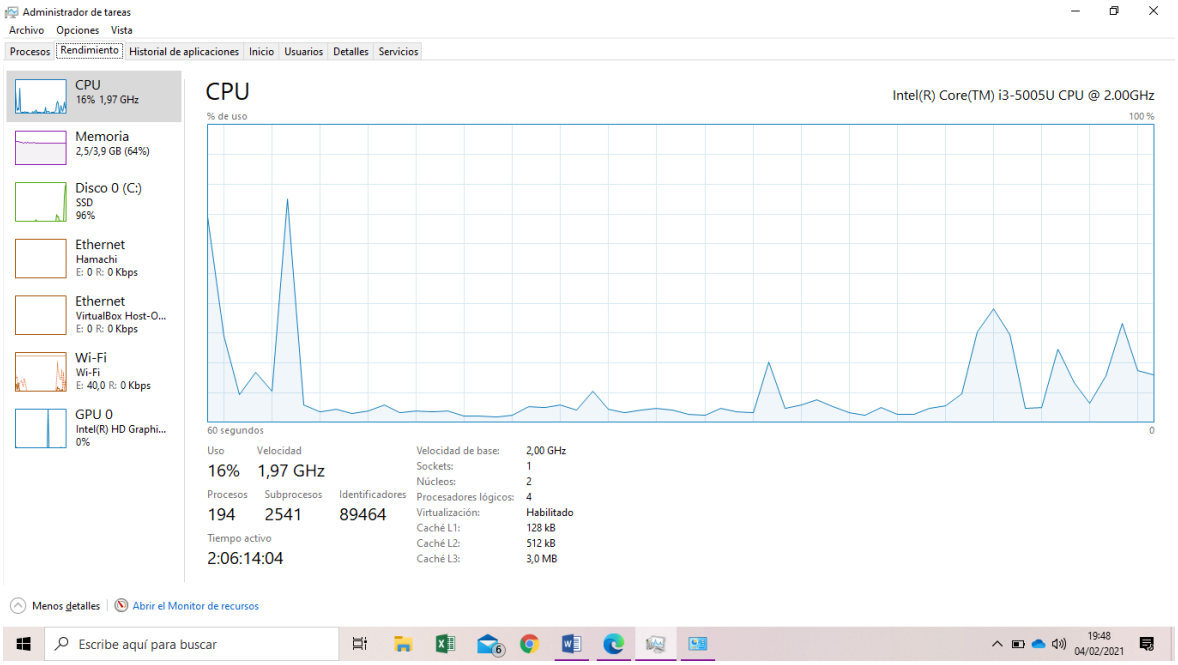
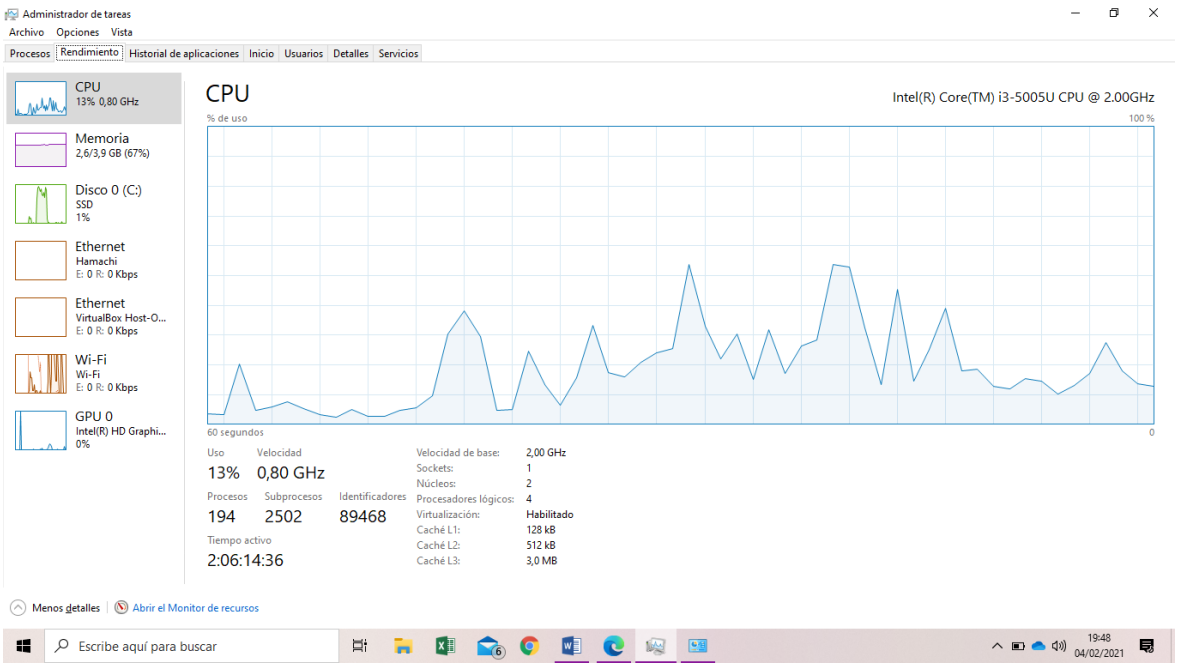
High performance:



Economizador:



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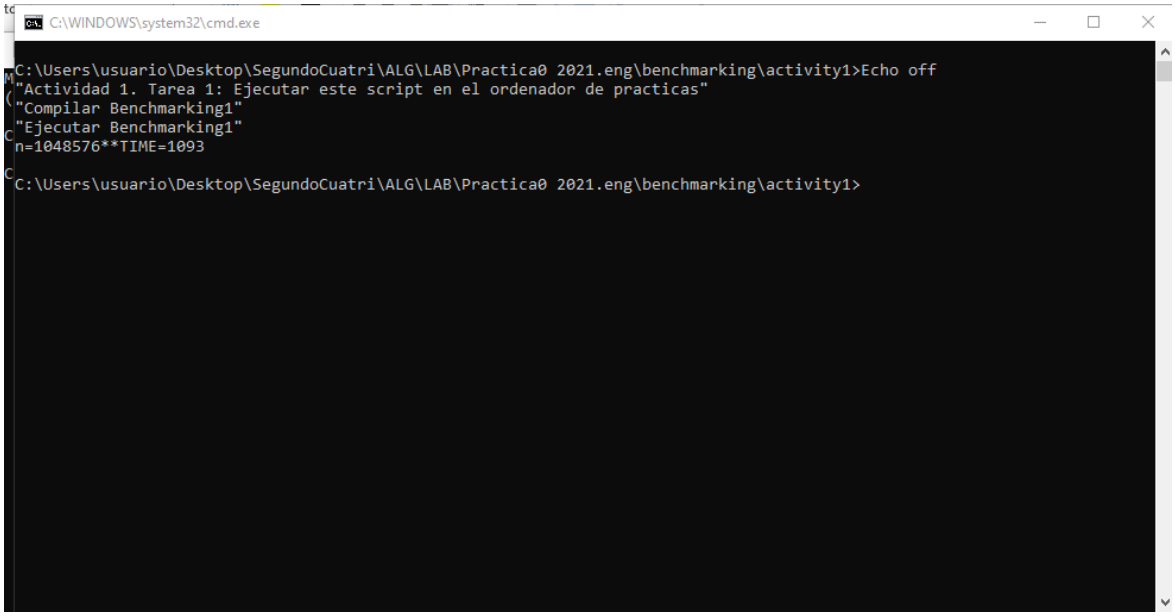
Task 2

Complete this task with the program Benchmarking1 from the previous activity.

• Sequential execution:

1. Run the program multiple times with the run.cmd script. Do not do any other activity that may consume many resources (use of the browser, compilers, etc.). See how the execution time varies slightly from one execution to another.



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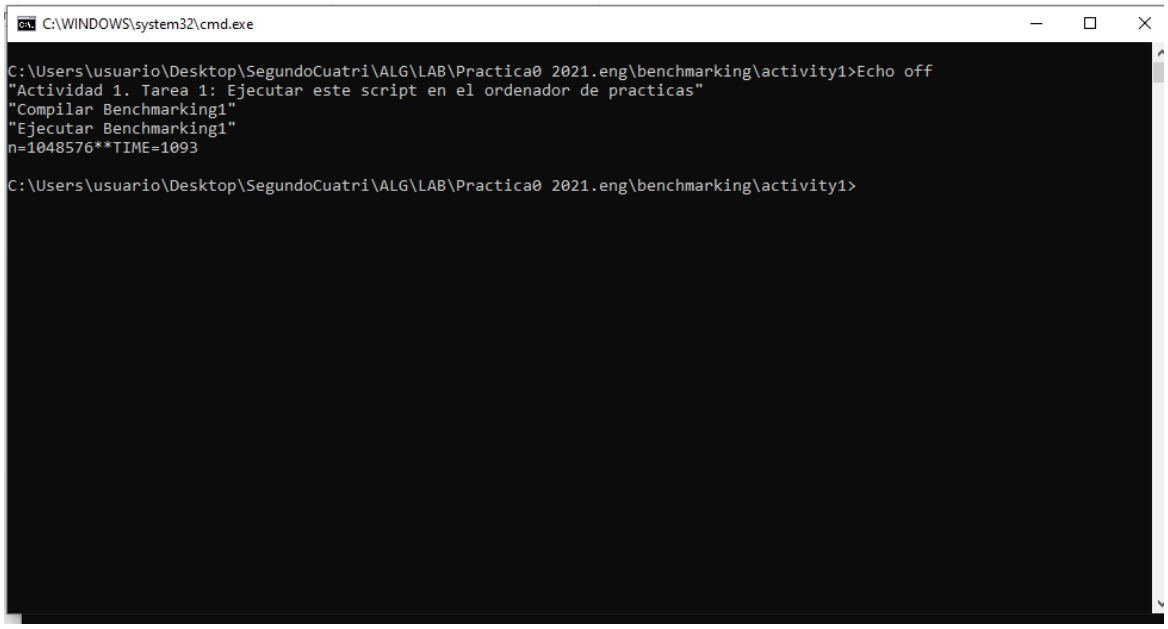

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2. Perform the same tests with different energy plans.

Balanced:

469

500

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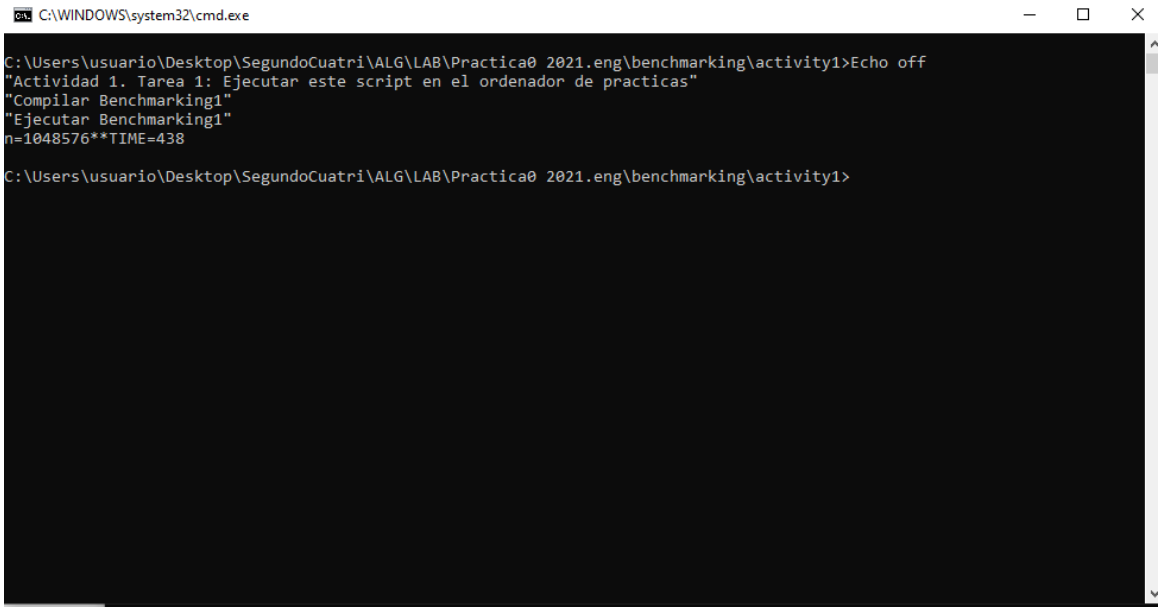
High performance:



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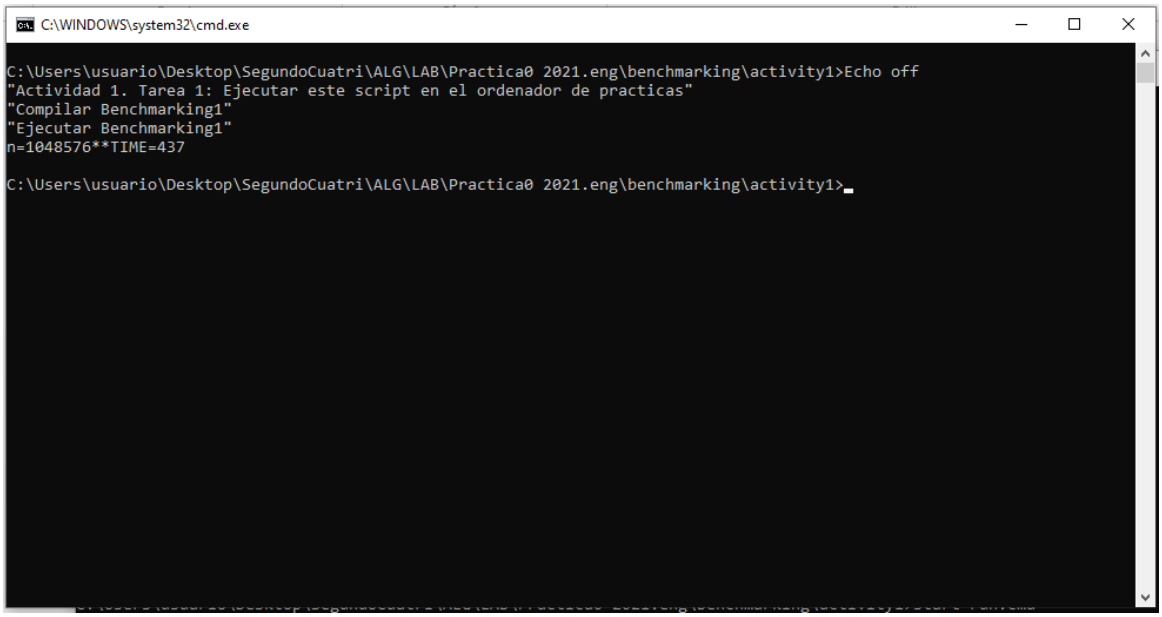
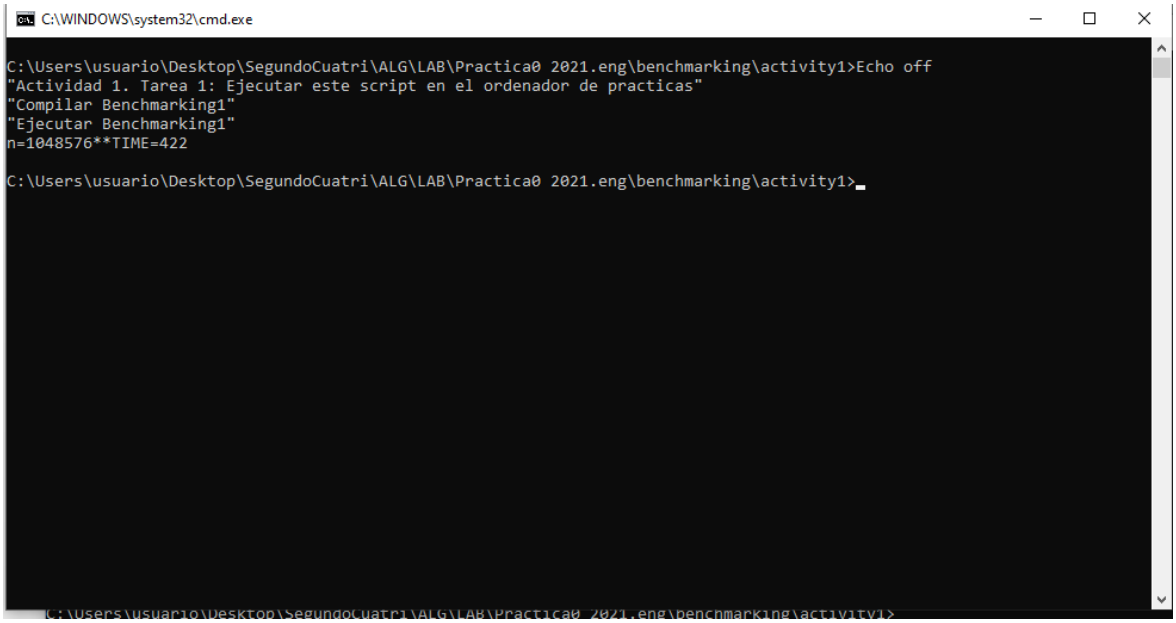


437



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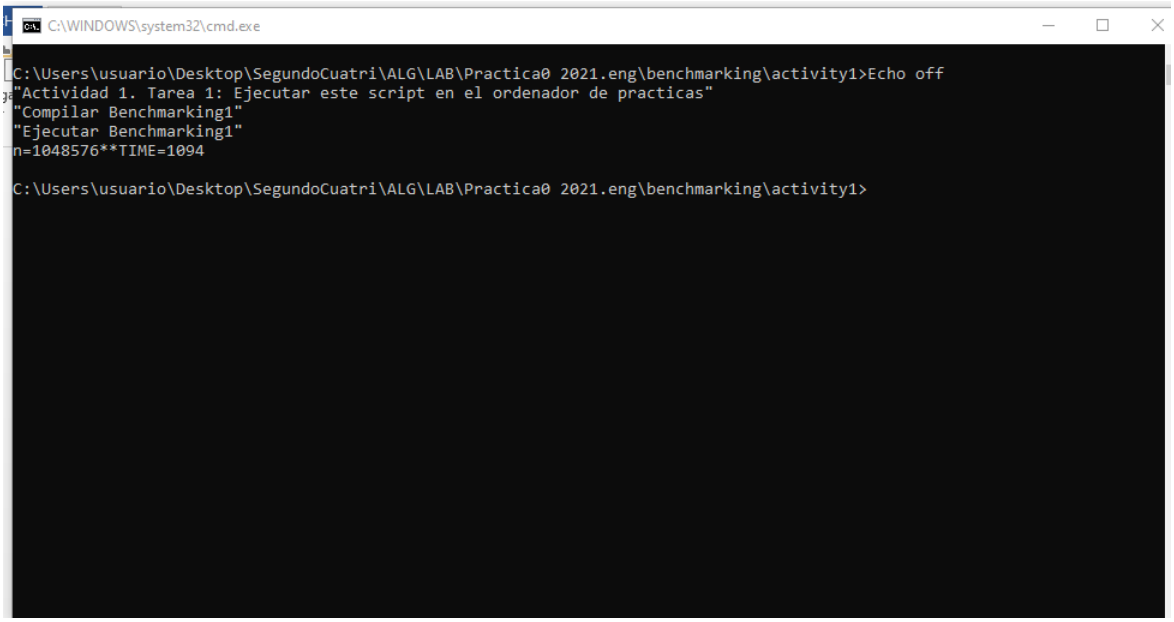
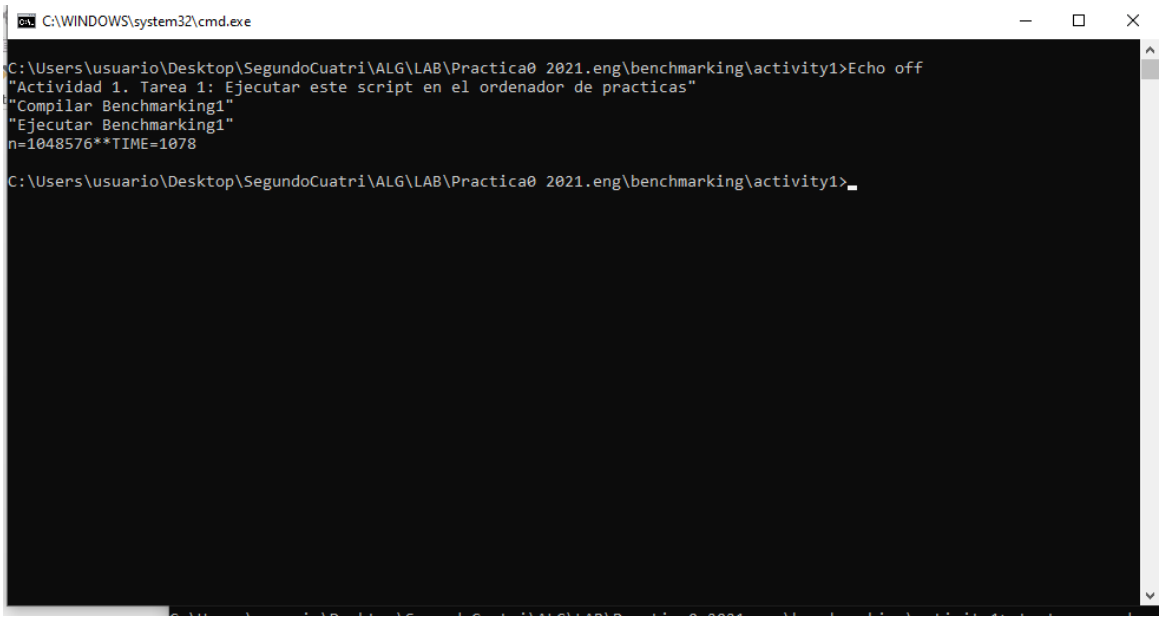
Economizer:



1094



1078

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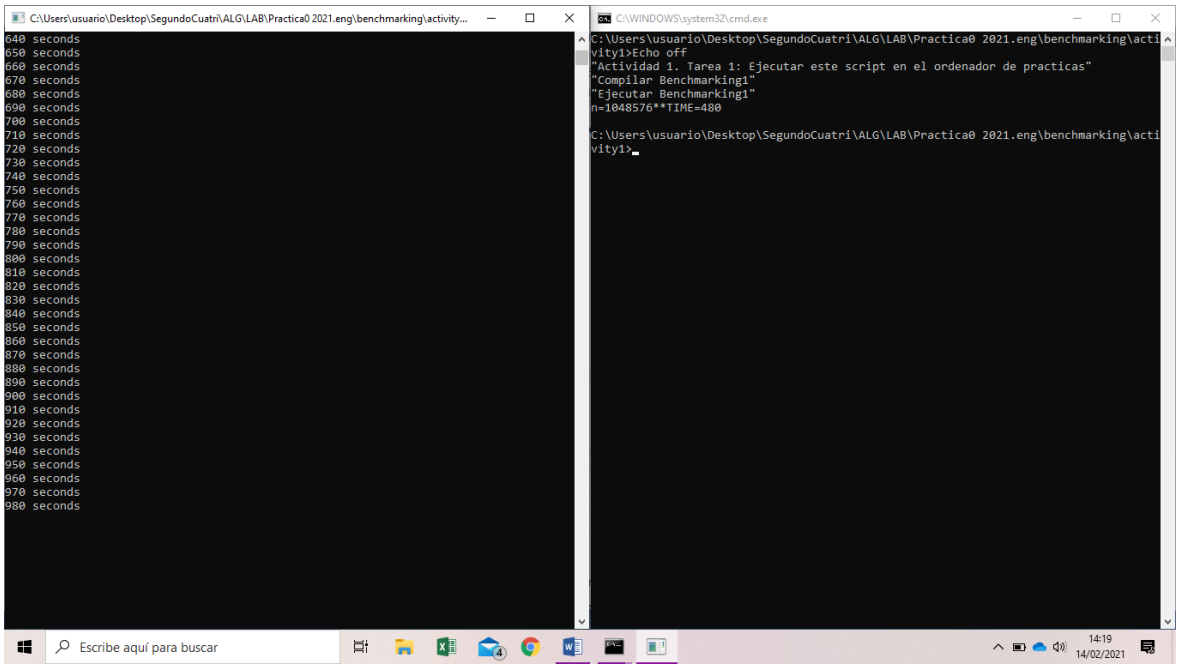
• Parallel execution:

1. Run the cpuburn.exe program. This program consumes 100% of the CPU so it is possible for the computer to respond more slowly (available in https://patrickmn.com/projects/cpuburn/).

2. Run the program multiple times with the run.cmd script. Check whether the execution times are like those of sequential execution.



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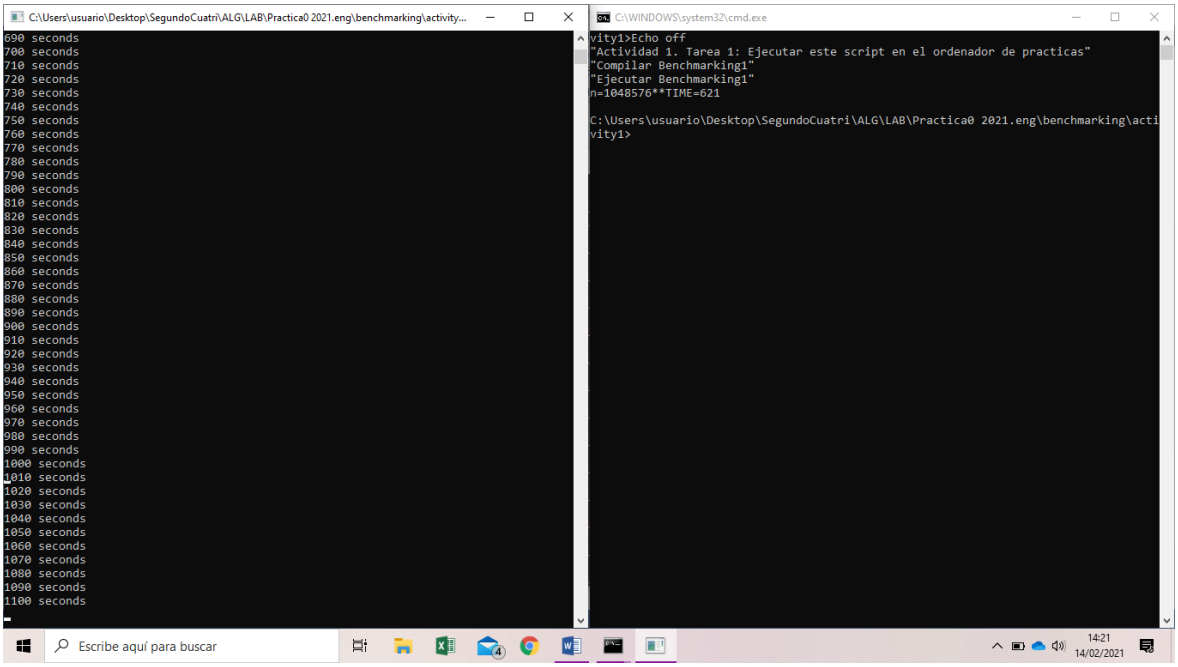

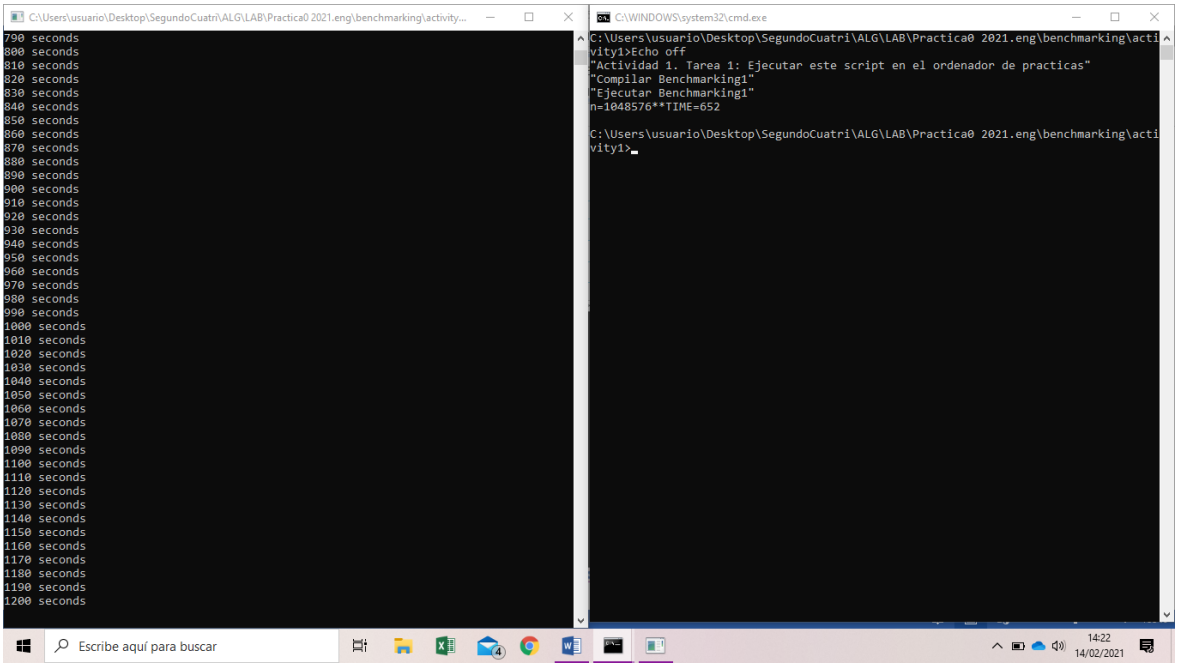

3. When you finish, make sure you stop the cpuburn.exe file.

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Conclusions: Answer the following questions:

1. Which energy plan do you think is the most appropriate for making measurements?

The plans more appropriate are the balanced or the high performance.

2. If you had to perform a very long experiment, could you use the computer to, for example, watch a YouTube video in the meantime?

No, because the measurements would not be correct because the PC would be consuming more resources.

3. Do you think it is convenient to make several measurements simultaneously on the same computer?

I do not think so due to the fact that it is better waste all the power of the PC in only one activity.