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¿Puede un programa del computador ser más rápido?

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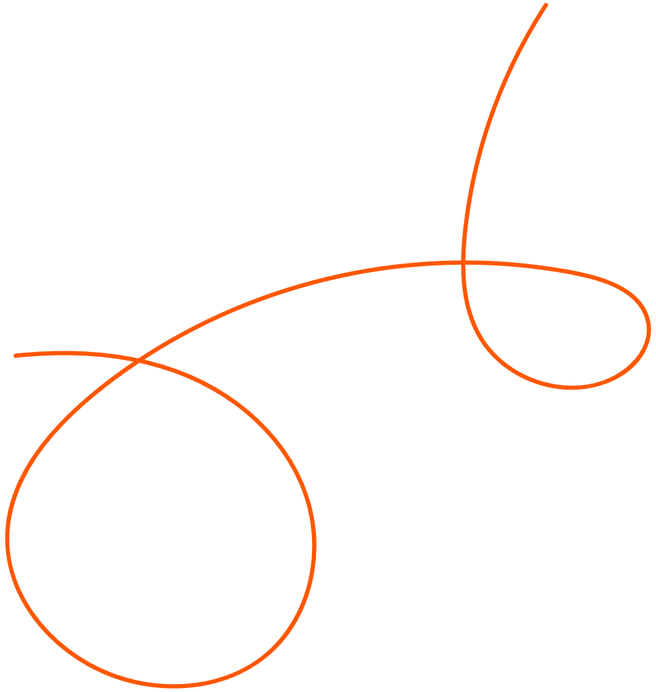
¡Si! Existen formas de hacer programas más rápidos

- Algoritmos Eficientes
- Estructuras de datos
- Caching
- Paralelizar

¿Qué significa paralelizar?

Parallel computing is a type of computation in which many calculations or processes are carried out simultaneously. [1]



[1] Gottlieb, Allan; Almasi, George S. (1989). Highly parallel computing

¿Puedo paralelizar siempre?

NO

Pregunta de Investigación

¿Cuando puedo paralelizar un programa?

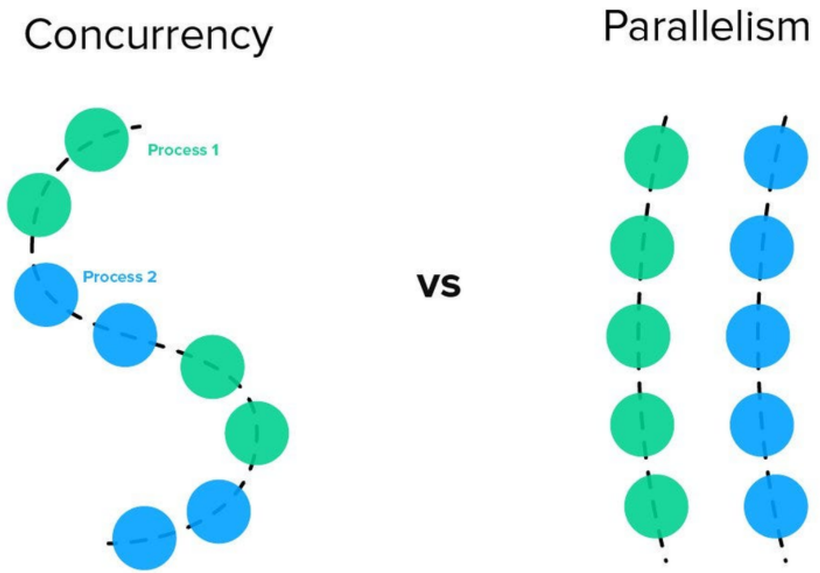
Concurrencia

Concurrency is the ability of different parts or units of a program, algorithm, or problem to be executed **out-of-order** or in **partial order**, **without** affecting the **outcome.**

Concurrencia != Paralelismo

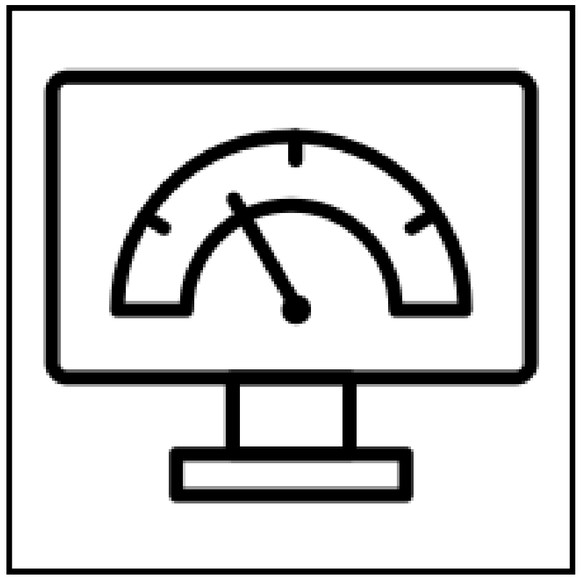
Concurrency is about dealing with lots of things at once.

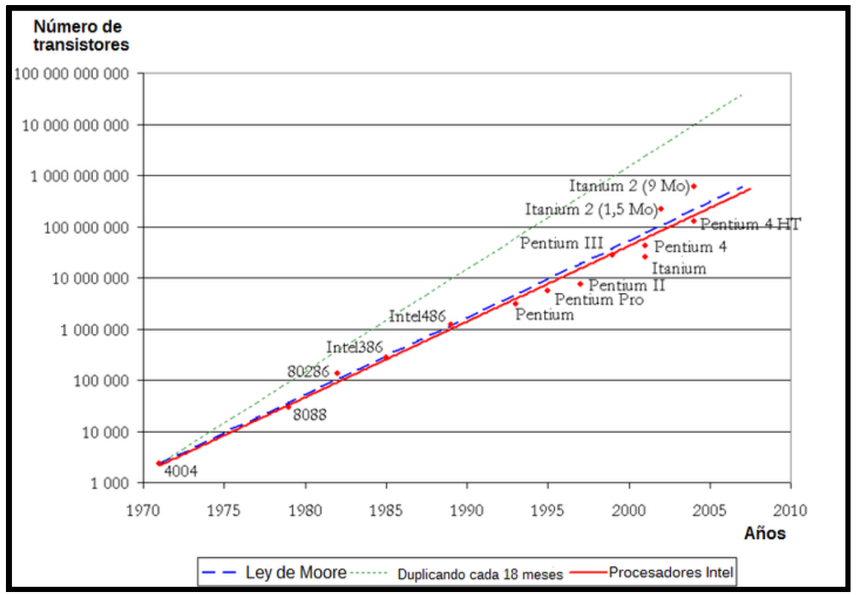
Parallelism is about doing lots of things at once. [2]



[2] Concurrency is not parallelism. The Go Blog

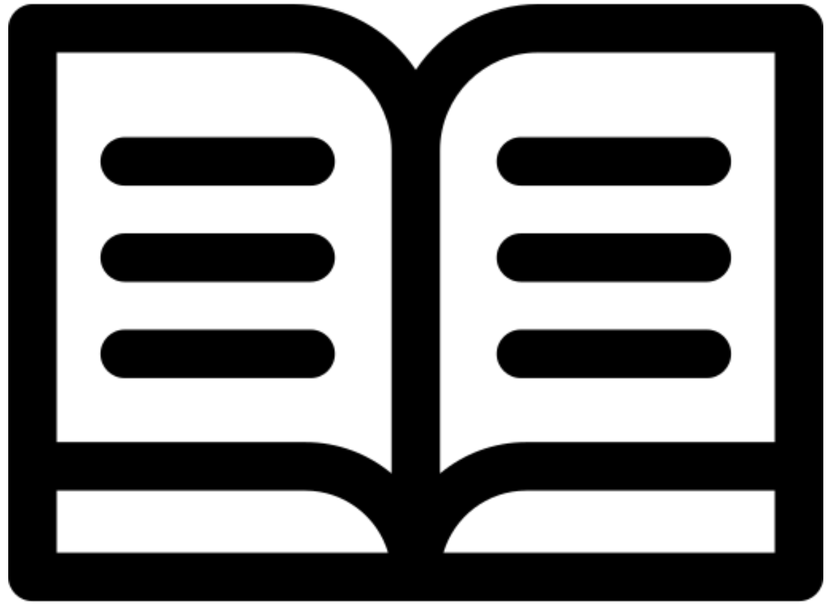
¿Por qué es importante esto?



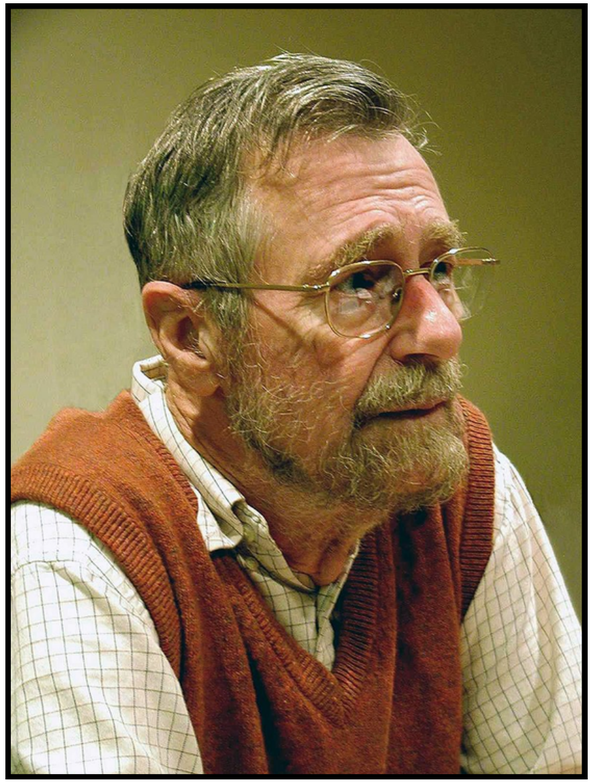


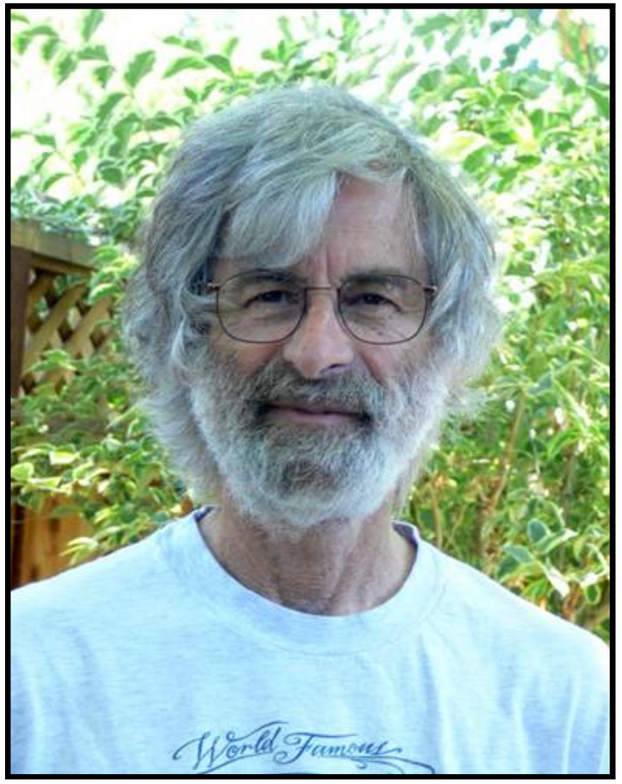
¿Cómo abordarlo?

- **The parallel random-access machine**
- The actor model
- Computational bridging models such as the bulk synchronous parallel (BSP) model
- Petri nets
- **Process calculi**
- Tuple spaces, e.g., Linda
- Simple Concurrent Object-Oriented Programming (SCOOP)
- Trace monoids

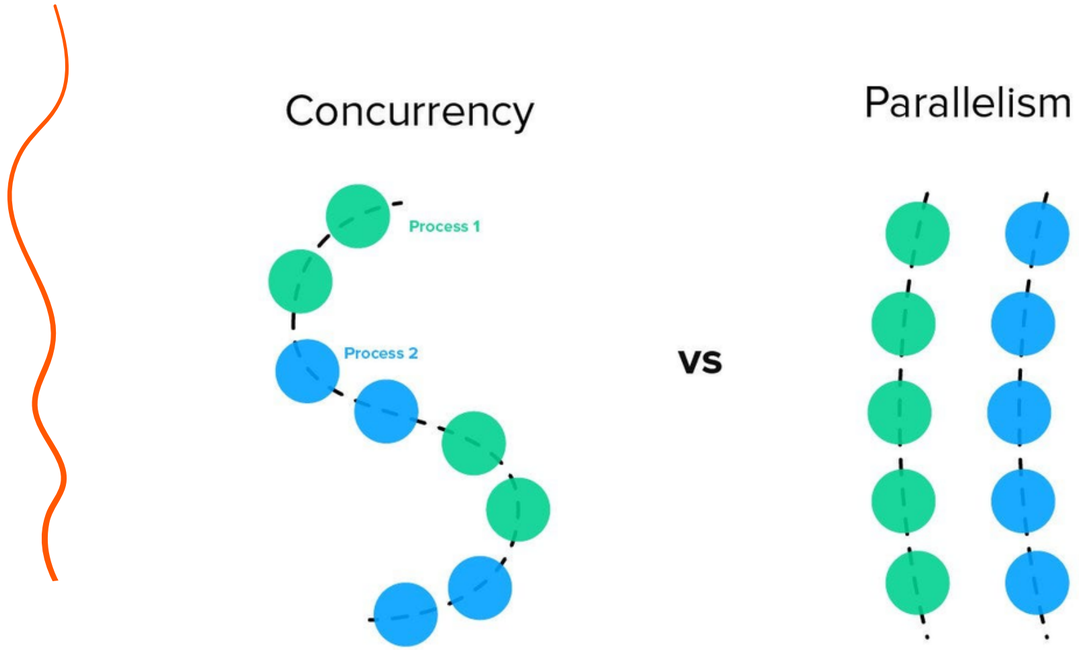


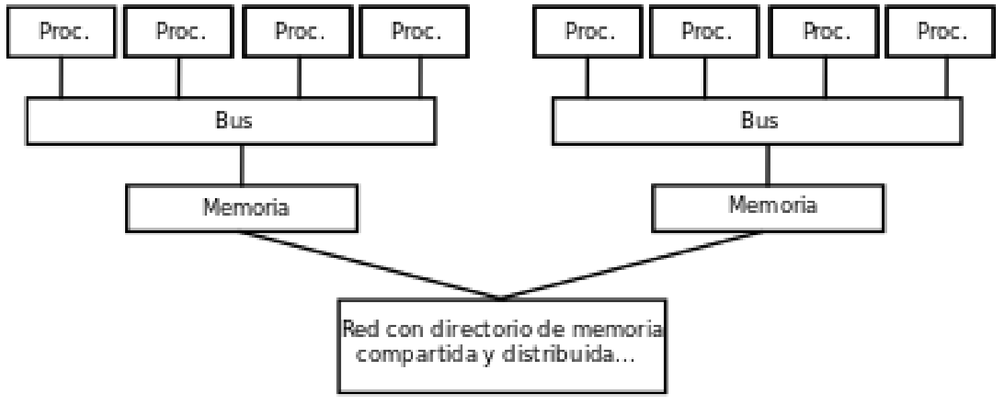
¿Cómo va?





Viabilidad del proyecto





Muchas gracias