

Introduction to Algorithms

Ulises (Tirado Zatarain | Mendez Martinez)

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Why?

- Limited Resources.
- Efficiency.
- Just for Fun!

But what is an **algorithm**?

When?

- The **first rule** of optimization is: Don't do it. The **second rule** of optimization is: Don't do it yet.
- Whenever there is well defined problem that can be solved using computational resources.

How to compare them?

- Correct vs Incorrect.
- Well, it depends, suppose we have two algorithms:
 - One works better for large inputs.
 - One works better for small inputs.
 - Which one is better?
- Another sample: Sorting Algorithms:
 - Number of items to be sorted.
 - Are they already somewhat sorted?
 - item values/limits?
- Complexity:
 - Runtime (Temporal)
 - Spatial (Memory)

Interviews.

- Why?
- Are they even used in daily work?

But technology has improved!

- Moore's law can't continue forever.
- With better technology, bigger challenges.
- Machine Learning and IA.
- Parallelism / Distributed Systems.

Big-O notation.

- Next session.

Q & A