

Logic

What is Logic?

- ◆ Merriam-Webster
- ◆ Philosophy
- ◆ Mathematician

why

- ◆ Why is Logic important?
- ◆ Why must you learn this?
- ◆ Why has this become a history class?

- ◆ Language of analyzation
- ◆ Creates structure for demonstration
- ◆ Inference

what

- ◆ What is Logic?

What is Logic?

That is the question

How logic?

- ◆ How do we use Logic?

We learn

- ◆ First order logic (ish)
- ◆ Boolean logic

“It's like asking why is Ludwig van Beethoven's Ninth Symphony [is] beautiful. If you don't see why, someone can't tell you. I know numbers are beautiful. If they aren't beautiful, nothing is.”

-Paul Erdős

Set Theory



What is Set Theory?

- ◆ Study of sets

why

- ◆ Sets are powerful

What is a Set?

- ◆ (Informally) collections of “things”
- ◆ Formally ZFC axioms
- ◆ <https://mathworld.wolfram.com/Zermelo-FraenkelAxioms.html>

Why Set Theory?

- ◆ Well structured data

what

- ◆ What is set theory?

We learn

- ◆ Set theory (on paper)
- ◆ Set theory for calculation
- ◆ Set theory as a programming tool

“A mathematician is a device for turning coffee
into theorems”

-Paul Erdős

Programming



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Why programming?

- ◆ Repeatable
- ◆ Simple
- ◆ Logic

How

- ◆ Language
- ◆ Logic
- ◆ Translation

what

◆ ???

Questions?