CSE 230
Programming Languages
“There are two ways of constructing software. One way is to make it so simple, that there are obviously no deficiencies, The other way is to make it so complicated that there are no obvious deficiencies.”
Goal: Obviously No Deficiencies

Readable
Goal: Obviously No Deficiencies

Reusable

Reusable
Goal: Obviously No Deficiencies

Modifiable
Goal: Obviously No Deficiencies

Predictable
Goal: Obviously No Deficiencies

Checkable
Goal: Obviously No Deficiencies

Yes, but how?
Goal: Obviously No Deficiencies

Functional Programming(?)

Functional Programming(?)
Functional Programming?

No Assignment.
No Mutation.
No Loops.
So, Who Uses FP?

PL Researchers.
Functional Programming?

Readable
Reusable
Modifiable
Predictable
Checkable

Parallelizable
So, Who Uses FP?

Google

MapReduce
So, Who Uses FP?
So, Who Uses FP?

Microsoft

F#
So, Who Uses FP?

Scala
So, Who Uses FP?

WhatsApp

Erlang
So, Who Uses FP?

Verse
So, Who Uses FP?

CSE 230
CSE 230 : Outline

1. FP & Abstraction
   - Readable
   - Reusable

2. Types & Analysis
   - Modifiable
   - Predictable
   - Checkable
CSE 230 : Outline

- The Lambda Calculus (2wk)
- Types and Basic FP (2wk)
- Advanced FP (3wk)
- Formal Verification (2wk)
CSE 230: Medium of Instruction

Haskell
Why Haskell?

Bleeding edge PL.
Why Haskell?

Beautiful.
Why Haskell?

Blows Your Mind.
Why Haskell?

Alan Perlis
Epigrams In Programming

“A language that doesn't affect how you think about programming, isn’t worth knowing”
Why Haskell?

Fun.
CSE 230 : Resources

Lectures, assignments, piazza, OH:

https://ucsd-cse230.github.io/fa23

Please sign yourselves up at PIAZZA & Github
CSE 230 : Grading

[40%] : 5 Programming Assignments

[30%] : 2 x Midterms

[30%] : Final Project