HACKING INTO HASKELL

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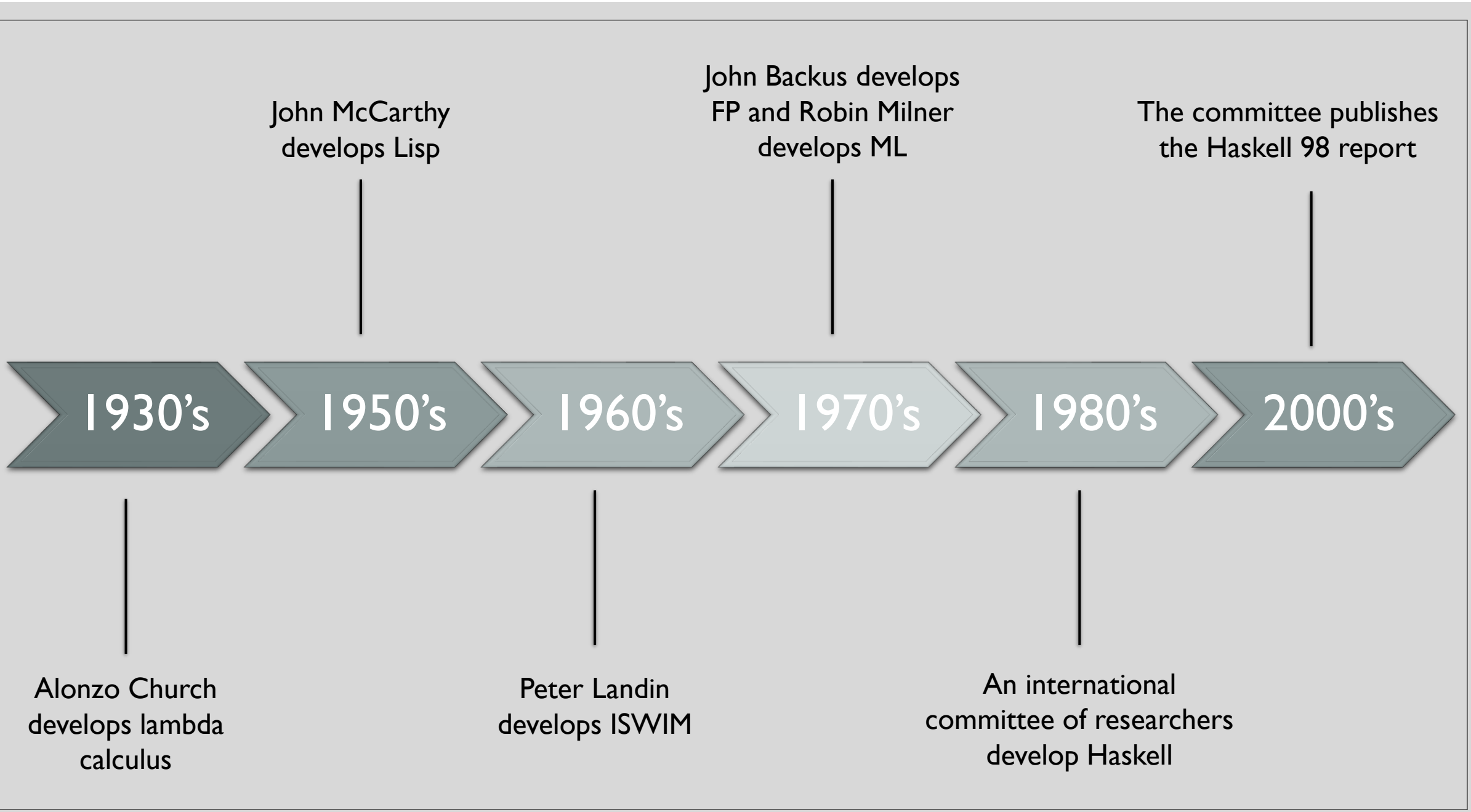
HISTORY


1930's
1950's
1960's
1970's
1980's
2000's
Alonzo Church develops lambda calculus
John McCarthy develops Lisp
Peter Landin develops ISWIM
John Backus develops FP and Robin Milner develops ML
An international committee of researchers develop Haskell
The committee publishes the Haskell 98 report

BACKGROUND & BASICS

Functional Programming

EXAMPLE:

JAVA

```
total = 0;
for (i = 1; i ≤ 10; i++)
{
        total = total + i;
}
```

HASKELL

```
sum[1..10]
```

Laziness

EXAMPLE:

```
We have a list: xs = [1,2,3,4,5,6,7,8]
We have a function: doubleMe
We want : doubleMe(doubleMe(doubleMe(xs)))
```

Statically Typed

TYPE INFERENCE

EXAMPLE:

If you have :
a = 5 + 4

Haskell knows:
a is a number
(you don't have to tell it)

Core Haskell

BASIC TYPES

Unit	Booleans
Integers	Strings
Reals	Tuples
Lists	Records

Patterns	Declarations
Functions	Polymorphism
Type declarations	Type Classes
Monads	Exceptions

WHY USE HASKELL?

Concise, high-level, practical and fast

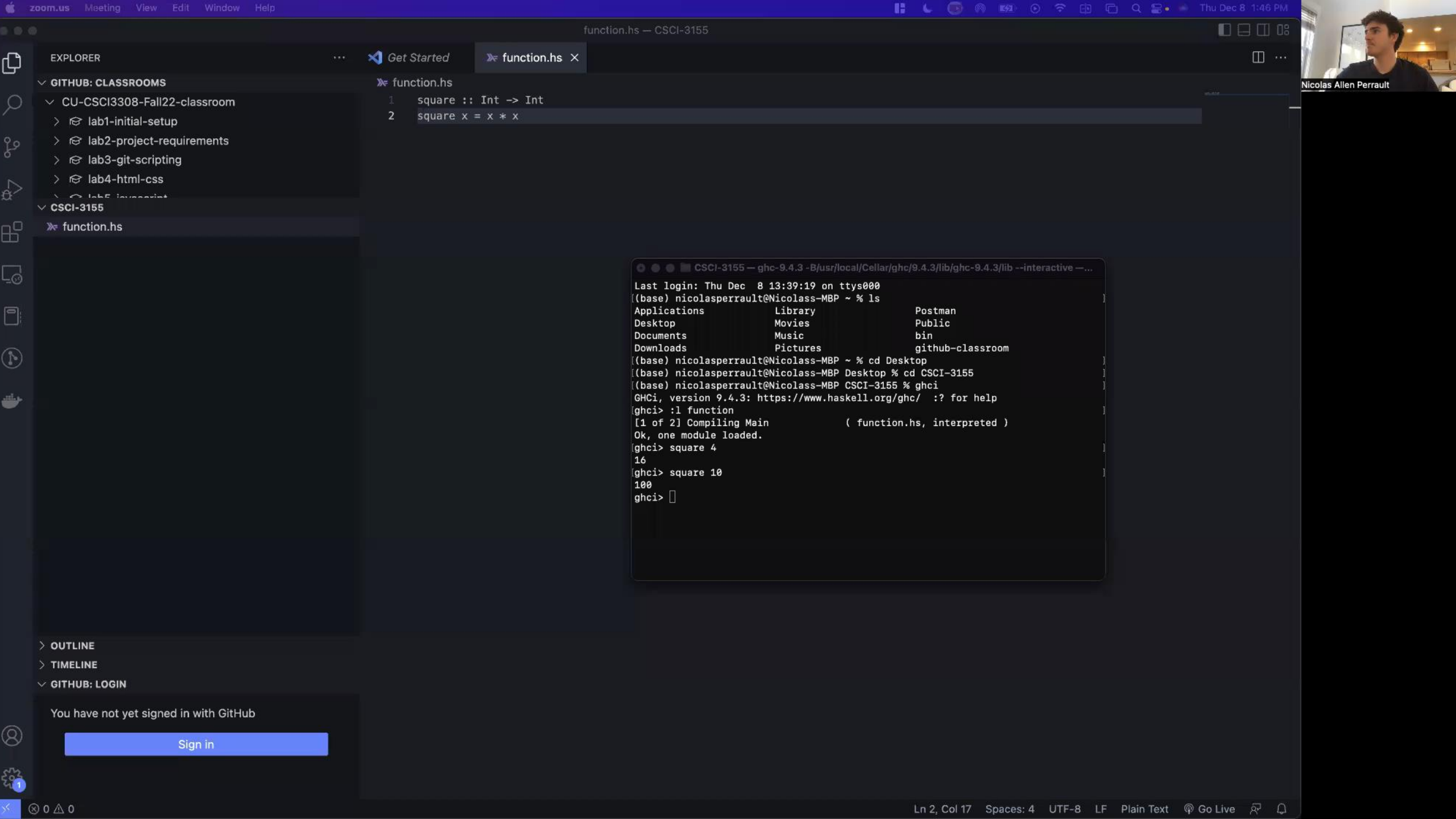
High-Quality Libraries

An advanced system, which provides a lot of extra safety and flexibility.

Strong, healthy and supportive communities

Good tooling and package management

DEMO


zoom.us Meeting View Edit Window Help
Thu Dec 8 1:46 PM
function.hs — CSCI-3155
EXPLORER
Get Started
function.hs
GITHUB: CLASSROOMS
CU-CSCI3308-Fall22-classroom
lab1-initial-setup
lab2-project-requirements
lab3-git-scripting
lab4-html-css
CSCI-3155
function.hs
function.hs
1 square :: Int -> Int
2 square x = x * x
CSCI-3155 — ghc-9.4.3 -B/usr/local/Cellar/ghc/9.4.3/lib/ghc-9.4.3/lib --interactive —...
Last login: Thu Dec 8 13:39:19 on ttys000
(base) nicolasperrault@Nicolass-MBP ~ % ls
Applications Library Postman
Desktop Movies Public
Documents Music bin
Downloads Pictures github-classroom
(base) nicolasperrault@Nicolass-MBP ~ % cd Desktop
(base) nicolasperrault@Nicolass-MBP Desktop % cd CSCI-3155
(base) nicolasperrault@Nicolass-MBP CSCI-3155 % ghci
GHCi, version 9.4.3: https://www.haskell.org/ghc/ :? for help
ghci> :l function
[1 of 2] Compiling Main (function.hs, interpreted)
Ok, one module loaded.
ghci> square 4
16
ghci> square 10
100
ghci>
OUTLINE
TIMELINE
GITHUB: LOGIN
You have not yet signed in with GitHub
Sign in
Nicolas Allen Perrault
Ln 2, Col 17 Spaces: 4 UTF-8 LF Plain Text Go Live