

CSE 341

Section 3

Justin Harjanto



Agenda

HW2 Issues

SML Docs for HW3

More functions

Java 8 Streams

The problem

```
fun earlier x = ... other x ...
```

```
fun later x = ... other x ...
```

```
fun other x = earlier x ... later x ...
```

The above doesn't work because earlier and later don't have reference to the other binding!

Solutions?

If earlier and later aren't used anywhere else, then have other define them locally instead!

```
fun other x = let
  fun earlier x ...
  fun later x ...
in
  earlier x ... later x ...
end
```

Or... use mutual recursion!

In HW2, there are some problems where you want this

This is a common idiom in SML and other languages

Mutual recursion uses the `and` keyword

```
fun even 0 = true
    | even n = odd (n - 1)
and odd 0 = false
    | odd n = even (n - 1)
```

SML Docs

Useful skill to look at docs!

Don't want to reimplement something that's already in standard lib

Two of the most useful pages for this next homework:

<http://sml-family.org/Basis/string.html>

<http://sml-family.org/Basis/list.html>

map, filter, and reduce explained with emoji 🤔

map([🐮, 🍌, 🐔, 🌽], cook)
=> [🍔, 🍿, 🍗, 🎬]

filter([🍔, 🍿, 🍗, 🎬], isVegetarian)
=> [🍿, 🎬]

reduce([🍔, 🍿, 🍗, 🎬], eat)
=> 🤩

Higher Order Functions

See code!