Agenda

HW2 Issues
SML Docs for HW3
More functions
Java 8 Streams
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)
```
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!