Section 4

CSE 341 – Patrick Larson
Mutual Recursion

What if we need function f to call g, and function g to call f?
Mutual Recursion

Does this work?

1  fun  f  x  =
2   ...
3   g  y
4   ...
5  fun  g  y  =
6   ...
7   f  x
8   ...


Mutual Recursion

We can employ higher order functions for a work around.

fun earlier (f,x) = ... f y ...

... 

fun later x = ... earlier(later,y)
Mutual Recursion

But ML gives us special syntax for this

```
1 fun f x =
2   ...
3   g y
4   ...
5   and g y =
6   ...
7   f x
8   ...
```
Modules

Remember that signatures are good both for organization and management and for maintaining invariants
Modules - Invariants

• Ordering of operations
  o e.g. insert, then query
• Data kept in good state
  o e.g. fractions in lowest terms
• Policies followed
  o e.g. don't allow shipping request without purchase order
• Sensitive information hidden
  o e.g. force authentication for api use
Currying and Higher Order Functions

Questions?