First Midterm

- Next class, Tuesday, February 7
- Closed book, closed computer
- One page of notes (standard letter paper, one side only)
- Not likely to be time pressure
- Topics
  - Tracing SML expressions and functions
  - Inferring types
  - Using built-in functions like length, map, rev, ...
  - Writing SML functions (recursion!)
- A few examples follow; watch Piazza for more

Midterm Examples

1. Function to compute the sum of squares of elements in a list of integers

2. unzip, the inverse of zip: type signature and declaration

3. Type signatures for e, f, and g:

   fun f x nil 0 = x
   | f x nil z = e z
   | f x (y::ys) z = if x then f x (y::ys) (z-1)
     else f x ys z;

4. Result:

   fun checkpoint _ [] = []
   | checkpoint b (x::xs) = if b then x :: (checkpoint (not b) xs)
     else checkpoint (not b) xs;

   checkpoint true ["I", "really", "love", "coding", "SML"];

5. Function that does not use booleans and does the same thing as checkpoint true

6. Function to create a list of all sublists of a given list