

```
fun append (xs,ys) =  
  if xs=[]  
  then ys  
  else (hd xs)::append(tl xs,ys)  
  
fun map (f,xs) =  
  case xs of  
    [] => []  
  | x::xs' => (f x)::(map(f,xs'))  
  
val a = map (increment, [4,8,12,16])  
val b = map (hd, [[8,6],[7,5],[3,0,9]])
```

Programming Languages

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Recommended Background

Assumed background

- *Not* an introductory programming course
 - Assume you have at least 1-2 programming courses
- *Not* an advanced course on programming languages
 - Won't assume you are an experienced programmer

Somewhere in the middle...

Things I assume you know (a little)

- Variables, conditionals (if), loops, arrays
- Recursion (okay if lack a little confidence for now)
- Implementation vs. interface (abstraction, modularity)
 - Possibly/probably using object-oriented programming
- Basic data structures: linked lists, binary trees
- Dynamic-dispatch
 - Also known as method overriding, subclassing, ...
 - But not needed for first 2/3 of course and then will review

Any particular language

- Fine if you mostly know Python or Javascript or...
 - What matters are the concepts on the previous slide
- Occasionally compare to Java in optional videos (not on homework)
 - If know C#, can probably follow along
- Will more rarely compare to C in optional videos (not on homework)
 - Can be very useful if you understand some C (or learn C later)

Really will “start programming over from the beginning”

- Moving way too fast unless you have programmed some before

An example

- This course is derived from a university course with specific preceding courses
- Here is something students “on campus” could do/follow
 - But not this fast (I’m the teacher and I’m “cheating”)
 - And it’s fine if you’re rusty or don’t know Java or...
- Not intended to intimidate you – all are welcome
 - Trying to show how I “live code” throughout the course
 - But here with less explanation!
 - Showing what I mean by “programming experience”