Reference Counting Limitations

- What if you have state you need to clean up at free()?
  - Solution: Finalizers - call a function (specific to the object being allocated) when you're about to deallocate it
  - Problem: What happens if the finalizer itself frees references? Finalizer (and free_ref) might recurse - unexpected side effect
  - Problem: What happens if the finalizer needs to do something complicated? Memory management has to wait. (For example, some finalizers shut down a network connection - need to wait for network activity)
- What if you create a cycle in your memory?
  - Solution: Garbage Collection - walk through memory and clear out stuff that isn't being used
  - Problems: When do you run the garbage collection cycle? Can your program still run during garbage collection? What happens if you touch memory while the garbage collector is running?