# Chapter 17: Unusual Control Structures

## Multiple Returns from a Routine

- Use a return when it enhances readability
- Once you know the answer want to return it immediately
- Use guarded clauses
  - (early returns or exits)
  - These simplify complex error processing
  - Instead of nesting error conditions, have each in line then exit upon failure
- Want to minimize the number of returns in each routine

## Recursion

- Recursion isn't useful often
- However, when used judiciously, it produces elegant solutions
- Problem size
  - Small
    - Simple, elegant solutions
  - Slightly larger problems
    - Simple, elegant, hard to understand solutions
  - Most problems
    - Massively complicated solutions
    - Just use simple iterations

### Tips for Using Recursion

- Make sure the recursion stops
- Use safety counters to prevent infinite recursion
- Limit recursion to one routine
  - Cyclic recursion where A calls B and C calls A is hard to detect
  - Also hard to keep in brain memory
- Anything that can be cone recursively can be done non recursively that is easier to understand