**Chapter 15 Using Conditionals**

Conditionals are statements that control the execution of other statements

**If Statements**

* Several kinds, if, if-then, if-then-else, if-then-else-if

**Plain if-then statements**

* Write the nominal path through the code first, then write the unusual cases
  + Make sure the rare cases don’t obscure the normal path of execution
* Make sure you are branching correctly on equality
  + < instead of <= can lead to off-by-one errors
* **Put the normal case in the if**
  + **Put unusual case in the else**
  + **ALL NOMINAL CASES FIRST**
  + **ALL ERROR CASES AFTER**
* A classis General Motors analyst found that 50-80% of if statements should have had an accompanying else clause
  + Code an else just to show it was thought about
  + Also be sure to test the else clause for correctness
* Check for reverses in the if and else clauses

**Chains of if-then-else Statements**

* Aka elif
* Simplify complicated tests with Boolean function calls
  + isSomeTest()
* Put most common cases first
* Make sure that all cases are covered
  + Code final else with an error message for cases that are unplanned

**Case statements**

Choosing the Most Effective Ordering of Cases

* Order cases alphabetically or numerically
* Put the normal case first
* Order cases by frequency
* Tips:
  + Keep actions of each case simple
    - Code for each case should be short
  + Don’t make up phony variables to be able to use the case statement
  + Use the default (final else) case ONLY to detect legitimate defaults
  + Use the default clause to detect errors