Writing C Programs (cont)

Another problem to solve in C:

- ask for the meaning of life, universe, …
  - print a message asking for The Answer
  - read in the answer
  - if 42, then print "Ahhhh! … so that's it"
  - if non-zero, then print "Are you sure"?
  - if zero, then print "What's that supposed to mean?"

Making Choices (cont)

Choices can be nested …

```
if ( Condition1 ) {
  if ( Condition1a ) {
    Statements1a …
  else {
    Statements1b …
  }
  …
}
else {
  StatementsN+1 …
}
```

Writing C Programs (cont)

Another problem to solve in C:

- classifying numbers
  - prompt for and read in a number
  - if it's < 0
    - if < 100 then big else small, and definitely negative
  - if it's > 0
    - if > 100 then big else small, and definitely positive
  - print the number's classification

Doubles

- often need to deal with real numbers
- C provides two types: float and double
- double is more accurate, so use it
- e.g. double height = 1.97; // metres
- operations on doubles: arithmetic, comparison

Doubles (cont)

- reading doubles: scanf("%lf", &x);
- writing doubles: printf("%lf", x);
- %lf can be qualified e.g. %6.2lf, %0.1lf
- %*W*.*P*lf … *W* = width, *P* = precision
- if number shorter than *W*, blank pad on left
- if number longer than *W*, write in full, no blank padding

Writing C Programs (cont)

Another problem to solve in C:

- convert temperature in fahrenheit to celsius
  - print a message asking for the temperature in F
  - read in the temperature
  - convert to C =
  - print value of C $\frac{5}{9} \times (F - 32)$
- this time use double rather than int