```
    printf("Enter integers (0 to terminate): ");

    scanf("%ld", &n);
    while (n != 0) {
      sum += n;
      scanf("%ld", &n);
    }
    printf("The sum is: %ld\n", sum);

    return 0;
}
```

The change was fairly simple: we declared `n` and `sum` to be `long` variables instead of `int` variables, then we changed the conversion specifications in `scanf` and `printf` to `%ld` instead of `%d`.

7.2 Floating Types

The integer types aren't suitable for all applications. Sometimes we'll need variables that can store numbers with digits after the decimal point, or numbers that are exceedingly large or small. Numbers like these are stored in floating-point format (so called because the decimal point "floats"). C provides three ***floating types***, corresponding to different floating-point formats:

`float`	Single-precision floating-point
`double`	Double-precision floating-point
`long double`	Extended-precision floating-point

`float` is suitable when the amount of precision isn't critical (calculating temperatures to one decimal point, for example). `double` provides greater precision—enough for most programs. `long double`, which supplies the ultimate in precision, is rarely used.

The C standard doesn't state how much precision the `float`, `double`, and `long double` types provide, since different computers may store floating-point numbers in different ways. Most modern computers follow the specifications in IEEE Standard 754 (also known as IEC 60559), so we'll use it as an example.

The IEEE Floating-Point Standard

IEEE Standard 754, developed by the Institute of Electrical and Electronics Engineers, provides two primary formats for floating-point numbers: single precision (32 bits) and double precision (64 bits). Numbers are stored in a form of scientific notation, with each number having three parts: a ***sign***, an ***exponent***, and a ***fraction***. The number of bits reserved for the exponent determines how large (or small) numbers can be, while the number of bits in the fraction determines the precision. In single-precision format, the exponent is 8 bits long, while the fraction occupies 23