```
 1: // $Id: scanner.c,v 1.19 2012-01-24 21:00:42-08 - - $
 2:
 3: //
 4: // Example use of scanf and strtod to read words and determine if
 5: // they are numbers.  Print the number if it is numeric, the string
 6: // that is not numeric if not.
 7: //
 8:
 9: #include <assert.h>
10: #include <string.h>
11: #include <stdio.h>
12: #include <stdlib.h>
13:
14: int main (int argc, char **argv) {
15:    assert (argc == 1);
16:    printf ("%s:\n", argv[0]);
17:
18:    for (;;) {
19:       char buffer[1024];
20:
21:       // Read in a word and stop at EOF.
22:       int scanct = scanf ("%1023s", buffer);
23:       if (scanct == EOF) {
24:          printf ("EOF\n");
25:          break;
26:       }
27:       assert (scanct == 1);
28:       size_t length = strlen (buffer);
29:
30:       // Tell whether or not it is a number.
31:       // If yes, print it and the string.
32:       // If not, print the endptr data.
33:       char *endptr;
34:       double number = strtod (buffer, &endptr);
35:       if (*endptr == '\0') {
36:          printf ("%22.15g %4ld \"%s\"\n", number, length, buffer);
37:       }else {
38:          printf ("%-22s %4ld \"%s\", endptr->\"%s\"\n",
39:                  "not numeric", length, buffer, endptr);
40:       }
41:
42:    }
43:    return EXIT_SUCCESS;
44: }
45:
46: /*
47: //TEST// echo 3.14159265358979323846264338327950299 \
48: //TEST//      2.7182818284590452353602874713526625 \
49: //TEST//      6.02e23 hello world '+' '-' '*' '/' ';' 1e1000000 \
50: //TEST//      +Infinity -Infinity NaN 1234foobar -5e-5000 \
51: //TEST//      .9999999999999999999999999999 -22e4 \
52: //TEST//      -3.3333333333333333333333333333333e-30 \
53: //TEST//      0xFFFF 0xFFFFFFFF 0x1p10 0x1p20 \
54: //TEST// | runprog -x scanner.lis -0- ./scanner
55: //TEST// mkpspdf scanner.ps scanner.c* scanner.lis*
56: */
```

```
1: @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ mkc: starting scanner.c
2: scanner.c: $Id: scanner.c,v 1.19 2012-01-24 21:00:42-08 - - $
3: gcc -g -O0 -Wall -Wextra -std=gnu99 scanner.c -o scanner -lm
4: lint -Xa -fd -m -u -x -errchk=%all scanner.c
5:
6: function returns value which is always ignored
7:      printf
8: rm -f scanner.o
9: @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ mkc: finished scanner.c
```

```
  1:
  2: :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
  3: log: scanner.log
  4: :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
  5:
  6:       1  Script  : /afs/cats.ucsc.edu/courses/cmps012b-wm/bin/runprog
  7:       2  limit c :    0 max core file size (KB)
  8:       3  limit f : 4194303 max output file size (KB)
  9:       4  limit t : 4294967295 max CPU time (sec)
 10:       5  stdin   : -
 11:       6  stdout  : scanner.out
 12:       7  stderr  : scanner.err
 13:       8  log     : scanner.log
 14:       9  listing : scanner.lis
 15:      10  Command : ./scanner
 16:      11  starting: pid 2872: 21:00:42.00
 17:      12  finished: pid 2872: 21:00:42.00, real 0.00, user 0.00, sys 0.00
 18:      13  pstatus: 0x0000 EXIT STATUS = 0
 19:
 20: :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
 21: stdout: scanner.out
 22: :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
 23:
 24:       1  ./scanner:
 25:       2         3.14159265358979   36 "3.14159265358979323846264338327950 29"
 26:       3         2.71828182845905   36 "2.718281828459045235360287471352 6625"
 27:       4                6.02e+23    7 "6.02e23"
 28:       5  not numeric             5 "hello", endptr->"hello"
 29:       6  not numeric             5 "world", endptr->"world"
 30:       7  not numeric             1 "+", endptr->"+"
 31:       8  not numeric             1 "-", endptr->"-"
 32:       9  not numeric             1 "*", endptr->"*"
 33:      10  not numeric             1 "/", endptr->"/"
 34:      11  not numeric             1 ";", endptr->";"
 35:      12                     inf    9 "1e1000000"
 36:      13                     inf    9 "+Infinity"
 37:      14                    -inf    9 "-Infinity"
 38:      15                     nan    3 "NaN"
 39:      16  not numeric            10 "1234foobar", endptr->"foobar"
 40:      17                      -0    8 "-5e-5000"
 41:      18                       1   30 ".999999999999999999999999999999"
 42:      19                 -220000    5 "-22e4"
 43:      20   -3.3333333333333e-30   39 "-3.3333333333333333333333333333333333e-30"
 44:      21                   65535    6 "0xFFFF"
 45:      22              4294967295   10 "0xFFFFFFFF"
 46:      23                    1024    6 "0x1p10"
 47:      24                 1048576    6 "0x1p20"
 48:      25  EOF
 49:
 50: :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
 51: stderr: scanner.err
 52: :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
 53:
```