```
 1: // $Id: strtod.c,v 1.7 2014-04-15 18:14:50-07 - - $
 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[4096];
20:
21:       // Read in a word and stop at EOF.
22:       int scanct = scanf ("%4095s", 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 = NULL;
34:       double number = strtod (buffer, &endptr);
35:       if (*endptr == '\0') {
36:          printf ("%22.15g %4zd \"%s\"\n", number, length, buffer);
37:       }else {
38:          printf ("%-22s %4zd \"%s\", endptr->\"%s\"\n",
39:                  "not numeric", length, buffer, endptr);
40:       }
41:
42:    }
43:    return EXIT_SUCCESS;
44: }
45:
46: /*
47: //TEST// echo 3.141592653589793238462643383279502 \
48: //TEST//      2.718281828459045235360287471352662 \
49: //TEST//      1.414213562373095048801688724209698 \
50: //TEST//      6.02e23 hello world '+' '-' '*' '/' ';' 1e1000000 \
51: //TEST//      +Infinity -Infinity NaN 1234foobar -5e-5000 \
52: //TEST//      .99999999999999999999999999999 -22e4 \
53: //TEST//      -3.3333333333333333333333333333e-30 \
54: //TEST//      0xFFFF 0xFFFFFFFF 0x1p10 0x1p20 \
55: //TEST// | ./strtod >strtod.lis 2>&1
56: //TEST// mkpspdf strtod.ps strtod.c* strtod.lis*
57: */
```

```
1: @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ mkc: starting strtod.c
2: strtod.c:
3:      $Id: strtod.c,v 1.7 2014-04-15 18:14:50-07 - - $
4: gcc -g -O0 -Wall -Wextra -rdynamic -std=gnu11 strtod.c
5:         -o strtod -lglut -lGLU -lGL -lX11 -lrt -lm
6: rm -f strtod.o
7: @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ mkc: finished strtod.c
```

```
 1: ./strtod:
 2:        3.14159265358979    36 "3.14159265358979323846264338327950298"
 3:        2.71828182845905    36 "2.71828182845904523536028747135266250"
 4:         1.4142135623731    36 "1.41421356237309504880168872420969807"
 5:               6.02e+23     7 "6.02e23"
 6: not numeric                5 "hello", endptr->"hello"
 7: not numeric                5 "world", endptr->"world"
 8: not numeric                1 "+", endptr->"+"
 9: not numeric                1 "-", endptr->"-"
10: not numeric                1 "*", endptr->"*"
11: not numeric                1 "/", endptr->"/"
12: not numeric                1 ";", endptr->";"
13:                    inf     9 "1e1000000"
14:                    inf     9 "+Infinity"
15:                   -inf     9 "-Infinity"
16:                    nan     3 "NaN"
17: not numeric               10 "1234foobar", endptr->"foobar"
18:                     -0     8 "-5e-5000"
19:                      1    30 ".999999999999999999999999999"
20:               -220000     5 "-22e4"
21:  -3.33333333333333e-30    39 "-3.33333333333333333333333333333333e-30"
22:                  65535     6 "0xFFFF"
23:             4294967295    10 "0xFFFFFFFF"
24:                   1024     6 "0x1p10"
25:                1048576     6 "0x1p20"
26: EOF
```