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atod.c

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```
1  /*
2   * illustrate functions
3   * based on K&R page 71
4   */
5
6  #include <ctype.h>
7  #include <stdio.h>
8  #define MAXLINE 80
9
10 double atod(const char* string);
11
12 int main(void)
13 {
14     char line[MAXLINE];
15     double sum = 0.0;
16
17     printf("Enter a floating point value: ");
18     while (fgets(line, MAXLINE, stdin))
19     {
20         printf("running sum: %g\nEnter another value (ctrl-d to stop): ",
21             sum += atod(line));
22     }
23     printf("\n");
24     return 0;
25 }
26
27 double atod(const char* string)
28 {
29     double value = 0.0;
30     double fractional_power = 1.0;
31     size_t index = 0;
32     int sign = 1;
33
34     /* skip leading whitespace */
35     while (isspace(string[index]))
36     {
37         index++;
38     }
39
40     /* is leading character a negative? */
41     if (string[index] == '-')
42     {
43         sign = -1;
44         index++;
45     }
46     /*
```

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```
46  */
47  while (isdigit(string[index]))
48  {
49      value = 10.0 * value + (string[index] - '0');
50      index++;
51  }
52
53  if (string[index] == '.')
54  {
55      index++;
56  }
57
58  /* digits after the decimal point */
59  while (isdigit(string[index]))
60  {
61      value = 10.0 * value + (string[index] - '0');
62      index++;
63      fractional_power *= 10.0;
64  }
65
66  return sign * value / fractional_power;
67 }
```