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1  /*****
2  *  FILE: fileIO.c
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4  *  UNIT: OS200 Assignment S1 - 2016
5  *  PURPOSE: Perform reading of matrix elements from a file
6  *  LAST MOD: 07/05/16
7  *  REQUIRES: fileIO.h
8  *****/
9
10 #include "fileIO.h"
11
12 //-----
13 // FUNCTION: readFile()
14 // IMPORT: filename (char*), matrix (int*), rows (int), cols (int)
15 // EXPORT: status (int)
16 // PURPOSE: Read matrix from file and store its elements in int array
17
18 int readFile(char* filename, int* matrix, int rows, int cols)
19 {
20     int nRead;
21     int offset = 0;
22
23     // OPEN FILE AND CONFIRM NO ERRORS OCCURRED
24     FILE* f = fopen( filename, "r" );
25     if ( f == NULL )
26     {
27         perror( "ERROR - opening file!\n" );
28         return -1;
29     }
30
31     // ITERATE TO FILL ALL MATRIX ROWS
32     for ( int ii = 0; ii < rows; ii++ )
33     {
34         // ITERATE TO FILL ALL MATRIX COLS
35         offset = ii * cols;
36         for ( int jj = 0; jj < cols; jj++ )
37         {
38             nRead = fscanf( f, "%d", ( &matrix[offset + jj] ) );
39             if ( nRead < 0 )
40             {
41                 // CHECK THAT ENOUGH VALUES HAVE BEEN READ
42                 if ( (offset + jj) < (rows * cols - 1) )
43                 {
44                     fprintf( stderr, "ERROR - not enough matrix values\n" );
45                     return -1;
46                 }
47                 // CHECK THAT NO ERROR FORCED EARLY EXIT
48                 else if ( ferror(f) )
49                 {
50                     perror( "ERROR - reading matrix file!\n" );
51                     return -1;
52                 }
53             }
54         }
55     }
56
57     fclose(f);
58     return 0;
59 }
60 //-----
61

```