Algorithms in the Real World
Assignment #2 Due Date: 12 Oct 00

Implement a compression and corresponding decompression algorithm that compresses files in the following format describing a triangulated mesh.

```
<number of vertices>
<vertex name> <x-coord> <y-coord>
.....
<number of triangles>
<vertex name> <vertex name> <vertex name>
```

The number of `<vertex name> <x-coord> <y-coord>` entries must equal the `<number of vertices>`, and the number of `<vertex name> <vertex name> <vertex name>` entries must equal the `<number of triangles>`.
You can find examples of files in this format in the directory

`/afs/cs.cmu.edu/academic/class/15853-f00/assignments/assign2/data/`

You can assume the triangles form a connected mesh.
The goal is to do significantly better than using a general purpose compression algorithm on the ASCII file (e.g. gzip or bzip). You need not regenerate exactly the same x-coord and y-coord, but the error must be within the accuracy of single precision floating-point.
Your grade on this assignment will be broken down as follows

- 20% on correctness on any file in the given format
- 40% on creativity of the techniques used
- 40% on effectiveness for the files we give you.

The effectiveness part will be based on the following formula

$$.4 * (1.3 - 3l_y/l_o)$$

where l_o is the original file length and l_y is the length of your compressed file. For example, if you compress by a factor of 10, you will get full credit, 40%.