CS270 - System Software
Lab Assignment #5
Fall 2016

The purpose of this assignment is to give you practice using some of the UNIX system calls to build a new utility program.

You are to write a C/C++ program, using system calls, that implements a command that has similar functionality to the standard `ls` command. It should support the following options:

- If invoked without any options, it should simply list the names of the files in the current directory, like the regular `ls` command.
- If invoked with the `-t` option, it should list the files, along with the dates/times associated with each file - i.e., the last accessed date, the last modified date, and the last status change date.
- If invoked with `-f`, it should print a list of files, along with a "guess" at which type of file it is. This type is to be derived by analyzing the contents of the file. The possible types are:
  - A postscript file. A postscript file is an ASCII file whose first line contains the characters "`%!PS-Adobe`"
  - A "DOS" file - an ASCII file, but every *newline* character (i.e., ASCII *linefeed*) is preceeded by a *carriage return* character.
  - A "regular" ASCII file (for example, a C source file). The file contains only legal ASCII characters, values less than 128, that isn't one of the types above.
  - An ELF file (for example, `a.out`). ELF files are binary files - they contain bytes with values greater than 127. The first byte contains the value 127, followed by the characters `'E', 'L', 'F'`.
  - An otherwise unidentifiable "binary" file.