CS390-01: Unix Programming — Program #4

Due at beginning of class, Wed., Oct. 25 — (20 points)

This assignment covers the creation of processes using C and communicating between processes using unnamed pipes.

You are to write a program that creates one child process.

- On the command line, when you execute your program, I should specify the path of a single directory
- Your main program will examine this directory. It will need to get the status record for each file in that directory.
- Your main program will open a new report file for writing.
- Your main program will spawn a child process.
- Your main program will send file status entries, one at a time to the child process.
    - Send the child process a status record with the inode value set to 0 so the child knows when the end of the records has been reached.
    - OR have the child wait for a few 5 second periods. If it receives no new buffer data after a few cycles, then time-out and complete the child tasks, exit.
- The child process will collect statistics on the files sent to it by the main program:
    - how many regular files are there?
    - how many directories are there?
    - What is the total filesize in bytes?
    - What is the total file storage allocation in blocks?
- The child process will write these statistics to the report file that was opened by main.
- The main program will wait for the child to complete and then echo the report file's contents to the screen.

Other Requirements:

- Same grading requirements as earlier programs (compiles, commented, good style, etc).
- Include a makefile (optional) if your program solution is comprised of multiple files. Otherwise, I should be able to compile it with `gcc -o prog4 <nameofyourfilehere>`
- Please remember to turn in a printout of your code at the beginning of class on the due date.