CSCI 4061 Discussion 5

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Overview

- Directory Operations:
  - chdir
  - opendir
  - readdir
- The stat(char*, char*) call
- Assignment

Directory Functions

- chdir(char*)   // Change the working directory

- opendir(char*)   // Open a directory for reading

- readdir(char*)   // Read the next *dirent* in a directory

- getcwd(char* size_t); // Gets name of current directory

The dirent struct

```
struct dirent {
  ino_t              d_ino;
  off_t              d_off;
  unsigned short     d_reclen;
  unsigned char      d_type;
  char               d_name[256];
};
```

The stat call

- stat(char*, struct stat*);

- Consumes a file path and a struct stat pointer. Returns 0 if successful, else -1.

- Files must be in directories you have execute permissions for or the struct will be blank.

The stat struct

- Contains various attributes about a file.
- Things like size, owner, etc.
- Link to man page here.

Assignment

- Create an application that takes in a path (relative or absolute) as well as an int and recursively prints out statistics about the files contained in each subdirectory.
- Your program should open each subdirectory (opendir).
- For each file (readdir), gather the necessary stats (stat).
- Each time it encounters a subdirectory, it should recurse.
- The integer passed is the max number of files to parse in each directory.
- Info to be printed for each file:
  - User ID of owner.
  - The % of the total memory in this directory the file takes up.
  - Number of seconds since last access (time).

Hints for Assignment

- To check if a dirent is a directory
  - if (dirent->d_type == DT_DIR)
- Ignore the entries "." and "..", these correspond to the current and upper directories.
- When initializing a char* for strcat, one should set the first index to the null character.
  - Ex: str[0] = '\0';