

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(DIR*)` // 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';

