```
#include <stdio.h>
#include <stdlib.h>
#include <dirent.h>
#include <string.h>
#include <unistd.h>


char *filetype(unsigned char type) {
        char *str;
        switch(type) {
                case DT_BLK: str = "block device"; break;
                case DT_CHR: str = "character device"; break;
                case DT_DIR: str = "directory"; break;
                case DT_FIFO: str = "named pipe (FIFO)"; break;
                case DT_LNK: str = "symbolic link"; break;
                case DT_REG: str = "regular file"; break;
                case DT_SOCK: str = "UNIX domain socket"; break;
                case DT_UNKNOWN: str = "unknown file type"; break;
                default: str = "UNKNOWN";
        }
        return str;
}

void filetraverse(DIR* pd, int indent, char* dname) {
    chdir(dname);
    struct dirent* dnt;
        int count = 1;
        while ((dnt = readdir(pd)) != NULL) {
                int i;for (i = 0; i < indent; i++) {printf("\t");}//cruft to handle ind
entation, look away

                printf("[%d] %s (%s)\n", count, dnt->d_name, filetype(dnt->d_type));
                if (DT_DIR == dnt->d_type &&
                    strcmp(dnt->d_name, "..") != 0 &&
                    strcmp(dnt->d_name, ".") != 0 &&
                pd != NULL) {
                    DIR* child_dir;
                    char* fullpath = dnt->d_name;
                    child_dir = opendir(fullpath);
                    if (child_dir != NULL) {
                        filetraverse(child_dir, indent + 1, dnt->d_name);
                        chdir("..");
                    }
                }
                count++;
        }
        closedir(pd);
}



int main (int argc, char **argv) {
        DIR* parentDir;
        if (argc < 2) {
                printf ("Usage: %s <dirname>\n", argv[0]);
                exit(-1);
        }
        parentDir = opendir(argv[1]);
        if (parentDir == NULL) {
                printf ("Error opening directory '%s'\n", argv[1]);
                exit (-1);
        }
        //https://stackoverflow.com/a/298518/9295513
```

```
        char* retval;
        getcwd(retval, sizeof(retval));
        filetraverse(parentDir, 0, argv[1]);
        chdir(retval);
        return 0;
}
```