

COSC 3750

Wytar

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- We know how to read open, read, and close files.
- Now have a way to handle directories.
- So we should be able to write “wytar”.
- Well, with a little more info.

Tape archive

- That is what “tar” is an acronym for.
- A tar file contains a fixed size header per stored file.
- Then the content of the file.
- This content is, in normal operation, not compressed or encoded.

The idea

- *wytar* will always operate recursively.
- Yours will be "safe". That is if an input file name is the same as the output file name, the input file will be ignored (skipped).
- If the input is a file, that file will be added to the archive.
- If the input is a directory, it and all its files and subdirectories, are added.

(more ...)

- If the input is a link, that link with all its information will be added.
- Directories and links will always have a size of 0.
- Files will have the CORRECT size stored.

(more ...)

- The header will be 512 bytes, always.
- Our header will basically comply with the POSIX tar standard header.
- The important thing is to safely create the tar file and recreate the archived data correctly.

Functions needed.

- File functions
- Directory functions
- String functions
- Other functions

The file functions

- `fopen(3)` and `fclose(3)`
- `fread(3)` and `fwrite(3)`
- `lstat(2)` and `readlink(2)`
- `chmod(2)`
- `symlink(2)`

Directory functions

- `opendir(3)` and `closedir(3)`
- `readdir(3)`
- `mkdir(2)`

String functions

- `sprintf(3)`
- `strcmp(3)`
- `strcat(3)`, `strlen(3)`, `strcpy(3)`
- `memset(3)` and `memcpy(3)`

Other functions

- `getpwuid(3)`
- `getgrgid(3)`

Headers I used

```
#include<stdio.h>
#include<string.h>
#include<sys/types.h>
#include<sys/stat.h>
#include<unistd.h>
#include<dirent.h>
#include<errno.h>
#include<tar.h> // for some macros
#include<grp.h>
#include<pwd.h>
```

Issues and problems

Issues and problems

- You won't start soon enough.
- You won't read the instructions and references.
- You won't ask questions early enough.

(more ...)

- Lets talk about the checksum
- We'll refer to
www.gnu.org/software/automake/manual/tar/Standard.html.

Keeping track.

- Where am I in the directory tree?
- Do I have to know?
- How do I “remember”?
- Discussion

Arguments to functions

- Pointers versus arrays.
- Strings.
- Structures.
- Global variables.
- Scope.