COSC 3750

Wytar

Kim Buckner

University of Wyoming

Mar. 07, 2022

Wytar

- 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)
- stat(2), fstat(2), lstat(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
  `http://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.