

CS333 - INTRODUCTION TO OPERATING SYSTEMS - 19APCS2 PROJECT 2

Sauce:

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Ideas:

1. **int Create(char *name):**

- This function is used to create a file with a given name. It returns 1 for success or 0 for failure.
- The function is implemented using the filesystem with the function filesystem → Create(filename, 0).

2. **OpenFileID Open(char *name), int Close(OpenFileID id):**

- With the Open function, we use Openfileid Open(char* name, int type), the function given by the system. The output is 1 for success and 0 for failure.
- As stated in the requirements, a table used to describe the files (10 files at maximum) is required. Thus, there is a table with 10 rows with each row describing a file system. We use the Table added in thread.h and thread.cc to do this task.
- With the Close function, we use the function currentThread → gdTable.closeFile(idFile) with output 1 for success and 0 for failure.

3. **int Read(char *buffer, int size, OpenFileID id), int Write(char *buffer, int size, OpenFileID id):**

- With the Read function, we use the function Read of the fileSystem if fileId is different from 0 and we use GetString from synchConsoleIn if fileId is 0. The output is 1 for success and 0 for failure.
- With the Write function, if file ID is 1, we use PutString of synchConsoleOut, if file ID is not 1, we use fileSystem → Write. The output is 1 for success and 0 for failure.

4. **int Seek(int position, OpenFileID id):**

- This function is used to change the position of the pointer in a file.
- We use the information in the gTable to find the position of the pointer and move it to the required position.
- We use OpenFile::Seek.

5. **int Remove(char *name):**

- This function is used to remove a file.
- This function should check if the file is closed before removing the file.
- And then we call the kernel → fileSystem to remove the file.

6. **Program createfile:**

- This program is used to create a file.

- This program is implemented using syscall ReadString to get filename from users and syscall Create.

7. Program cat:

- This program is used to display the content of a file.
- First, we use syscall ReadString to ask users to input the filename.
- Then, we save the filename to memory and use syscall Open with type = 1.
- If there is no error while reading, read the file with the max length and display it to the console.

8. Program copy:

- This program is used to copy the data of a source file to a destination file.
- First, we use syscall ReadString to ask users to input the name of the source file and destination file.
- Then, we save these filenames to memory and use syscall Open with type = 1 for the source file and type = 0 for the destination file.
- If there is no error while reading, read the source file with the max length and write to the destination file.

9. Program delete:

- This program is used to delete a file.
- This program is implemented using syscall ReadString to get filename from users and syscall Remove.

10. Program concatenate:

- This program is used to concatenate the contents of two source files and output them to the destination file.
- First, we use syscall ReadString to ask users to input the name of both source files and one destination file.
- Then, we assign the content of the first file to the beginning of the string buffer and assign the content of the second file to the next part of the string.
- Therefore, we get the concatenated content of both files, and then write it to the destination file.

How to run:

1. In code/build.linux run:

- make depend
- make

2. Usage:

- Run "nachos -u" for all command-line options.