OS Project 2 Report

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POSIX calls used.

The source file for our file reader library, **read_file.cpp**, contains the POSIX calls **open()**, **perror()**, **fstat()**, **read()**, and **close()**.

Why they were used.

The **open()** POSIX call is used to open the target file (in this case for reading only as the contents do not need to be changed). This is done by creating an open file description that refers to a file and a ***file descriptor*** that refers to that open file description [1].

The **perror()** POSIX call is used for printing an error message if the target file cannot be opened for reading. This is standard practice and alerts the user that there was a problem opening the file with open().

The **fstat()** POSIX call is used to determine the size of the target file. This size value is used to dynamically create a buffer of appropriate size which will contain the contents of the target file. The buffer is NULL terminated, so it is of size ***n+1***, with ***n*** being the size of the target file.

The **read()** POSIX call is used to read each character of the target file into the buffer. The size value from fstat() is used to while loop through the file descriptor and store the characters of the target file into the buffer.

The **close()** POSIX call is used to close the target file. This deallocates the ***file descriptor***.

Testing. Bugs?

Testing was performed first on **displayfile.cpp**, **read_file.cpp**, and **read_file.h.** These files were uploaded into the ‘displayfile’ directory in user space on a clean build of the reptilian virtual machine. The source files were compiled and executed on example text files within user space and the output to the command window was verified.

Next the **read_file()** function was tested using the GUI portion of the project. Running the Android Studio project with reptilian as the deployment device, example text files in user space of the virtual machine were set as targets and the GUI’s output was verified.

All tests passed. There are no known bugs to report.

References

1. The Open Group Base Specifications Issue 7, 2018 edition, Copyright © 2001-2018 IEEE and The Open Group, http://pubs.opengroup.org/onlinepubs/9699919799/, last accessed 10/19/2018