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Operating Systems

REPORT

Assignment 4 : Implementation of a Memory-Resident Unix like File System

Compilation

- *"make test<test_case_no>"* command generates the binary file, that corresponds to the test case. To run a test case, use *"./mytest<test_case_no>"* command
- For the test cases that may need input, we have implemented the test cases Interactively.

Design Specifications

1. Maximum number of inodes used are 30.
2. Maximum size of the file system can be 32MB.
3. #include<sys/sem.h> is used for utilizing semaphores.
4. Semaphores are used when we are searching for a free block, free inode, adding entry into the directory as here, race condition can be observed.
5. The file system is initiated using the function *init_file_system()* during restore and creation of file system.
6. 10 blocks are used for inodes.so, when we are creating a file system we are checking if the total_blocks are greater than required .
7. The blocks are started from a offset while inserting.
8. For bitmaps bool array is used.

9. For end of file in the file system we checked the available offset in the file descriptor table.
10. The file descriptor table contains the file_descriptor number, pointer to inode, offset, mode in which the file is accessed.
11. The total files in the file system is obtained by counting the occupying inodes in the bitmap.
12. The permission is directly entered in the 777 format.