Lab 9

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Operating Systems

Objective:

The objective of this assignment is to monitor file system operations specifically on a MINIX file system, focusing on the /home directory (or /mnt/test if mounted as such). The operations to be traced include file creation, reading, writing, and deletion.

File Creation:

Location: minix/servers/vfs/open.c

Function: common_open()

Implementation:

Print statement added: printf("MINIX 210010054: file created: %llu\n", vp->v_inode_nr)

Example Usage: Creating a file named vcc.txt using touch vcc.txt


```
# touch vcc.txt
Time Slice: 200, Time Slice Executed: 200 Endpoint: 32957
Minix 210010054: PID 189 swapped in
MINIX 210010054: file created: 84
```

File Reading:

Location: minix/servers/vfs/read.c

Function: read_write()

Implementation:

Print statement added: printf("MINIX <Rollnumber>: file read: %llu; nbytes = %zu; offset = %llu\n", vp->v_inode_nr, size, f->filp_pos)

Example Usage: Reading the file file.txt using cat test1.txt.

```
# cat file.txt
Time Slice: 200, Time Slice Executed: 200 Endpoint: 32960
Minix 210010054: PID 192 swapped in
MINIX 210010054: file read: 84; nbytes = 4096; offset = 11
hi suyash
MINIX 210010054: file read: 84; nbytes = 4096; offset = 11
```

File Writing:

Location: minix/servers/vfs/read.c

Function: read_write()

Implementation:

Print statement added: printf("MINIX 210010054: file write: %llu; nbytes = %zu; offset = %llu\n", vp->v_inode_nr, size, f->filp_pos)

Example Usage: Writing to the file file.txt using echo "hi suyash" > file.txt.

```
# echo "hi suyash "> file.txt
MINIX 210010054: file write: 84; nbytes = 11; offset = 11
```

File Deletion:

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Location: minix/servers/vfs/link.c

Function: do_unlink()

Implementation:

Print statement added: printf("file deleted: %llu\n", vp->v_inode_nr)

Example Usage: Deleting the file vcc.txt using rm vcc.txt

```
# rm vcc.txt
Time Slice: 200, Time Slice Executed: 200 Endpoint: 32958
Minix 210010054: PID 190 swapped in
MINIX 210010054: file deleted: 84
```