CS 314 – Operating Systems Lab
Lab9 Report

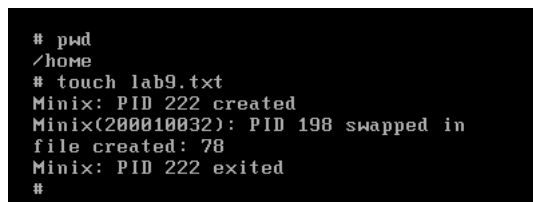**Name:** Sahaja Nandyala   **Roll-No:** 200010032

1 File Create

The open.c file at the location: **/usr/src/minix/servers/vfs/open.c** has been made following changes in the function `common_open()` to print `"file created:<inode_number>"` message on creating a new file in home directory.

```
if (r == OK) /* We just created the file */
{
    exist = FALSE;
    struct vmnt *vmpPath;
    vmpPath = find_vmnt(vp->v_fs_e);
    if (strcmp(vmpPath->m_mount_path, "/home") == 0)
    {
        printf("file created: %llu\n", vp->v_inode_nr);
    }
}
```

Following is screenshot of implementation in minix on creating a new file "lab9.txt" in home directory using

Command : `touch lab9.txt`

2 File Write

The read.c file at the location: **/usr/src/minix/servers/vfs/read.c** has been made following changes in the function `read_write()` to print `"file write:  <inode_number> ; nbytes = <nbytes>; offset = <offset>"` message on writing to a file in home directory.

```
struct vmnt *vmp;
vmp = find_vmnt(vp->v_fs_e);
if (rw_flag == WRITING && strcmp(vmp->m_mount_path, "/home") == 0)
{
    printf("file written: %llu; nbytes = %zu; offset = %llu\n", vp->v_inode_nr, size, f->filp_pos);
}
```

Following is screenshot of implementation in minix on writing hello to "lab9.txt" in home directory using

Command : `echo hello > lab9.txt`

```
# echo hello > lab9.txt
file written: 78; nbytes = 6; offset = 6
```

3 File Read

The read.c file at the location: `/usr/src/minix/servers/vfs/read.c` has been made following changes in the function `read_write()` to print `"file read:  <inode_number> ; nbytes = <nbytes>; offset = <offset>"` message on reading a file in home directory.

```
if (rw_flag == READING && strcmp(vmp->m_mount_path, "/home") == 0)
{
    printf("file read: %llu; nbytes = %zu; offset = %llu\n", vp->v_inode_nr, size, f->filp_pos);
}
```

Following is screenshot of implementation in minix on reading "lab9.txt" in home directory using

Command : `cat lab9.txt`

```
# cat lab9.txt
Minix: PID 223 created
Minix(200010032): PID 199 swapped in
file read: 78; nbytes = 4096; offset = 6
hello
file read: 78; nbytes = 4096; offset = 6
Minix: PID 223 exited
```

4 File Delete

The link.c file at the location: `/usr/src/minix/servers/vfs/link.c` has been made following changes in the function `do_unlink()` to print texttt"file deleted: <inode_number>" message on deleting a file in home directory.

```
lookup_init(&stickycheck, resolve.l_path, PATH_RET_SYMLINK, &vmp2, &vp);
stickycheck.l_vmnt_lock = VMNT_READ;
stickycheck.l_vnode_lock = VNODE_READ;
vp = advance(dirp, &stickycheck, fp);

if (strcmp(vmp->m_mount_path, "/home") == 0)
{
  printf("file deleted: %llu\n", vp->v_inode_nr);
}

if (vp != NULL)
{
  unlock_vnode(vp);
  put_vnode(vp);
}
```
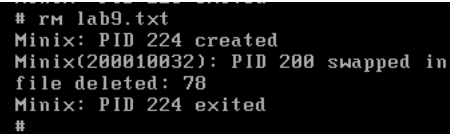
Following is screenshot of implementation in minix on deleting "lab9.txt" in home directory using

Command : `rm lab9.txt`

```
# rm lab9.txt
Minix: PID 224 created
Minix(200010032): PID 200 swapped in
file deleted: 78
Minix: PID 224 exited
#
```