CS314:Operating Systems Laboratory

Lab 4 Report Group 10

Utkarsh Prakash - 180030042 Shriram Ghadge - 180010015

Introduction

In this lab we were expected to implement a simple file system. The basic code for the simulation of the disk was provided. We were expected to implement code for creation, opening, reading, writing, closing and deleting files from the disk.

Implementation

Our implementation of different functions is as follows:

a. int simplefs create(char *filename) :

This function creates a file with the name `filename` on disk.

1. Check if the same filename exists. if exists return -1
2. Check if space for inode is not available return -1
3. Else create a new inode and add file block to it.

b. void simplefs delete(char *filename) :

This function deletes the file with the name `filename` from disk.

1. check if filename exists.
2. If Exists free dataBlocks and corresponding inode

c. int simplefs open(char *filename) :

This function opens the file with name `filename`

1. check if filename exists. If not return -1
2. If Exists add file to file_handle array

d. void simplefs close(int file handle) :

This function closes the file pointed by `file_handle` which is the file descriptor for the file.

1. Remove file from file_handle array

e. int simplefs read(int file handle, char *buf, int nbytes) :

This function reads `nbytes` of data into `buf` from a file pointed by `file_handle` starting at the current offset.

1. Get inode of corresponding file
2. Read all data blocks related to that inode

f. int simplefs write(int file handle, char *buf, int nbytes) :

This function writes `nbytes` of data from `buf` to the file pointed by `file_handle` starting at the current offset

1. Get inode of corresponding file
2. Check feasibility of new data block and add accordingly

g. int simplefs seek(int file handle, int nseek) :

This function increases the present offset of the file with file descriptor as `file_handle` by `nseek`

1. Check feasibility and update in file_handle array