Design

Here I have used the approach of splitting the given path into parent path and child path and then I have proceeded to work on them. I have initialized an empty array in the metadata of files to store the information about the files inside them.

Test cases for Assignment 3

mkdir command

1. Create a directory under root.
   Executed this command and it created the directory ‘a’ under the root.
   Verified it by ls command and manually traversing through the file system.

2. Create a directory inside a directory.
   Traversed inside the directory ‘a’ using ls command and created the directory inside It by using mkdir command. Command worked properly.
   Directory ‘b’ was created inside directory ‘a’.
   Checked it through ls and manually traversing through the filesystem.

3. Create one more directory inside the ‘a’ directory.
   Used mkdir command once more. It created a directory ‘c’ inside directory ‘a’. Verified it through ls and manually traversing through the file system.

4. Create a directory inside a directory.
   Traversed into the ‘b’ directory by using cd command. Created a directory ‘d’ there using the mkdir command. Verified the output through ls command and manually traversing through the file system.

Rename command

1. Changed the name of the directory ‘d’ to ‘e’ and saw the output using ls and manually traversing through the filesystem.

2. Changed the directory using cd command and went to directory ‘b’. renamed the directory ‘b’ to ‘f’ using mv command. Verified the output using ls and manually traversing through filesystem. Verified that the files and directories present in the old directory were correctly copied to the new directory.

Echo command

1. Created a file ‘hello.txt’ inside the directory ‘f’ and verified the output through ls and manually traversing the filesystem.

2. Again, checked for the mv command and verified the output through ls and manually traversing through the filesystem.

Remove directory command

1. Changed the directory to ‘a’. Executed the rmdir ‘c’ command and verified that the directory was removed using the ls command and manually traversing through the file system.

2. Now executed the same command and removed the directory ‘f’ which has directories and files inside it. Verified the output by using ls command and manually traversing through the filesystem.

Copy command

1. Created back the directory ‘f’ as it was and then used the copy command for that directory. Verified that a copy of the directory by the name which we had specified (‘g’) has been made and it consists of all the files which were present in the ‘f’ directory.
2. Again, tried to copy the file ‘e’ into ‘g’ and the previous data was overwritten. Verified the output through ls command and manually traversing through the filesystem.

Vim command

1. Executed the vim command on the file ‘hello.txt’ and edited the file in vim editor.

Remove command

1. Executed the rm command on the file hello.txt and verified that the file has been removed using the ls command and manually traversing through the filesystem.

Pwd command

1. Traversed back to the ‘f’ directory and then executed the pwd command on that directory and saw the output on the screen.