

CSE222- Homework 4 Report

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The assignment involves implementing a simple file system management system in Java. The system allows users to interact with directories and files through a command-line interface. Key functionalities include creating files/directories, deleting files/directories, moving files/directories, searching for files/directories, listing directory contents, printing directory trees, and sorting contents by date created.

1-Creating Files and Directories:

Users can create new files and directories within the current directory.

2-Deleting Files and Directories:

Users can delete existing files and directories within the current directory.

3-Moving Files and Directories:

Users can move files and directories to a new location within the file system.

4-Searching for Files and Directories:

Users can search for specific files or directories within the file system.

5-Listing Directory Contents:

Users can view a list of contents (files and directories) within the current directory.

6-Printing Directory Trees:

Users can print the directory structure in a tree format.

7-Sorting Contents by Date Created:

Users can sort the contents of a directory by their creation date.

Useful Functions:

`createFile(String name, Directory parent):`

Creates a new file with the specified name in the given parent directory.

`createDirectory(String name, Directory parent):`

Creates a new directory with the specified name in the given parent directory.

`deleteFile(String name, Directory parent):`

Deletes the file with the specified name from the given parent directory.

`deleteDirectory(String name, Directory parent):`

Deletes the directory with the specified name from the given parent directory.

`moveElement(String name, Directory newParent):`

Moves the file or directory with the specified name to the new parent directory.

`search(String name, Directory startDir, String path):`

Searches for a file or directory with the specified name starting from the given directory.

`printDirectoryTree():`

Prints the directory structure in a tree format.

`listContents(Directory dir):`

Lists the contents (files and directories) of the given directory.

`sortDirectoryByDate(Directory dir):`

Sorts the contents of the given directory by their creation date.

`changeDirectory(String path):`

Changes the current directory to the one specified by the given path.

Test Cases:

1- Creating directory

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 3
Current directory: /
Create file or directory (f/d): d
Enter name for new directory: docs
Directory created: docs/
```

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 1
Current directory: /
Enter new directory path: docs
Directory changed to: /docs/
```

2-Listing after creating Directory

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 1
Current directory: /docs/
Enter new directory path:
Directory changed to: /
```

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 2
Listing contents of /
* docs/
```

3-Creating file inside dir and creating another subdir

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 3
Current directory: /docs/
Create file or directory (f/d): f
Enter name for new file: report.txt
File created: report.txt
```

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 3
Current directory: /docs/
Create file or directory (f/d): d
Enter name for new directory: images
Directory created: images/
```

4-creating file in subdir and printing directory tree

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 1
Current directory: /docs/
Enter new directory path: docs/images
Directory changed to: /docs/images/
```

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 3
Current directory: /docs/images/
Create file or directory (f/d): f
Enter name for new file: image1.png
File created: image1.png
```

===== File System Management Menu =====

1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit

Please select an option: 2

Listing contents of /docs/images/
image1.png

===== File System Management Menu =====

1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit

Please select an option: 7

```
* root/  
  * docs/  
    report.txt  
  * images/  
    image1.png
```

5-Moving directory with its all subfiles and subdirectories

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 2
Listing contents of /docs/
report.txt
* images/
  image1.png
```

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 5
Current directory: /docs/
Enter the name of file/directory to move: images
Enter new directory path:
Moved images to
```



```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 4
Current directory: /docs/
Enter name of file/directory to delete: report.txt
File deleted: report.txt
```

6-Printing tree after moving and deleting

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 7
* root/
  * docs/
  * images/
    image1.png
```

7-Searching any file from root

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 6
Search query: image1.png
Searching from root...
Found: /root/images/image1.png
```

8-Sorting by date created

```
===== File System Management Menu =====
1. Change directory
2. List directory contents
3. Create file/directory
4. Delete file/directory
5. Move file/directory
6. Search file/directory
7. Print directory tree
8. Sort contents by date created
9. Exit
Please select an option: 8
Sorted contents of / by date created:
* docs/ (2024-04-22 23:22:01)
* images/ (2024-04-22 23:22:45)
  image1.png (2024-04-22 23:23:04)
```