1. Concurrency Test by creating new files concurrently using threads

```
anujna@Anujnas-MacBook-Pro ~/Downloads/os-simulator/build$ ./os_simulator
Hello, this is a simulation for an OS
This operating system supports file system operations and can handle concurrent requests, by protecting the file system using mutex just for simulation.
For demonstration, first step is to show the concurrent operation
File 'file_0.txt' created.
File 'file_2.txt' created.
File 'file_3.txt' created.
File 'file_6.txt' created.
File 'file_4.txt' created.
File 'file_9.txt' created.
File 'file_1.txt' created.
File 'file_7.txt' created.
File 'file_8.txt' created.
File 'file_5.txt' created.
```

2. User interaction with the file system

```
[1]    19228 trace trap  ./os_simulator
anujna@Anujnas-MacBook-Pro ~/Downloads/os-simulator/build$ ./os_simulator
Hello, this is a simulation for an OS
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For demonstration, first step is to show the concurrent operation
File 'file_0.txt' created.
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File 'file_7.txt' created.
File 'file_8.txt' created.
File 'file_5.txt' created.


Next, we ask the user to test the file system



Enter one of the operations
1. cr -> creates a File
2. d -> deletes an existing file
3. rn -> renames an existing file
4. a -> appends given file's contents
5. r -> reads the given file and outputs to console
6. ls -> lists all the existing files in the file system
7. exit -> Exit from the OS
```

3. Creating a file

```


Enter one of the operations
1. cr -> creates a File
2. d -> deletes an existing file
3. rn -> renames an existing file
4. a -> appends given file's contents
5. r -> reads the given file and outputs to console
6. ls -> lists all the existing files in the file system
7. exit -> Exit from the OS
cr
Enter the file name
Test
Enter the file content
Building OS Simulator
File 'Test' created.
```

4. Appending file contents

```
a
Enter the file name to be appended
Test
Enter the file content to append
 using simple in memory file operations.
Contents of 'Test': Building OS Simulator using simple in memory file operations
.


Enter one of the operations
1. cr -> creates a File
2. d -> deletes an existing file
3. rn -> renames an existing file
4. a -> appends given file's contents
5. r -> reads the given file and outputs to console
6. ls -> lists all the existing files in the file system
7. exit -> Exit from the OS
```

5. Renaming a file

```
Enter one of the operations
1. cr -> creates a File
2. d -> deletes an existing file
3. rn -> renames an existing file
4. a -> appends given file's contents
5. r -> reads the given file and outputs to console
6. ls -> lists all the existing files in the file system
7. exit -> Exit from the OS
rn
Enter the file name to rename
Test
Enter a new name
OS_File
File 'OS_File' created.
File 'Test' deleted.
Contents of 'Test': Building OS Simulator using simple in memory file operations
```

6. Listing the files

```
Enter one of the operations
1. cr -> creates a File
2. d -> deletes an existing file
3. rn -> renames an existing file
4. a -> appends given file's contents
5. r -> reads the given file and outputs to console
6. ls -> lists all the existing files in the file system
7. exit -> Exit from the OS
cr
Enter the file name
Test_1
Enter the file content
OS Project
File 'Test_1' created.


Enter one of the operations
1. cr -> creates a File
2. d -> deletes an existing file
3. rn -> renames an existing file
4. a -> appends given file's contents
5. r -> reads the given file and outputs to console
6. ls -> lists all the existing files in the file system
7. exit -> Exit from the OS
ls
Files:
OS_File Test_1
```

7. Reading file contents

```
Contents of 'Test': Building OS Simulator using simple in memory file operations


Enter one of the operations
1. cr -> creates a File
2. d -> deletes an existing file
3. rn -> renames an existing file
4. a -> appends given file's contents
5. r -> reads the given file and outputs to console
6. ls -> lists all the existing files in the file system
7. exit -> Exit from the OS
r
Enter the name of the file
OS_File
Contents of 'OS_File': Building OS Simulator using simple in memory file operations
```

8. Deleting existing file

```
Enter one of the operations
1. cr -> creates a File
2. d -> deletes an existing file
3. rn -> renames an existing file
4. a -> appends given file's contents
5. r -> reads the given file and outputs to console
6. ls -> lists all the existing files in the file system
7. exit -> Exit from the OS
d
Enter the file name to delete
Test_1
File 'Test_1' deleted.
```

```
Enter one of the operations
1. cr -> creates a File
2. d -> deletes an existing file
3. rn -> renames an existing file
4. a -> appends given file's contents
5. r -> reads the given file and outputs to console
6. ls -> lists all the existing files in the file system
7. exit -> Exit from the OS
d
Enter the file name to delete
Test_1
File 'Test_1' deleted.


Enter one of the operations
1. cr -> creates a File
2. d -> deletes an existing file
3. rn -> renames an existing file
4. a -> appends given file's contents
5. r -> reads the given file and outputs to console
6. ls -> lists all the existing files in the file system
7. exit -> Exit from the OS
ls
Files:
OS_File
```

9. Exit

```
Enter one of the operations
1. cr -> creates a File
2. d -> deletes an existing file
3. rn -> renames an existing file
4. a -> appends given file's contents
5. r -> reads the given file and outputs to console
6. ls -> lists all the existing files in the file system
7. exit -> Exit from the OS
exit
Exiting
```