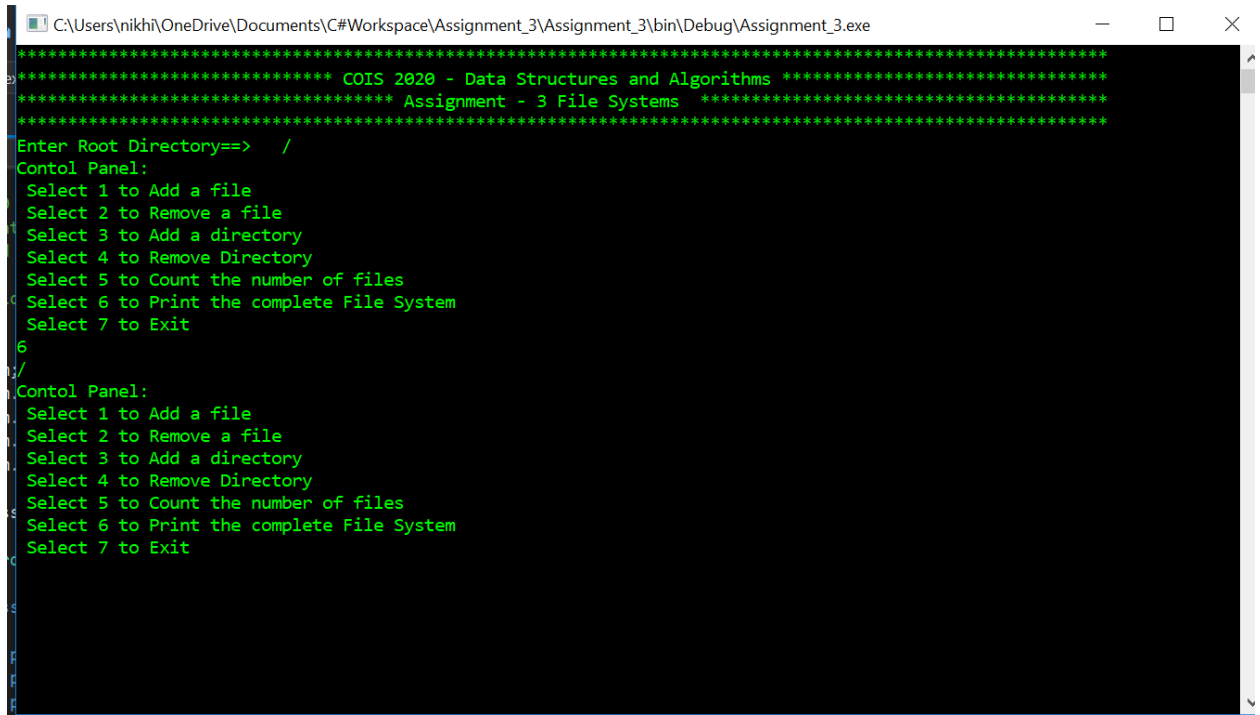# COIS 2020 – Data Structures and Algorithm

Assignment 3 – File Systems Test Documentation
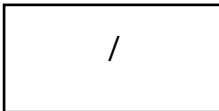
Submitted By:

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Saalar Faisal (0580714)

1. Root Directory applied:
   Root directory "/" added


```
C:\Users\nikhi\OneDrive\Documents\C#Workspace\Assignment_3\Assignment_3\bin\Debug\Assignment_3.exe

*****************************************************************************************
****************************** COIS 2020 - Data Structures and Algorithms ***************
****************************** Assignment - 3 File Systems   ****************************
*****************************************************************************************
Enter Root Directory==>   /
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
6
/
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
```

Demonstration:

```
+-------------------------+
|                         |
|          /              |
|                         |
+-------------------------+
```

2. Adding Files to the root
   Adding File A and File B to the root directory

```
*********************************************************************************************
***************************** COIS 2020 - Data Structures and Algorithms *******************
***************************** Assignment - 3 File Systems  *********************************
*********************************************************************************************
Enter Root Directory==>   /
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
6
/
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
1
Address to add file ==>  /
Name the File ==>  A
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
```

```
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
1
Address to add file ==>  /
Name the File ==>  B
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
6
/

 -A

 -B
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
```
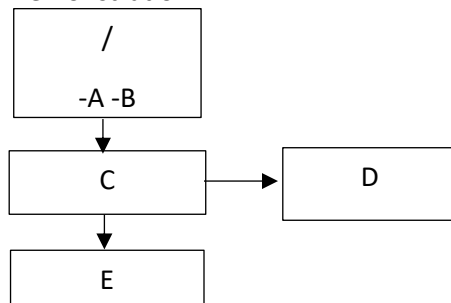
Demonstration:

```
        /

    -A -B
```

3. Adding Directory

Adding directory C to the root "/", then add directory D to the directory C, then add directory E to directory C.

```
/

 -A

 -B
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
3
Address to Add the directory ==> /
Name the directory ==>  C
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
3
Address to Add the directory ==> /C
Name the directory ==>  D
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
```
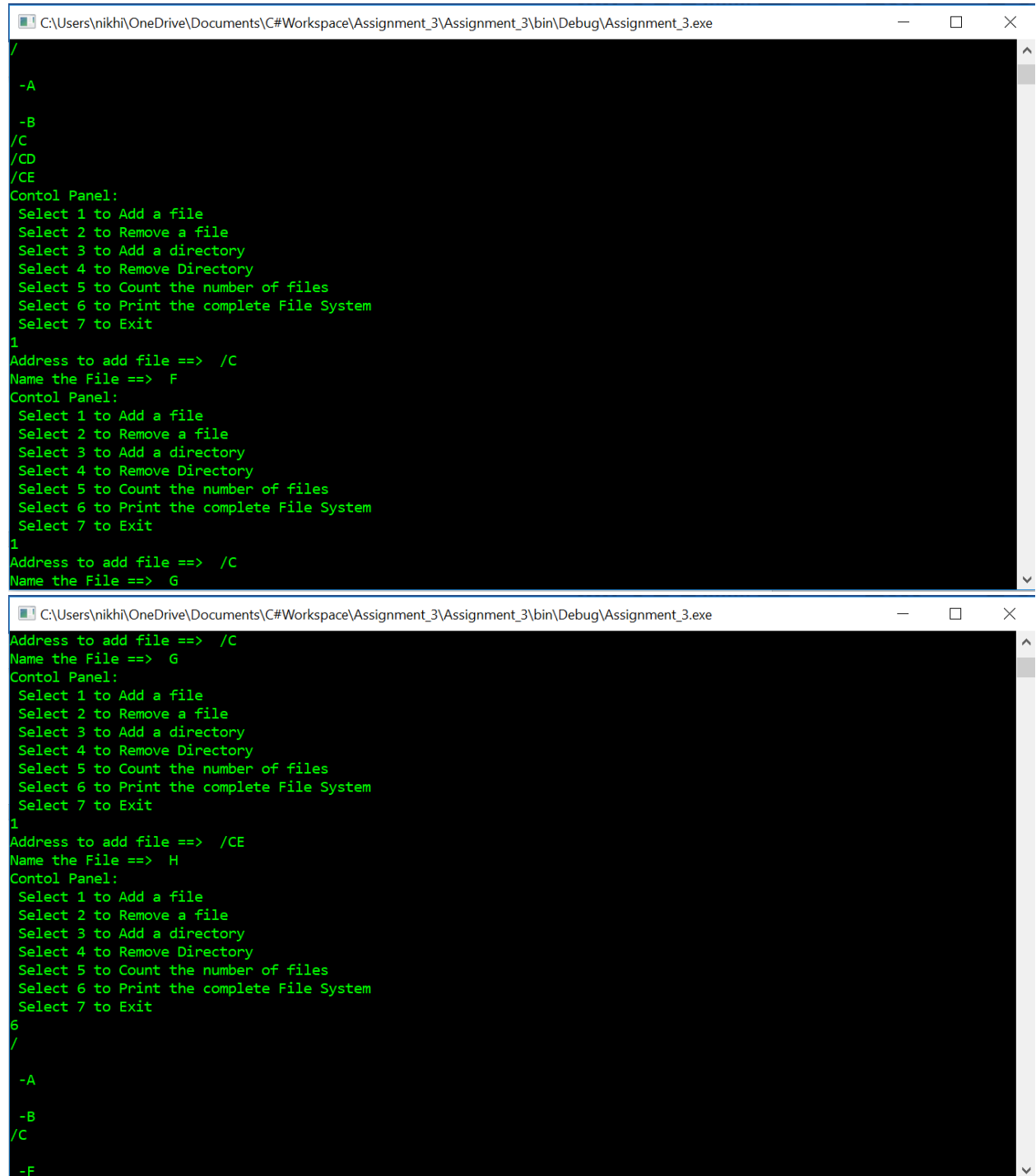
```
Address to Add the directory ==> /C
Name the directory ==>  D
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
3
Address to Add the directory ==> /C
Name the directory ==>  E
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
6
/

 -A

 -B
/C
/CD
/CE
```

Demonstration:

```
+----------------+
|       /        |
|                |
|     -A -B      |
+----------------+
        |
        v
+----------------+        +----------------+
|       C        | -----> |       D        |
+----------------+        +----------------+
        |
        v
+----------------+
|       E        |
+----------------+
```

4. Adding files to directories
   Adding files F and G in directory C, adding file H in directory E

```
/

 -A

 -B
/C
/CD
/CE
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
1
Address to add file ==>  /C
Name the File ==>  F
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
1
Address to add file ==>  /C
Name the File ==>  G
```

```
Address to add file ==>  /C
Name the File ==>  G
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
1
Address to add file ==>  /CE
Name the File ==>  H
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
6
/

 -A

 -B
/C

 -F
```
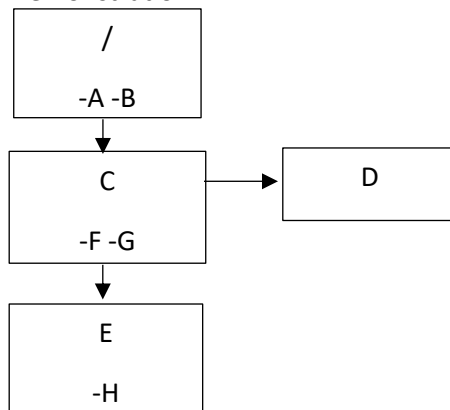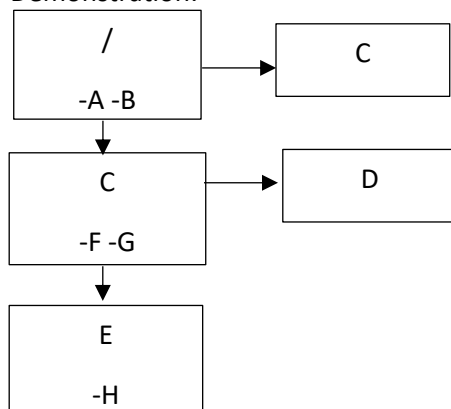
```
Select 2 to Remove a file
Select 3 to Add a directory
Select 4 to Remove Directory
Select 5 to Count the number of files
Select 6 to Print the complete File System
Select 7 to Exit
6
/

 -A

 -B
/C

 -F

 -G
/CD
/CE

 -H
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
```
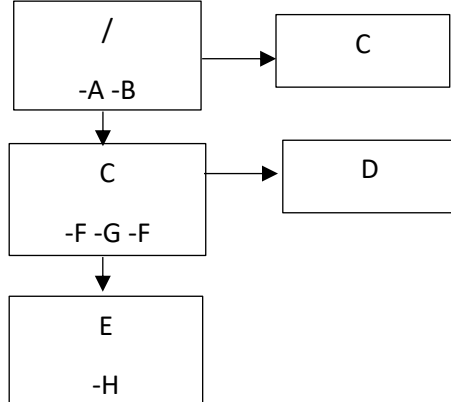
Demonstration:

5. Adding a directory that already exists

Adding directory C to the root which already exists

```
C:\Users\nikhi\OneDrive\Documents\C#Workspace\Assignment_3\Assignment_3\bin\Debug\Assignment_3.exe        —    ☐    ✕

 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
3
Address to Add the directory ==> /
Name the directory ==>   C
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
6
/

 -A

 -B
/C

 -F

 -G
/C
/CD
/CE

 -H
```

Demonstration:

6. Adding file that already exists

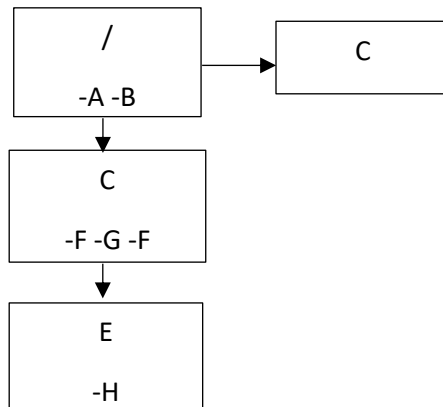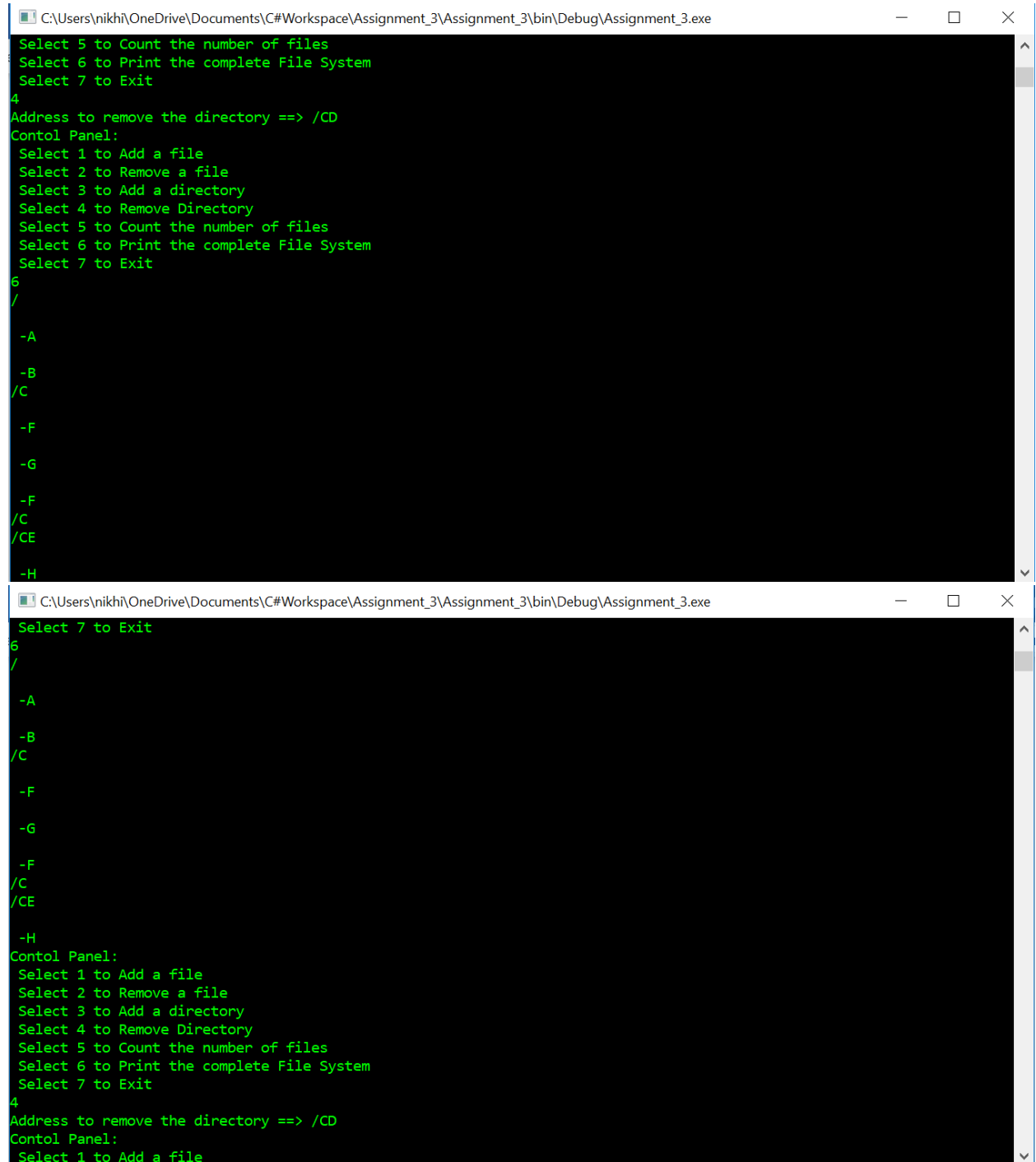Adding file F to directory C which already exists

Demonstration:

7. Removing a directory

Removing directory D from the file system

```
C:\Users\nikhi\OneDrive\Documents\C#Workspace\Assignment_3\Assignment_3\bin\Debug\Assignment_3.exe     —   □   ✕
Select 5 to Count the number of files
Select 6 to Print the complete File System
Select 7 to Exit
4
Address to remove the directory ==> /CD
Contol Panel:
Select 1 to Add a file
Select 2 to Remove a file
Select 3 to Add a directory
Select 4 to Remove Directory
Select 5 to Count the number of files
Select 6 to Print the complete File System
Select 7 to Exit
6
/

 -A

 -B
/C

 -F

 -G

 -F
/C
/CE

 -H
```

Demonstration:

```
┌─────────────┐        ┌─────────────┐
│      /      │ ─────▶ │      C      │
│             │        │             │
│   -A -B     │        └─────────────┘
└─────────────┘
      │
      ▼
┌─────────────┐
│      C      │
│             │
│  -F -G -F   │
└─────────────┘
      │
      ▼
┌─────────────┐
│      E      │
│             │
│     -H      │
└─────────────┘
```

8. Removing a directory that doesn't exist
Removing directory D from the file system that no longer exists

```
Select 5 to Count the number of files
Select 6 to Print the complete File System
Select 7 to Exit
4
Address to remove the directory ==> /CD
Contol Panel:
Select 1 to Add a file
Select 2 to Remove a file
Select 3 to Add a directory
Select 4 to Remove Directory
Select 5 to Count the number of files
Select 6 to Print the complete File System
Select 7 to Exit
6
/

 -A

 -B
/C

 -F

 -G

 -F
/C
/CE

 -H
```
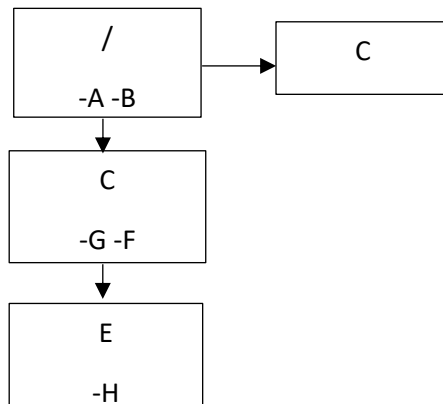
```
Select 7 to Exit
6
/

 -A

 -B
/C

 -F

 -G

 -F
/C
/CE

 -H
Contol Panel:
Select 1 to Add a file
Select 2 to Remove a file
Select 3 to Add a directory
Select 4 to Remove Directory
Select 5 to Count the number of files
Select 6 to Print the complete File System
Select 7 to Exit
4
Address to remove the directory ==> /CD
Contol Panel:
Select 1 to Add a file
```

```
Select 5 to Count the number of files
Select 6 to Print the complete File System
Select 7 to Exit
4
Address to remove the directory ==> /CD
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
6
/

 -A

 -B
/C

 -F

 -G

 -F
/C
/CE

 -H
```
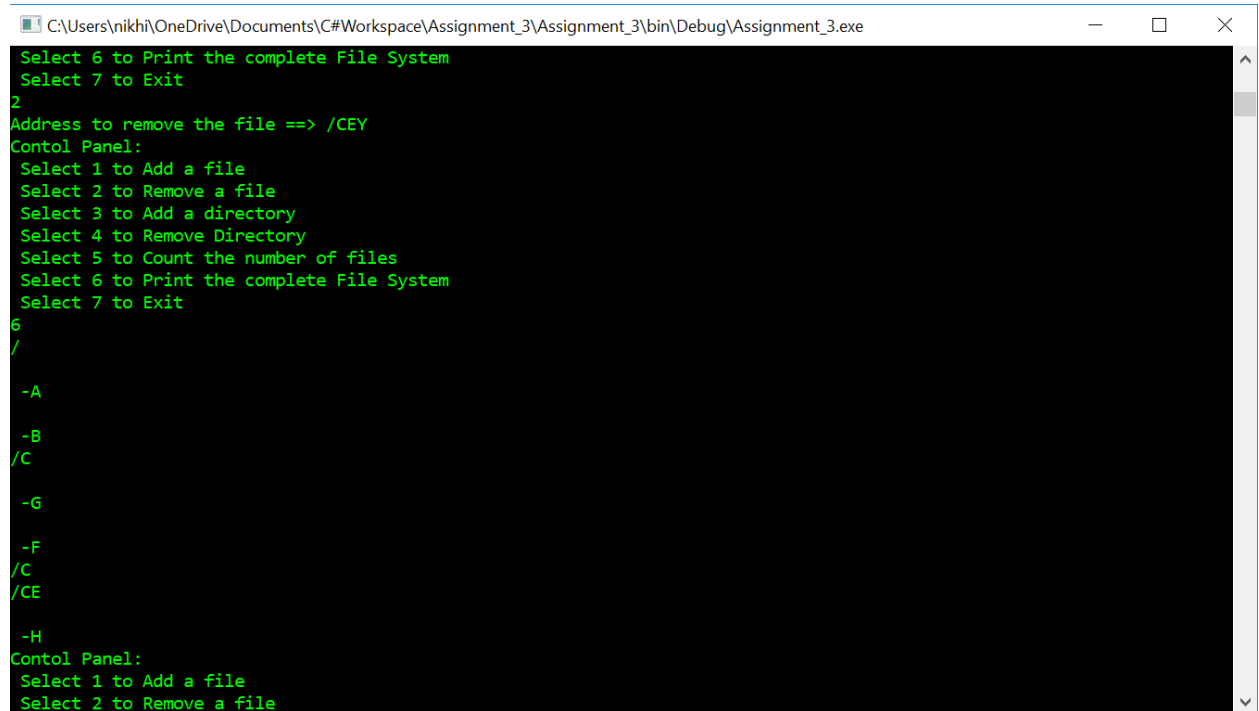
9. Removing a file

Removing file F from directory C

```
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
2
Address to remove the file ==> /CF
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
6
/

 -A

 -B
/C

 -G

 -F
/C
```

```
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
2
Address to remove the file ==> /CF
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
6
/

 -A

 -B
/C

 -G

 -F
/C
/CE

 -H
```
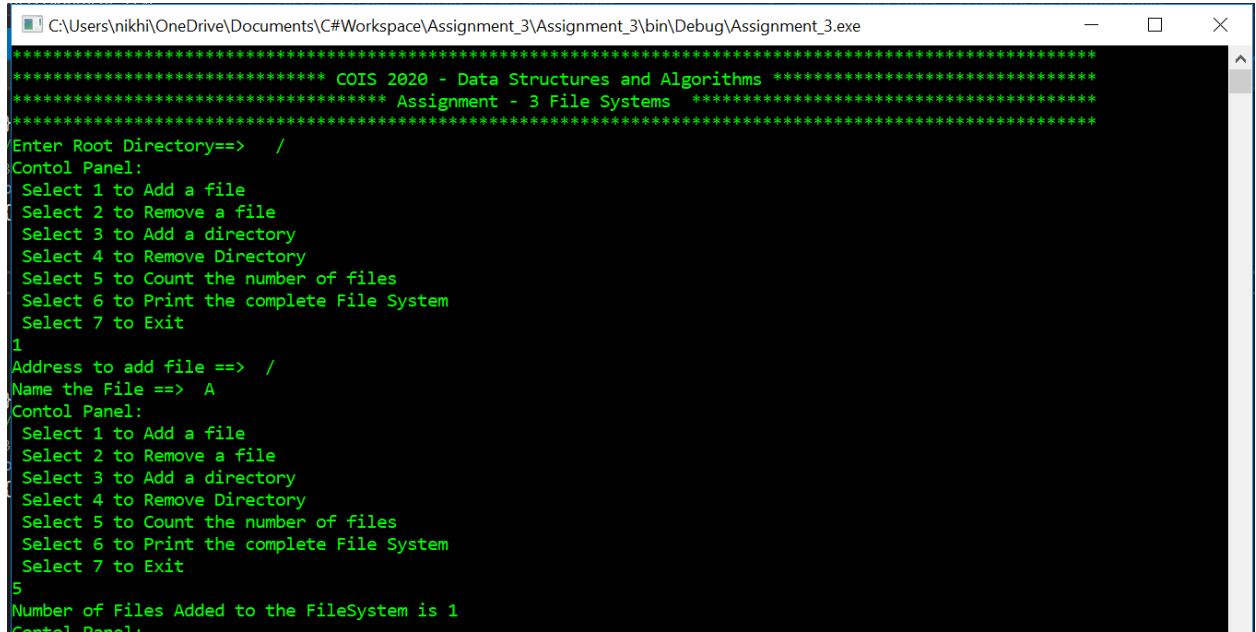
Demonstration:

10. Removing a file that doesn't exist

Removing file Y from the file system that doesn't exist


```
 Select 6 to Print the complete File System
 Select 7 to Exit
2
Address to remove the file ==> /CEY
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
 Select 3 to Add a directory
 Select 4 to Remove Directory
 Select 5 to Count the number of files
 Select 6 to Print the complete File System
 Select 7 to Exit
6
/

 -A

 -B
/C

 -G

 -F
/C
/CE

 -H
Contol Panel:
 Select 1 to Add a file
 Select 2 to Remove a file
```

11. Counting the numbers of files in the file system.
    <u>This trial is not linked or a continuation of the above trials</u>
    Created a new file in the root directory "/" and named it A, then counted the number of files added.

--x--------------------x----------------------x--