

IT TEST

1. Integration Testing

Test 1 full():

Correct Input

```
(kali㉿kali)-[~/RBU]
└─$ ./client -ff House/tcp nile1.txt nile2.txt nile3.txt
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

nile1.txt
../House/tcp/nile1.txt
nile2.txt
../House/tcp/nile2.txt
nile3.txt
../House/tcp/nile3.txt
[+]Closing the connection.
```

Incorrect Input

```
└─$ ./client -ff House/tcp nile1.txt nile2.txt nile4.txt
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

nile1.txt
../House/tcp/nile1.txt
nile2.txt
../House/tcp/nile2.txt
nile4.txt
../House/tcp/nile4.txt
[-]Error in reading file.: No such file or directory
```

TEST2

full_dir():

Incorrect input

```
$ ./client -fd /home/kali/temp0 /home/kali/temp4
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

.. //home/kali/temp0
/home/kali/temp0
/home/kali/temp4
/home/kali/temp0/temp01.txt
/home/kali/temp0/temp02.txt
/home/kali/temp0/temp03.txt
```

Correct Input

```
$ ./client -fd /home/kali/temp0 /home/kali/temp1 /home/kali/temp2
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

.. //home/kali/temp0
/home/kali/temp0
/home/kali/temp1
/home/kali/temp2
/home/kali/temp0/temp01.txt
/home/kali/temp0/temp02.txt
/home/kali/temp0/temp03.txt
/home/kali/temp1/temp01.txt
/home/kali/temp1/temp02.txt
/home/kali/temp1/temp03.txt
/home/kali/temp2/temp01.txt
/home/kali/temp2/temp02.txt
/home/kali/temp2/temp03.txt
[+]Closing the connection.
```

Test3

incremental():

Incorrect Input

```
└─$ ./client -if House/tcp nile1.txt nile2.txt nile10.txt
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

../House/tcp/nile1.txt
last_backup : Oct 19
File changed at : Oct 19
Backup Needed
10 50

../House/tcp/nile2.txt
last_backup : Oct 19
File changed at : Oct 14
```

```
./server
Oct_19_14:10
[+]Server socket created successfully.
[+]Binding successfull.
[+]Listening....
go
../backup/backup_of_nile1.txt
stopped
```

Correct input

```
└─$ ./client -if House/tcp nile1.txt nile2.txt nile3.txt
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

../House/tcp/nile1.txt
last_backup : Oct 19
File changed at : Oct 19
Backup Needed
10 50

../House/tcp/nile2.txt
last_backup : Oct 19
File changed at : Oct 14

../House/tcp/nile3.txt
last_backup : Oct 19
File changed at : Oct 14

[+]Closing the connection.
```

Test4

incremental_dir():

Correct Input

```
└─$ ./client -id /home/kali/temp0 /home/kali/temp1
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

/home/kali/temp0
/home/kali/temp1

/home/kali/temp0
last backup : Oct 19
Directory changed : Oct 19
backup needed
/home/kali/temp0/temp01.txt
/home/kali/temp0/temp02.txt
/home/kali/temp0/temp03.txt

/home/kali/temp1
last backup : Oct 19
Directory changed : Oct 16
[+]Closing the connection.
```

Incorrect input

```
└─$ ./client -id /home/kali/temp0 /home/kali/temp10
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

/home/kali/temp0
/home/kali/temp10

/home/kali/temp0
last backup : Oct 19
Directory changed : Oct 19
backup needed
/home/kali/temp0/temp01.txt
/home/kali/temp0/temp02.txt
/home/kali/temp0/temp03.txt
```

Test5

versioned():

Incorrect input

```
└─$ ./client -vf home/kali/House/tcp nile1.txt nile2.txt nile3.txt
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

nile1.txt
../home/kali/House/tcp/nile1.txt
[-]Error in reading file.: No such file or directory
```

Correct Input

```
└─$ ./client -vf /House/tcp nile1.txt nile2.txt nile3.txt
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

nile1.txt
../House/tcp/nile1.txt
nile2.txt
../House/tcp/nile2.txt
nile3.txt
../House/tcp/nile3.txt
[+]Closing the connection.
```

```
./server
Oct_19_14:17
[+]Server socket created successfully.
[+]Binding successfull.
[+]Listening....
nile1.txt
../backup/backup_at_Oct_19_14:17_of_nile1.txt
nile2.txt
../backup/backup_at_Oct_19_14:17_of_nile2.txt
nile3.txt
../backup/backup_at_Oct_19_14:17_of_nile3.txt
```

Test6

versioned_dir():

Incorrect input

```
└─$ ./client -vd /home/kali/temp0 /home/kali/test1
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

.. //home/kali/temp0
/home/kali/temp0
/home/kali/test1
/home/kali/temp0/temp01.txt
/home/kali/temp0/temp02.txt
/home/kali/temp0/temp03.txt
```

```
Couldnt not make file
make: *** [Makefile:10: run] Error 1
```

Correct Input

```
└─$ ./client -vd /home/kali/temp0 /home/kali/test
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

.. //home/kali/temp0
/home/kali/temp0
/home/kali/test
/home/kali/temp0/temp01.txt
/home/kali/temp0/temp02.txt
/home/kali/temp0/temp03.txt
/home/kali/test/cron_bkp
/home/kali/test/test.txt
/home/kali/test/test1
/home/kali/test/test
/home/kali/test/test1.c
/home/kali/test/test.c
[+]Closing the connection.
```



```

./server
Oct_19_14:19
[+]Server socket created successfully.
[+]Binding successfull.
[+]Listening....
../backup
/home/kali/backup/home/kali/temp0
/home/kali/backup/home/kali/test
../backup/home/kali/temp0/temp01.txt
../backup/home/kali/temp0/temp01_Oct_19_14:19.txt
../backup/home/kali/temp0/temp02.txt
../backup/home/kali/temp0/temp02_Oct_19_14:19.txt
../backup/home/kali/temp0/temp03.txt
../backup/home/kali/temp0/temp03_Oct_19_14:19.txt
../backup/home/kali/test/cron_bkp
../backup/home/kali/test/cron_bkp_Oct_19_14:19
../backup/home/kali/test/test.txt
../backup/home/kali/test/test_Oct_19_14:19.txt
../backup/home/kali/test/test1
../backup/home/kali/test/test1_Oct_19_14:19
../backup/home/kali/test/test
../backup/home/kali/test/test_Oct_19_14:19
../backup/home/kali/test/test1.c
../backup/home/kali/test/test1_Oct_19_14:19.c
../backup/home/kali/test/test.c
../backup/home/kali/test/test_Oct_19_14:19.c
stopped

```

Test7 scheduled():

Incorrect Input

```

└─$ ./client -sf "1 * * * *" nile1.txt nile2.txt nile3.txt
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

nile1.txt cd /home/kali/RBU && ./client -ff 1 * * * * nile2.txt nile3.txt

[+]Closing the connection.

```

Correct Input

```

└─$ ./client -sf House/tcp "1 * * * *" nile1.txt nile2.txt nile3.txt
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

1 * * * * cd /home/kali/RBU && ./client -ff House/tcp nile1.txt nile2.txt nile3.txt

```

Test 8

Scheduled_dir():

Correct Input

```
└─$ ./client -sd "30 * * * *" /home/kali/temp0 /home/kali/temp1 /home/kali/Desktop
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

30 * * * * cd /home/kali/RBU && ./client -fd /home/kali/temp0 /home/kali/temp1 /home/kali/Desktop

[+]Closing the connection.
```

Incorrect Input

```
└─$ ./client -sd "30 * * * *"
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

Invalid Usage : No folder name entered!!!
Usage: /client -sd 'mm hh dom mon dow' dir1 dir2 dir3 .....
```

```
(kali㉿kali)-[~/RBU]
└─$ ./client -kk home/temp0
Last backup at : Oct 19
[+]Server socket created successfully.
[+]Connected to Server.

Invalid Option please choose from any of the options mentioned below
-ff for full backup for files
-fd for full backup for Directories
-if for incremental backup for files
-id for incremental backup for Directories
-vf for Versioned backup for files
-vd for Versioned backup for Directories
-sf for Scheduled backup for files
-sd for Scheduled backup for Directories
[+]Closing the connection.
```


UT TEST

CUNIT:

- CUnit is a lightweight system for writing, administering, and running unit tests in C.
- It provides C programmers a basic testing functionality with a flexible variety of user interfaces.
- CUnit is built as a static library which is linked with the user's testing code. It uses a simple framework for building test structures, and provides a rich set of assertions for testing common data types.

1. For send_file function:

Test Cases:

```
void send_file_sunny(void)
{
    CU_ASSERT_EQUAL(send_file("hash.txt",1234), 1);
    CU_ASSERT_EQUAL(send_file("hash1.txt",1235), 1);
}

void send_file_rainy(void)
{
    CU_ASSERT_EQUAL(send_file("hash9.txt",4321), 0);
    CU_ASSERT_EQUAL(send_file("hash10.txt",4322), 0);
}
```

2. For write_file() function Test Case:

```
void write_file_sunny(void)
{
    CU_ASSERT_EQUAL(write_file("test1.txt",8080), 1);
    CU_ASSERT_EQUAL(write_file("test2..txt",8089), 1);
}

void write_file_rainy(void)
{
    CU_ASSERT_EQUAL(write_file("test8.txt",8090), 0);
    CU_ASSERT_EQUAL(write_file("test9.txt",8070), 0);
}
```

REPORT:

```
$ gcc suite.c write_file.c send_file.c sunny_rainy_testcase.c -o A2 -lcunit
```

```
srira@DESKTOP-APN23A ~/RBU
```

```
$ ./A2.exe
```

```
CUUnit - A unit testing framework for C - Version 2.1-3
http://cunit.sourceforge.net/
```

```
Suite: suite write_file...
```

```
Test: Test for write_file() in sunny cases ...passed
```

```
Test: Test for write_file() in rainy cases ...passed
```

```
Suite: suite send_file...
```

```
Test: Test for send_file() in sunny cases ...passed
```

```
Test: Test for send_file() in rainy cases ...passed
```

Run Summary:	Type	Total	Ran	Passed	Failed	Inactive
	suites	2	2	n/a	0	0
	tests	4	4	4	0	0
	asserts	8	8	8	0	n/a

```
Elapsed time = 0.031 seconds
```