CSC3150

Operating system

Assignment #4

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• **How did you design your program?**

First, before fs_open, I needed to set structure of file volume. Sb which is super block the amount of save area is 1024KB. And it devided to 32-byte save block. Super block (sb) responsible for free space. For 0, block is empty and for 1 is for not empty. Try to make create_dt and last_dt which last_update_datetime and create_datetime used insertsort array and desc.

For fs_open, I needed to see whether the name of file exist. And then try to return index of the file and if fcb can't find the file, it will make a new file name and file.

For fs_write, if it is over than 1KB, it won't make a new file and use failure. And then if file already exist, delete and update to make new file.

For fs_read, before send data to output buffer, read in the volume.

For fs_gsys, swap all the bits of super block (sb) 1 to 0 and then move on to fcb to change 32bit to 0.

• **The steps to execute your program.**

First, I used csc4005 server and mobaXterm terminal.

After I put my folder to server,

1. **salloc -N2 -n2 -t10**
2. **nvcc main.cu user_program.cu file_system.cu -o ./program -ccbin=/opt/rh/devtoolset-10/root/usr/bin/g++ --relocatable-device-code=true**
3. **srun ./program**

• **Screenshot of your program output.**

Test 1

```
bash-4.2$ srun ./program
===sort by modified time===
t.txt
b.txt
===sort by size===
t.txt 32
b.txt 32
===sort by size===
t.txt 32
b.txt 12
===sort by modified time===
b.txt
t.txt
===sort by size===
b.txt 12
===sort by modified time===
t.txt
b.txt
===sort by size===
t.txt 32
b.txt 32
===sort by size===
t.txt 32
b.txt 12
===sort by modified time===
b.txt
t.txt
===sort by size===
b.txt 12
bash-4.2$
```

Test 2

```
===sort by modified time===
t.txt
b.txt
===sort by size===
t.txt 32
b.txt 32
===sort by size===
t.txt 32
b.txt 12
===sort by modified time===
b.txt
t.txt
===sort by size===
b.txt 12
===sort by size===
*ABCDEFGHIJKLMNOPQR 33
)ABCDEFGHIJKLMNOPQR 32
(ABCDEFGHIJKLMNOPQR 31
'ABCDEFGHIJKLMNOPQR 30
&ABCDEFGHIJKLMNOPQR 29
%ABCDEFGHIJKLMNOPQR 28
$ABCDEFGHIJKLMNOPQR 27
#ABCDEFGHIJKLMNOPQR 26
"ABCDEFGHIJKLMNOPQR 25
!ABCDEFGHIJKLMNOPQR 24
b.txt 12
===sort by modified time===
*ABCDEFGHIJKLMNOPQR
)ABCDEFGHIJKLMNOPQR
(ABCDEFGHIJKLMNOPQR
'ABCDEFGHIJKLMNOPQR
&ABCDEFGHIJKLMNOPQR
b.txt
bash-4.2$
```

Test 3

```
bash-4.2$ srun ./program
===sort by modified time===
t.txt
b.txt
===sort by size===
t.txt 32
b.txt 32
===sort by size===
t.txt 32
b.txt 12
===sort by modified time===
b.txt
t.txt
===sort by size===
b.txt 12
===sort by size===
*ABCDEFGHIJKLMNOPQR 33
)ABCDEFGHIJKLMNOPQR 32
(ABCDEFGHIJKLMNOPQR 31
'ABCDEFGHIJKLMNOPQR 30
&ABCDEFGHIJKLMNOPQR 29
%ABCDEFGHIJKLMNOPQR 28
$ABCDEFGHIJKLMNOPQR 27
#ABCDEFGHIJKLMNOPQR 26
"ABCDEFGHIJKLMNOPQR 25
!ABCDEFGHIJKLMNOPQR 24
b.txt 12
===sort by modified time===
*ABCDEFGHIJKLMNOPQR
)ABCDEFGHIJKLMNOPQR
(ABCDEFGHIJKLMNOPQR
'ABCDEFGHIJKLMNOPQR
&ABCDEFGHIJKLMNOPQR
b.txt
===sort by size===
~ABCDEFG 1024
}ABCDEFG 1023
|ABCDEFG 1022
{ABCDEFG 1021
zABCDEFG 1020
yABCDEFG 1019
xABCDEFG 1018
wABCDEFG 1017
vABCDEFG 1016
uABCDEFG 1015
tABCDEFG 1014
sABCDEFG 1013
```

```
MA 51
LA 50
KA 49
JA 48
IA 47
HA 46
GA 45
FA 44
DA 42
CA 41
BA 40
AA 39
@A 38
?A 37
>A 36
=A 35
<A 34
*ABCDEFGHIJKLMNOPQR 33
;A 33
)ABCDEFGHIJKLMNOPQR 32
:A 32
(ABCDEFGHIJKLMNOPQR 31
9A 31
'ABCDEFGHIJKLMNOPQR 30
8A 30
&ABCDEFGHIJKLMNOPQR 29
7A 29
6A 28
5A 27
4A 26
3A 25
2A 24
b.txt 12
bash-4.2$
```

- **What did you learn from this assignment?**

From this task, I learned how to implement file system. Since, this assignment was pretty hard, still need to improve my coding skill.