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CS 344: Operating Systems Lab
Assignment 1

Solution 1

Files created :

1. ***Drawtest.c*** : A c code that basically prints the ASCII image, provided the buffer size is sufficiently large enough to store the ASCII file and if not it shows an error that buffer size is small.

Files modified :

1. ***sysproc.c*** : As said implemented a function ***int sys_draw(void)***. This function basically copies the content of the ASCII image if the buffer size is sufficiently large and if not it return -1
2. ***syscall.h*** : The corresponding header file for ***syscall.c*** which defines the position of the vector for the system call in this case we added SYS_draw as 22 using #define pre-processor
3. ***syscall.c*** : Used *extern* keyword to extend the visibility of our function ***sys_draw(void)***. We defined the postion of the vector for the system call, here we add the system call vector.
4. ***user.h*** : This is the header file so we have to add the definition of the function ***int draw(void*, unit);*** to this header file
5. ***usys.S*** : A generic source code file, that has source for the system call program. By adding *SYSCALL(draw)*, we are connecting system call function to users call

Solution 2

As we created a new file named ***Drawtest.c*** so now have to manipulate some script in makefile to make it work properly, need to add ***_Drawtest*** to makefile under the section ***UPROGS***, this denotes the list of all user programs.
To reflect the changes, we need to run ***make clean*** and again ***make qemu*** to run the OS

After this we can check that our program *Drawtest* is loaded in *fs.img* or not by typing *ls* into the shell

```
$ ls
.              1 1 512
..             1 1 512
README         2 2 2286
cat            2 3 16296
echo           2 4 15148
forktest       2 5 9460
grep           2 6 18516
init           2 7 15736
kill           2 8 15176
ln             2 9 15032
ls             2 10 17660
mkdir          2 11 15276
rm             2 12 15252
sh             2 13 27888
stressfs       2 14 16168
usertests      2 15 67272
wc             2 16 17028
zombie         2 17 14844
Drawtest       2 18 15136
console        3 19 0
$
```

We can now run *Drawtest* program by typing it into the shell