# Report for CS344 Assignment-1

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## Q1.

The 5 files which were edited to add the system call are:-

a) We will firstly change the syscall.h file where every system call is being assigned a particular number and as the system already has 21 system calls we will give our system call the number 22. So we add this line of code in syscall.h:

## #define SYS\_draw 22

b) Now we do the changes in the syscall.c file. This file has an array of function pointers(\*syscalls[]) which points to different system calls and it uses the indices defined in syscall.h file to point to the corresponding system call. We add this line of code in syscall.c at the appropriate index:

#### [SYS\_draw] sys\_draw,

Now we add a prototype of the system call function which we will be implementing in the sysproc.c file. So we add this line of code to declare the function prototype in syscall.c:

### extern int sys\_draw(void);

- c) Now we implement the sys\_draw function in the sysproc.c file. Details of the code are provided in the code itself using comments at appropriate locations.
- d) Now we add a system call definition of the system call function at the user level in the usys.S file. This connects the user's program's call to the system's call function. We add this line of code:

#### SYSCALL(draw)

e) Now finally we add the function prototype at the user level in user.h by adding this line of code:

## int draw(void\*, uint);

#### Q2.

Now we will add a user program Drawtest.c to call the system call. We add it in the xv6 directory. Details of the code are provided in the code itself using comments at appropriate locations.

Now we edit our MakeFile: We add our new C program under the UPROGS and EXTRA list.

Now we do make clean, make and make qemu.

We run Is and Drawtest to see the following outputs:-

```
ls
                1 1 512
                1 1 512
                2 2 2286
README
cat
                2 3 16268
                2 4 15120
echo
                2 5 9432
forktest
                2 6 18488
дгер
init
                2 7 15708
kill
                2 8 15148
ln
                2 9 15004
ls
                2 10 17632
mkdir
                2 11 15248
                2 12 15224
                2 13 27860
sh
                2 14 16140
                2 15 67244
                2 16 17000
wc
zombie
                2 17 14816
                2 18 15280
Drawtest
console
                3 19 0
```

Fig 2.1: Showing the Is command in the xv6's shell command prompt to see the fs.img file's content

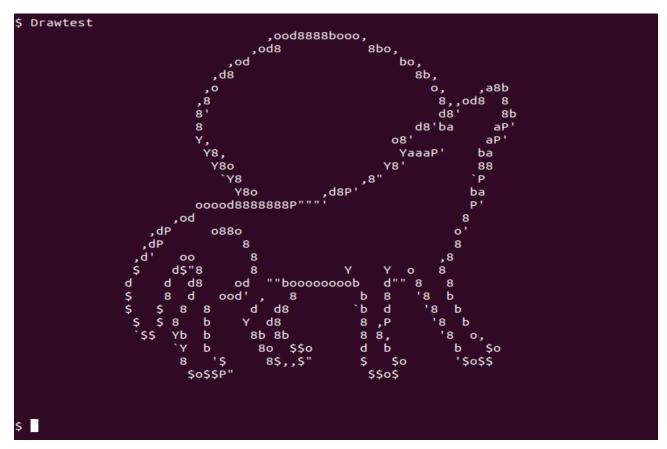


Fig 2.2: Showing the ascii art image formed by calling Drawtest.