P2 Warm-up: xv6 System Call

Started: Feb 8 at 2:08am

Quiz Instructions

The purpose of this quiz is to ensure you have read the specification and start to work on the project. All of these questions can be answered by reading through the Project 2 specification carefully and by looking through the relevant portions of the xv6 source code. Feel free to look at the specification and the source code while answering these questions. You can try as many times as you like.

> The questions below will require you to read the project specification carefully.

Question 1	1 pts

What should `getnumsyscalls(-537)` return?

- ○ 1
- ○ 0
- ○ 537
- ● -1

Question 2	1 pts

The counters in `getnumsyscalls()` or `getnumsyscallsgood()` should only be incremented when the syscalls return.

○ True

○ False

Question 3
1 pts

Which syscalls below should be counted in `getnumsyscalls()` or `getnumsyscallsgood()`?
Select all applicable.

☑ kill

☐ exec

☐ getnumsyscalls

☐ fork

☑ getpid

☑ write

Question 4
1 pts

What should be the expected output of the following program?

```
int main() {
    int mypid = getpid();
    printf("%d, %d", getnumsyscalls(mypid), getnumsyscallsgood(mypid));
    exit();
}
```

○ 1, 2

○ 0, 1

- ⦿ 1, 1
- ○ 2, 3

Question 5   **1 pts**

You should write a user program to test your system call implementation.

- ⦿ True
- ○ False

Question 6   **1 pts**

Which command is used to display your login name?

- ○ login
- ○ name
- ○ whomi
- ⦿ whoami

Question 7   **1 pts**

You should submit .o files and binaries to the handin directory.

- ○ True

○ False

The questions below will require you to get familiar with the xv6 compilation.

Question 8   **1 pts**

What command should you use to compile all the source files and run it using the QEMU emulator?

◉ make qemu-nox

○ make

○ qemu-system-i386 -nographic -drive file=fs.img,index=1,media=disk,format=raw -drive file=xv6.img,index=0,media=disk,format=raw

○ make clean

Question 9   **1 pts**

What command should you use to quit the emulator QEMU?

◉ ctrl-a x

○ ctrl-d

○ ctrl-c

○ ctrl-x

Question 10   **1 pts**

Which command is used to run gdb on xv6?

○ make qemu-nox

○ make qemu

⦿ make qemu-nox-gdb

○ make gdb

Question 11   **1 pts**

In order to debug xv6 using gdb, you should run `qemu-nox-gdb` and `gdb` in **two** windows.

⦿ True

○ False

Question 12   **1 pts**

If gdb gives you the error message that some information has been optimized out and cannot be displayed, make sure that your Makefile uses the flag:

○ -o g

○ -O2

○ -Od

◉ -Og

The questions below will require you to take a look at the source code of xv6.

Question 13   1 pts

Which struct in xv6 is the primary data structure maintaining a per-process state?

○ struct cpu;

○ struct context;

○ struct trapframe;

◉ struct proc;

Question 14   1 pts

In which file do you set the number of CPUs?

○ pstat.h

○ param.h

○ proc.h

◉ Makefile

Question 15   1 pts

Where can you find the definition of `fdalloc()`?

○ sysproc.c

○ proc.c

○ syscall.c

◉ sysfile.c

Question 16   1 pts

Which function is an entry point for all syscalls in xv6?

○ int sys_getpid(void)

○ int argint(int n, int *ip)

◉ void syscall(void)

○ int fetchint(uint addr, int *ip)

Question 17   1 pts

In xv6 source code, the static global variable `syscalls` in `syscall.c` (see declaration below) is an array. What is the **type** of **each element** in this array:

```
static int (*syscalls[])(void) = {
// ...
};
```

○ **function pointer which takes no argument and return int**

○ void

○ int

○ int*

Question 18
1 pts

To invoke a syscall in xv6, which header file should be included in a **userspace** program?

○ syscall.h

○ proc.h

○ defs.h

◉ **user.h**

Question 19
1 pts

Which variable you should refer to if you want to find a process with a matching pid?

○ syscalls

◉ **ptable**

○ myproc

Question 20

1 pts

Which source code file below is compiled into a user-space program, instead of part of the xv6 kernel?

- ⦿ kill.c
- ◯ proc.c
- ◯ trap.c
- ◯ sysproc.c

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