D Part 1

I pledge my honor that I have abided by the Stevens Honor System.
Christian Szablewski-Paz

```
Bash
/media/sf_shareddebian/pa3-10445108/driver/scull.c:155:2: warning: ISO C90 forbids mixed declarations and code [-Wdeclaration-after-statement]
    void *a = arr;
    ^~~~
/media/sf_shareddebian/pa3-10445108/driver/scull.c:160:2: warning: ISO C90 forbids mixed declarations and code [-Wdeclaration-after-statement]
    size_t *len = (size_t*)a;
    ^~~~~~
/media/sf_shareddebian/pa3-10445108/driver/scull.c:164:2: warning: ISO C90 forbids mixed declarations and code [-Wdeclaration-after-statement]
    char *str = (char*)a;
    ^~~~
In file included from ./include/linux/printk.h:6:0,
                 from ./include/linux/kernel.h:13,
                 from ./include/linux/list.h:8,
                 from ./include/linux/module.h:9,
                 from /media/sf_shareddebian/pa3-10445108/driver/scull.c:17:
./include/linux/kern_levels.h:4:18: warning: format '%d' expects argument of type 'int', but argument 2 has type 'size_t * {aka long unsigned int *}' [-Wformat=]
 #define KERN_SOH "\001"  /* ASCII Start Of Header */
                  ^
./include/linux/kern_levels.h:8:20: note: in expansion of macro 'KERN_SOH'
 #define KERN_ALERT KERN_SOH "1" /* action must be taken immediately */
                    ^~~~~~~~
./include/linux/printk.h:273:9: note: in expansion of macro 'KERN_ALERT'
  printk(KERN_ALERT pr_fmt(fmt), ##__VA_ARGS__)
         ^~~~~~~~~~
/media/sf_shareddebian/pa3-10445108/driver/scull.c:184:2: note: in expansion of macro 'pr_alert'
  pr_alert("Len %d\n", len);
  ^~~~~~~~
  Building modules, stage 2.
  MODPOST 1 modules
  LD [M]  /media/sf_shareddebian/pa3-10445108/driver/scull.ko
make[1]: Leaving directory '/home/student/linux-4.9'
root@debian:/media/sf_shareddebian/pa3-10445108/driver# ./scull.init start
Loading scull (loading file ./scull.ko)
.
root@debian:/media/sf_shareddebian/pa3-10445108/driver# cd ../src/
root@debian:/media/sf_shareddebian/pa3-10445108/src# ./producer p 2
Device (/dev/scull) opened
write: Christian Szablewski-Paz
write: Christian Szablewski-Paz
Device (/dev/scull) closed
root@debian:/media/sf_shareddebian/pa3-10445108/src# ./consumer p 2
Device (/dev/scull) opened
read: Christian Szablewski-Paz
read: Christian Szablewski-Paz
Device (/dev/scull) closed
root@debian:/media/sf_shareddebian/pa3-10445108/src#
```

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D Part 2

```
./include/linux/printk.h:273:9: note: in expansion of macro 'KERN_ALERT'
   printk(KERN_ALERT pr_fmt(fmt), ##__VA_ARGS__);
          ^~~~~~~~~~

/media/sf_shareddebian/pa3-10445108/driver/scull.c:184:2: note: in expansion of macro 'pr_alert'
  pr_alert("Len %d\n", len);
  ^~~~~~~~

  Building modules, stage 2.
  MODPOST 1 modules
  LD [M]  /media/sf_shareddebian/pa3-10445108/driver/scull.ko
make[1]: Leaving directory '/home/student/linux-4.9'
root@debian:/media/sf_shareddebian/pa3-10445108/driver# ./scull.init start
Loading scull (loading file ./scull.ko)
.
root@debian:/media/sf_shareddebian/pa3-10445108/driver# cd ../src/
root@debian:/media/sf_shareddebian/pa3-10445108/src# ./producer p 2
Device (/dev/scull) opened
write: Christian Szablewski-Paz
write: Christian Szablewski-Paz
Device (/dev/scull) closed
root@debian:/media/sf_shareddebian/pa3-10445108/src# ./consumer p 2
Device (/dev/scull) opened
read: Christian Szablewski-Paz
read: Christian Szablewski-Paz
Device (/dev/scull) closed
root@debian:/media/sf_shareddebian/pa3-10445108/src# cd ../driver/
root@debian:/media/sf_shareddebian/pa3-10445108/driver# ./scull.init stop
Unloading scull.
root@debian:/media/sf_shareddebian/pa3-10445108/driver# ./scull.init start
Loading scull (loading file ./scull.ko)
.
root@debian:/media/sf_shareddebian/pa3-10445108/driver# cd ../src/
root@debian:/media/sf_shareddebian/pa3-10445108/src# ./producer p 5
Device (/dev/scull) opened
write: Christian Szablewski-Paz
write: Christian Szablewski-Paz
write: Christian Szablewski-Paz
write: Christian Szablewski-Paz
write: Christian Szablewski-Paz
Device (/dev/scull) closed
root@debian:/media/sf_shareddebian/pa3-10445108/src# ./consumer p 2
Device (/dev/scull) opened
read: Christian Szablewski-Paz
read: Christian Szablewski-Paz
Device (/dev/scull) closed
root@debian:/media/sf_shareddebian/pa3-10445108/src#
```

D Part 3

D Part 4

Note, I needed to actually redefine the variables inside of the driver header file everytime the scull fifo size changed as well as the scull_fifo_elemsz in the insmod input.