

OSN Mini Project 2

Instructions to fix the tester script for Spec 1 (getreadcount)

Note: `test_2` won't be considered for evaluation since it involves handling concurrency. That is, marks won't be cut for the implementation of `getreadcount()` syscall even if `test_2` fails.

1. Ensure that gawk and expect are installed

- installing expect:
`sudo apt-get install expect`
- installing gawk:
`sudo apt-get install gawk`

2. Change the `test_*.c` files

- Go to the `./initial-xv6/tests/` directory.
- Replace the `test_1.c` and `test_2.c` files with the following code:

Link to `test_1.c`

Link to `test_2.c`

3. Add test files to user directory

- The same test files, i.e. `test_1.c` and `test_2.c` should be added to the `./initial-xv6/src/user/` directory.
- Consequently make changes to the Makefile as follows:

The UPROGS part from around line 118 in `./initial-xv6/src/Makefile` will look as follows:

```
UPROGS=\
    $U/_cat\
    $U/_echo\
    $U/_forktest\
    $U/_grep\
    $U/_init\
    $U/_kill\
    $U/_ln\
    $U/_ls\
    $U/_mkdir\
    $U/_rm\
    $U/_sh\
```

```

$U/_stressfs\
$U/_usertests\
$U/_grind\
$U/_wc\
$U/_zombie\
$U/_schedulertest\
$U/_test_1\
$U/_test_2\

```

- You are free to add a user program for your `getreadcount()` system call in case you want to run it manually on xv6.

4. Change the executable

- Finally, we need to make a slight change to the `./tester/run-xv6-command.exp` file

- Change line 16 from

```
spawn make [lindex $argv 0] -f [lindex $argv 1] qemu-nox
to
```

```
spawn make [lindex $argv 0] -f [lindex $argv 1] qemu
```

- Your final file will look like this:

```

#!/usr/bin/env expect

proc shutdown {} {
    # send command to halt qemu (ctrl-a x)
    # https://stackoverflow.com/questions/27050473/how-to-send-ctrl-a-then-d-in-expect
    send "\x01"; send "x"
    # make sure to wait for it all to stop
    # (without this, script was terminating before qemu quit -> bad)
    expect eof
}

# turn off timeout (perhaps make this flexible later)
set timeout -1

# build and launch xv6 on qemu
spawn make [lindex $argv 0] -f [lindex $argv 1] qemu

trap {
    shutdown
    exit 0
} SIGINT

```

```
# wait for initial prompt
expect "init: starting sh\r"
expect "$ "

# send command as per command line
send "[lindex $argv 2]\r"

# wait for it to be done
expect "$ "

# shutdown qemu properly (avoid runaways)
shutdown
```