

Lab 3 Report
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CS20B046

Problem Statement →

Create a shell like utility in xv6 that supports echo and 3 other operations +, -, *. The shell should pop up when the user makes qemu

Executing the program →

```
cd xv6
make clean
make
make qemu
```

It fires up a prompt →

It allows 2 operations

echo <some string>

<some number> <any operation in +,-,*> <another number>

(be careful : A space is needed b.w numbers and the operators)

Some screenshots attached →

```
QEMU
SeaBIOS (version 1.10.2-1ubuntu1)

iPXE (http://ipxe.org) 00:03.0 C980 PCI2.10 PnP PMM+1FF8DDDD+1FECDDDD C980

Booting from Hard Disk...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap star
t 58
init: starting sh
CS20B046$ echo this is soham
this is soham
CS20B046$
```

Echoing a string

```
QEMU
iPXE (http://ipxe.org) 00:03.0 C980 PCI2.10 PnP PMM+1FF8DDDD+1FECDDDD C980

Booting from Hard Disk...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap star
t 58
init: starting sh
CS20B046$ echo this is soham
this is soham
CS20B046$ 2 + 3
5
CS20B046$ 2 * 3
6
CS20B046$ 123 * 456
56088
CS20B046$ 123 - 458
-335
CS20B046$ 234 * 987
230958
CS20B046$
```

Operations

```
QEMU
Booting from Hard Disk...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
CS20B046$ echo this is soham
this is soham

CS20B046$ 2 + 3
5
CS20B046$ 2 * 3
6
CS20B046$ 123 * 456
56088
CS20B046$ 123 - 458
-335
CS20B046$ 234 * 987
230958
CS20B046$

pid 2 lab3cs20b046she: trap 14 err 5 on cpu 0 eip 0xffffffff addr 0xffffffff--kernel
ll proc
lapicid 0: panic: init exiting
80103d24 8010549b 80104869 80105825 8010563f 0 0 0 0 0_
```

exiting

Challenges faced and resolutions

1. While first executing, I was not creating the executable for lab3cs20b046_customshell
Resolution → I created and \$cs20b046 shows up
2. But it ran to an infinite loop as the child process was not exited
Resolution → added an else part to pid == 0, waited and exited the process
3. Cursor was showing up once
Resolution → Build a infinite loop and an exit condition when the user simply hits enter

*Note for this lab the implementation of the arithmetic operations are hardcoded