Luis Cervantes Oropeza
CS333 Project 2

Test Name: Correctly compiles and boots with the CS333 P2 macro turned off, with CS333 PROJECT set to 0 in the Makefile

Test Description: In this test we will be setting CS333 Project to the value 0 and compline it with no errors

Expected Results: Expected results for this test is for it to pass

Test Output / Actual Results

```
cervan4@babbage:~/CS333/xv6-pdx$ grep "CS333_PROJECT ?=" Makefile
CS333_PROJECT ?= 0
cervan4@babbage:~/CS333/xv6-pdx$ make clean  run
rm -f *.o *.d *.asm *.sym vectors.S bootblock entryother \
initcode initcode.out kernel xv6.img fs.img kernelmemfs \
xv6memfs.img mkfs .gdbinit \
_cat _echo _forktest _grep _init _kill _ln _ls _mkdir _rm _sh _stressfs _usertests _wc _zombie  _halt _uptime
rm -rf dist dist-test
make -s clean
make -s qemu-nox
nmeta 59 (boot, super, log blocks 30 inode blocks 26, bitmap blocks 1) blocks 1941 total 2000
balloc: first 714 blocks have been allocated
balloc: write bitmap block at sector 58
boot block is 467 bytes (max 510)
10000+0 records in
10000+0 records out
5120000 bytes (5.1 MB, 4.9 MiB) copied, 0.109275 s, 46.9 MB/s
1+0 records in
1+0 records out
512 bytes copied, 0.00275551 s, 186 kB/s
377+1 records in
377+1 records out
193444 bytes (193 kB, 189 KiB) copied, 0.00810439 s, 23.9 MB/s
SeaBIOS (version 1.13.0-1ubuntu1)


iPXE (http://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8CA10+1FECCA10 CA00



Booting from Hard Disk..xv6...
cpu1: starting 1
cpu0: starting 0
sb: size 2000 nblocks 1941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$
```

Discussion: The results were as expected everything compiled and worked properly.

Indication of PASS/FAIL: This test Passed

Luis Cervantes Oropeza
CS333 Project 2

Test Name: Correctly compiles and boots with the CS333 P2 macro turned on, with CS333 PROJECT set to 2 in the Makefile

Test Description: In this test we will be setting CS333 Project to the value 2 and compline it with no errors

Expected Results: Expected results for this test is for it to pass

Test Output / Actual Results

```
cervan4@babbage:~/CS333/xv6-pdx$ grep "CS333_PROJECT ?=" Makefile
CS333_PROJECT ?= 2
cervan4@babbage:~/CS333/xv6-pdx$ !m
make clean  run
rm -f *.o *.d *.asm *.sym vectors.S bootblock entryother \
initcode initcode.out kernel xv6.img fs.img kernelmemfs \
xv6memfs.img mkfs .gdbinit \
_cat _echo _forktest _grep _init _kill _ln _ls _mkdir _rm _sh _stressfs _usertests _wc _zombie  _halt _uptime _date _time _ps _testsetuid  _testuidgid _p2-test
rm -rf dist dist-test
make -s clean
make -s qemu-nox
nmeta 59 (boot, super, log blocks 30 inode blocks 26, bitmap blocks 1) blocks 1941 total 2000
balloc: first 946 blocks have been allocated
balloc: write bitmap block at sector 58
boot block is 467 bytes (max 510)
10000+0 records in
10000+0 records out
5120000 bytes (5.1 MB, 4.9 MiB) copied, 0.114873 s, 44.6 MB/s
1+0 records in
1+0 records out
512 bytes copied, 0.00283172 s, 181 kB/s
378+1 records in
378+1 records out
193784 bytes (194 kB, 189 KiB) copied, 0.00840512 s, 23.1 MB/s
SeaBIOS (version 1.13.0-1ubuntu1)


iPXE (http://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8CA10+1FECCA10 CA00



Booting from Hard Disk..xv6...
cpu1: starting 1
cpu0: starting 0
sb: size 2000 nblocks 1941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$
```

Discussion: The results were as expected everything compiled and worked properly.

Indication of PASS/FAIL: This test Passed

Luis Cervantes Oropeza
CS333 Project 2

Test Name: Correctly set / get UID and GID and get PPID and Correctly handle attempting to set UID and GID to invalid numbers

Test Description: In this test we will be setting/getting UID,GID and getting PPID correctly as well we will be attempting to set UID and GID to invalid number

Expected Results: Expected results for this test is for it to pass and set the values correct and get the values correct as well get an invalid when trying to set GID or UID to invalid number

Test Output / Actual Results

```
cervan4@babbage:~/CS333/xv6-pdx$ !m
make clean  run
rm -f *.o *.d *.asm *.sym vectors.S bootblock entryother \
initcode initcode.out kernel xv6.img fs.img kernelmemfs \
xv6memfs.img mkfs .gdbinit \
_cat _echo _forktest _grep _init _kill _ln _ls _mkdir _rm _sh _stressfs _usertests _wc _zombie  _halt _uptime _date _time _ps _testsetuid  _testuidgid _p2-test
rm -rf dist dist-test
make -s clean
make -s qemu-nox
nmeta 59 (boot, super, log blocks 30 inode blocks 26, bitmap blocks 1) blocks 1941 total 2000
balloc: first 946 blocks have been allocated
balloc: write bitmap block at sector 58
boot block is 467 bytes (max 510)
10000+0 records in
10000+0 records out
5120000 bytes (5.1 MB, 4.9 MiB) copied, 0.126069 s, 40.6 MB/s
1+0 records in
1+0 records out
512 bytes copied, 0.00356386 s, 144 kB/s
378+1 records in
378+1 records out
193784 bytes (194 kB, 189 KiB) copied, 0.00966548 s, 20.0 MB/s
SeaBIOS (version 1.13.0-1ubuntu1)


iPXE (http://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8CA10+1FECCA10 CA00


Booting from Hard Disk..xv6...
cpu1: starting 1
cpu0: starting 0
sb: size 2000 nblocks 1941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ _set uid 300
$ _set gid 422
$ _get uid
300
$ _get gid
422
$ _get ppid
Invalid _get parameter
$ _set uid 232323234
Invalid _set parameter
$ _set gid 343434344343
Invalid _set parameter
$ _get uid
300
$ _get gid
422
$
```

Discussion: The results were as expected for UID and GID they both set and get the value properly as well wouldn't allow to set invalid value as expected however getting PPID wasn't as expected

Indication of PASS/FAIL: This test UID and GID both passed the tests however get PPID didn't go as expected

Luis Cervantes Oropeza
CS333 Project 2

Test Name: Show that control – p correctly prints all new information. Fields and headers include: PID Name UID GID PPID Elapsed CPU State Size PCs

Test Description: In this test we will show that control -p prints all the new information and all the data is correct.

Expected Results: Expected results for this test is for it to pass

Test Output / Actual Results

```
cervan4@babbage:~/CS333/xv6-pdx$ !m
make clean  run
rm -f *.o *.d *.asm *.sym vectors.S bootblock entryother \
initcode initcode.out kernel xv6.img fs.img kernelmemfs \
xv6memfs.img mkfs .gdbinit \
_cat _echo _forktest _grep _init _kill _ln _ls _mkdir _rm _sh _stressfs _usertests _wc _zombie  _halt _uptime _date _time _ps _testsetuid  _testuidgid _p2-test
rm -rf dist dist-test
make -s clean
make -s qemu-nox
nmeta 59 (boot, super, log blocks 30 inode blocks 26, bitmap blocks 1) blocks 1941 total 2000
balloc: first 946 blocks have been allocated
balloc: write bitmap block at sector 58
boot block is 467 bytes (max 510)
10000+0 records in
10000+0 records out
5120000 bytes (5.1 MB, 4.9 MiB) copied, 0.117331 s, 43.6 MB/s
1+0 records in
1+0 records out
512 bytes copied, 0.00384831 s, 133 kB/s
378+1 records in
378+1 records out
193784 bytes (194 kB, 189 KiB) copied, 0.00867561 s, 22.3 MB/s
SeaBIOS (version 1.13.0-1ubuntu1)


iPXE (http://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8CA10+1FECCA10 CA00


Booting from Hard Disk..xv6...
cpu1: starting 1
cpu0: starting 0
sb: size 2000 nblocks 1941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$
PID     Name         UID        GID     PPID    Elapsed CPU     State   Size     PCs
1       init         0          0       1       50.0    42.0    sleep   12288    80103a11 80103b27 80104feb 801043e6 801053a4 80105291
2       sh           0          0       1       65.0    10.0    sleep   16384    80103a11 801002d8 80101880 80100e78 80104717 801043e6 801053a4 80105291
$
```

Discussion: The results were as expected everything displayed properly and data was correct

Indication of PASS/FAIL: This test Passed

Luis Cervantes Oropeza
CS333 Project 2

Test Name: Test for correct output of ps command. (Compare to control – p)

Test Description: In this test we will show the output for ps command and compare to control -p

Expected Results: Expected results for this test is for it to pass and print correctly

Test Output / Actual Results

```
cervan4@babbage:~/CS333/xv6-pdx$ !m
make clean  run
rm -f *.o *.d *.asm *.sym vectors.S bootblock entryother \
initcode initcode.out kernel xv6.img fs.img kernelmemfs \
xv6memfs.img mkfs .gdbinit \
_cat _echo _forktest _grep _init _kill _ln _ls _mkdir _rm _sh _stressfs _usertests _wc _zombie  _halt _uptime _date _time _ps _testsetuid  _testuidgid _p2-test
rm -rf dist dist-test
make -s clean
make -s qemu-nox
nmeta 59 (boot, super, log blocks 30 inode blocks 26, bitmap blocks 1) blocks 1941 total 2000
balloc: first 946 blocks have been allocated
balloc: write bitmap block at sector 58
boot block is 467 bytes (max 510)
10000+0 records in
10000+0 records out
5120000 bytes (5.1 MB, 4.9 MiB) copied, 0.119263 s, 42.9 MB/s
1+0 records in
1+0 records out
512 bytes copied, 0.00352913 s, 145 kB/s
378+1 records in
378+1 records out
193784 bytes (194 kB, 189 KiB) copied, 0.00908191 s, 21.3 MB/s
SeaBIOS (version 1.13.0-1ubuntu1)


iPXE (http://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8CA10+1FECCA10 CA00


Booting from Hard Disk..xv6...
cpu1: starting 1
cpu0: starting 0
sb: size 2000 nblocks 1941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$
PID     Name         UID        GID     PPID    Elapsed CPU     State   Size     PCs
1       init         0                  0       1       50.0    41.0    sleep   12288    80103a11 80103b27 80104feb 801043e6 801053a4 80105291
2       sh           0                  0       1       73.0    14.0    sleep   16384    80103a11 801002d8 80101880 80100e78 80104717 801043e6 801053a4 80105291
$ ps
PID:    Name:   UID:    GID:    PPID:   Elapse: State   Size
1       init    0       0       1       6739.0  sleep   12288
3       ps      0       0       2       28.0    run     45056
$
```

Discussion: The results were as expected everything displayed properly and data was correct however from what we can see the data is different in the ps and the control -p commands

Indication of PASS/FAIL: This test Passed

Luis Cervantes Oropeza
CS333 Project 2

Test Name: Test the built-in shell commands to set UID and GID, and show that child processes correctly inherit the new UID and GID values. (ps command can do this)

Test Description: In this test we test the built-in shell command to set UID and GID and show that UID and GID inherits the new value

Expected Results: Expected results for this test is for it to pass and for everything to inherits correctly.

Test Output / Actual Results

```
Booting from Hard Disk..xv6...
cpu1: starting 1
cpu0: starting 0
sb: size 2000 nblocks 1941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ _get uid
0
$ _get gid
0
$ _set uid 300
$ _set gid 450
$ ps
PID:    Name:   UID:    GID:    PPID:   Elapse: State   Size
1       init    0       0       1       33534.0 sleep   12288
3       ps      300     450     2       23.0    run     45056
$
```

Discussion: The results were as expected everything displayed properly and data was correct as well UID and GID inherited correctly so everything was a success

Indication of PASS/FAIL: This test Passed

Luis Cervantes Oropeza
CS333 Project 2

Test Name: Tests for getprocs() with 64 active processes. (Staff suggest a test program) – [2 points] Correct output with MAX set to 1, 16, 64, 72, Correctly use control – p as a comparison. (using wait() in your test program will help)

Test Description: In this test we test get procs with MAX set to 1,16,64,72 and correctly use control -p as comparison

Expected Results: Expected results for this test is for it to pass everything despite the MAX value

Test Output / Actual Results

```
Booting from Hard Disk..xv6...
cpu1: starting 1
cpu0: starting 0
sb: size 2000 nblocks 1941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ p2-test

----------
Running CPU Time Test
----------
This will take a couple seconds
T2 - T1 = 3 milliseconds
** All Tests Passed! **

----------
Running UID / GID Tests
----------
** All tests passed! **

----------
Running UID / GID Inheritance Test
----------
** Test Passed! **

----------
Running PPID Test
----------
** Test passed! **

----------
Running GetProcs Test
----------
Filling the proc[] array with dummy processes
getprocs() was asked for 1 processes and returned 1. SUCCESS
getprocs() was asked for 16 processes and returned 16. SUCCESS
getprocs() was asked for 64 processes and returned 64. SUCCESS
getprocs() was asked for 72 processes and returned 64. SUCCESS
** All Tests Passed **

----------
Running Time Test
----------
You will need to verify these tests passed

time
(null) this took  0.4 seconds
time abc
abc this took  0.3 seconds
time date
Sun 24 Jan 2021 07:44:14 PM UTC
date this took  0.23 seconds
time time echo "abc"
"abc"
echo this took  0.16 secondstime this took  0.37 seconds
** End of Tests **
$
PID     Name         UID        GID     PPID    Elapsed CPU     State   Size     PCs
1       init         0          0       1       50.-2146379616  43.-2146379616  sleep   12288    80103a11 80103b27 80104feb 801043e6 801053a4 80105291
2       sh           0          0       1       11927.-2146379616       25.-2146379616  sleep   16384    80103a11 801002d8 80101880 80100e78 80104717 801043e6 801053a4 80105291
$
```

Discussion: The results were as expected everything passed and as well control -p was used as a comparison

Indication of PASS/FAIL: This test Passed

Luis Cervantes Oropeza
CS333 Project 2

Test Name: Test for the correct elapsed CPU time in control – p

Test Description: In this test we will use control -p to see if we have the correct elapse time

Expected Results: Expected results for this test is for it to give us the correct elapse time

Test Output / Actual Results

```
iPXE (http://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8CA10+1FECCA10 CA00


Booting from Hard Disk..xv6...
cpu1: starting 1
cpu0: starting 0
sb: size 2000 nblocks 1941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$
PID     Name         UID        GID     PPID    Elapsed CPU     State   Size     PCs
1       init         0          0       1       50.0    47.0    sleep   12288    80103a11 80103b27 80104feb 801043e6 801053a4 80105291
2       sh           0          0       1       75.0    15.0    sleep   16384    80103a11 801002d8 80101880 80100e78 80104717 801043e6 801053a4 80105291
$
```

Discussion: The results were as expected the elapse time was correct

Indication of PASS/FAIL: This test Passed

Luis Cervantes Oropeza
CS333 Project 2

Test Name: Tests for the time command:

- Call with no arguments and an invalid argument,
- Call with a valid command argument that takes an argument,
- Show that the calculated time is accurate (control – p elapsed time before and after on a long process would work fine)

Test Description: In this test we will call with no argument and invalid argument as well call with a valid command argument and takes an argument as well show and calculate time is accurate

Expected Results: Expected results for this test to pass and for everything to be accurate or close to accurate.

Test Output / Actual Results

```
iPXE (http://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8CA10+1FECCA10 CA00


Booting from Hard Disk..xv6...
cpu1: starting 1
cpu0: starting 0
sb: size 2000 nblocks 1941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ time
(null) ran in  0.5 seconds$
$ time sfs
sfs ran in  0.3 seconds$
$ time echo "abc"
"abc"
echo ran in  0.19 seconds$
$
```

P2-test command

```
----------
Running Time Test
----------
You will need to verify these tests passed

time
(null) ran in  0.5 seconds
time abc
abc ran in  0.3 seconds
time date
Sun 24 Jan 2021 08:20:28 PM UTC
date ran in  0.27 seconds
time time echo "abc"
"abc"
echo ran in  0.16 secondstime ran in  0.41 seconds
** End of Tests **
$
```

Luis Cervantes Oropeza
CS333 Project 2

Discussion: The results were as expected time in comparison to the p2-test command the results were very much close since time echo was 0.16 seconds while mine was 0.19 so very much close so it passed all the tests even when set to nothing

Indication of PASS/FAIL: This test Passed