

Anthony Thap & Brian Ackley

18 February 2014

Operating Systems CSE460

Tong Yu

Lab #7

1. Scripts and programs for lab 7 were all completed we will give ourselves 20 points

Script started on Tue 18 Feb 2014 05:04:31 PM PST

```
#]0;002505606@jb356-6:/students/csci/002505606/cse460/lab7##[?1034h[002505606@jb356-6
lab7]$ ./pipe1#####g++ -o pipe1 pipe1.cpp
```

```
#]0;002505606@jb356-6:/students/csci/002505606/cse460/lab7#[002505606@jb356-6 lab7]$ g++ -o
pipe1 pipe1.cpp#####./pipe1#[K
```

Warning: bad syntax, perhaps a bogus '-'? See /usr/share/doc/procps-3.2.8/FAQ

Output from pipe: USER PID %CPU %MEM VSZ RSS TTY STAT START TIME
COMMAND

root	1	0.0	0.0	21448	1564	?	Ss	15:25	0:00	/sbin/init
root	2	0.0	0.0	0	0	?	S	15:25	0:00	[kthreadd]
root	3	0.0	0.0	0	0	?	S	15:25	0:00	[migration/0]
root	4	0.0	0.0	0	0	?	S	15:25	0:00	[ksoftirqd/0]
root	5	0.0	0.0	0	0	?	S	15:25	0:00	[migration/0]
root	6	0.0	0.0	0	0	?	S	15:25	0:00	[watchdog/0]
root	7	0.0	0.0	0	0	?	S	15:25	0:00	[migration/1]
root	8	0.0	0.0	0	0	?	S	15:25	0:00	[migration/1]
root	9	0.0	0.0	0	0	?	S	15:25	0:00	[ksoftirqd/1]
root	10	0.0	0.0	0	0	?	S	15:25	0:00	[watchdog/1]
root	11	0.0	0.0	0	0	?	S	15:25	0:00	[migration/2]
root	12	0.0	0.0	0	0	?	S	15:25	0:00	[migration/2]
root	13	0.0	0.0	0	0	?	S	15:25	0:00	[ksoftirqd/2]
root	14	0.0	0.0	0	0	?	S	15:25	0:00	[watchdog/2]
root	15	0.0	0.0	0	0	?	S	15:25	0:00	[migration/3]
root	16	0.0	0.0	0	0	?	S	15:25	0:00	[migration/3]
root	17	0.0	0.0	0	0	?	S	15:25	0:00	[ksoftirqd/3]
root	18	0.0	0.0	0	0	?	S	15:25	0:00	[watchdog/3]
root	19	0.0	0.0	0	0	?	S	15:25	0:00	[events/0]
root	20	0.0	0.0	0	0	?	S	15:25	0:00	[events/1]
root	21	0.0	0.0	0	0	?	S	15:25	0:00	[events/2]
root	22	0.0	0.0	0	0	?	S	15:25	0:00	[events/3]
root	23	0.0	0.0	0	0	?	S	15:25	0:00	[cgroup]
root	24	0.0	0.0	0	0	?	S	15:25	0:00	[khelper]
root	25	0.0	0.0	0	0	?	S	15:25	0:00	[netns]
root	26	0.0	0.0	0	0	?	S	15:25	0:00	[async/mgr]
root	27	0.0	0.0	0	0	?	S	15:25	0:00	[pm]
root	28	0.0	0.0	0	0	?	S	15:25	0:00	[sync_supers]
root	29	0.0	0.0	0	0	?	S	15:25	0:00	[bdi-default]
root	30	0.0	0.0	0	0	?	S	15:25	0:00	[kintegrityd/0]

root	31	0.0	0.0	0	0 ?	S	15:25	0:00	[kintegrityd/1]
root	32	0.0	0.0	0	0 ?	S	15:25	0:00	[kintegrityd/2]
root	33	0.0	0.0	0	0 ?	S	15:25	0:00	[kintegrityd/3]
root	34	0.0	0.0	0	0 ?	S	15:25	0:00	[kblockd/0]
root	35	0.0	0.0	0	0 ?	S	15:25	0:00	[kblockd/1]
root	36	0.0	0.0	0	0 ?	S	15:25	0:00	[kblockd/2]
root	37	0.0	0.0	0	0 ?	S	15:25	0:00	[kblockd/3]
root	38	0.0	0.0	0	0 ?	S	15:25	0:00	[kacpid]
root	39	0.0	0.0	0	0 ?	S	15:25	0:00	[kacpi_notify]
root	40	0.0	0.0	0	0 ?	S	15:25	0:00	[kacpi_hotplug]
root	41	0.0	0.0	0	0 ?	S	15:25	0:00	[ata_aux]
root	42	0.0	0.0	0	0 ?	S	15:25	0:00	[ata_sff/0]
root	43	0.0	0.0	0	0 ?	S	15:25	0:00	[ata_sff/1]
root	44	0.0	0.0	0	0 ?	S	15:25	0:00	[ata_sff/2]
root	45	0.0	0.0	0	0 ?	S	15:25	0:00	[ata_sff/3]
root	46	0.0	0.0	0	0 ?	S	15:25	0:00	[ksuspend_usbd]
root	47	0.0	0.0	0	0 ?	S	15:25	0:00	[khubd]
root	48	0.0	0.0	0	0 ?	S	15:25	0:00	[kseriod]
root	49	0.0	0.0	0	0 ?	S	15:25	0:00	[md/0]
root	50	0.0	0.0	0	0 ?	S	15:25	0:00	[md/1]
root	51	0.0	0.0	0	0 ?	S	15:25	0:00	[md/2]
root	52	0.0	0.0	0	0 ?	S	15:25	0:00	[md/3]
root	53	0.0	0.0	0	0 ?	S	15:25	0:00	[md_misc/0]
root	54	0.0	0.0	0	0 ?	S	15:25	0:00	[md_misc/1]
root	55	0.0	0.0	0	0 ?	S	15:25	0:00	[md_misc/2]
root	56	0.0	0.0	0	0 ?	S	15:25	0:00	[md_misc/3]
root	57	0.0	0.0	0	0 ?	S	15:25	0:00	[linkwatch]
root	58	0.0	0.0	0	0 ?	S	15:25	0:00	[khungtaskd]
root	59	0.0	0.0	0	0 ?	S	15:25	0:00	[kswapd0]
root	60	0.0	0.0	0	0 ?	SN	15:25	0:00	[ksmd]
root	61	0.0	0.0	0	0 ?	SN	15:25	0:00	[khugepaged]
root	62	0.0	0.0	0	0 ?	S	15:25	0:00	[aio/0]
root	63	0.0	0.0	0	0 ?	S	15:25	0:00	[aio/1]
root	64	0.0	0.0	0	0 ?	S	15:25	0:00	[aio/2]
root	65	0.0	0.0	0	0 ?	S	15:25	0:00	[aio/3]
root	66	0.0	0.0	0	0 ?	S	15:25	0:00	[crypto/0]
root	67	0.0	0.0	0	0 ?	S	15:25	0:00	[crypto/1]
root	68	0.0	0.0	0	0 ?	S	15:25	0:00	[crypto/2]
root	69	0.0	0.0	0	0 ?	S	15:25	0:00	[crypto/3]
root	74	0.0	0.0	0	0 ?	S	15:25	0:00	[kthrotld/0]
root	75	0.0	0.0	0	0 ?	S	15:25	0:00	[kthrotld/1]
root	76	0.0	0.0	0	0 ?	S	15:25	0:00	[kthrotld/2]
root	77	0.0	0.0	0	0 ?	S	15:25	0:00	[kthrotld/3]
root	79	0.0	0.0	0	0 ?	S	15:25	0:00	[kpsmoused]
root	80	0.0	0.0	0	0 ?	S	15:25	0:00	[usbhid_resumer]
root	111	0.0	0.0	0	0 ?	S	15:25	0:00	[kstriped]
root	136	0.0	0.0	0	0 ?	S	15:25	0:00	[i915]
root	137	0.0	0.0	0	0 ?	S<	15:25	0:00	[kslowd000]
root	138	0.0	0.0	0	0 ?	S<	15:25	0:00	[kslowd001]

```

root    280 0.0 0.0    0  0 ?    S   15:25  0:00 [scsi_eh_0]
root    281 0.0 0.0    0  0 ?    S   15:25  0:00 [scsi_eh_1]
root    282 0.0 0.0    0  0 ?    S   15:25  0:00 [scsi_eh_2]
root    283 0.0 0.0    0  0 ?    S   15:25  0:00 [scsi_eh_3]
root    284 0.0 0.0    0  0 ?    S   15:25  0:00 [scsi_eh_4]
root    285 0.0 0.0    0  0 ?    S   15:25  0:00 [scsi_eh_5]
root    416 0.0 0.0    0  0 ?    S   15:25  0:00 [kdmflush]
root    418 0.0 0.0    0  0 ?    S   15:25  0:00 [kdmflush]
root    437 0.0 0.0    0  0 ?    S   15:25  0:00 [jbd2/dm-0-8]
root    438 0.0 0.0    0  0 ?    S   15:25  0:00 [ext4-dio-unwrit]
root    527 0.0 0.0 11260 1320 ?    S<s 15:25  0:00 /sbin/udev -d
root    707 0.0 0.0    0  0 ?    S   15:25  0:00 [hd-audio0]
root   1354 0.0 0.0 11256 1360 ?    S<  15:25  0:00 /sbin/udev -d
root   1355 0.0 0.0 11256 1328 ?    S<  15:25  0:00 /sbin/udev -d
root   1367 0.0 0.0    0  0 ?    S   15:25  0:00 [kdmflush]
root   1405 0.0 0.0    0  0 ?    S   15:25  0:00 [jbd2/sda1-8]
root   1406 0.0 0.0    0  0 ?    S   15:25  0:00 [ext4-dio-unwrit]
root   1407 0.0 0.0    0  0 ?    S   15:25  0:00 [jbd2/dm-2-8]
root   1408 0.0 0.0    0  0 ?    S   15:25  0:00 [ext4-dio-unwrit]
root   1452 0.0 0.0    0  0 ?    S   15:25  0:00 [kauditd]
root   1586 0.0 0.0    0  0 ?    S   15:25  0:00 [flush-253:0]
root   1707 0.0 0.0 27640  796 ?    S<sl 15:25  0:00 auditd
root   1732 0.0 0.0 249092 1552 ?    Sl  15:25  0:00 /sbin/rsyslogd -i /var/run/syslogd.pid -c 5
root   1755 0.0 0.0    0  0 ?    S   15:25  0:00 [kondemand/0]
root   1756 0.0 0.0    0  0 ?    S   15:25  0:01 [kondemand/1]
root   1757 0.0 0.0    0  0 ?    S   15:25  0:00 [
#j0;002505606@jb356-6:/students/csci/002505606/cse460/lab7#[002505606@jb356-6 lab7]$ exit

```

Script done on Tue 18 Feb 2014 05:04:37 PM PST

```

//pipe1a.cpp
#include <unistd.h>
#include <stdlib.h>
#include <string.h>
#include <stdio.h>
#include <iostream>

using namespace std;

char *strcpy(char *dest, const char *src, size_t n)

{
    size_t i;
    for (i = 0; i < n && src[i] != '\0'; i++)
        dest[i] = src[i];
    for ( ; i < n; i++)
        dest[i] = '\0';
}

```

```

int main()
{
    FILE *fpi;                                //for reading a pipe

    char buffer[BUFSIZ+1];                    //BUFSIZ defined in <stdio.h>

    int chars_read;
    memset ( buffer, 0,sizeof(buffer)); //clear buffer
    fpi = popen ( "ps -auxw", "r" );        //pipe to command "ps -auxw"
    if ( fpi != NULL ) {
        //read data from pipe into buffer
        chars_read = fread(buffer, sizeof(char), BUFSIZ, fpi );
        if ( chars_read > 0 )
            cout << "Output from pipe: " << buffer << endl;
        pclose ( fpi );                      //close the pipe
        return 0;
    }
    char *strcpy(char *dest, const char *src, size_t n);
    return 1;
}

//pipe2.cpp
#include <unistd.h>
#include <stdlib.h>
#include <string.h>
#include <stdio.h>
#include <iostream>

using namespace std;

int main()
{
    FILE *fpo;                                //for writing to a pipe

    char buffer[BUFSIZ+1];                    //BUFSIZ defined in <stdio.h>

    //Write buffer a message
    sprintf(buffer, "Arnod said, 'If I am elected, ..', and the fairy tale begins\n");

    fpo = popen ( "od -c", "w" );            //pipe to command "od -c"
                                            //od -- output dump, see "man od"

    if ( fpo != NULL ) {
        //send data from buffer to pipe
        fwrite(buffer, sizeof(char), strlen(buffer), fpo );
        pclose ( fpo );                      //close the pipe
        return 0;
    }
    return 1;
}

```

```

//pipe3.cpp
#include <unistd.h>
#include <stdlib.h>
#include <string.h>
#include <stdio.h>
#include <iostream>

using namespace std;

int main()
{
    int nbytes;
    int fd[2];           //file descriptors for pipe
    const char s[] = "CSUSB";
    char buffer[BUFSIZ+1];

    memset ( buffer, 0, sizeof(buffer) );//clear buffer

    if ( pipe( fd ) == 0 ) {           //create a pipe
        nbytes = write( fd[1], s, strlen( s ) );    //send data to pipe
        cout << "Sent " << nbytes << " bytes to pipe." << endl;
        nbytes = read ( fd[0], buffer, BUFSIZ );    //read data from pipe
        cout << "Read " << nbytes << " from pipe: " << buffer << endl;
        return 0;
    }
    return 1;
}

// The 'consumer' program, pipe5.cpp, that reads the data is much simpler.

#include <unistd.h>
#include <stdlib.h>
#include <stdio.h>
#include <string.h>

int main(int argc, char *argv[])
{
    int data_processed;
    char buffer[BUFSIZ + 1];
    int file_descriptor;

    memset(buffer, '\0', sizeof(buffer));
    sscanf(argv[1], "%d", &file_descriptor);
    data_processed = read(file_descriptor, buffer, BUFSIZ);

    printf("%d - read %d bytes: %s\n", getpid(), data_processed, buffer);
    exit(EXIT_SUCCESS);
}

```

```
002505606@jb356-6:/students/csci/002505606/cse460/lab7
File Edit View Search Terminal Help
[002505606@jb356-6 lab7]$ g++ -o pipe4 pipe4.cpp
[002505606@jb356-6 lab7]$ g++ -o pipe5 pipe5.cpp
[002505606@jb356-6 lab7]$ ./pipe4
Enter a sentence: Hello
3815 - wrote 5 bytes
[002505606@jb356-6 lab7]$ 3817 - read 5 bytes: Hello
^C
[002505606@jb356-6 lab7]$
```

```
002505606@jb356-6:/students/csci/002505606/cse460/lab7
File Edit View Search Terminal Help
[002505606@jb356-6 lab7]$ g++ -o pipe6 pipe6.cpp
[002505606@jb356-6 lab7]$ ./pipe6
Waiting for input:
Process 3984 wrote 20 bytes
Lower case output: csusb the beautiful!
[002505606@jb356-6 lab7]$
```