

Program: System Manager

Level Attempted: 100

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CpS 250
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Program Report

Time Designing, Writing, and Debugging: 14 hours

Requirements Implementation Summary

The following requirements have been implemented:

- All requirements for 100 Level

Bug Summary

1. No known bugs.

Academic Integrity Report

By affixing my signature below, I certify that the accompanying work represents my own intellectual effort. Furthermore, I have received no outside help other than what is documented below and/or in program source code comments.

Melchisedek Dulcio
Signature

Date	Name / Email / URL	Nature of help	Time spent

Official Test Results

Test 1 Output

```
ubuntu@ip-172-31-95-223:~/cps250-project2-mdulc928$ ./sysman --sysinfo
1 users, 193384 bytes available
```

Test 2 Output

```
ubuntu@ip-172-31-95-223:~/cps250-project2-mdulc928$ ./sysman --ps
PID COMMAND          USER      RSS      TIME
  1 systemd           root      8832 00:00:03
  2 kthreadd          root         0 00:00:00
  4 kworker/0:0H      root         0 00:00:00
  6 mm_percpu_wq      root         0 00:00:00
  7 ksoftirqd/0       root         0 00:00:00
  8 rcu_sched          root         0 00:00:03
  9 rcu_bh             root         0 00:00:00
 10 migration/0       root         0 00:00:00
 11 watchdog/0        root         0 00:00:00
 12 cpuhp/0           root         0 00:00:00
 13 kdevtmpfs          root         0 00:00:00
 14 netns              root         0 00:00:00
 15 rcu_tasks_kthre    root         0 00:00:00
 16 kauditd            root         0 00:00:00
 17 xenbus             root         0 00:00:00
 18 xenwatch           root         0 00:00:00
 20 khungtaskd         root         0 00:00:00
 21 oom_reaper         root         0 00:00:00
 22 writeback          root         0 00:00:00
 23 kcompactd0         root         0 00:00:00
 24 ksm                 root         0 00:00:00
 25 khugepaged         root         0 00:00:00
 26 crypto             root         0 00:00:00
 27 kintegrityd        root         0 00:00:00
 28 kblockd            root         0 00:00:00
 29 ata_sff            root         0 00:00:00
 30 md                 root         0 00:00:00
 31 edac-poller        root         0 00:00:00
 32 devfreq_wq         root         0 00:00:00
 33 watchdogd          root         0 00:00:00
 36 kswapd0            root         0 00:00:00
 37 kworker/u31:0      root         0 00:00:00
 38 ecryptfs-kthrea    root         0 00:00:00
 80 kthrotld           root         0 00:00:00
 81 nvme-wq            root         0 00:00:00
 82 scsi_eh_0          root         0 00:00:00
 83 scsi_tmf_0         root         0 00:00:00
 84 scsi_eh_1          root         0 00:00:00
 85 scsi_tmf_1         root         0 00:00:00
 90 ipv6_addrconf      root         0 00:00:00
100 kstrp              root         0 00:00:00
168 kworker/0:1H      root         0 00:00:00
276 raid5wq           root         0 00:00:00
329 jbd2/xvda1-8       root         0 00:00:00
330 ext4-rsv-conver    root         0 00:00:00
397 iscsi_eh           root         0 00:00:00
409 ib-comp-wq         root         0 00:00:00
410 ib-comp-unb-wq     root         0 00:00:00
411 ib_mcast           root         0 00:00:00
412 ib_nl_sa_wq        root         0 00:00:00
417 rdma_cm            root         0 00:00:00
418 systemd-journal   root     13120 00:00:00
422 lvmtools            root      1940 00:00:00
432 systemd-udevd      root      5008 00:00:00
438 loop0             root         0 00:00:00
445 loop1             root         0 00:00:00
447 loop2             root         0 00:00:00
```

Official Test Case Results

449	loop3	root	0	00:00:00
451	loop4	root	0	00:00:00
453	loop5	root	0	00:00:00
516	systemd-timesyn	systemd+	3252	00:00:00
639	systemd-network	systemd+	5148	00:00:00
652	systemd-resolve	systemd+	5000	00:00:00
765	accounts-daemon	root	6708	00:00:01
774	amazon-ssm-agen	root	14332	00:00:00
781	networkd-dispat	root	17088	00:00:00
802	rsyslogd	syslog	4396	00:00:00
803	systemd-logind	root	6016	00:00:00
808	dbus-daemon	message+	4260	00:00:00
813	atd	daemon	2308	00:00:00
814	lxcfs	root	2596	00:00:00
815	snappd	root	25692	00:00:03
816	udisksd	root	9880	00:00:00
822	cron	root	3028	00:00:00
829	unattended-upgr	root	19768	00:00:00
835	agetty	root	2284	00:00:00
840	polkitd	root	6360	00:00:00
857	xrdp-sesman	root	536	00:00:00
863	agetty	root	1860	00:00:00
867	sshd	root	6284	00:00:00
894	xrdp	xrdp	592	00:00:00
3286	xfsalloc	root	0	00:00:00
3293	xfs_mru_cache	root	0	00:00:00
4803	kworker/0:1	root	0	00:00:01
10072	kworker/0:2	root	0	00:00:00
10152	kworker/u30:2	root	0	00:00:00
10256	kworker/u30:0	root	0	00:00:00
10315	systemd	ubuntu	7804	00:00:00
10316	(sd-pam)	ubuntu	2400	00:00:00
10464	sh	ubuntu	848	00:00:00
10472	node	ubuntu	50156	00:00:00
10555	sshd	root	7236	00:00:00
10637	sshd	ubuntu	4892	00:00:00
10638	bash	ubuntu	3476	00:00:00
10689	node	ubuntu	58748	00:00:01
10700	node	ubuntu	36052	00:00:00
10713	bash	ubuntu	4824	00:00:00
10784	kworker/u30:1	root	0	00:00:00
10794	sshd	root	7296	00:00:00
10876	sshd	ubuntu	3500	00:00:00
10877	bash	ubuntu	5328	00:00:00
10898	sleep	ubuntu	808	00:00:00
10902	sysman	ubuntu	3196	00:00:00
10903	python3	ubuntu	11540	00:00:00
10904	ps	ubuntu	3648	00:00:00

Test 3 Output

```
ubuntu@ip-172-31-95-223:~/cps250-project2-mdulc928$ ./sysman --exec 'ping localhost -c 4'
PING localhost (127.0.0.1) 56(84) bytes of data.
64 bytes from localhost (127.0.0.1): icmp_seq=1 ttl=64 time=0.017 ms
64 bytes from localhost (127.0.0.1): icmp_seq=2 ttl=64 time=0.031 ms
64 bytes from localhost (127.0.0.1): icmp_seq=3 ttl=64 time=0.031 ms
64 bytes from localhost (127.0.0.1): icmp_seq=4 ttl=64 time=0.030 ms

--- localhost ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3059ms
rtt min/avg/max/mdev = 0.017/0.027/0.031/0.007 ms
```

Test 4 Output

```
ubuntu@ip-172-31-95-223:~/cps250-project2-mdulc928$ ./sysman --listen 6000
```

Official Test Case Results

```
Sysman listening on port 6000. Waiting for incoming requests...
Connection request from: 127.0.0.1:32834. 1 client(s) connected.
Connection request from: 127.0.0.1:32836. 2 client(s) connected.
Client 127.0.0.1:32836 disconnected. 1 client(s) remaining.
Client 127.0.0.1:32834 disconnected. 0 client(s) remaining.
^Cctrl-C (SIGINT) detected. Shutting down...
ubuntu@ip-172-31-95-223:~/cps250-project2-mdulc928$ nc localhost 6000
Sysman, at your service!
EXEC ping localhost -c 4
PING localhost (127.0.0.1) 56(84) bytes of data.
64 bytes from localhost (127.0.0.1): icmp_seq=1 ttl=64 time=0.013 ms
64 bytes from localhost (127.0.0.1): icmp_seq=2 ttl=64 time=0.030 ms
64 bytes from localhost (127.0.0.1): icmp_seq=3 ttl=64 time=0.019 ms
64 bytes from localhost (127.0.0.1): icmp_seq=4 ttl=64 time=0.039 ms

--- localhost ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3066ms
rtt min/avg/max/mdev = 0.013/0.025/0.039/0.010 ms
SYSINFO
1 users, 187880 bytes available
QUIT

ubuntu@ip-172-31-95-223:~/cps250-project2-mdulc928$
ubuntu@ip-172-31-95-223:~/cps250-project2-mdulc928$ nc localhost 6000
Sysman, at your service!
QUIT

ubuntu@ip-172-31-95-223:~/cps250-project2-mdulc928$
```

Test 5 Output

[illegible]

Official Test Case Results

[illegible]

My Test Cases
