

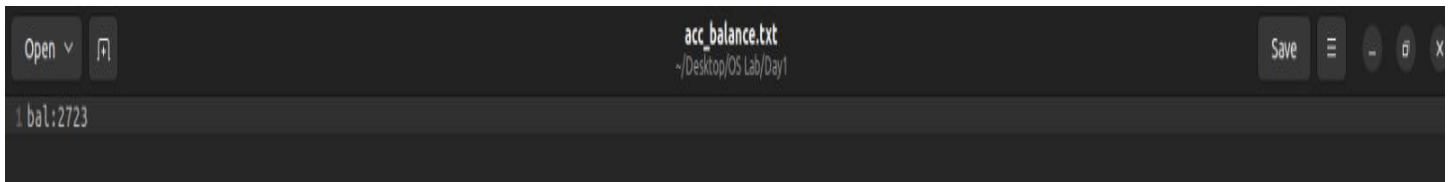
CSS-553 Assignment-1

Outputs

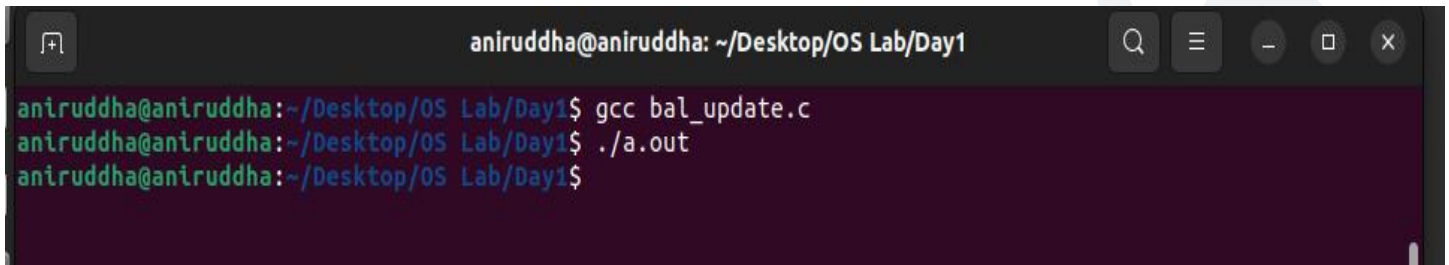
ANIRUDDHA MONDAL

CS-X | 22CS8073

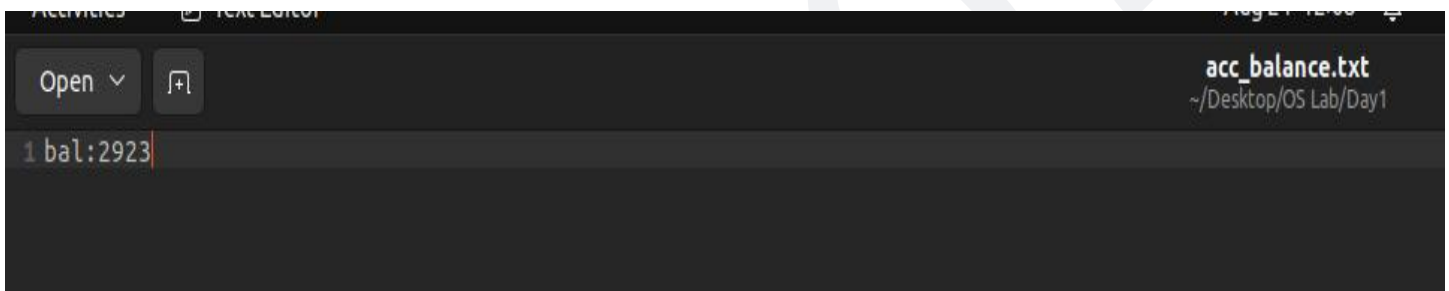
A2.)



```
acc_balance.txt
~/Desktop/OS Lab/Day1
1 bal:2723
```

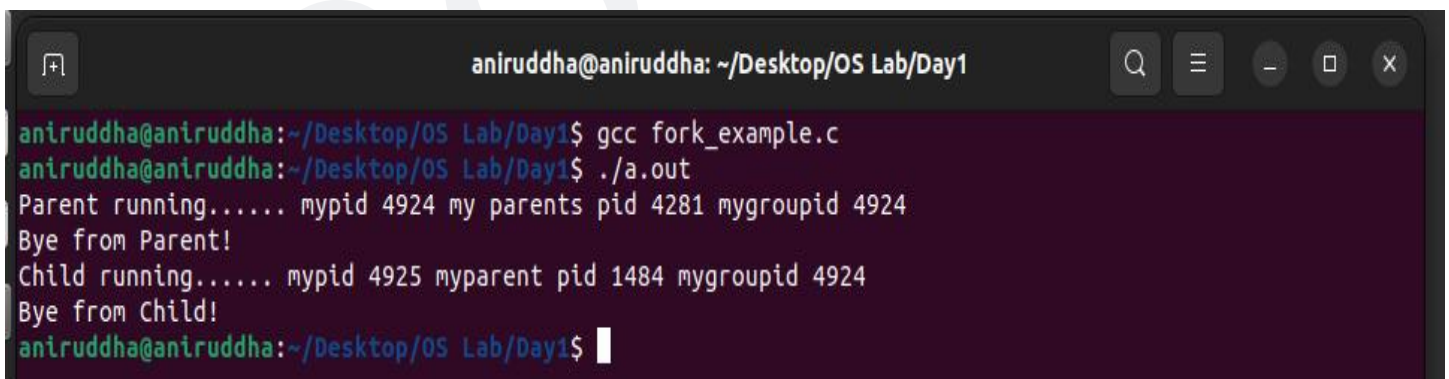


```
aniruddha@aniruddha: ~/Desktop/OS Lab/Day1
aniruddha@aniruddha:~/Desktop/OS Lab/Day1$ gcc bal_update.c
aniruddha@aniruddha:~/Desktop/OS Lab/Day1$ ./a.out
aniruddha@aniruddha:~/Desktop/OS Lab/Day1$
```



```
acc_balance.txt
~/Desktop/OS Lab/Day1
1 bal:2923
```

A3.)



```
aniruddha@aniruddha: ~/Desktop/OS Lab/Day1
aniruddha@aniruddha:~/Desktop/OS Lab/Day1$ gcc fork_example.c
aniruddha@aniruddha:~/Desktop/OS Lab/Day1$ ./a.out
Parent running..... mypid 4924 my parents pid 4281 mygroupid 4924
Bye from Parent!
Child running..... mypid 4925 myparent pid 1484 mygroupid 4924
Bye from Child!
aniruddha@aniruddha:~/Desktop/OS Lab/Day1$
```

A4.)

```
aniruddha@aniruddha: ~/Desktop/OS Lab/Assignment1
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment1$ gcc infinite_loop.c -o infinite_loop
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment1$ gcc infinite_malloc.c -o infinite_malloc
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment1$ ./infinite_loop &
./infinite_malloc &
[1] 31499
[2] 31500
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment1$ ps -o pid,ppid,cmd,%mem,%cpu --sort=-%mem | head
  PID   PPID  CMD                                %MEM %CPU
  31504   31474 ps -o pid,ppid,cmd,%mem,%cp  0.0  0.0
  31474   4263  bash                                0.0  0.0
  31505   31474 head                            0.0  0.0
  31499   31474 ./infinite_loop                      0.0 63.8
[2]+  Killed                  ./infinite_malloc
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment1$
```

```
aniruddha@aniruddha: ~/Desktop/OS Lab/Assignment1
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment1$ gcc infinite_loop.c -o infinite_loop
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment1$ gcc infinite_malloc.c -o infinite_malloc
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment1$ ./infinite_loop &
./infinite_malloc &
[1] 31499
[2] 31500
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment1$ ps -o pid,ppid,cmd,%mem,%cpu --sort=-%mem | head
  PID   PPID  CMD                                %MEM %CPU
  31504   31474 ps -o pid,ppid,cmd,%mem,%cp  0.0  0.0
  31474   4263  bash                                0.0  0.0
  31505   31474 head                            0.0  0.0
  31499   31474 ./infinite_loop                      0.0 63.8
[2]+  Killed                  ./infinite_malloc
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment1$ ps -o pid,ppid,cmd,%mem,%cpu --sort=-%mem | head
  PID   PPID  CMD                                %MEM %CPU
  31474   4263  bash                                0.0  0.0
  31525   31474 ps -o pid,ppid,cmd,%mem,%cp  0.0  0.0
  31526   31474 head                            0.0  0.0
  31499   31474 ./infinite_loop                      0.0 87.1
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment1$ ps -o pid,ppid,cmd,%mem,%cpu --sort=-%mem | head
  PID   PPID  CMD                                %MEM %CPU
  31474   4263  bash                                0.0  0.0
  31528   31474 ps -o pid,ppid,cmd,%mem,%cp  0.0  0.0
  31529   31474 head                            0.0  0.0
  31499   31474 ./infinite_loop                      0.0 90.6
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment1$
```

A5.)

```
aniruddha@aniruddha: ~/Desktop/OS Lab/Day1
aniruddha@aniruddha: ~/Desktop/OS Lab/Day1$ gcc parent_child.c
aniruddha@aniruddha: ~/Desktop/OS Lab/Day1$ ./a.out
Parent process (PID 31761) started
Child process (PID 31762) started
```

```
31325      2 I      [kworker/u256:4-events_unbound]
31390    4263 Ss+    bash
31412      2 I<     [kworker/1:5H-ttm]
31415      2 I<     [kworker/0:6H-kblockd]
31501      2 I      [kworker/u256:0-events_unbound]
31502      2 I      [kworker/u256:3-events_unbound]
31548      2 I<     [kworker/1:0H-kblockd]
31580    2685 Sl     /snap/firefox/2987/usr/lib/firefox/firefox -contentproc -childID 17 -isForBrowser
31630      2 I      [kworker/1:2-events]
31673      2 I      [kworker/0:1-events]
31678    2685 Sl     /snap/firefox/2987/usr/lib/firefox/firefox -contentproc -childID 18 -isForBrowser
31761    4281 S+     ./a.out
31762    31761 S+     ./a.out
31766      2 I      [kworker/u256:2]
31767    4263 Ss     bash
31775    31767 R+    ps -e -o pid,ppid,stat,cmd
aniruddha@aniruddha: ~/Desktop/OS Lab/Day1$
```

```
aniruddha@aniruddha: ~/Desktop/OS Lab/Day1$ kill 31762
aniruddha@aniruddha: ~/Desktop/OS Lab/Day1$ ps -e -o pid,ppid,stat,cmd
```

```
31761    4281 S+     ./a.out
31762    31761 Z+     [a.out] <defunct>
31766      2 I      [kworker/u256:2]
31767    4263 Ss     bash
31776      2 I<     [kworker/0:0H-kblockd]
31812      2 I<     [kworker/1:2H-ttm]
31813      2 I<     [kworker/1:3H-kblockd]
31818    31767 R+    ps -e -o pid,ppid,stat,cmd
aniruddha@aniruddha: ~/Desktop/OS Lab/Day1$
```

```
aniruddha@aniruddha: ~/Desktop/OS Lab/Day1
aniruddha@aniruddha: ~/Desktop/OS Lab/Day1$ gcc parent_child.c
aniruddha@aniruddha: ~/Desktop/OS Lab/Day1$ ./a.out
Parent process (PID 31916) started
Child process (PID 31917) started
```



```

31630      2 I    [kworker/1:2-events]
31673      2 I    [kworker/0:1-events]
31678     2685 Sl  /snap/firefox/2987/usr/lib/firefox/firefox -contentproc -childID 18 -isForBrowser
31766      2 I    [kworker/u256:2]
31767     4263 Ss   bash
31776      2 I<    [kworker/0:0H-kblockd]
31812      2 I<    [kworker/1:2H-kblockd]
31813      2 I<    [kworker/1:3H-ttm]
31916     4281 S+   ./a.out
31917     31916 S+   ./a.out
31931     1484 SnsL /usr/libexec/tracker-extract-3
31937     31767 R+   ps -e -o pid,ppid,stat,cmd
aniruddha@aniruddha:~/Desktop/OS Lab/Day1$

```

```

aniruddha@aniruddha:~/Desktop/OS Lab/Day1$ kill 31916
aniruddha@aniruddha:~/Desktop/OS Lab/Day1$ ps -e -o pid,ppid,stat,cmd

```

```

31767     4263 Ss   bash
31776      2 I<    [kworker/0:0H-ttm]
31812      2 I<    [kworker/1:2H-ttm]
31813      2 I<    [kworker/1:3H-ttm]
31917     1484 S    ./a.out
31945      2 I<    [kworker/0:1H-kblockd]
31958     31767 R+   ps -e -o pid,ppid,stat,cmd
aniruddha@aniruddha:~/Desktop/OS Lab/Day1$

```

A6.)

```

aniruddha@aniruddha: ~/Desktop/OS Lab/Day1  x  aniruddha@aniruddha: ~/Desktop/OS Lab/Day1  x  v
niruddha@aniruddha:~/Desktop/OS Lab/Day1$ gcc process_stats.c
niruddha@aniruddha:~/Desktop/OS Lab/Day1$ ./a.out
niruddha@aniruddha:~/Desktop/OS Lab/Day1$

```

The files created by this code to display the various processes are provided with the code files.

The file names are:- a) snap_aux.txt
b) snap_ef.txt

A7.)

```
aniruddha@aniruddha:~/Desktop/OS Lab/Day1$ lscpu
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:          45 bits physical, 48 bits virtual
Byte Order:             Little Endian
CPU(s):                 2
  On-line CPU(s) list:  0,1
Vendor ID:              GenuineIntel
Model name:             12th Gen Intel(R) Core(TM) i5-12450H
CPU family:             6
Model:                 154
Thread(s) per core:    1
Core(s) per socket:    1
Socket(s):              2
Stepping:               3
BogoMIPS:               4992.02
Flags:                  fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush
                        h mmx fxsr sse sse2 ss syscall nx pdpe1gb rdtscp lm constant_tsc arch_perfmon
                        rep_good nopl xtopology tsc_reliable nonstop_tsc cpuid tsc_known_freq pni pclm
                        ulqdq ssse3 fma cx16 sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdra
                        nd hypervisor lahf_lm abm 3dnowprefetch pti ssbd ibrs ibpb stibp fsgsbase tsc_
                        adjust bmi1 avx2 smep bmi2 erms invpcid rdseed adx smap clflushopt clwb sha_ni
                        xsaveopt xsavec xgetbv1 xsaves avx_vnni arat umip gfni vaes vpclmulqdq rdpid
                        movdiri movdir64b fsrm md_clear serialize flush_l1d arch_capabilities

Virtualization features:
Hypervisor vendor:     VMware
Virtualization type:   full

Caches (sum of all):
L1d:                   96 KiB (2 instances)
L1i:                   64 KiB (2 instances)
L2:                    2.5 MiB (2 instances)
L3:                    24 MiB (2 instances)

NUMA:
NUMA node(s):          1
NUMA node0 CPU(s):     0,1

Vulnerabilities:
Gather data sampling:   Not affected
Itlb multihit:          Not affected
L1tf:                   Mitigation; PTE Inversion
Mds:                    Mitigation; Clear CPU buffers; SMT Host state unknown
Meltdown:               Mitigation; PTI
Mmio stale data:        Not affected
Retbleed:               Mitigation; IBRS
Spec rstack overflow:   Not affected
Spec store bypass:      Mitigation; Speculative Store Bypass disabled via prctl
Spectre v1:             Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Spectre v2:             Mitigation; IBRS; IBPB conditional; STIBP disabled; RSB filling; PBRSE-eIBRS N
                        ot affected; BHI Syscall hardening, KVM SW loop
Srbds:                  Not affected
Tsx async abort:        Not affected
aniruddha@aniruddha:~/Desktop/OS Lab/Day1$
```

Thanks

For

Reviewing