1. Virtual Machine Setup
a.
i. uname -a
Linux osboxes 5.3.0-26-generic #28-Ubuntu SMP Wed Dec 18 05:37:46 UTC
2019 x86_64 x86_64 x86_64 GNU/Linux

ii. ps -al
```
F S   UID    PID    PPID  C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
4 S  1000   1472    1470  2  80   0 - 65156 ep_pol tty2     00:00:03 Xorg
0 S  1000   1484    1470  0  80   0 - 50168 poll_s tty2     00:00:00
gnome-sessio
0 R  1000   2794    2191  0  80   0 -  5000 -      pts/0    00:00:00 ps
```


iii. cat /proc/meminfo
```
MemTotal:        4002184 kB
MemFree:         1757836 kB
MemAvailable:    2668104 kB
Buffers:           62292 kB
Cached:          1012660 kB
SwapCached:            0 kB
Active:          1058432 kB
Inactive:         658156 kB
Active(anon):     642960 kB
Inactive(anon):     2364 kB
Active(file):     415472 kB
Inactive(file):   655792 kB
Unevictable:          32 kB
Mlocked:              32 kB
SwapTotal:       8787964 kB
SwapFree:        8787964 kB
Dirty:               152 kB
Writeback:             0 kB
AnonPages:        641696 kB
Mapped:           229628 kB
Shmem:              3696 kB
KReclaimable:      87792 kB
Slab:             181752 kB
SReclaimable:      87792 kB
SUnreclaim:        93960 kB
KernelStack:       10396 kB
PageTables:        12588 kB
NFS_Unstable:          0 kB
Bounce:                0 kB
WritebackTmp:          0 kB
CommitLimit:    10789056 kB
Committed_AS:    3520436 kB
VmallocTotal:  34359738367 kB
VmallocUsed:       26072 kB
VmallocChunk:          0 kB
Percpu:           109568 kB
HardwareCorrupted:     0 kB
AnonHugePages:         0 kB
```

```
ShmemHugePages:        0 kB
ShmemPmdMapped:        0 kB
CmaTotal:              0 kB
CmaFree:               0 kB
HugePages_Total:       0
HugePages_Free:        0
HugePages_Rsvd:        0
HugePages_Surp:        0
Hugepagesize:       2048 kB
Hugetlb:               0 kB
DirectMap4k:      231232 kB
DirectMap2M:     2914304 kB
DirectMap1G:     3145728 kB
```

iv. cat /proc/cpuinfo

```
processor   : 0
vendor_id   : GenuineIntel
cpu family  : 6
model       : 142
model name  : Intel(R) Core(TM) i7-8550U CPU @ 1.80GHz
stepping    : 10
microcode   : 0x96
cpu MHz         : 1992.002
cache size  : 8192 KB
physical id : 0
siblings    : 1
core id         : 0
cpu cores   : 1
apicid          : 0
initial apicid  : 0
fpu         : yes
fpu_exception   : yes
cpuid level : 22
wp          : yes
flags       : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca
cmov pat pse36 clflush mmx fxsr sse sse2 ss syscall nx pdpe1gb rdtscp lm
constant_tsc arch_perfmon nopl xtopology tsc_reliable nonstop_tsc cpuid
pni pclmulqdq ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt
tsc_deadline_timer aes xsave avx f16c rdrand hypervisor lahf_lm abm
3dnowprefetch cpuid_fault invpcid_single pti ssbd ibrs ibpb stibp
fsgsbase tsc_adjust bmi1 avx2 smep bmi2 invpcid mpx rdseed adx smap
clflushopt xsaveopt xsavec xsaves arat flush_l1d arch_capabilities
bugs        : cpu_meltdown spectre_v1 spectre_v2 spec_store_bypass l1tf
mds swapgs itlb_multihit
bogomips    : 3984.00
clflush size    : 64
cache_alignment : 64
address sizes   : 43 bits physical, 48 bits virtual
power management:
```

b.
uname: Uname prints the system information. There are options including -
a that prints all and other options that just print specific information.
ps: ps prints the processes that are being used at the time the command
is used. There are different parameters that can be used, similar to
uname.

2. Clone git Repository
b.
On branch master
Your branch is up to date with 'origin/master'.

nothing to commit, working tree clean

3. "C" Editing and Compiling
a. hw1.c
```c
#include <stdio.h>
#include <stdlib.h>

int main(int argc, char* argv[]){

  // checks that there are parameters that would have pointers
  if(argc < 2){
    printf("No Parameters\n");
    exit(1);
  }

  // iterates through parameters and prints parameter and their pointers
  for(int i = 1; i < argc; i++) {
    printf("Pointer of %s <%p>\n", argv[i], &argv[i]);
  }

  return 0;
}
```


b. ./hw1 p1 p2 p3
Pointer of p1 <0x7fffe45d0e00>
Pointer of p2 <0x7fffe45d0e08>
Pointer of p3 <0x7fffe45d0e10>