1. **What are kernel APIs? What is the difference between kernel APIs and system calls?**

Kernel APIs are interfaces for user-space applications. It can invoke user-space applications and manipulate the output. It is the API that allows programs in user space to access system resources and services of the Linux kernel. It is composed out of the System Call Interface of the Linux kernel and the subroutines in the GNU C Library (glibc)

System call can permit user-space application to invoke methods in the kernel, for example, a C function called fopen() can use system call that is sys_open(). The difference is that APIs work in the higher layer.

2. **What are roles of files in /boot/ (vmlinuz-*, initrd.img-*, grub, config*)?**

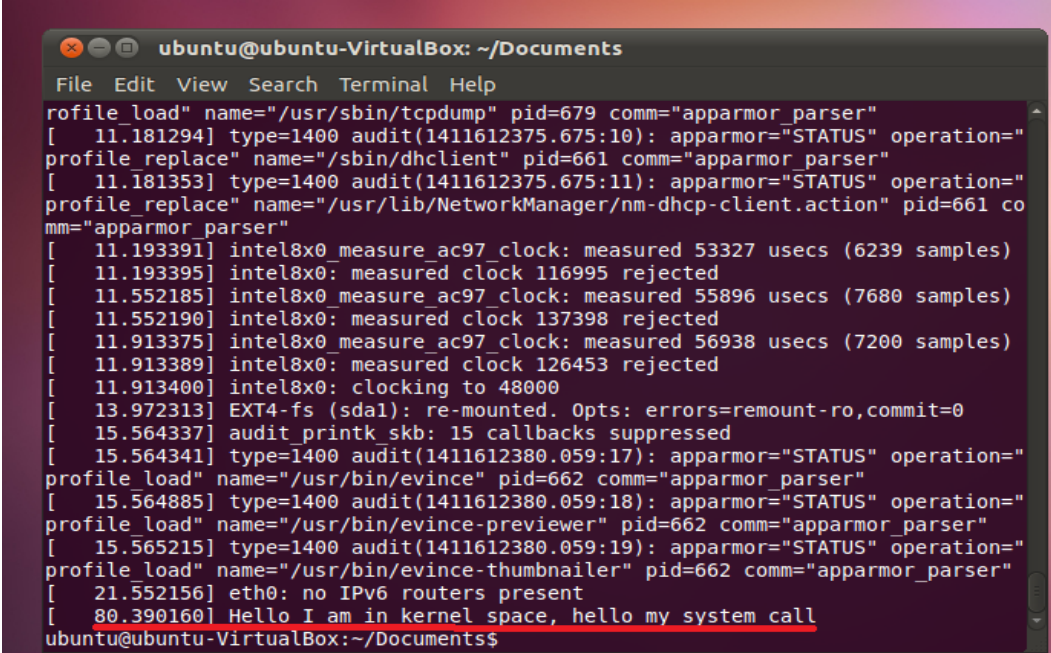vmlinuz-*:   the name of the Linux kernel executable,It is the first thing that is loaded into memory.

initrd.img-*:   a scheme for loading a temporary root file system into memory in the boot process of the Linux kernel. initrd and initramfs refer to two different methods of achieving this. Both are commonly used to make preparations before the real root file system can be mounted.

grub: a boot loader package from the GNU Project. It provides a user the choice to boot one of multiple operating systems installed on a computer or select a specific kernel configuration available on a particular operating system's partitions.

config*:   the configuration file of the kernel. This file contains configuration files, or the initial settings for some computer programs. We have the option to choose which functionality, module or driver to add into the kernel.

3. **Include the screenshots from tasks 1, 2 and 3 below.**

Task1:

Task2:


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[   76.406910] /sys/devices/system/cpu/cpu3/cache/index1/shared_cpu_map is being
 opened
[   76.406933] /sys/devices/system/cpu/cpu3/cache/index2/shared_cpu_map is being
 opened
[   76.406970] /proc/net/dev is being opened
[   76.407015] /proc/irq/22/smp_affinity is being opened
[   76.407047] /proc/irq/12/smp_affinity is being opened
[   76.407079] /proc/irq/15/smp_affinity is being opened
[   77.006594] /dev/sr0 is being opened
[   77.787715] /etc/localtime is being opened
[   77.788513] /usr/share/zoneinfo/UTC is being opened
[   77.789110] /home/ubuntu/.cache/dconf/user is being opened
[   77.789196] /home/ubuntu/.config/dconf/user is being opened
[   77.791836] /usr/share/zoneinfo/Europe/Rome is being opened
[   77.795171] /usr/share/zoneinfo is being opened
[   77.853619] /etc/ld.so.cache is being opened
[   77.853674] /lib/i386-linux-gnu/libc.so.6 is being opened
[   77.854163] myfile.txt is being opened
[   79.005686] /dev/sr0 is being opened
[   80.697591] /etc/ld.so.cache is being opened
[   80.697659] /lib/i386-linux-gnu/libc.so.6 is being opened
[   80.698282] /usr/lib/locale/locale-archive is being opened
ubuntu@ubuntu-VirtualBox:~/Documents$
```

Task3: