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18CS01057

Assignment - 8B Solution

Step 1 : I installed the version 5.6.7, since the earlier version was not supported.

Step 2 :

I ran the following commands

```
$ cd linux-5.6.7
```

Description : Entering into the aforementioned directory.

```
$ make menuconfig
```

Description : I selected some built-in features, modules for building the kernel from the interactive menu.

```
$ make ARCH=x86 -j8
```

Description : This command compiles the linux kernel with regard to the configuration.

The parameter ARCH=x86 specifies the compilation only for the x86 architectures.

The parameter -j8 allows all the 8 cores of my processor to be used for compilation and thus the process goes in parallel giving much better speed.

```
$ make modules_install -j8
```

Description : This will install the optional modules built into the kernel in parallel.

```
$ make install -j8
```

Description : Copies the new kernel into “/boot” directory in parallel.

Performance of the new kernel

I ran the following commands to get the required results:

```
yashwin@YASHWIN-ENAMADI:~$ cat /proc/meminfo
```

```
=====
yashwin@YASHWIN-ENAMADI:~$ cat /proc/meminfo
MemTotal:        3184424 kB
MemFree:         3089180 kB
MemAvailable:    3024200 kB
Active:          14344 kB
Inactive:        5240 kB
=====
```

```
yashwin@YASHWIN-ENAMADI:~$ cd /boot
```

```
yashwin@YASHWIN-ENAMADI:/boot$ uname -r
```

```
=====
yashwin@YASHWIN-ENAMADI:~$ cd /boot
yashwin@YASHWIN-ENAMADI:/boot$ uname -r
5.6.7-53-generic
=====
```

```
yashwin@YASHWIN-ENAMADI:/boot$ ls -lha /boot | grep 5.6.7-53-generic
```

```
=====
yashwin@YASHWIN-ENAMADI:/boot$ ls -lha /boot | grep 5.6.7-53-generic
-rw-r--r-- 1 root root 782K Dec 06 00:13 abi-5.6.7-53-generic
-rw-r--r-- 1 root root 145K Dec 06 00:13 config-5.6.7-53-generic
-rw-r--r-- 1 root root 14M  Dec 06 16:46 initrd.img-5.6.7-53-generic
-rw----- 1 root root 2.2M Dec 06 00:13 System.map-5.6.7-53-generic
-rw----- 1 root root 9.7M Dec 06 00:13 vmlinuz-5.6.7-53-generic
=====
```

The size of the kernel image file is 9.7MB.

yashwin@YASHWIN-ENAMADI:~\$ lsmod

```
=====
Module                Size  Used by
ebtables              35009  1 ebtable_filter
ip6table_filter       12815  0
ip6_tables            26901  1 ip6table_filter
devlink               15525  0
ipt_REJECT            12541  1
nf_reject_ipv4        13373  1 ipt_REACT
iptable_filter        12810  1
sunrpc               334343  1
iosf_mbi              13523  0
kvm_intel             170181  0
kvm                   554609  1 kvm_intel
irqbypass            13503  1 kvm
ip_tables             27115  1 iptable_filter
ext4                  583541  1
mbcache               14958  1 ext4
jbd2                  102945  1 ext4
sd_mod                46322  5
crc_t10dif            12714  1 sd_mod
=====
```

yashwin@YASHWIN-ENAMADI:~\$ systemctl list-unit-files

UNIT FILE	STATE	VENDOR PRESET
proc - sys-fs-binfmt misc.automount	static	enabled
dev-hugepages.mount	static	enabled
dev-mqueue.mount	static	enabled
proc-sys-fs-binfmt_misc.mount	disabled	enabled
sys-fs-fuse-connections.mount	static	enabled
sys-kernel-config.mount	static	enabled
sys-kernel-debug.mount	static	enabled
sys-kernel-tracing.mount	static	enabled
apport-autoreport.path	enabled	enabled
systemd-ask-password-console.path	static	enabled
systemd-ask-password-plymouth.path	static	enabled
systemd-ask-password-wall.path	static	enabled
accounts-daemon.service	enabled	enabled
apparmor.service	enabled	enabled
apport-autoreport.service	static	enabled
apport-forward@.service	static	enabled
apt-daily-upgrade.service	static	enabled
apt-daily.service	static	enabled
atd.service	enabled	enabled
autovt@.service	enabled	enabled
blk-availability.service	enabled	enabled
bolt.service	static	enabled
cloud-config.service	enabled	enabled
cloud-final.service	enabled	enabled
cloud-init-local.service	enabled	enabled
cloud-init.service	enabled	enabled
console-getty.service	disabled	disabled
console-setup.service	enabled	enabled
