**CMPE283 Assignment 1 Discovering VMX Features**

**Members:** Karan Didwani (ID - 011439376)

Pooja Patel (ID – 011818872)

**Questions:**

**Responsibilities for Karan Didwani:**

* Setting up the environment for Ubuntu dual boot using Windows 10.
* Writing functions in C program to determine if true controls are available, if yes then reading their values for pin based and primary proc based MSRs.

**Responsibilities for Pooja Patel:**

* Setting up the environment for Mac VMware Fusion.
* Writing functions in C program to read the values for exit and entry controls along with secondary proc based MSRs.

**Steps followed for the assignment:**

Note: For this assignment, we both tried setting up the environment on different machines

Karan Didwani - Ubuntu 16.04 LTS with Windows 10 dual boot

Pooja Patel - VMware Fusion on Mac OSX

Due to many issues with the VMware we continued with Karan's Machine.

1) Open terminal in Ubuntu pointing to the home directory.

2) install git -

Command: Sudo apt-get install git

3)Git clone latest kernel repository from Github(https://github.com/torvalds/linux.git) -

Command - git clone "https://github.com/torvalds/linux.git"

4)Point to linux folder in terminal

Command - cd linux/

5)Checkout version 4.10 of linux kernel

Command - git checkout v4.10

6)Open git log and note down the Commit ID for submission reference

(Commit ID: c470abd4fde40ea6a0846a2beab642a578c0b8cd)

Command - git log

7)Run make menuconfig command (It might require installing 2 libraries)

Commands - Sudo apt- get install libncurses5-dev

Sudo apt- get install libssl-dev

make menuconfig

8)Run make commands

Commands - Sudo make -j4

Sudo make modules -j4

Sudo make modules\_install

Sudo make install

9)Now reboot your system and during boot up go to advanced options for Ubuntu and boot up with Linux version 4.10

Steps to run C program to get details about virtualization abilities of the system:

1) Create directory cmpe283

Command - mkdir cmpe283

2) Copy your C program in this folder

3) Run makefile command in this folder

Command - makefile

4) Run command make all

Command - make all

5) Login to terminal as root

Command - su

Enter password after this step

6) Insert the module using insmod command

Command - insmod cmpe283-1.ko

7) to view the output run dmesg command

8) run following commands to generate diff

Command - sudo git add cmpe283-1.c Makefile

sudo git commit

sudo diff HEAD~1>cmpe283.diff