CMP3 283 Assignment 2

1. **For each member in your team, provide 1 paragraph detailing what parts of the lab that member implemented / researched. (You may skip this question if you are doing the lab by yourself).**
   Answer: I am doing the assignment myself
   >   Name: Hemaprasanthi Mutyala
   >   SJSU ID: 013704392

2. **Describe in detail the steps you used to complete the assignment. Consider your reader to be someone skilled in software development but otherwise unfamiliar with the assignment. Good answers to this question will be recipes that someone can follow to reproduce your development steps. Note: I may decide to follow these instructions for random assignments, so you should make sure they are accurate.**
   Answer:
   Below are the steps used sequentially to complete the assignment.
    1. Clone the below repository. https://github.com/torvalds/linux
    2. Run below commands on Linux terminal in linux repository:
   • sudo bash
   • apt-get install build-essential kernel-package fakeroot libncurses5-dev libssl-dev ccache bison flex libelf-dev
   • make menuconfig
   • make -j 8 && make modules -j 8 && make install -j 8 && make modules_install -j 8
   • reboot
   3. Modify the files linux/arch/x86/kvm/vmx.c. && cpuid.c
   4. After changing the code run following commands on Linux terminal in repository linux
   • make -j 8 && make modules -j 8 && make install -j 8 && make modules_install -j 8
   • sudo rmmod kvm_intel
   • sudo rmmod kvm
   • sudo insmod arch/x86/kvm/kvm.ko
   • sudo insmod arch/x86/kvm/kvm-intel.ko
   5. Install virt-manager using following commands:
   • sudo apt-get install qemu-kvm libvirt-bin bridge-utils virt-manager
   6. Install test ubuntu in virt-manager and start test ubuntu.
   Process for git commit id:
   Before committing the changes perform the following steps:
   - Git log – this gave me the following output
     commit e195ca6cb6f21633e56322d5aa11ed59cdb22fb2 (HEAD -> master, origin/master, origin/HEAD)
     Merge: d146194f31c9 ffe0e7cf290f
     Author: Linus Torvalds <torvalds@linux-foundation.org>
   - Commit both the files.
     The commit id is: eba8bc2f73dac09eacd1a7d5647b212d916e1b49
   - Perform git diff e195ca6cb6f21633e56322d5aa11ed59cdb22fb2 eba8bc2f73dac09eacd1a7d5647b212d916e1b49 > cmpe283-2.diff
   - On running the above command will generate a new diff file with the name "cmpe283-2.dff" which contains differences of both the files.

CMP3 283 Assignment 2

3. **Comment on the frequency of exits – does the number of exits increase at a stable rate? Or are there more exits performed during certain VM operations? Approximately how many exits does a full VM boot entail?**

   Answer: The number of exits donot increase at a stable rate. Yes, there are more exits performed during certain operations (eg: IO Instruction, EPT Violation, EPT Misconfig). Approximately 2724000 exits a full VM boot entail.