Install the environment

Linux: Install QEMU and Subversion using your package manager, for instance:

```
sudo apt-get qemu subversion
```

Windows: Install Linux on a VM, then follow the Linux instructions. We have recommended VirtualBox in the past, but feel free to use others.

Mac: You may work natively or in a VM. Details of the native installation are on the next page.

Mac installation instructions (1 of 2)

You should have Subversion already: type svn help in a terminal.

Install Xcode and its command-line extensions.

Install MacPorts from www.macports.org.

Using MacPorts, install gcc and related tools:
```
sudo port install i386-elf-gcc i386-elf-binutils
```

Install Q, the Mac port of QEMU, from www.kju-app.org.

Finally, build gdb from source with target i386-elf. Specifics on the next page.

Mac installation instructions (2 of 2)

Download gdb from [ftp.gnu.org/gnu/gdb](ftp.gnu.org/gnu/gdb). Past handouts have recommended gdb version 6.8. Feel free to experiment with newer versions—I will try to give you more information Monday.

Then run the commands
```
tar xfz gdb-6.8.tar.gz
cd gdb-6.8
./configure --target=i386-elf --disable-werror
            --program-prefix=i386-elf-
make
sudo make install
```

Download GeekOS source

Use subversion to obtain a copy of GeekOS:

```
svn co https://svn.cs.umd.edu/repos/geekos/network
```

Username is `sv-geekosro`, password is blank

Expect us to update the base version of GeekOS occasionally during the semester. When we do, I'll notify you on Piazza. You will then do

```
svn update
```

to get the updated files.

Running GeekOS

Change to the build directory and do
```
make run
```

We will talk about debugging on Monday.

There will be a few more QEMU options to look at once you have some hands-on time with it.