Writeup 1

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Abstract

This first write up describes important details from the completion of Project 1 for D. Kevin McGrath's Operating Systems II class. Topics from Project 1 that are to be covered in this work include the building of the Linux Yocto kernel on Oregon State's engineering server, usage of the qemu virtual machine, and a solution of the Producer-Consumer concurrency problem using the C programming language's POSIX threads execution model.

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1 Log of Commands to Build Yocto Kernel

```
put code here
```

2 Log of Commands to Load Qemu

3 Flags in the listed Qemu command line

The listed Qemu command line is:

```
qemu-system-i386 -gdb tcp::???? -S -nographic -kernel bzImage-qemux86.bin

-drive file=core-image-lsb-sdk-qemux86.ext3,if=virtio -enable-kvm

-net none -usb -localtime --no-reboot --append

"root=/dev/vda rw console=ttyS0 debug".
```

The following list describes each flag:

- *-gdb* tells the system to wait to connect to gdb on the device tcp::????, this device being passed in as an argument.
- *-S* is a flag that tells the system to wait for a gdb connection.
- *-nographic* is a visualization option that turns off graphical output.
- *-kernel* is a flag that saves time and resources by granting the system a Linux kernel image, rather than requiring a full boot.
- *-drive* handles disk options and takes 1 to n number of arguments to specify these options, in the case of this command the file we passed to this flag is parsed according to the virtio interface.
- *-enable-kvm* is a flag that enables KVM virtualization support without any setting turned off.
- *-net* is a flag that sets network options.
- *-usb* is a flag that turns on the USB driver.
- *-localtime* is a flag that tells the system to use local time.
- *–no-reboot* tells the system to exit, not reboot, when rebooting is an option.
- *–append* is a flag that represents the command line necessary to interact with the kernel.

4 Concurrency Writeup

5 Reflection

The following subsections answer the four questions as outlined on the Project 1 page on Kevin McGrath's course website.

5.1 Main point of assignment

5.2 Personal approach to problem

5.3 Ensuring solution was correct

5.4 What I learned

6 Version control log

7 Work log