Week 01
INTRODUCTION

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Abstract

Today we'll discuss what lies ahead of us this semester. We'll look at some motivating examples, peek at the syllabus, and then jump into it.

1 Why Learn Linux?

Here's one cool thing you can do:

```
melvyn@machine$ telnet towel.blinkenlights.nl
(exit with CTRL + ], then quit)
```

nix refers to a family of similar operating systems that have an interesting history. They are different from Windows, but are as or more popular than windows on personal computers and on servers. It's not just Linux either, there are also the BSD's that are all under the same family of operating systems. MacOS is a type of BSD. I'm personally quite interested in a newer one called DragonflyBSD, but we'll talk more about that later. Even Windows is becoming more and more Linux like - we're doing todays lecture without many of you even having a linux machine because you can do Linuxy things on Windows for now. Anyway, all these OSs like the BSDs and your Linuxes are different operating systems that emulate old school Unix machines and then do so much more.

For me, nix isn't about operating systems and stuff - it's about *doing cool stuff*, and Linux/BSD gives you power to do cool stuff. I'll just show you a few things you can do here with Linux:

Demos: 1. Website running linux 2. Robot running linux (youtube) 3. Cars run Linux `https://events19.linuxfoundation.org/events/automotive-linux-summit-2018/` 4. Laptop runs linux (show T series laptops) 5. Raspberry Pi + Beagleboard demos 6. Playstation4 runs a Unix operating system 7. telnet starwars (you already saw) 8. There is alot of money to be made (can't demo money, but if you look at salaries on indeed for Linux pros you'll see there is a nice amount of cash out there for you if you aren't a bonehead.

You can do anything in nix, and whatever can't be done - you can code it yourself and share it with the community. You may not have a grasp of how powerful computers are if you are early in your career and all you've done is surf the web and play games.

2 7:20 - 7:30 About this class

runthroughthesyllabus

I'll not give 'bathroom breaks' in this class because it usually leads to the class getting derailed. Some folks don't have to pee and then get bored of 10 minutes of nothing, others decide to take a walk, then come back late having missed alot of material and then disturb the lecture, I get anxious sitting here doing nothing, etc. So I'll just punctuate lectures with periods of activities for you all to do and you can leave the class during those periods of time. Of course you can leave whenever, but I want to make sure you be able to see the light at the end of the tunnel if you have to pee - if you can hold it, there will be a break in 20 minutes or so, so you don't need to worry. Also I don't want you to sit for 3 hours listening to me talk.

We're going to use digital ocean servers in this class. I don't have time to show you one right now, next week we'll discuss it. This will either be free to you or at most cost $50 or so for the semester. It will probably be free though. More details next week. I'm not requiring a text book for this class so you've already saved about $150 right there, and I don't think you'll need to pay for these servers we'll use, but if you do it will be a tiny amount of money, espectially compared to the crazy stuff I'm going to show you how to do with this cheap machine.

3 7:30 - 8:00 Getting started with the terminal in Linux

1. ls
2. ls -l
3. ls -ltr
4. ls -a
5. ls -la
6. cd
7. cd
8. cd .
9. cd ..
10. cd ../../
11. cp
12. cp -r
13. mv
14. mkdir
15. mkdir -p
16. touch
17. rm
18. rm -r
19. which

4 8:00 - 8:05 5 minutes to practice commands.

- practice the above commands
-

putsomestructuredactivitieshere

5 8:05 - 8:30 Bash commands part 2

1. cat $file1
2. cat $file2 $file3
3. echo "hello"
4. echo "my path: $PATH"
5. man
6. wc
7. wc -c $fileName
8. wc -l
9. wc -w
10. md5sum
11. more
12. less
13. unzip
14. zip
15. tar
16. tar -xvzf
17. cut -b
18. cut -c
19. tree
20. lsblk (plug in a usb stick and see that it changes)
21. du - list disk usage globally
22. df - list disk usage by file
23. wget

Note about cut: cut -c is just like cut -b on every machine I've seen. In the future -b (byte) and -c (character) will be different. Ill give some insight on that later in the class, and if you know Java + C you will likely have a bit of insight on the definitions of byte and character, where they are the same, and where they are different. There is no time for that now, and if you already have insight, just keep it to yourself for now haha.