November 6, 2017

Week 12, Class #33

Web Hosting

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MWF – 10:00-11:30 - Kepner 0095F

This Week – Dev Ops

- ✧ Monday, 11-6
  - ▪ Lecture – Web Hosting

- ✧ Wednesday, 11-8
  - ▪ Lecture – Release Process

- ✧ Friday, 11-10
  - ▪ Lecture – Maintenance

Last Week

Test

Dev Ops

Next Week

Risk Management

Exercises

✧ Version Control

- Markdown Exercise 10/20
- Github Login 10/30

✧ Development

- Design Plan 10/23
- Development Exercise 10/25
- Pair Programming Exercise 10/30
- Unit Test Exercise 11/3

Types of Testing

◇ Unit testing – isolated features

◇ Component testing – features in context

◇ System testing – end-to-end

Development travels at the speed of test

Continuous Integration

✧ Every commit gets tested

✧ System tests – test of integration

✧ Unit tests – isolate failures

Measure Success

Metrics Drive Success – you get what you measure

✧ Time to catch defects

✧ Coverage

✧ Time to fix

✧ Issues caught

✧ Repeat offenders

✧ Regression tests

Hammer Test

✧ Every test produces text

✧ Know correct answers are stored

✧ Differences are shown

✧ Approve current answer

Hammer Test

```
def test_num_files ():
    n = shell ('find ..')
    assert (800 < n and n <1000)


def test_system_files ():
    print (shell ('find ..'))


def test_num_lines ():
    n = shell ('cat *')
    assert (8000 < n and n < 9000)
```

Hammer Test – UNC-CS350

✧ Has local files

✧ Remote access is working

✧ Has specific files

✧ Number of lines in Exercises

✧ Student results

✧ Push and pull

✧ Check on web server results

Servers, Images, and Hosting

◇ History of Software Deployment

- 1977 - Data Centers
- 1987 - PC
- 1997 - Internet
- 2007 - Web services
- 2017 - Mobile devices

Modern Deployment

- ✧ From Closet to Cloud
- ✧ Cheap Hosting $10/month
- ✧ Open Source software
- ✧ Continuous integration
- ✧ Automated tools
- ✧ Frequent updates
- ✧ Virtual Servers

Building Images

- ✧ Operating System

- ✧ SSH Keys

- ✧ Frameworks and Languages

- ✧ Database

- ✧ File system volumes

- ✧ Domain and networking

- ✧ Encryption

- ✧ Application Software

Virtualization

- ✧ Virtual server infrastructure - VMWare, VirtualBox

- ✧ Machine Images - Operation System (encapsulated computer disk)

- ✧ Virtual Private Servers - Cloud hosting environment

- ✧ Popular Services
  - https://amazonlightsail.com
  - https://digitalocean.com

Steps to Deploy an App

- ✦ Decide on hosting service

- ✦ Create a server image

- ✦ Create a software application

- ✦ Register and route domain

- ✦ Configure server environment

- ✦ Build automation scripts and policies

See you Wednesday

X

◇ Y

- Z