# DevOps and Agile

DevOps Culture - the goal, challenges, benefits.

DevOps CALMS model

Agile teams - goals, common methodologies

# Programming Concepts

What is an algorithm?

What is pseudo code? Why is it useful?

What is the longest part of the software development lifecycle?

How is source code translated into machine code?

# Linux

Linux vs. Unix (differences, similarities)

The core of Linux that manages resources / coordinates everything is the: \_\_\_\_\_\_\_\_

Common Open Source Licenses

Common Linux Distributions

Everything in Linux is treated as a \_\_\_\_\_. Which usually means we can use what for everything we do in Linux?

Common Linux filesystem structure (/etc, /home, /usr)

## Common Command Line Tools / Shell Builtins

ls

cd

mkdir / rmdir

cp

mv

rm

echo

date

grep

find

ps

top

How can you get help for command in Linux?

Redirection vs. Pipes

Hard Links vs. Soft Links

Inodes

Process Exit Status (success vs. error)

Regular Expressions

File Permissions / Users / Groups

## Bash Scripting

Flow Control (test, if, for, while)

# Python

Interpreted vs. Compiled Language

Dynamic vs. Static Type systems

Strong Typing vs. Weak Typing

Basic Data Types - str, int, float, bool

Common Built-in functions

Variables

Statements vs. Expressions

Operators and Order of Operations

Boolean operators and logic

Conditionals - if, elif, else

Looping - for, while, break/continue/else

Complex Types / Data Structures

list

Iterating, Indexing, Slicing, Splitting, Joining

dict

Functions

Modules

Objects / Classes

File I/O

Exceptions - try, except

# 

# REST

Uses HTTP Protocol Verbs

Deals with “resources”

Stateless

# Unit Testing

Test smallest portions of an application (function, class)

Isolate from environment as much as possible

Not the only tests that should be run

Automated, fast

Test Driven Development

# Git

Distributed vs. Centralized Version Control

Repositories

Working Directory vs. Index vs. Repository

Commits

Branches

Push / Pull

Merging vs. Rebasing

Common Workflows

# Ansible

Infrastructure as Code

Ad-hoc Ansible

Inventories

Playbooks - Plays, Tasks, Modules

Variables

Loops and Conditionals

Handlers

Advanced Ansible - Roles, Playbook reuse / structure