Python Course Outline

Week 1: Computer Science 101

In week 1, you will be diving into part 1 and part 2 of computer science 101. The issue that many cloud engineers, DevOps pros, infrastructure pros, and SRE's face is even though they can code, they don't understand why they're doing what they're doing. They can write the code, but when they hear someone ask if the code is immutable or idempotent, they're unsure what that means. They need to learn the theory. The computer science 101 portion of the bootcamp is meant to help fill in the gaps.

Part 2 will go into topics like immutable vs mutable, computer security, data structures, language features, and much more. Computer science 101 part 2 will finish filling in the gaps that you'll experience as an infrastructure pro, devops pro, and SRE moving more into the code-first world.

Week 2: Python Concepts

In week 2, you're going to take concepts that you learned in week 1 and put them into a hands-on approach. You'll be diving into Python basics, variables, functions, classes, and much more. The idea is to take what you learned from part 1 and part 2 of computer science 101 and use the knowledge.

* Project 1: Installing Python on Linux (Ubuntu)
* Project 2: Creating reusable variables and functions
* Project 3: Creating a class of Cars
* Project 4: Creating and using types
* Project 5: Using lists, dictionaries and tuples
* Project 6: Python arithmetic operators
* Project 7: Installing and using libraries
* Project 8: Comparing Python to Go

Week 3: After The Basics (where to go from here)

Now that you know Python and computer science, you may be wondering to yourself where do I go from here? This is a very common feeling after learning a programming language. The best way to move forward is to literally take what you're doing today, and do it in Python. In week 5, you'll learn exactly how to do that.

* Project: Project: Pick something you're already doing and do it in Python!

Week 4: Writing Frontend and Backend Applications, Pair Programming, and Deploying Apps with CI/CD

When you learn a programming language, it opens up an entirely new world. All of those sample apps that you've used to deploy to virtual machines, to containers, to Kubernetes, with CICD, just so you can learn about how to use those platforms... you no longer need to do that. Why? Because you now have the knowledge to build your own apps!

What happens when you have the knowledge to build apps? You need to know how to work with others to build an application. You'll learn how to pair program and connect with peers at the programmatic level.

* Project 1: Web scrapper
* Project 2: To-Do app
* Project 3: Grab a buddy and start programming!
* Project 4: CICD for serverless
* Project 5: CICD for containers and kubernetes
* Project 6: CICD for VMs

Week 5: Infrastructure-As-Code with Python

As a DevOps pro, you'll hear a ton about infrastructure-as-code (probably with Terraform). However, that isn't the only way to create and use IaC. In week 5, you'll learn about how to take Python and use it in your IaC workflow with Cloud Development Kits (CDK), specifically with Pulumi and AWS CDK.

* Project 1: Create a storage account in Azure with Pulumi
* Project 2: Create an S3 bucket in AWS with Pulumi
* Project 3: Create an AKS cluster in Azure with Pulumi
* Project 4: Create an IAM user in AWS with AWS CDK
* Project 4: Intro to Hashicorp CDK