

# Python Programming For Cloud & DevOps-SRE Professionals

## Installing And Configuring Python & Dependencies

- ☐ Why Python & How is it different from Shell Scripting?
- ☐ Which Python Version & How to install it?
- ☐ Install Python Package Manager (PIP) & Explore Pypi.org.
- ☐ Configure Visual Studio Code for Python Usage.
- ☐ Installing & Using IPython for Practice.
- ☐ Running your first python code.
- ☐ Understanding print and pretty print modules.
- ☐ What is Python Virtual Environment?
- ☐ Install & Use Python Virtual Environment for multiple projects.
- ☐ Install boto3 & requests module and understand to use in subsequent topics.
- ☐ Accessing Pokemon API for testing requests module.
- ☐ Accessing AWS Resources with Boto3 Module.

## Declaring Variables & Working With Python Strings

- ☐ Possible ways of declaring variables in Python & accessing them.
- ☐ Understanding Python Data Types.
- ☐ Declaring Strings and access string methods.
- ☐ Working with String Methods with AWS Boto3 Examples.

capitalize()	expandtabs()	isalpha()	isnumeric()	ljust()	removesuffix()	rsplit()	swapcase()
casefold()	find()	isascii()	isprintable()	lower()	replace()	rstrip()	title()
center()	format()	isdecimal()	isspace()	lstrip()	rfind()	split()	translate()
count()	format_map()	isdigit()	istitle()	maketrans()	rindex()	splitlines()	upper()
encode()	index()	isidentifier()	isupper()	partition()	rjust()	startswith()	zfill()
endswith()	isalnum()	islower()	join()	removeprefix()	rpartition()	strip()	

## Working With Python Lists & Tuples

- ☐ Declaring Lists and Manipulating them with list methods.

```
append()    count()    insert()    reverse()  
clear()     extend()   pop()       sort()  
copy()      index()     remove()
```

- ☐ Understand For Loop & Iterating Lists with For Loops.
- ☐ Working with list comprehensions.
- ☐ Difference between Lists & Tuples.
- ☐ Tuple use cases and advantages.
- ☐ Working with Tuple Methods and converting to list and vice-versa.
- ☐ Using Lists & Tuples with AWS Boto3.

## Python Dictionaries & JSON Module & Sets

- ☐ Understanding Data In Key-Value Pair Format.
- ☐ Creating Python Dict and accessing the elements.
- ☐ Access AWS VPC Information with Boto3 in Dict Format.
- ☐ Finding Keys and Values of a Dict & Iterating a Dictionary.
- ☐ Python Dict to JSON with dumps() and JSON File with dump().
- ☐ JSON To Python Dict with loads() and load() methods.
- ☐ Removing Duplicates with Python Sets and Frozen Sets.

## Python File Handling

- ☐ Open vs With
- ☐ Modes of Python File Handling.
- ☐ Access Python Dict and Converting to JSON Files.
- ☐ Read JSON files and convert to Python Dict.

- ☐ API Management with Requests Module.

## Python Operators & Conditions & Loops

- ☐ Overview of Python Operators.
- ☐ Arithmetic operators in Python
- ☐ Comparison operators
- ☐ Logical operators
- ☐ Assignment operators
- ☐ if & if..else & break & continue conditions.
- ☐ For & While Loops.

## Python Modules

- ☐ What are modules in Python & how do they work?
- ☐ Using default python modules
  - Json
  - os & sys
  - Date & Math & Time
- ☐ Installing 3rd Party Modules
  - Boto3,Faker,dotenv
  - fastapi
  - mysql-connector

## Python Functions

- ☐ How functions work and how to use return.
- ☐ Types of Functions in Python?
  - Default arguments
  - Keyword arguments
  - Positional arguments
  - Arbitrary positional arguments
  - Arbitrary keyword arguments

- ☐ Using Functions to retrieve data from AWS using Boto3.

## Exceptions Handling In Python

- ☐ Understanding Why Exception Handling Is Needed?
- ☐ Working with Try, Except, Else & Finally.
- ☐ Working with Custom Boto3 Exceptions.
- ☐ Python Debugger

## Working With Regular Expressions(Reg)

- ☐ Importing re modules and understanding re methods.
- ☐ Creating Custom RegEx Patterns.
- ☐ Creating Pattern For Valid IP Address Checking.
- ☐ Creating Pattern For Valid URL Checking.
- ☐ Log Parsing with Python & Regular Expressions.

## Python OOP Concepts

- ☐ What are Python Classes & Methods
- ☐ Understanding Python Magic Methods
- ☐ How does Python inheritance work
- ☐ Polymorphism In Python
- ☐ Static & Private Methods

## Python & MySQL Integration

- ☐ Deploying MySQL Database On Docker
- ☐ Installing and Accessing MySQL With PyMySQL Library.
- ☐ Generating sample data with Faker Module.
- ☐ Understanding Connection Pooling In Databases.

## Exposing API With Python FastAPI

- ☐ Install & Configure FastAPI Library.
- ☐ Create A Sample API and expose.
- ☐ Working With Templates & Routers.
- ☐ Using Jinja2 Templates With FastAPI.

## Creating AWS Lambda Functions Python Boto3

- ☐ Installing Custom Modules In AWS Lambda.
- ☐ AWS AMI Automation with Boto3.
- ☐ AWS EBS Automation With AWS Event Bridge.

## Learning Data Science Modules

- ☐ Manipulate data with Pandas.
- ☐ Using Streamlit for visualization.
- ☐ Understand Numpy better than using Lists for large data.