
## Module Checklist

# Automation with Python

By Techworld with Nana

# Video Overview


- ★ Introduction to Boto3 (AWS SDK for Python)
- ★ Install Boto3 & Connect to AWS
- ★ Getting familiar with Boto API
- ★ Python vs. Terraform
- ★ Project: EC2 Server Status Checks
- ★ Project: Writing a Scheduled Task
- ★ Project: Add Tags to EC2 Server Instances
- ★ Project: Print EKS Cluster Information

Backup & Restore:

- ★ Project: Data Backup - Backup EC2 Volumes
- ★ Project: Cleanup - Delete old EC2 Volume Snapshots
- ★ Project: Restore EC2 Volume from a Backup

- ★ Handling Errors

Website Monitoring and Recovery

- ★ Project: Website Monitoring
- ★ Project: Send Email Notification
- ★ Project: Restart Application & Server

| Demo Projects | |
|---|---|
| Git Project | https://gitlab.com/nanuchi/python-automation |

# Check your progress... 1/5


## Introduction to Boto3 (AWS SDK for Python)

- ❏ Watched video

## Install Boto3 & Connect to AWS

- ❏ Watched video
- ❏ **Demo executed**

**Useful Links:**

- boto3: https://pypi.org/project/boto3/
- Boto3 documentation: https://boto3.amazonaws.com/v1/documentation/api/latest/index.html

## Getting familiar with Boto API

- ❏ Watched video
- ❏ **Python Script written**
  - ❏ Listed VPCs
  - ❏ Created VPC and Subnets

## Python vs. Terraform

- ❏ Watched video

# Check your progress... 2/5

## Project: EC2 Server Status Checks

- ❑ Watched video
- ❑ **Python Script written**
  - ❑ Preparation: Created 3 EC2 Instances with Terraform

Reference: https://gitlab.com/nanuchi/terraform-learn/-/tree/feature/deploy-to-ec2

  - ❑ Print EC2 Instance State of all EC2 Instances
  - ❑ Print Status Check of all EC2 Instances

## Project: Scheduling the Status Checks

- ❑ Watched video
- ❑ **Python Script written**

## Project: Add Environment Tags to EC2 Servers

- ❑ Watched video
- ❑ **Python Script written**
  - ❑ Get all EC2 instances from a region
  - ❑ Add the right tags to the EC2 instances

# Check your progress... 3/5

## Project: EKS Cluster Information

- ❑ Watched video
- ❑ **Python Script written**
  - ❑ Preparation: Create EKS cluster with Terraform

Reference: https://gitlab.com/nanuchi/terraform-learn/-/tree/feature/eks

  - ❑ Get all EKS clusters
  - ❑ Print cluster information: status, endpoint and K8s version

## Project: Data Backup for EC2 Instances

- ❑ Watched video
- ❑ **Python Script written**
  - ❑ Preparation: Create 2 EC2 Servers with Environment Tags
  - ❑ Get Volume Ids
  - ❑ Create Snapshots from those Volumes
  - ❑ Write Scheduled Task for this Backup task
  - ❑ Create Snapshots only for Production Servers

## Project: Cleanup EC2 Snapshots

- ❑ Watched video
- ❑ **Python Script written**
  - ❑ Preparation: Create 2 EC2 Servers with Environment Tags
  - ❑ Get all EC2 Snapshots
  - ❑ Delete all Snapshots, except the latest 2 created
  - ❑ Write Scheduled Task for this Cleanup task
  - ❑ Delete all Snapshots, except the latest 2 - **for each Volume**

# Check your progress... 4/5


## Project: Restore EC2 Instance Data

- ❏ Watched video
- ❏ **Python Script written**
  - ❏ Preparation: Create 2 EC2 Servers with Environment Tags
  - ❏ Create a new Volume from a Snapshot
  - ❏ Attach newly created Volume to EC2 Instance

## Note: Handling Errors

- ❏ Watched video

## Project: Website Monitoring - Part 1

- ❏ Watched video
- ❏ **Python Scripts written**
  - ❏ Preparation:
    - ❏ Create Server on Linode
    - ❏ Install Docker
    - ❏ Run nginx container
  - ❏ Validate Requests to nginx website

**Useful Links:**

- Python Library used to send requests: https://pypi.org/project/requests/
- HTTP Response Codes: https://developer.mozilla.org/en-US/docs/Web/HTTP/Status

# Check your progress... 5/5

## Project: Website Monitoring - Part 2

- ❑ Watched video
- ❑ **Python Scripts written**
  - ❑ Send email when Website is down (not HTTP Status 200 - OK)
    - ❑ Write Python code
    - ❑ Configuration for your email provider (e.g. Gmail)
    - ❑ Configure Environment Variables for Credentials)
  - ❑ Send email when connection error (exception) occurs


**Useful Links:**

- SMTP built-in module used to send emails: https://docs.python.org/3/library/smtplib.html
- Less Secure Apps Configuration: https://myaccount.google.com/lesssecureapps
- Google App Passwords Configuration (when Two-Step Verification): https://myaccount.google.com/apppasswords
- Built-In module OS: https://docs.python.org/3/library/os.html

## Project: Website Monitoring - Part 3

- ❑ Watched video
- ❑ **Python Scripts written**
  - ❑ Connect to server via ssh
  - ❑ Restart Docker container
  - ❑ Reboot server
    - ❑ Create Access Token in Linode
    - ❑ Connect to Linode via Linode API4 module
    - ❑ Reboot the server and restart the container
    - ❑ Write a scheduled task for this website monitoring program

**Useful Links:**

- External module for SSH Connection: https://pypi.org/project/paramiko/
- Linode API: https://pypi.org/project/linode-api4/
- Built-In module “time”: https://docs.python.org/3/library/time.html