**Technical Challenge Answers**

Challenge#1: -

A tier3 architecture is a software application architecture which involves organizing application into three tiers: -

* Presentation Tier – This tier consists of the user interface and is responsible for communication and gathering of data from the client.
* Application Tier – This tier implements the business logic of the application. The information collected from presentation tier is processed here.
* Database Tier – This layer is responsible for storing of data.

To implement this architecture, I have taken a simple phpMyAdmin application and hosted it on AWS. Apache is used as a webserver which is installed on an EC2 instance created from Amazon Linux AMI Image.

The database is created using RDS service of AWS and is of type MySQL.

Following diagram represents the installed architecture: -

**PRESENTATION TIER**

AWS ALB

**DATABASE TIER**

MYSQL DATABASE HOSTED ON AWS RDS

**APPLICATION TIER**

PHPMYADMIN APP HOSTED ON APACHE WEBSERVER ON EC2 INSTANCE

Challenge#2: -

In order to extract the metadata from an AWS instance, a shell script is written which uses the AWS EC2 instance metadata service to extra and process the data in JSON format.

The data created was also validated using jq to verify if its valid json format. The script name is “metadata\_script.txt” which is present in the GitHub repository.

Following flow diagram represents the logic of the script: -

Extract metadata keys from AWS using EC2 metadata service

Create a file with key value pair

Remove extra characters at the end of lines

END

NO

Display the corresponding value

YES

Is entered key valid ?

Display keys to the user and accept input to find the corresponding value and display it to the user

Convert key value pair file into json format and validate using jq

Challenge#3: -

This challenge was completed as per my understand of Python. The idea behind creating this script was to have a python script which will store the nested object as a dict type. A dict type in Python is a key value pair so the script should traverse through all keys and as soon as it finds a key value pair it should print the value.

The script is created by the name ‘nested\_object’ and is available on GitHub repo however its currently not working .