**Approach to the Take Home Assignment**

In this document I will describe my approach to the take home assignment.

* Downloaded the AWS Cli to get access to the AWS Account and to run automate scripts.
* Created yaml file called specs.yaml based on the requirements mentioned in the assignment.
* Created python file AWS\_EC2\_Automate\_Script and started working on each module one-by-one as follows:

1. In the python file, first I imported required package needed for the program.
2. Used EC2.ServiceResource() representing Amazon EC2 Cloud Compute
3. Used create\_key\_pair() method of EC2.ServiceResource() to create a key-pair file for accessing EC2 Instance.
4. To the access the generated key-pair file, changed the access mode to read only.
5. Read the specs.yaml file from the local directory.
6. create\_instances() method of EC2.ServiceResource() was used to launch the specified number of instances and setting the required specifications by passing it into create\_instances() method and reading the value of that corresponding specification from the specs.yaml file.
7. In the create\_instances() method I statically typed the Image Id of the Free Amazon EC2 Linux Instance which is of by default hvm virtualization type and architecture of x86\_64
8. Placement parameter was also typed statically and the attribute “AvaliabilityZone” was set to “us-east-1a”.

(Note\*\* It is required to set the AvailabilityZone from the default region that we set in the aws config section while setting the command line interface access for AWS account.)

1. After creating the instance two volumes were created using create\_volume() method as per the requirements and both the volumes were attached using attach\_volume() method.

(Note\*\* While running the attach\_volume() method an client\_error exception might occur because method runs directly while running the whole file but volume id might have not been generated so it will thow error that volume id not found. But After sometime we can see that for created instance both volume also get created as per the requirements).

1. Created two IAM users using boto3.client iam.create\_user() method and passed on the names of the users provided in the specs.yaml file.
2. The newly created two IAM users were attached a policy of Amazon EC2 Full Access using iam.attach\_policy() method by passing UserName and PolicyARN as arguments.

PolicyARN was obtained from AWS Console under Policies tab.

1. SSH Public key passed in the yaml file was uploaded for SSH access of two users using upload\_ssh\_public\_key() of boto3.client service for iam user.
2. Lastly, ssh public key was pushed for the specified instance using send\_ssh\_public\_key method of ec2 instance connect.

Note: In the create instance method, I was not able to pass four parameters as per the requirements mentioned in the assignment. The name of those four parameters are as follows: ami\_type, architecture, root\_device\_type and virtualization\_type. I tried hard to find out the related method in the API of EC2 resource service but was not able to find it.

For the volume also I created two volume as per the requirements but it will generate some client\_error exception of volume id not found as whole program runs at one time and within that time volume will not be generated that much fast so, it may not find specific volume id to attach the volume, I tried using time.sleep() method but it is not working for first volume created.

In giving ssh permission to the user first of all I give them full access right for ec2 instance by setting the AWS EC2 Full Access policy and then also uploaded the ssh public key generated for each individual user.

Conclusion: At last, I learned lots of things from this Assignment and I am confident of using AWS, Boto3, yaml and would like to explore more in it as I enjoyed this assignment. I tried my best, to produce the desired output and meet the expectations of this assignment.