**Exercise21**

**Automating EC2 start and stop using Lambda and EventBridge**

**NOTE: Only major steps are shown here. You will need to apply the knowledge and skills that you have acquired.**

1. Launch three ec2 instances in any subnet with the following settings:
   1. I ec2: name: test-server1; add a tag -> Key: project, Value: uat
   2. II ec2: name: test-server2; add a tag -> Key: project, Value: uat
   3. III ec2: name: prod-server1; add a tag -> Key: project, Value: production
2. Create IAM role

Click Policies, click Create policy, copy paste the json policy from the file *‘IAM Policy for Lambda Role’*, click Next, Policy name: LambdaEC2Policy, click Create policy

Click Roles, click Create role, Use case: Lambda, (search for and) select LambdaEC2Policy, Role name: LambdaEC2StartStopRole, click Create Role

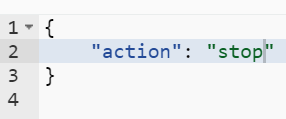
1. Create Lambda Function

Click Create a function, Function name: LambdaEC2StartStopFunction, Runtime: Python 3.9, Permissions-> use an existing role-> LambdaEC2StartStopRole, click Create function. Copy the code from the file *‘Python Code for Lambda’* and paste it in Code source, click Deploy. Go to Configuration->Environment variables->Edit->Add environment variables; Key: DEFAULT\_TAGS, Value: tag:project=uat. Press Add environment variable; Key: LOG\_LEVEL, Value: INFO, click Save.

General configuration->Edit, timeout: 10 sec, click Save.

1. Test Lambda Function

Go to Test, Even name: MyLambdaEC2Test; Event JSON



Click Save, click Test

You will see a message, “Execution result: succeeded (logs). Click Details. Take a snapshot (with your IAM username to confirm this step) [5points]

Scroll down to see the Log output. Click on “Click here” to view the corresponding CloudWatch log group. This will open a new tab. Take a snapshot (with your IAM username to confirm this step) [2points]

In the EC2 dashboard, you will see both the test-servers have been shut down; however, the production server is still running.

1. Update the Lambda Function (to override default tags specified in environment variables)

Event JSON



Click Save, click Test

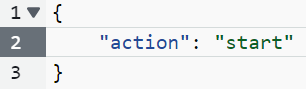
You will see a message, “Execution result: succeeded (logs). Click Details. Scroll down to see the Log output that has the details of this event. Take a snapshot (with your IAM username to confirm this step) [2points]

In the EC2 dashboard, you will see the production-server has been shut down.

1. Scheduling start and stop events using EventBridge
   1. Create start event

Search for EventBridge, click Create rule, Name: EC2StartEvent, Rule Type: Schedule, click Continue in EventBridge Scheduler, Schedule Pattern->Recurring schedule

For minutes and hours, choose a time around 5 minutes from the current time; Day of month: ?, Month: \*, Day of the week: Mon-Fri, Year: \*, Flexible time window: Off, next, Target API-> Templated Targets, click AWS Lambda, choose the Lambda function, Payload



Click next, Permissions->Create a new role for this schedule, next, Create schedule

You will see the schedule page with the above settings. Take a snapshot (with your IAM username to confirm this step) [2points]

After the scheduled time you had set, both the test-servers will be running.

* 1. Create stop event

Follow the above steps to create a rule to stop the two test servers after 5 minutes of the current time. You will see the schedule page with the above settings. Take a snapshot (with your IAM username to confirm this step) [2points]

After the scheduled time you had set, both the test-servers will be stopped.

1. Update the start event to start the production server instead.

Take a snapshot of your changes with your IAM username [2points]

Your production server will be running after the scheduled time you set.

1. Go to CloudWatch->Logs->Log groups, click LambdaEC2StartStopFunction, click the topmost event stream, scroll down until you see the code changes that you had done and Take a snapshot of your changes with your IAM username [5points]
2. **Cleanup:**

Terminate any running instances; delete both the EventBridge schedules and the CloudWatch log group

Sources: https://iaasacademy.com/