Lab 10 - Serverless Computing With AWS Lambda and AWS API Gateway

# ***In this lab you will learn how to:***

* ***Create a microservice with AWS Lambda and AWS API Gateway***
* ***Create an AWS Lambda function***
* ***Create an Amazon API Gateway endpoints***

# Week 10 Tasks:

# AWS Lambda

* 1. 1a.png - Showing 2 S3 buckets created , one having the original image and another S3 bucket suffixed with -resized to store thumbnails
  2. 1b.png - Showing the Designer tab diagram, showing that S3 will trigger the creation of the create-thumbnail function
  3. 1c.png - Test run successfully (show test details also)
  4. 1d.png - Thumbnail created in the *-resized* S3 bucket.

# API Gateway with AWS Lambda

* 1. 2a.png - Showing the Designer tab diagram, showing that API Gateway will trigger the creation of the create-thumbnail function
  2. 2b.png - Screenshot of accessing the API Endpoint URL on browser and getting successful response
  3. 2c.png - Test run successfully (show test logs also)

**Introduction to Qwiklabs**

Qwiklabs is an online platform that provides end to end training in Cloud Services. This a platform where you can learn in a live environment anywhere, anytime and on any device. Qwiklabs offers training through various Labs which are specially designed to get you trained in Google Cloud Platform (GCP) as well as Amazon Web Services (AWS). Qwiklabs has joined hands with Google and now works as a part of Google Cloud. Every year Qwiklabs delivers thousands of labs and has happy learners all over the globe.

**Points to remember:**

1. **Although Qwiklabs uses AWS, you will NOT be using your AWS Educate Account. Qwiklabs will create a temporary AWS account with all the required permissions and access to complete the lab.**
2. **When using the Qwiklabs created AWS account, DO NOT change the default region/VPC or any other settings that are automatically created by Qwiklabs.**
3. **The Qwiklabs lab has a time limit within which the Qwiklab lab has to complete, after the timer hits zero, the AWS account will be removed and you will have to restart the lab from scratch.**
4. **All code and config for the Qwiklab labs have already been given, you need not code anything from scratch. However there may be instances where you need to change values of variables based on S3 bucket name etc.**
5. **To prevent conflicts with any AWS account that you have already signed into the browser, use Incognito/Private mode, to ensure you have a fresh browser with not previous logins.**
6. **Ensure that you have signed into Qwiklabs using your Google account.**

**Introduction to Serverless Computing**

Serverless computing is a method of providing backend services on an as-used basis. A serverless provider allows users to write and deploy code without the hassle of worrying about the underlying infrastructure. A company that gets backend services from a serverless vendor is charged based on their computation and do not have to reserve and pay for a fixed amount of bandwidth or number of servers, as the service is auto-scaling. Note that despite the name serverless, physical servers are still used but developers do not need to be aware of them.

[What is serverless computing? | Serverless definition](https://www.cloudflare.com/learning/serverless/what-is-serverless/)

[What is Serverless?](https://www.youtube.com/watch?v=vxJobGtqKVM)

[Serverless Computing – Amazon Web Services](https://aws.amazon.com/serverless/)

**AWS Lambda Serverless Functions**

AWS Lambda is a serverless compute service that lets you run code without provisioning or managing servers, creating workload-aware cluster scaling logic, maintaining event integrations, or managing runtimes. With Lambda, you can run code for virtually any type of application or backend service - all with zero administration.

[Introduction to AWS Lambda - Serverless Compute on Amazon Web Services](https://www.youtube.com/watch?v=eOBq__h4OJ4)

In this lab task, you will be creating a serverless lambda function to automatically create thumbnails. Whenever an image is uploaded to the S3 bucket, it should automatically trigger the lambda function.

**Point to keep in mind: When you start the lab, wait for “Open Console” button to appear on the left panel. While in AWS Lambda console, ensure that you have UNCHECKED using the new UI, make sure to use the old/former UI as Qwiklabs have not yet been updated for the new UI**

**TASK1: Click on the below link to go to Qwiklabs lab:** [**Introduction to AWS Lambda - Qwiklabs Lab**](https://amazon.qwiklabs.com/focuses/16506?parent=catalog) **and** **Click “Join to Start This Lab”**

**AWS API Gateway**

AWS API gateway is a fully managed service that makes it easy for developers to create, publish, maintain, monitor and secure APIs. API acts as a front door for the application to access data, business logic or functionality from the backend services. It handles all the task involved in accepting and processing up of hundreds or thousands of concurrent API calls, including traffic management, authorization, access control, monitoring and API management.

<https://aws.amazon.com/api-gateway/>

[Building APIs with Amazon API Gateway](https://www.youtube.com/watch?v=XwfpPEFHKtQ)

[Five Reasons to Consider Amazon API Gateway for Your Next Microservices Project – The New Stack](https://thenewstack.io/five-reasons-to-consider-amazon-api-gateway-for-your-next-microservices-project/)

This lab task will involve using your learnings from the previous task(Lambda). In this lab task you will create an AWS lambda function to return random Questions and answers(FAQs), and this lambda function will be exposed using a REST API endpoint created(and managed) using API Gateway.

**Point to keep in mind: While in AWS Lambda console, ensure that you have UNCHECKED using the new UI, make sure to use the old/former UI as the Qwiklabs have not yet been updated for the new UI**

**TASK2: Click on the below link to go to Qwiklabs lab:** [**Introduction to AWS API Gateway- Qwiklabs Lab**](https://amazon.qwiklabs.com/focuses/10383?parent=catalog) **and** **Click “Join to Start This Lab”**