**GSP315**



**Overview**

You must complete a series of tasks within the allocated time period. Instead of following step-by-step instructions, you'll be given a scenario and a set of tasks - you figure out how to complete it on your own! An automated scoring system (shown on this page) will provide feedback on whether you have completed your tasks correctly.

To score 100% you must complete all tasks within the time period!

When you take a Challenge Lab, you will not be taught GCP concepts. To build the solution to the challenge presented, use skills learned from the labs in the quest this challenge lab is part of. You will be expected to extend your learned skills; you will be expected to change default values, but new concepts will not be introduced.

This lab is only recommended for students who have completed the labs in the [Baseline: Infrastructure](https://google.qwiklabs.com/quests/33) Quest.

Please make sure you review the labs in the Baseline: Infrastructure quest before starting this lab!

Are you up for the challenge?

Setup

**Before you click the Start Lab button**

Read these instructions. Labs are timed and you cannot pause them. The timer, which starts when you click Start Lab, shows how long Cloud resources will be made available to you.

This Qwiklabs hands-on lab lets you do the lab activities yourself in a real cloud environment, not in a simulation or demo environment. It does so by giving you new, temporary credentials that you use to sign in and access the Google Cloud Platform for the duration of the lab.

**What you need**

To complete this lab, you need:

* Access to a standard internet browser (Chrome browser recommended).
* Time to complete the lab.

**Note:** If you already have your own personal GCP account or project, do not use it for this lab.

**Note:** If you are using a Pixelbook please open an Incognito window to run this lab.

**Challenge scenario**

You are just starting your junior cloud engineer role with Jooli inc. So far you have been helping teams create and manage Google Cloud Platform resources.

You are expected to have the skills and knowledge for these tasks so don’t expect step-by-step guides.

Your challenge

You are now asked to help a newly formed development team with some of their initial work on a new project around storing and organizing photographs, called memories. You have been asked to assist the memories team with initial configuration for their application development environment; you receive the following request to complete the following tasks:

* Create a bucket for storing the photographs.
* Create a Pub/Sub topic that will be used by a Cloud Function you create.
* Create a Cloud Function.
* Remove the previous cloud engineer’s access from the memories project.

Some Jooli Inc. standards you should follow:

* Create all resources in the **us-east1** region and **us-east1-b** zone, unless otherwise directed.
* Use the project VPCs.
* Naming is normally *team-resource*, e.g. an instance could be named **kraken-webserver1**
* Allocate cost effective resource sizes. Projects are monitored and excessive resource use will result in the containing project's termination (and possibly yours), so beware. This is the guidance the monitoring team is willing to share; unless directed, use **f1-micro** for small Linux VMs and **n1-standard-1** for Windows or other applications such as Kubernetes nodes.

Each task is described in detail below, good luck!

**Task 1: Create a bucket**

You need to create a bucket for the storage of the photographs.

Click *Check my progress* to verify the objective.

Create a bucket

Check my progress

If you don't get a green check mark, please click on the Score fly-out on the top right and click Run Step on the relevant step. You will see a hint pop up giving you advice.

**Task 2: Create a Pub/Sub topic**

Create a Pub/Sub topic for the Cloud Function to send messages.

Click *Check my progress* to verify the objective.

Create a Pub/Sub topic

Check my progress

If you don't get a green check mark, please click on the Score fly-out on the top right and click Run Step on the relevant step. You will see a hint pop up giving you advice.

**Task 3: Create the thumbnail Cloud Function**

Create a Cloud Function that executes every time an object is created in the bucket you created in task 1. The function is written in Node.js 8. Make sure you set the **Function to execute** to thumbnail.

In line 15 of index.js replace the text **REPLACE\_WITH\_YOUR\_TOPIC** with the topic you created in task 2.

index.js:

*/\* globals exports, require \*/*

*//jshint strict: false*

*//jshint esversion: 6*

"use strict";

const crc32 = require("fast-crc32c");

const gcs = require("@google-cloud/storage")();

const PubSub = require("@google-cloud/pubsub");

const imagemagick = require("imagemagick-stream");

exports.thumbnail = (event, context) => {

const fileName = event.name;

const bucketName = event.bucket;

const size = "64x64"

const bucket = gcs.bucket(bucketName);

const topicName = "REPLACE\_WITH\_YOUR\_TOPIC";

const pubsub = new PubSub();

if ( fileName.search("64x64\_thumbnail") == -1 ){

*// doesn't have a thumbnail, get the filename extension*

var filename\_split = fileName.split('.');

var filename\_ext = filename\_split[filename\_split.length - 1];

var filename\_without\_ext = fileName.substring(0, fileName.length - filename\_ext.length );

if (filename\_ext.toLowerCase() == 'png' || filename\_ext.toLowerCase() == 'jpg'){

*// only support png and jpg at this point*

console.log(`Processing Original: gs:*//${bucketName}/${fileName}`);*

const gcsObject = bucket.file(fileName);

let newFilename = filename\_without\_ext + size + '\_thumbnail.' + filename\_ext;

let gcsNewObject = bucket.file(newFilename);

let srcStream = gcsObject.createReadStream();

let dstStream = gcsNewObject.createWriteStream();

let resize = imagemagick().resize(size).quality(90);

srcStream.pipe(resize).pipe(dstStream);

return new Promise((resolve, reject) => {

dstStream

.on("error", (err) => {

console.log(`Error: ${err}`);

reject(err);

})

.on("finish", () => {

console.log(`Success: ${fileName} → ${newFilename}`);

*// set the content-type*

gcsNewObject.setMetadata(

{

contentType: 'image/'+ filename\_ext.toLowerCase()

}, function(err, apiResponse) {});

pubsub

.topic(topicName)

.publisher()

.publish(Buffer.from(newFilename))

.then(messageId => {

console.log(`Message ${messageId} published.`);

})

.catch(err => {

console.error('ERROR:', err);

});

});

});

}

else {

console.log(`gs:*//${bucketName}/${fileName} is not an image I can handle`);*

}

}

else {

console.log(`gs:*//${bucketName}/${fileName} already has a thumbnail`);*

}

};

package.json:

{

"name": "thumbnails",

"version": "1.0.0",

"description": "Create Thumbnail of uploaded image",

"scripts": {

"start": "node index.js"

},

"dependencies": {

"@google-cloud/storage": "1.5.1",

"@google-cloud/pubsub": "^0.18.0",

"fast-crc32c": "1.0.4",

"imagemagick-stream": "4.1.1"

},

"devDependencies": {},

"engines": {

"node": ">=4.3.2"

}

}

You must upload one JPG or PNG image into the bucket, we will verify the thumbnail was created. Use any JPG or PNG image, or use this image https://storage.googleapis.com/cloud-training/gsp315/map.jpg; download the image to your machine and then upload that file to your bucket. You will see a thumbnail image appear shortly afterwards (use **REFRESH BUCKET**).

Click *Check my progress* to verify the objective.

Verify the Cloud Function worked

Check my progress

If you don't get a green check mark, please click on the Score fly-out on the top right and click Run Step on the relevant step. You will see a hint pop up giving you advice.

**Task 4: Remove the previous cloud engineer**

You will see that there are two users, one is your account (with the role of Owner) and the other is the previous cloud engineer (with the role of Viewer). We like to keep our security tight, so please remove the previous cloud engineer’s access to the project.

Click *Check my progress* to verify the objective.

Remove the previous cloud engineer

Check my progress

If you don't get a green check mark, please click on the Score fly-out on the top right and click Run Step on the relevant step. You will see a hint pop up giving you advice.

**Congratulations!**



Finish your Quest

This self-paced lab is part of the Qwiklabs [Baseline: Infrastructure](https://google.qwiklabs.com/quests/33) Quest. A Quest is a series of related labs that form a learning path. Completing this Quest earns you the badge above, to recognize your achievement. You can make your badge public and link to them in your online resume or social media account. Enroll in a Quest and get immediate completion credit if you've taken this lab. [See other available Qwiklabs Quests](https://google.qwiklabs.com/catalog).

Take your next lab

This lab is also part of a series of labs called Challenge Labs. These labs are designed test your Google Cloud knowledge and skill. Search for "Challenge Lab" in the [lab catalog](https://google.qwiklabs.com/catalog) and challenge yourself!

Google Cloud Training & Certification

...helps you make the most of Google Cloud technologies. [Our classes](https://cloud.google.com/training/courses) include technical skills and best practices to help you get up to speed quickly and continue your learning journey. We offer fundamental to advanced level training, with on-demand, live, and virtual options to suit your busy schedule. [Certifications](https://cloud.google.com/certification/) help you validate and prove your skill and expertise in Google Cloud technologies.

Manual Last Updated February 14, 2020

Lab Last Tested February 13, 2020

Copyright 2020 Google LLC All rights reserved. Google and the Google logo are trademarks of Google LLC. All other company and product names may be trademarks of the respective companies with which they are associated.