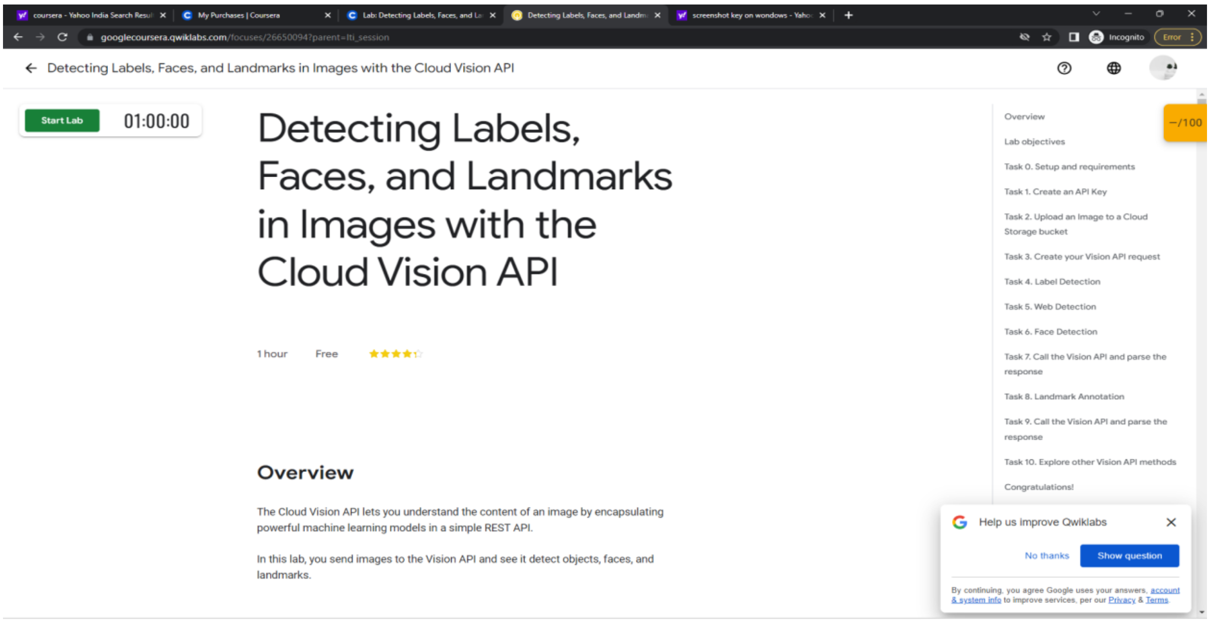
Computer Vision Fundamentals with Google Cloud

Lab: Detecting Labels, Faces, and Landmarks in Images with the Cloud Vision API

Start lab {open coursera on incognito mode}



coursera - Yahoo India Search Resul
My Purchases | Coursera
Lab: Detecting Labels, Faces, and La
Detecting Labels, Faces, and Landm
screenshot key on wondows - Yahoo
googlecoursera.qwiklabs.com/focuses/26650094?parent=lti_session
Incognito
Error
Start Lab
01:00:00
—/100

Detecting Labels, Faces, and Landmarks in Images with the Cloud Vision API

Detecting Labels, Faces, and Landmarks in Images with the Cloud Vision API

1 hour Free

Overview
Lab objectives
Task 0. Setup and requirements
Task 1. Create an API Key
Task 2. Upload an Image to a Cloud Storage bucket
Task 3. Create your Vision API request
Task 4. Label Detection
Task 5. Web Detection
Task 6. Face Detection
Task 7. Call the Vision API and parse the response
Task 8. Landmark Annotation
Task 9. Call the Vision API and parse the response
Task 10. Explore other Vision API methods
Congratulations!

Overview

The Cloud Vision API lets you understand the content of an image by encapsulating powerful machine learning models in a simple REST API.

In this lab, you send images to the Vision API and see it detect objects, faces, and landmarks.

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No thanks   Show question

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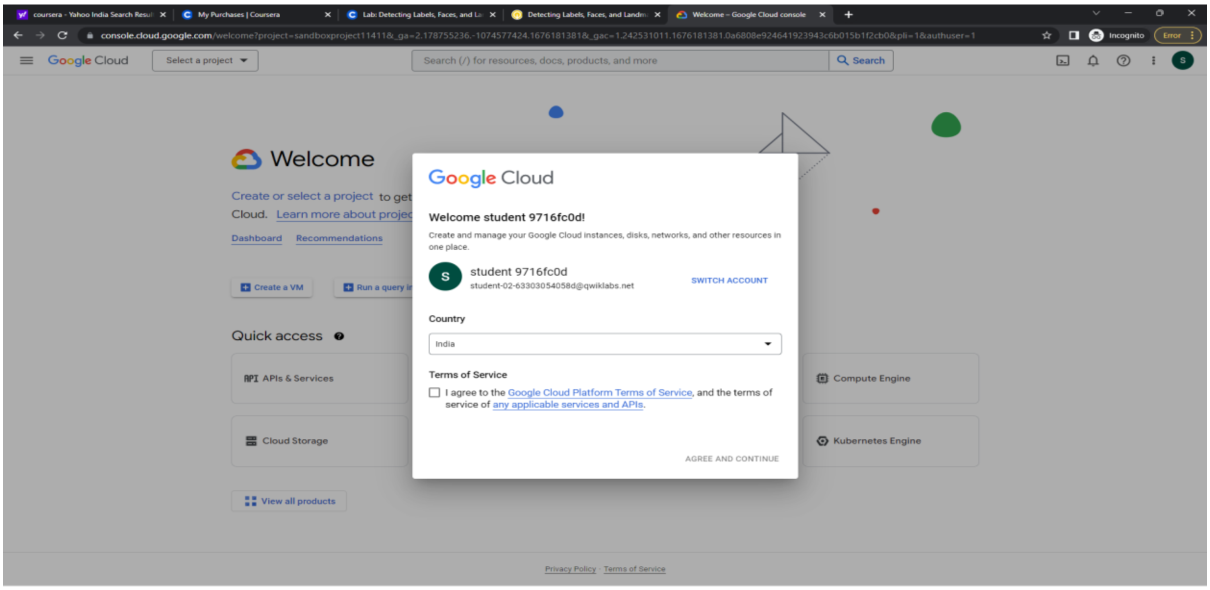
You will get the credential at the left once you started lab, Open google cloud on browser incognito mode and apply the given credentials



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Lab: Detecting Labels, Faces, and La
Detecting Labels, Faces, and Landm
Welcome – Google Cloud console
console.cloud.google.com/welcome?project=sandboxproject11411&_ga=2.178755236.-1074577424.1676181381&_gac=1.242531011.1676181381.0a6808e924641923943c6b015b1f2cb0&pli=1&authuser=1
Incognito
Error
Google Cloud
Select a project
Search (/) for resources, docs, products, and more
Search
Welcome
Create or select a project to get
Cloud. Learn more about projec
Dashboard
Recommendations
Create a VM
Run a query ir
Quick access
APIs & Services
Cloud Storage
Compute Engine
Kubernetes Engine
View all products
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Google Cloud

Welcome student 9716fc0d!

Create and manage your Google Cloud instances, disks, networks, and other resources in one place.

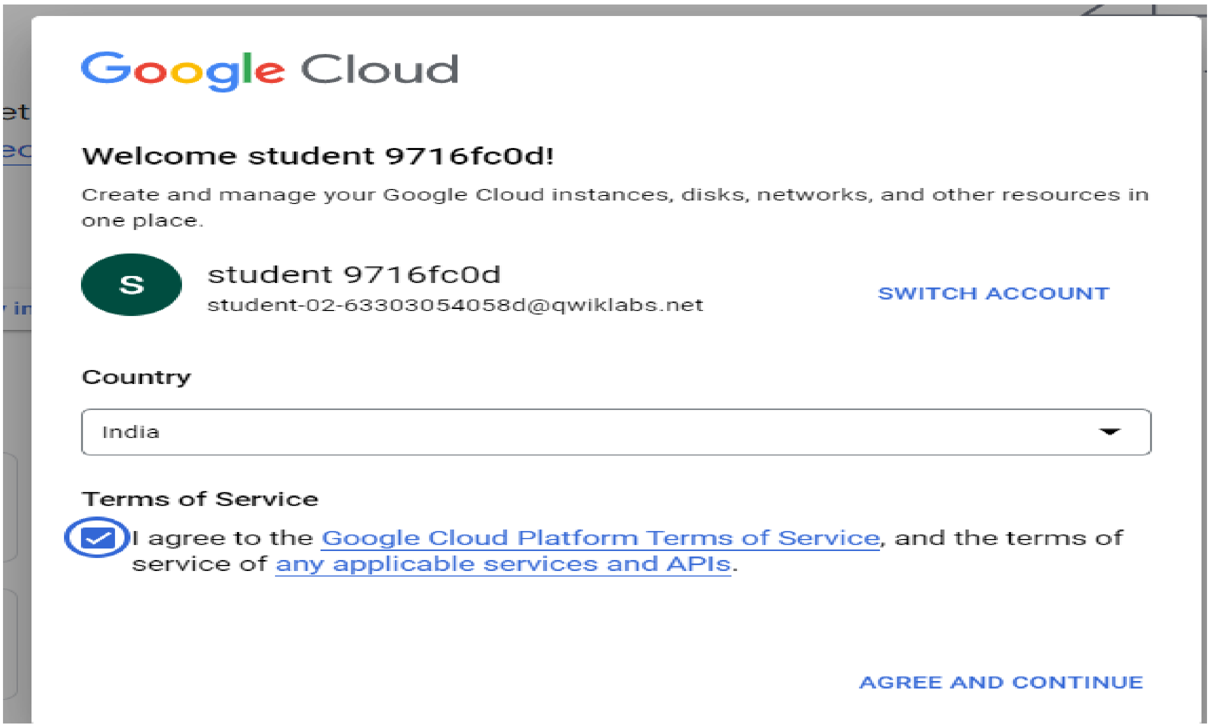
student 9716fc0d
student-02-63303054058d@qwiklabs.net
SWITCH ACCOUNT

Country: India

Terms of Service

□ I agree to the Google Cloud Platform Terms of Service, and the terms of service of any applicable services and APIs.

AGREE AND CONTINUE



Welcome student 9716fc0d!

Create and manage your Google Cloud instances, disks, networks, and other resources in one place.

student 9716fc0d
student-02-63303054058d@qwiklabs.net

Country

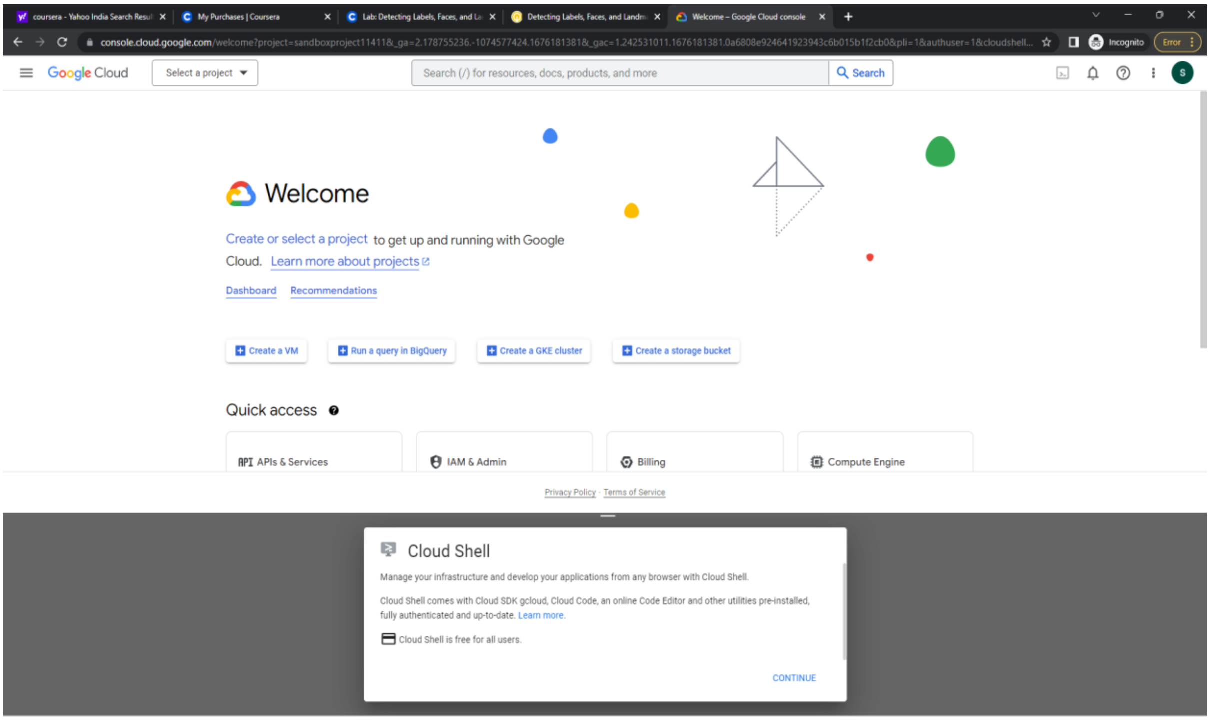
India

Terms of Service

☑ I agree to the Google Cloud Platform Terms of Service, and the terms of service of any applicable services and APIs.

Ativate Cloud Shell

Click the **Activate Cloud Shell** button (⌨) at the top right of the console.Click **Continue**.



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Lab: Detecting Labels, Faces, and La
Detecting Labels, Faces, and Landm
Welcome – Google Cloud console
console.cloud.google.com/welcome?project=sandboxproject11411&_ga=2.178755236.-1074577424.1676181381&_gac=1.242531011.1676181381.0a6808e924641923943c6b015b1f2cb0&pli=1&authuser=1&cloudshell...
Incognito
Error
Google Cloud
Select a project
Search (/) for resources, docs, products, and more
Search
S
Dashboard
Recommendations
Create a VM
Run a query in BigQuery
Create a GKE cluster
Create a storage bucket
Quick access
APIs & Services
IAM & Admin
Billing
Compute Engine
Privacy Policy · Terms of Service
CONTINUE

Welcome

Create or select a project to get up and running with Google Cloud. Learn more about projects

Cloud Shell

Manage your infrastructure and develop your applications from any browser with Cloud Shell.

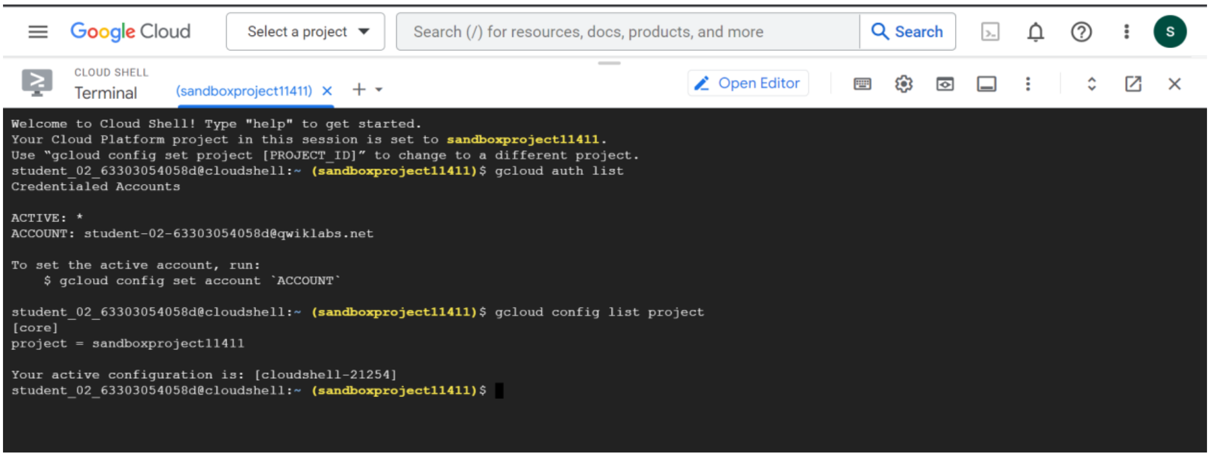
Cloud Shell comes with Cloud SDK gcloud, Cloud Code, an online Code Editor and other utilities pre-installed, fully authenticated and up-to-date. Learn more.

Cloud Shell is free for all users.

Sample commands :

gcloud auth list

gcloud config list project



```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to sandboxproject11411.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
student_02_63303054058d@cloudshell:~ (sandboxproject11411)$ gcloud auth list
Credentialed Accounts

ACTIVE: *
ACCOUNT: student-02-63303054058d@qwiklabs.net

To set the active account, run:
    $ gcloud config set account `ACCOUNT`

student_02_63303054058d@cloudshell:~ (sandboxproject11411)$ gcloud config list project
[core]
project = sandboxproject11411

Your active configuration is: [cloudshell-21254]
student_02_63303054058d@cloudshell:~ (sandboxproject11411)$
```

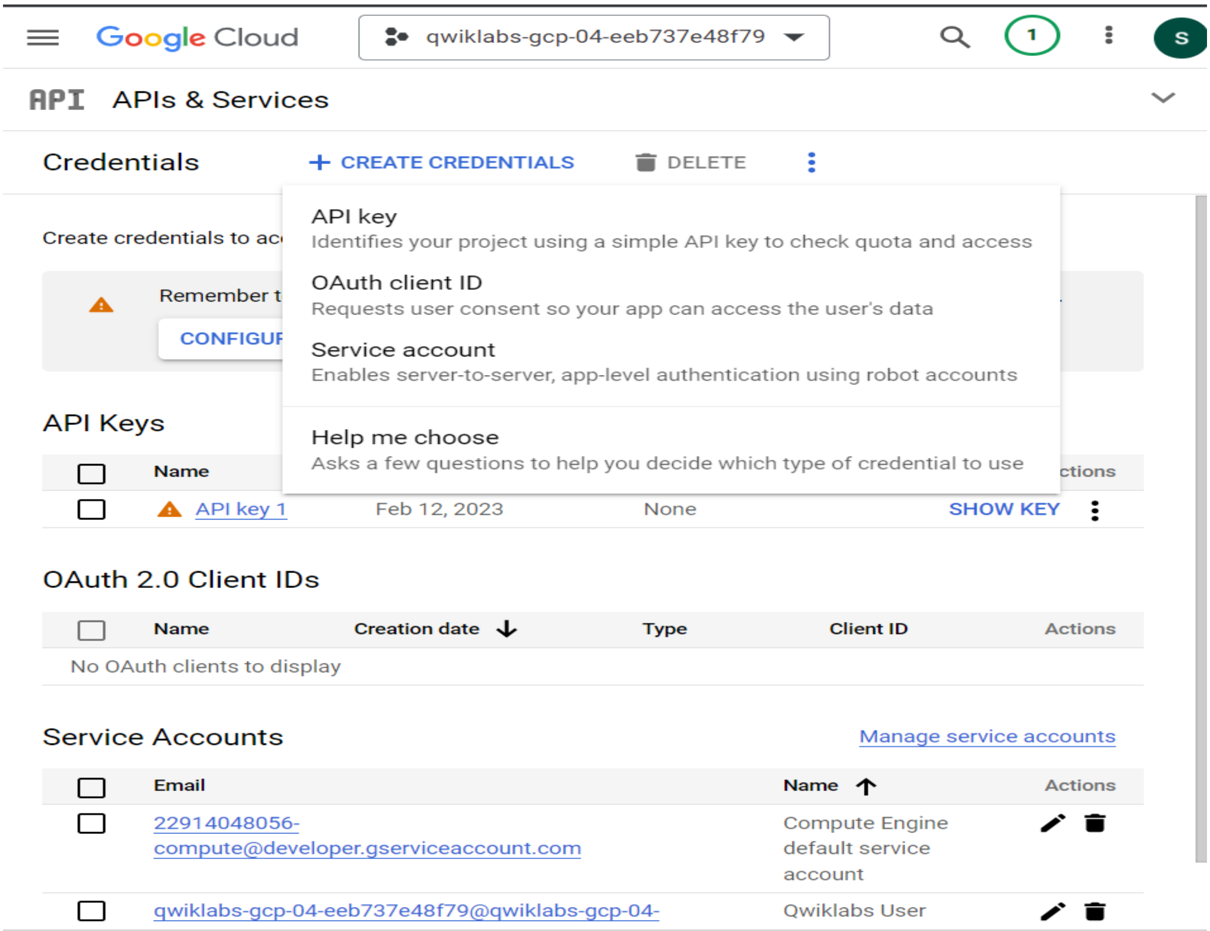
Task 1. Create an API Key

Since you are using curl to send a request to the Vision API, you need to generate an API key to pass in your request URL.

To create an API key, navigate to APIs & Services > Credentials in your Cloud console:

Click CREATE CREDENTIALS and select API key.

Next, copy the key you just generated and click CLOSE.



Google Cloud   qwiklabs-gcp-04-eeb737e48f79

API APIs & Services

Credentials   + CREATE CREDENTIALS   DELETE

API key
Identifies your project using a simple API key to check quota and access

OAuth client ID
Requests user consent so your app can access the user's data

Service account
Enables server-to-server, app-level authentication using robot accounts

Help me choose
Asks a few questions to help you decide which type of credential to use

Create credentials to ac

Remember t

CONFIGUR

API Keys

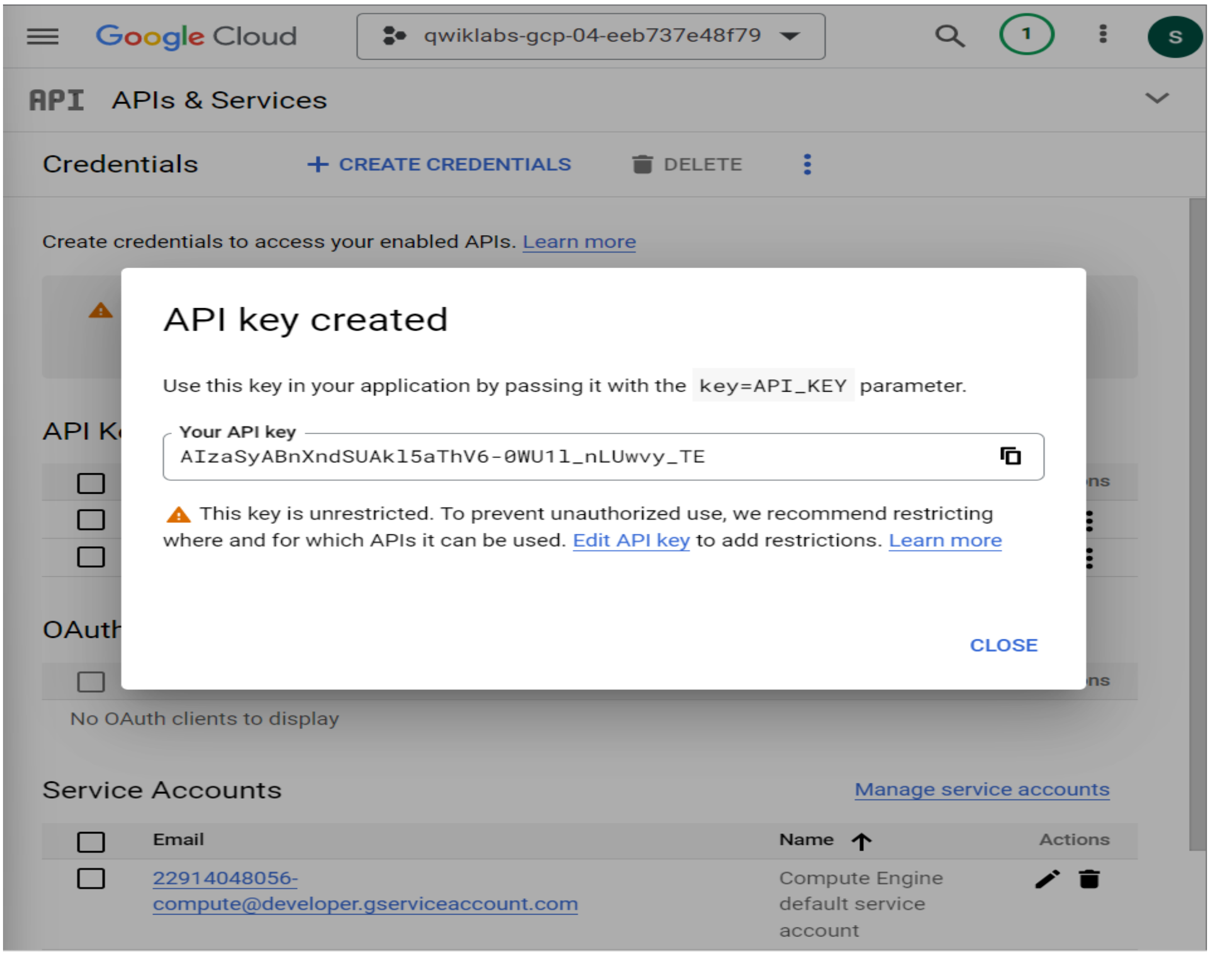
□	Name			ctions
□	API key 1	Feb 12, 2023	None	SHOW KEY

OAuth 2.0 Client IDs

□	Name	Creation date ↓	Type	Client ID	Actions
	No OAuth clients to display				

Service Accounts   Manage service accounts

□	Email	Name ↑	Actions
□	22914048056-compute@developer.gserviceaccount.com	Compute Engine default service account	
□	qwiklabs-gcp-04-eeb737e48f79@qwiklabs-gcp-04-	Qwiklabs User	



Create credentials to access your enabled APIs. Learn more

API key created

Use this key in your application by passing it with the `key=API_KEY` parameter.

Your API key

```
AIzaSyABnXndSUAkl5aThV6-0WU1l_nLUwvy_TE
```

This key is unrestricted. To prevent unauthorized use, we recommend restricting where and for which APIs it can be used. Edit API key to add restrictions. Learn more

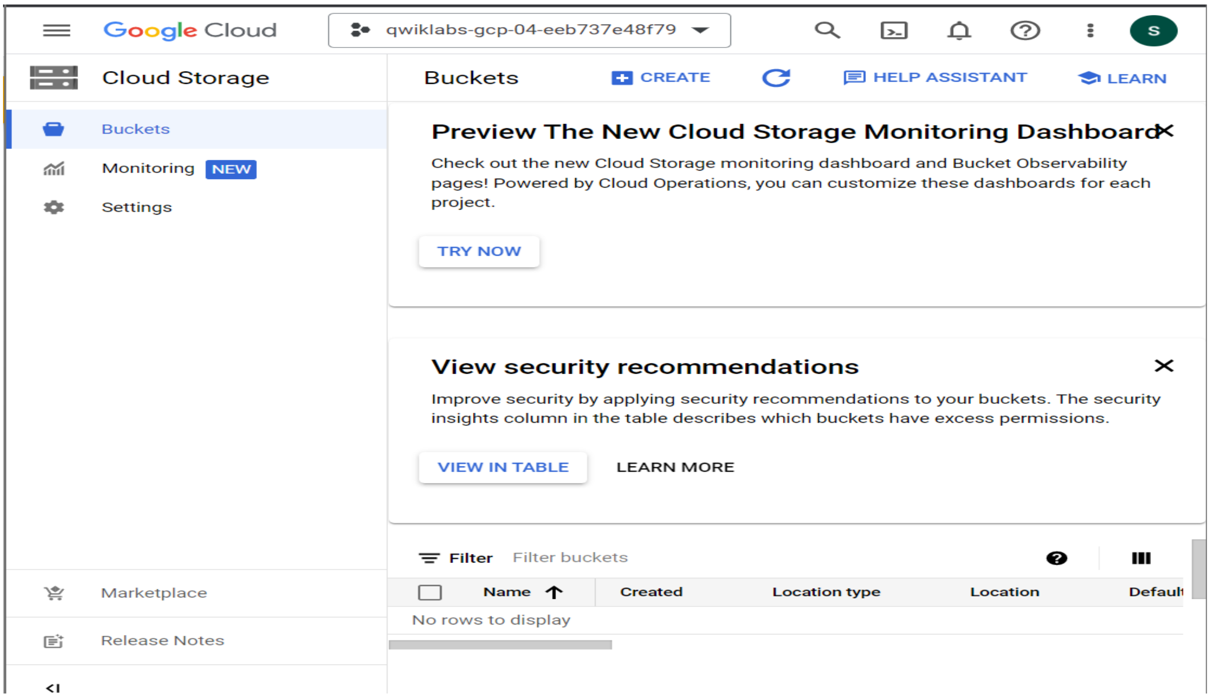
No OAuth clients to display

Email	Name	Actions
22914048056-compute@developer.gserviceaccount.com	Compute Engine default service account	

API key for me :AIzaSyDd1NBE2tfG38JN55wbRF3Y2p9TbiSv-dQ

Task 2. Upload an Image to a Cloud Storage bucket

1. Navigate to Navigation menu > Cloud Storage in the Cloud console for your project, then click CREATE BUCKET.



Preview The New Cloud Storage Monitoring Dashboard

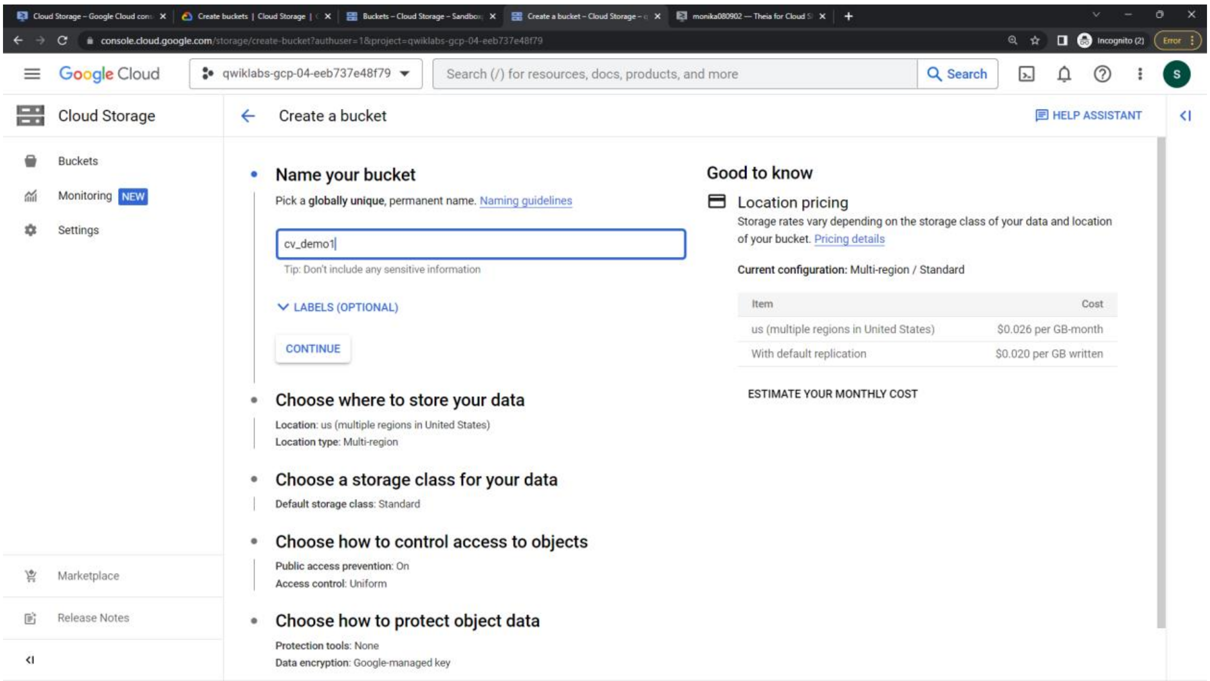
Check out the new Cloud Storage monitoring dashboard and Bucket Observability pages! Powered by Cloud Operations, you can customize these dashboards for each project.

View security recommendations

Improve security by applying security recommendations to your buckets. The security insights column in the table describes which buckets have excess permissions.

□	Name ↑	Created	Location type	Location	Default

No rows to display


Cloud Storage – Google Cloud cons
Create buckets | Cloud Storage |
Buckets – Cloud Storage – Sandbox
Create a bucket – Cloud Storage –
monika080902 — Theia for Cloud S
console.cloud.google.com/storage/create-bucket?authuser=1&project=qwiklabs-gcp-04-eeb737e48f79
Incognito (2)
Error
Google Cloud
qwiklabs-gcp-04-eeb737e48f79
Search (/) for resources, docs, products, and more
Search
S
Cloud Storage
Buckets
Monitoring NEW
Settings
Marketplace
Release Notes
<I
HELP ASSISTANT
LABELS (OPTIONAL)
CONTINUE
ESTIMATE YOUR MONTHLY COST

Create a bucket

Name your bucket

Pick a **globally unique**, permanent name. Naming guidelines

cv_demo1

Tip: Don't include any sensitive information

Choose where to store your data

Location: us (multiple regions in United States)
Location type: Multi-region

Choose a storage class for your data

Default storage class: Standard

Choose how to control access to objects

Public access prevention: On
Access control: Uniform

Choose how to protect object data

Protection tools: None
Data encryption: Google-managed key

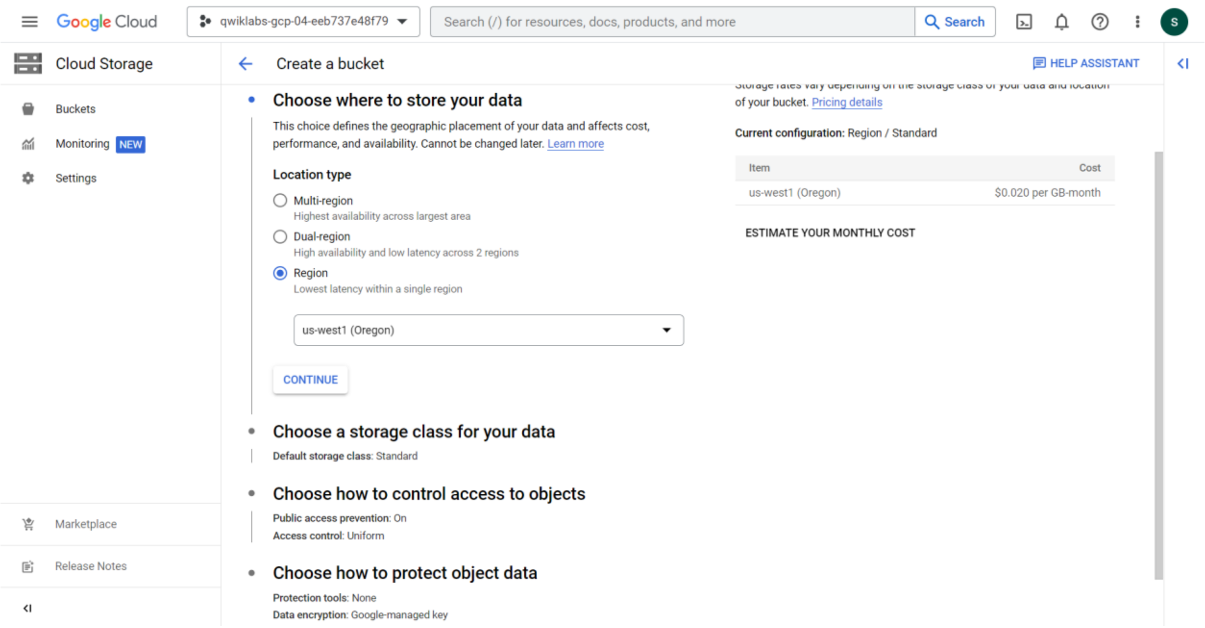
Good to know

Location pricing

Storage rates vary depending on the storage class of your data and location of your bucket. Pricing details

Current configuration: Multi-region / Standard

Item	Cost
us (multiple regions in United States)	$0.026 per GB-month
With default replication	$0.020 per GB written



Choose where to store your data

This choice defines the geographic placement of your data and affects cost, performance, and availability. Cannot be changed later. Learn more

Location type

○ Multi-region
Highest availability across largest area

○ Dual-region
High availability and low latency across 2 regions

● Region
Lowest latency within a single region

us-west1 (Oregon)

CONTINUE

Choose a storage class for your data

Default storage class: Standard

Choose how to control access to objects

Public access prevention: On
Access control: Uniform

Choose how to protect object data

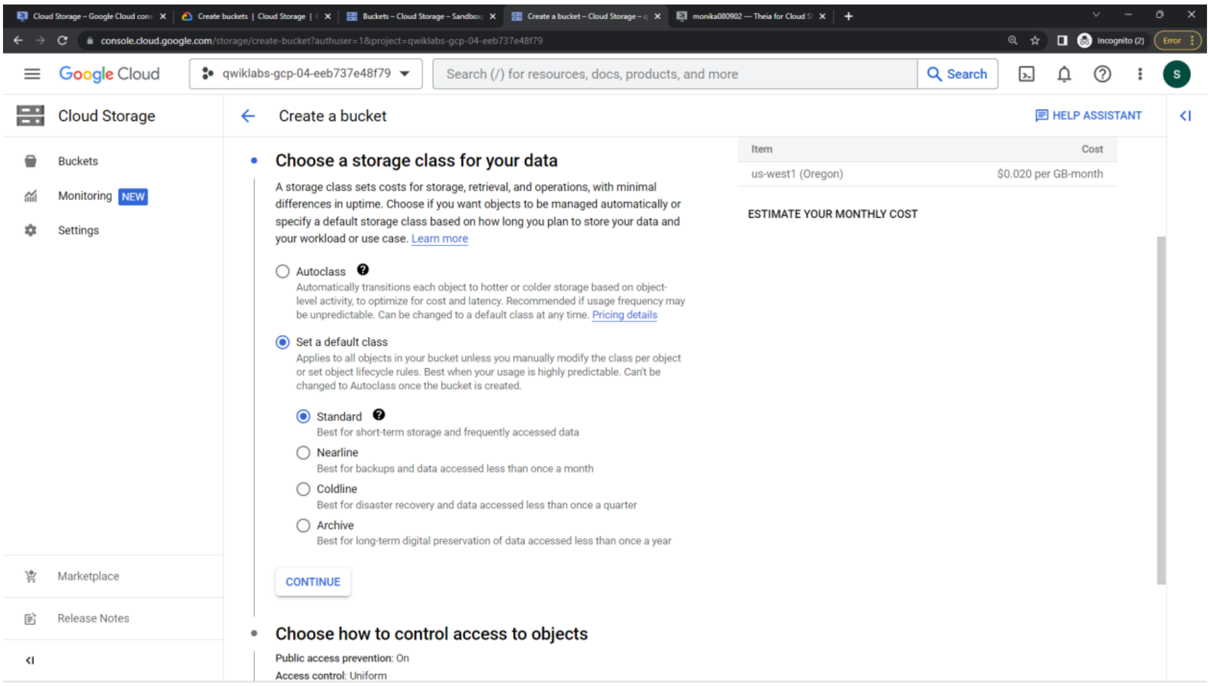
Protection tools: None
Data encryption: Google-managed key

Storage rates vary depending on the storage class of your data and location of your bucket. Pricing details

Current configuration: Region / Standard

Item	Cost
us-west1 (Oregon)	$0.020 per GB-month

ESTIMATE YOUR MONTHLY COST


Cloud Storage – Google Cloud cons
Create buckets | Cloud Storage |
Buckets – Cloud Storage – Sandbox
Create a bucket – Cloud Storage – q
monika080902 — Theia for Cloud S
Incognito (2)
Error
Google Cloud
qwiklabs-gcp-04-eeb737e48f79
Search (/) for resources, docs, products, and more
Search
Cloud Storage
Create a bucket
HELP ASSISTANT
Buckets
Monitoring NEW
Settings
Marketplace
Release Notes

console.cloud.google.com/storage/create-bucket?authuser=1&project=qwiklabs-gcp-04-eeb737e48f79

Choose a storage class for your data

A storage class sets costs for storage, retrieval, and operations, with minimal differences in uptime. Choose if you want objects to be managed automatically or specify a default storage class based on how long you plan to store your data and your workload or use case. Learn more

○ Autoclass
Automatically transitions each object to hotter or colder storage based on object-level activity, to optimize for cost and latency. Recommended if usage frequency may be unpredictable. Can be changed to a default class at any time. Pricing details

● Set a default class
Applies to all objects in your bucket unless you manually modify the class per object or set object lifecycle rules. Best when your usage is highly predictable. Can't be changed to Autoclass once the bucket is created.

● Standard
Best for short-term storage and frequently accessed data

○ Nearline
Best for backups and data accessed less than once a month

○ Coldline
Best for disaster recovery and data accessed less than once a quarter

○ Archive
Best for long-term digital preservation of data accessed less than once a year

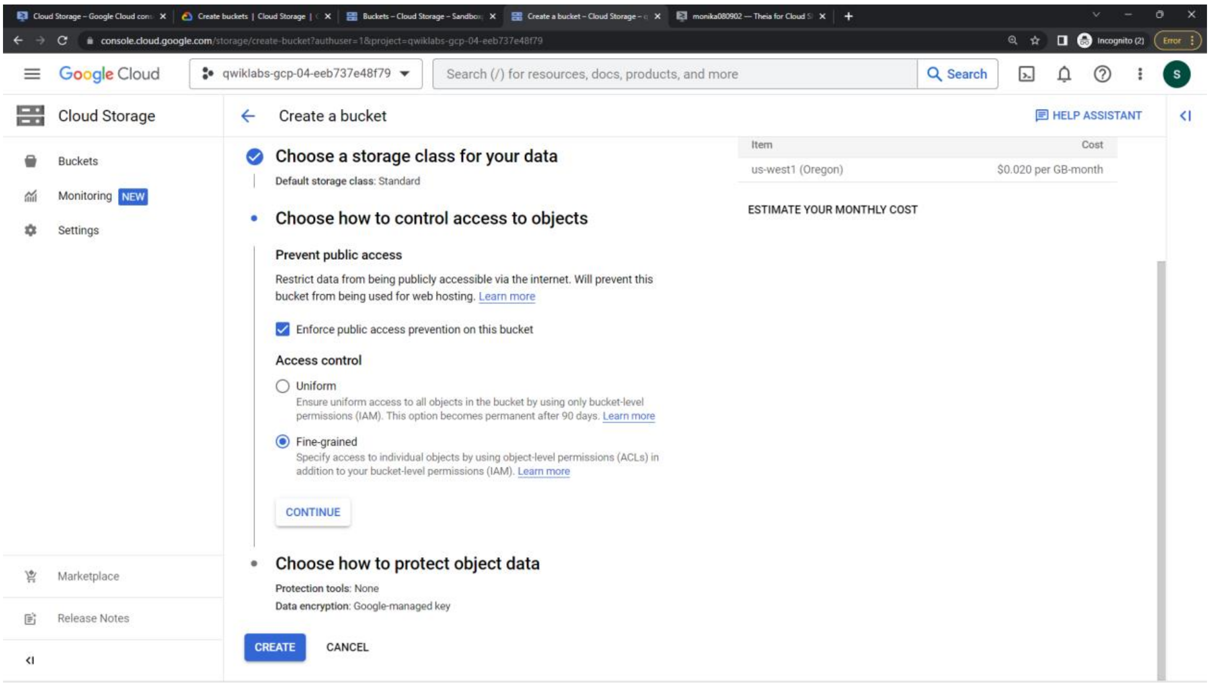
CONTINUE

Choose how to control access to objects

Public access prevention: On
Access control: Uniform

Item	Cost
us-west1 (Oregon)	$0.020 per GB-month

ESTIMATE YOUR MONTHLY COST



Create a bucket

Choose a storage class for your data

Default storage class: Standard

Choose how to control access to objects

Prevent public access

Restrict data from being publicly accessible via the internet. Will prevent this bucket from being used for web hosting. Learn more

☑ Enforce public access prevention on this bucket

Access control

○ Uniform
Ensure uniform access to all objects in the bucket by using only bucket-level permissions (IAM). This option becomes permanent after 90 days. Learn more

● Fine-grained
Specify access to individual objects by using object-level permissions (ACLs) in addition to your bucket-level permissions (IAM). Learn more

CONTINUE

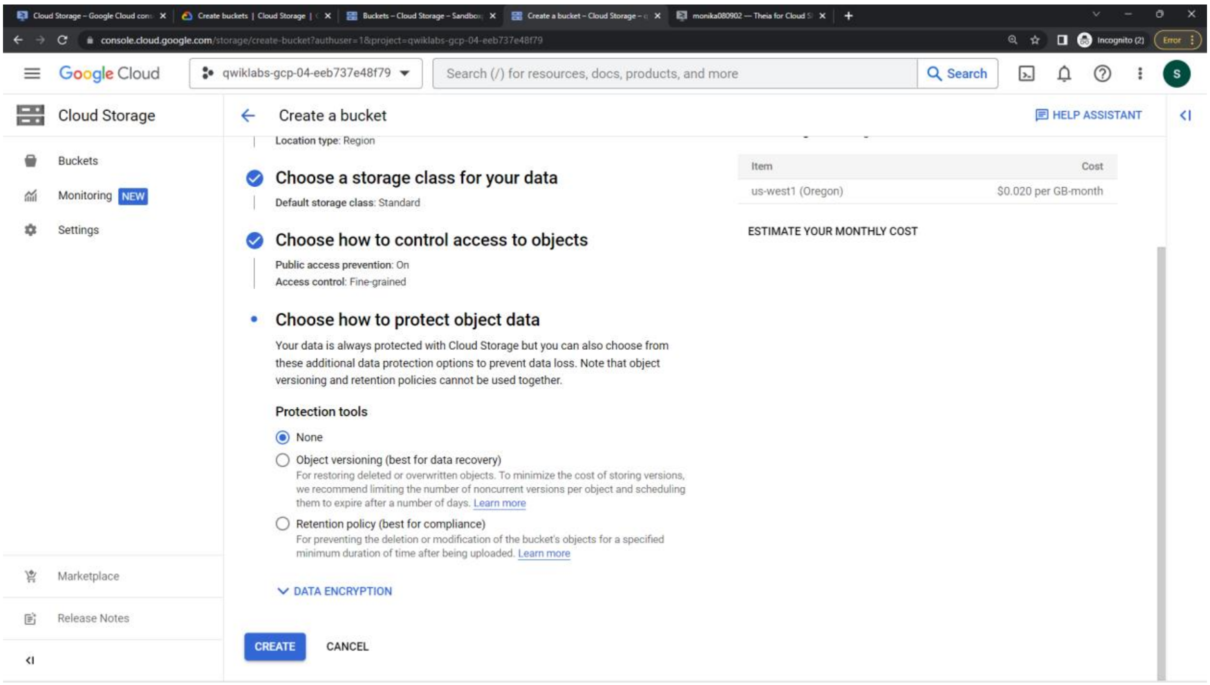
Choose how to protect object data

Protection tools: None
Data encryption: Google-managed key

CREATE CANCEL

Item	Cost
us-west1 (Oregon)	$0.020 per GB-month

ESTIMATE YOUR MONTHLY COST



Create a bucket

Location type: Region

Choose a storage class for your data

Default storage class: Standard

Choose how to control access to objects

Public access prevention: On
Access control: Fine-grained

Choose how to protect object data

Your data is always protected with Cloud Storage but you can also choose from these additional data protection options to prevent data loss. Note that object versioning and retention policies cannot be used together.

Protection tools

● None

○ Object versioning (best for data recovery)
For restoring deleted or overwritten objects. To minimize the cost of storing versions, we recommend limiting the number of noncurrent versions per object and scheduling them to expire after a number of days. Learn more

○ Retention policy (best for compliance)
For preventing the deletion or modification of the bucket's objects for a specified minimum duration of time after being uploaded. Learn more

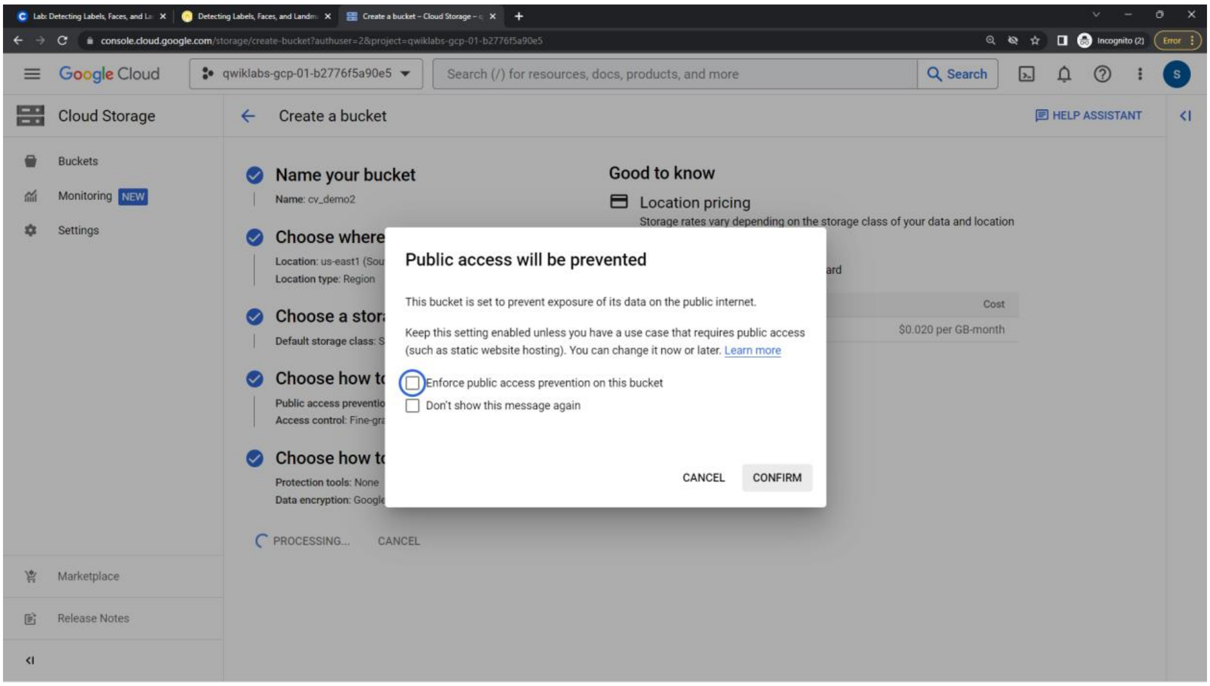
DATA ENCRYPTION

CREATE CANCEL

Item	Cost
us-west1 (Oregon)	$0.020 per GB-month

ESTIMATE YOUR MONTHLY COST

Untick both and confirm



console.cloud.google.com/storage/create-bucket?authuser=2&project=qwiklabs-gcp-01-b2776f5a90e5

Create a bucket

Name your bucket

Name: cv_demo2

Choose where

Location: us-east1 (Sou

Location type: Region

Choose a stor

Default storage class: S

Choose how t

Public access preventio

Access control: Fine-gra

Choose how t

Protection tools: None

Data encryption: Google

Good to know

Location pricing

Storage rates vary depending on the storage class of your data and location

Cost
$0.020 per GB-month

Public access will be prevented

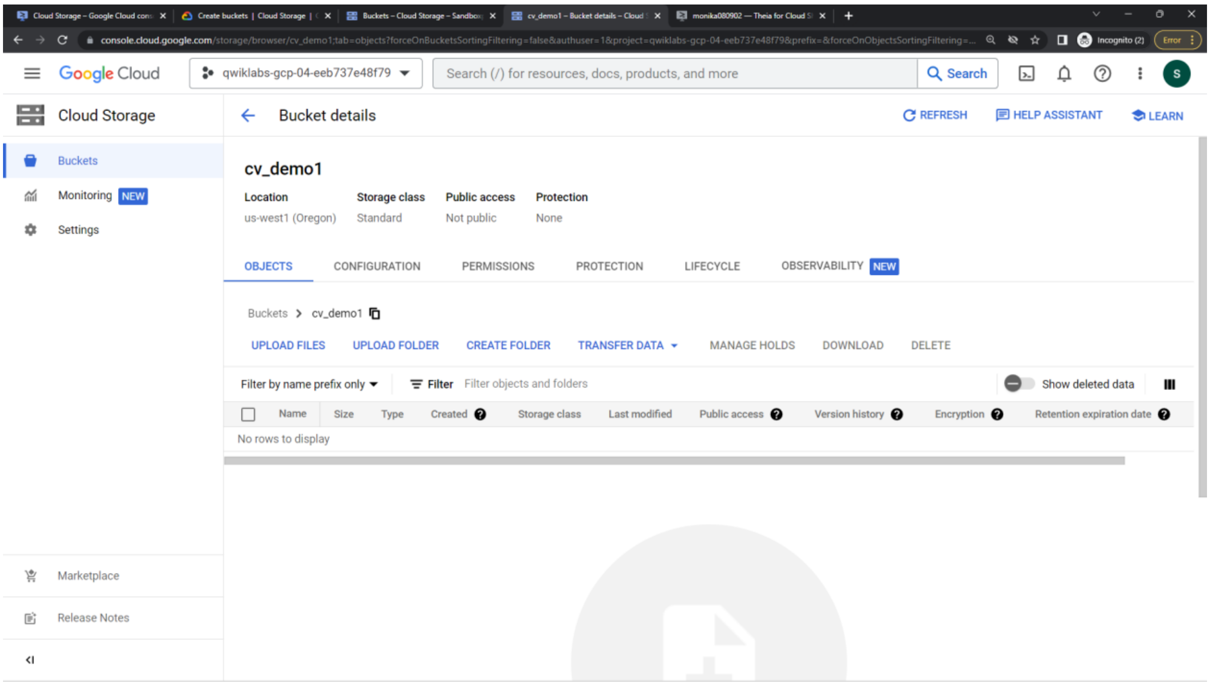
This bucket is set to prevent exposure of its data on the public internet.

Keep this setting enabled unless you have a use case that requires public access (such as static website hosting). You can change it now or later. Learn more

□ Enforce public access prevention on this bucket

□ Don't show this message again

CANCEL CONFIRM



Bucket details

cv_demo1

Location	Storage class	Public access	Protection
us-west1 (Oregon)	Standard	Not public	None

Buckets > cv_demo1

□	Name	Size	Type	Created	Storage class	Last modified	Public access	Version history	Encryption	Retention expiration date

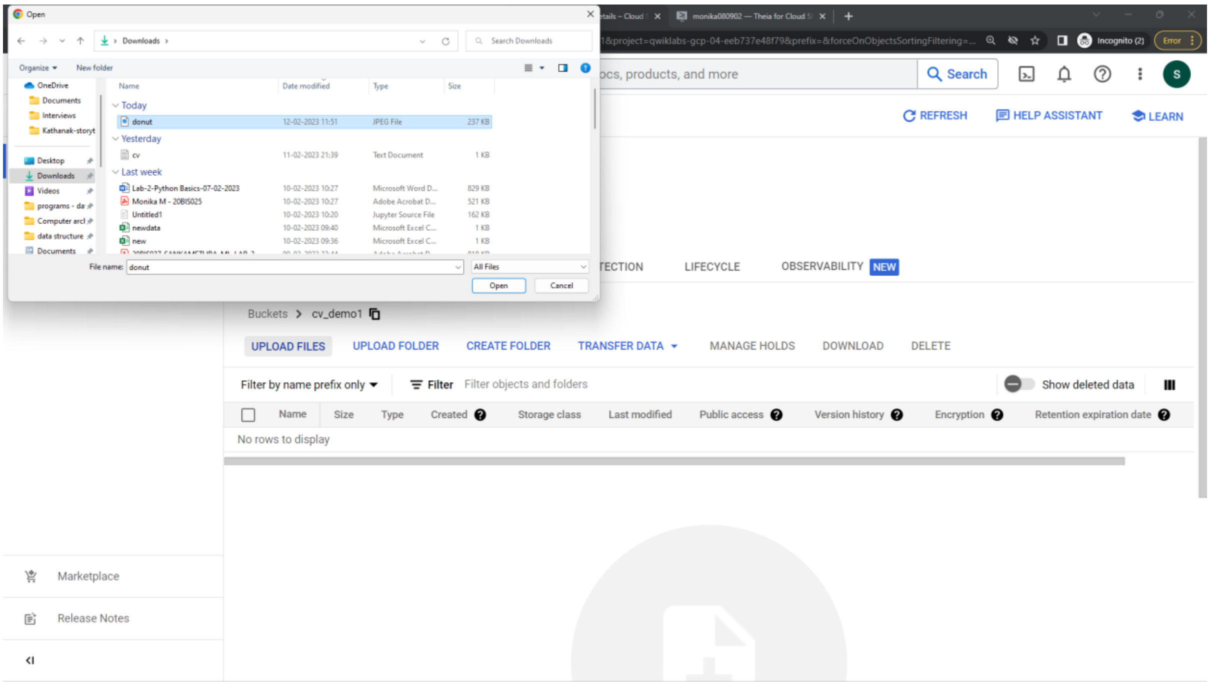
No rows to display

Thus bucket created .

Upload an image to your bucket

Right click on the following image of donuts, then click Save image as and save it to your computer as donuts.png.

Go to the bucket you just created and click UPLOAD FILES. Then select donuts.png.



Name	Date modified	Type	Size
Today			
donut	12-02-2023 11:51	JPEG File	237 KB
Yesterday			
cv	11-02-2023 21:39	Text Document	1 KB
Last week			
Lab-2-Python Basics-07-02-2023	10-02-2023 10:27	Microsoft Word D...	829 KB
Monika M - 20BIS025	10-02-2023 10:27	Adobe Acrobat D...	521 KB
Untitled1	10-02-2023 10:20	Jupyter Source File	162 KB
newdata	10-02-2023 09:40	Microsoft Excel C...	1 KB
new	10-02-2023 09:36	Microsoft Excel C...	1 KB

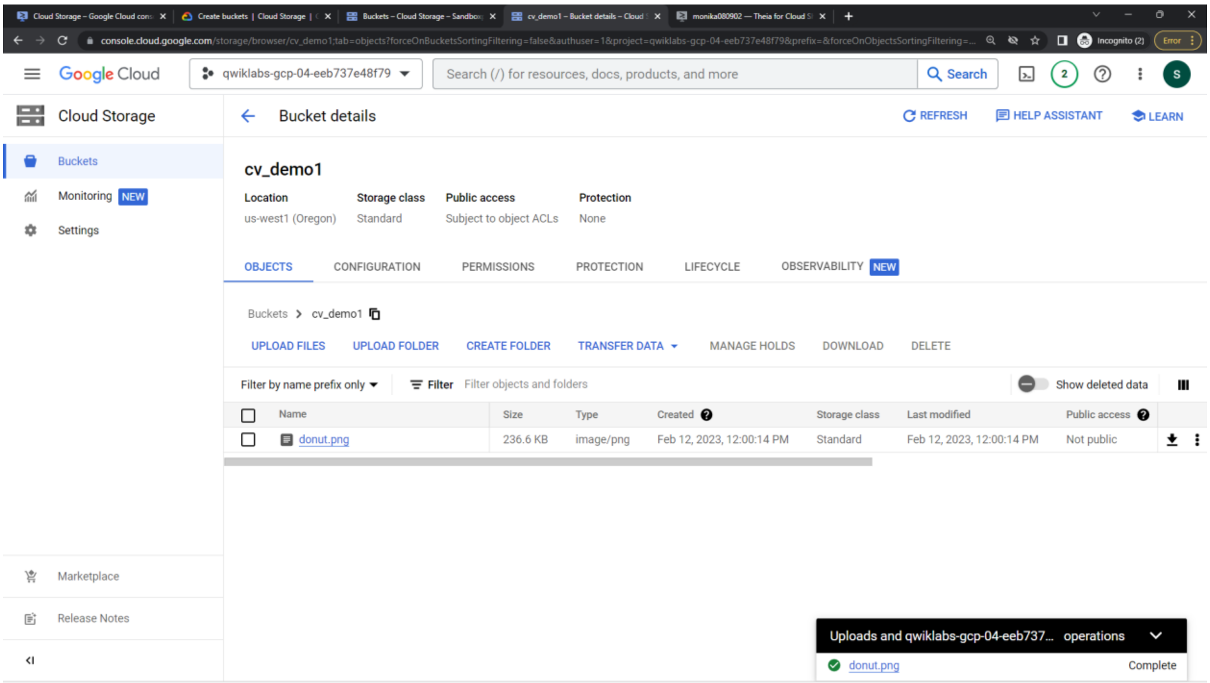
File name: donut

All Files

Buckets > cv_demo1

Name	Size	Type	Created	Storage class	Last modified	Public access	Version history	Encryption	Retention expiration date

No rows to display



cv_demo1

Location	Storage class	Public access	Protection
us-west1 (Oregon)	Standard	Subject to object ACLs	None

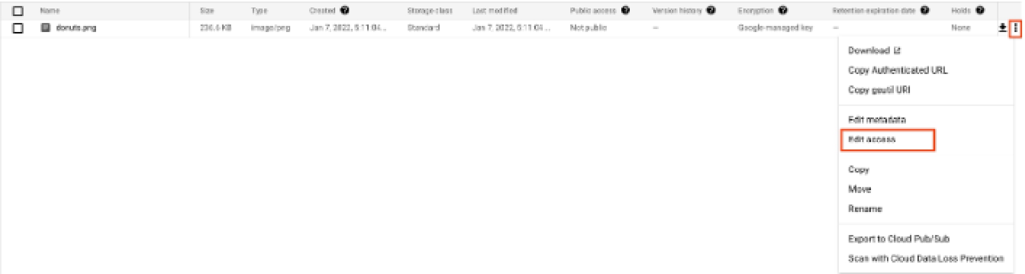
Buckets > cv_demo1

□	Name	Size	Type	Created	Storage class	Last modified	Public access
□	donut.png	236.6 KB	image/png	Feb 12, 2023, 12:00:14 PM	Standard	Feb 12, 2023, 12:00:14 PM	Not public

Uploads and qwiklabs-gcp-04-eeb737... operations

donut.png Complete

3. Now you need to make this image publicly available. Click on the 3 dots for your image and select **Edit access**.



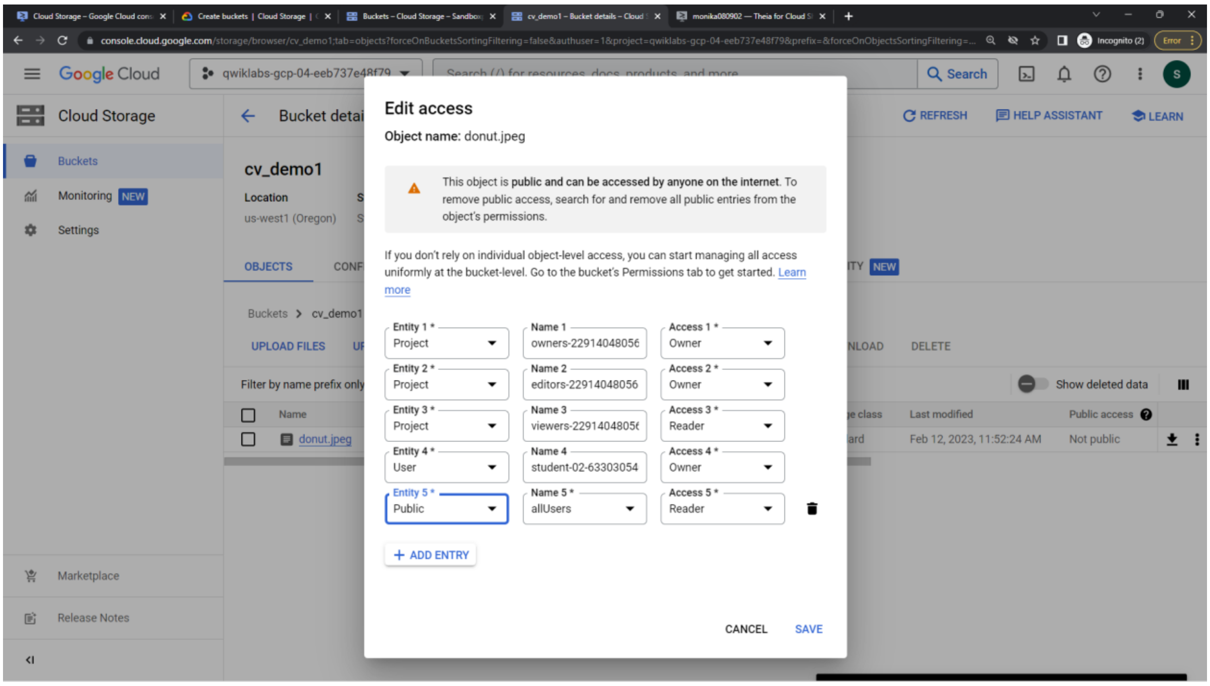
□	Name	Size	Type	Created	Storage class	Last modified	Public access	Version history	Encryption	Retention expiration date	Holds
□	donuts.png	236.6 KB	image/png	Jan 7, 2022, 5:11:04...	Standard	Jan 7, 2022, 5:11:04 ...	Not public	–	Google-managed key	–	None

4. Click **Add entry** then enter the following:

Entity: Public

Name: allUsers

Access: Reader



Edit access

Object name: donut.jpeg

This object is **public and can be accessed by anyone on the internet**. To remove public access, search for and remove all public entries from the object's permissions.

If you don't rely on individual object-level access, you can start managing all access uniformly at the bucket-level. Go to the bucket's Permissions tab to get started. Learn more

Entity 1 *: Project	Name 1: owners-22914048056	Access 1 *: Owner
Entity 2 *: Project	Name 2: editors-22914048056	Access 2 *: Owner
Entity 3 *: Project	Name 3: viewers-2291404805(	Access 3 *: Reader
Entity 4 *: User	Name 4: student-02-63303054	Access 4 *: Owner
Entity 5 *: Public	Name 5 *: allUsers	Access 5 *: Reader

5.click save

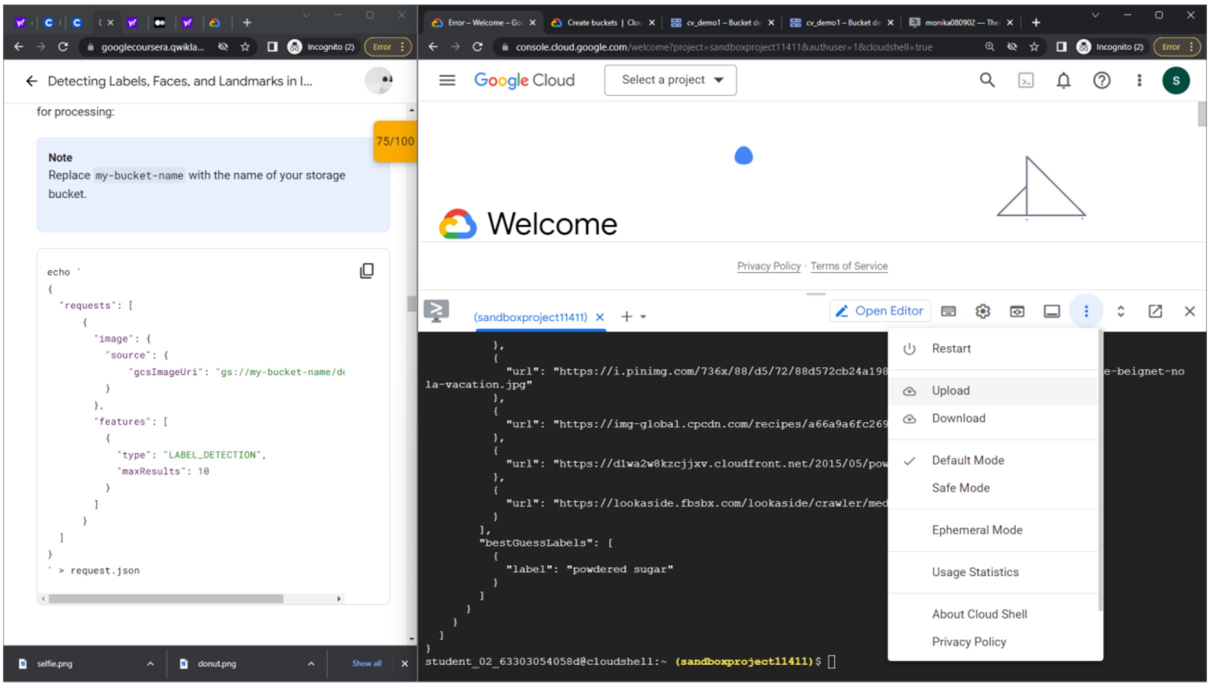
Task 3. Create your Vision API request

Now you create a request.json(maybe on notepad or something) file in the Cloud Shell environment.

Note
Replace my-bucket-name with the name of your storage bucket.

```
{
 "requests": [
   {
     "image": {
      "source": {
         "gcsImageUri": "gs://my-bucket-name/donuts.png"
      }
     },
      "features": [
        {
          "type": "LABEL_DETECTION",
          "maxResults": 10
        }
      ]
    }
  ]
}
```

Upload json file:

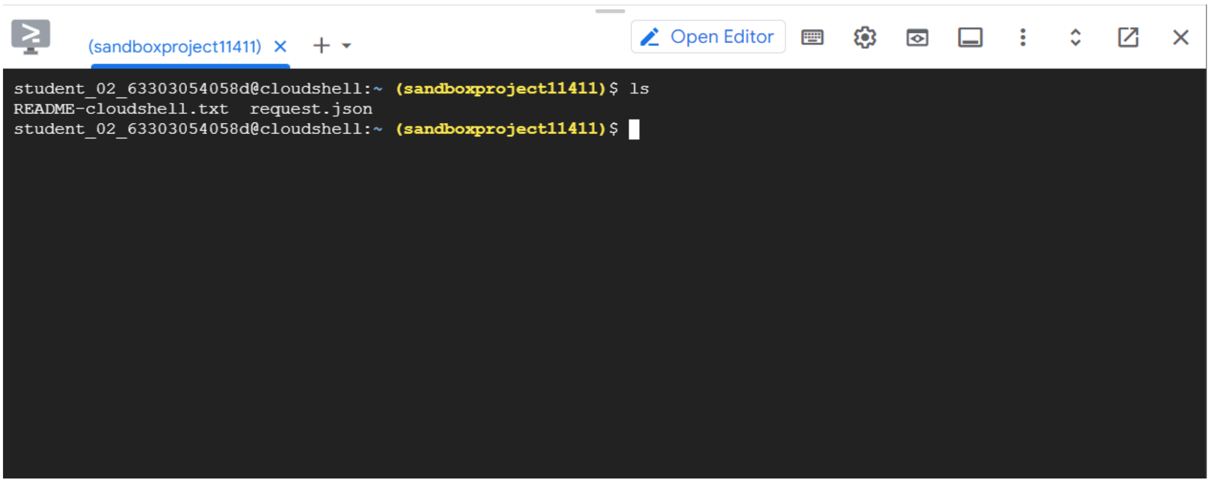


for processing:

Note
Replace `my-bucket-name` with the name of your storage bucket.

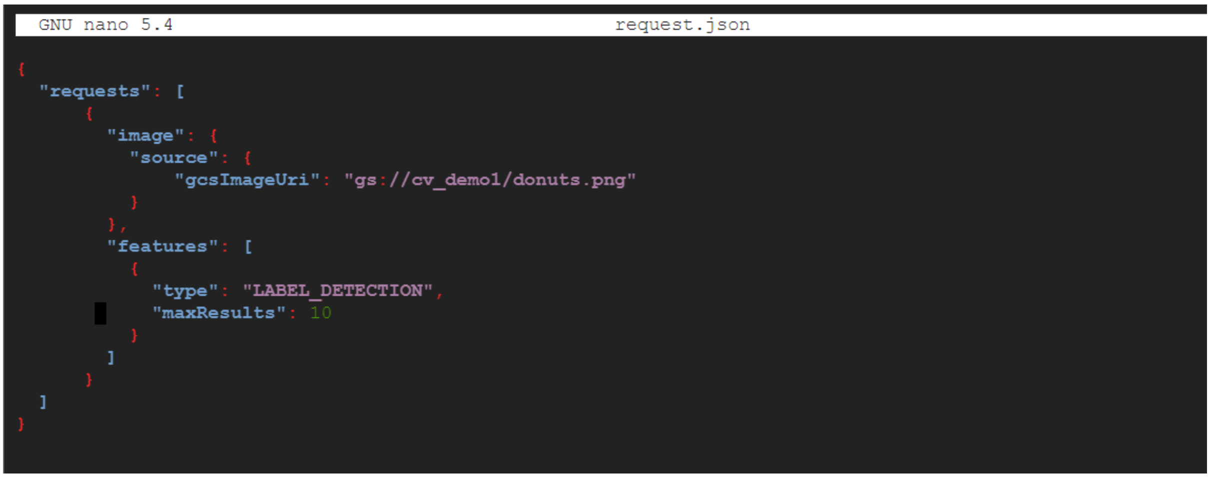
```
echo '
{
  "requests": [
      {
        "image": {
          "source": {
              "gcsImageUri": "gs://my-bucket-name/d
          }
        },
        "features": [
          {
            "type": "LABEL_DETECTION",
            "maxResults": 10
          }
        ]
      }
  ]
}
' > request.json
```

```
          },
          {
            "url": "https://i.pinimg.com/736x/88/d5/72/88d572cb24a198                    e-beignet-no
la-vacation.jpg"
          },
          {
            "url": "https://img-global.cpcdn.com/recipes/a66a9a6fc269
          },
          {
            "url": "https://d1wa2w8kzcjjxv.cloudfront.net/2015/05/pow
          },
          {
            "url": "https://lookaside.fbsbx.com/lookaside/crawler/med
          }
        ],
        "bestGuessLabels": [
          {
            "label": "powdered sugar"
          }
        ]
      }
    }
  ]
}
student_02_63303054058d@cloudshell:~ (sandboxproject11411)$ 
```



```
student_02_63303054058d@cloudshell:~ (sandboxproject11411)$ ls
README-cloudshell.txt  request.json
student_02_63303054058d@cloudshell:~ (sandboxproject11411)$
```

Using nano to display content in request.json:



```
  GNU nano 5.4                                    request.json

{
  "requests": [
      {
        "image": {
          "source": {
              "gcsImageUri": "gs://cv_demo1/donuts.png"
          }
        },
        "features": [
          {
            "type": "LABEL_DETECTION",
            "maxResults": 10
          }
        ]
      }
  ]
}
```

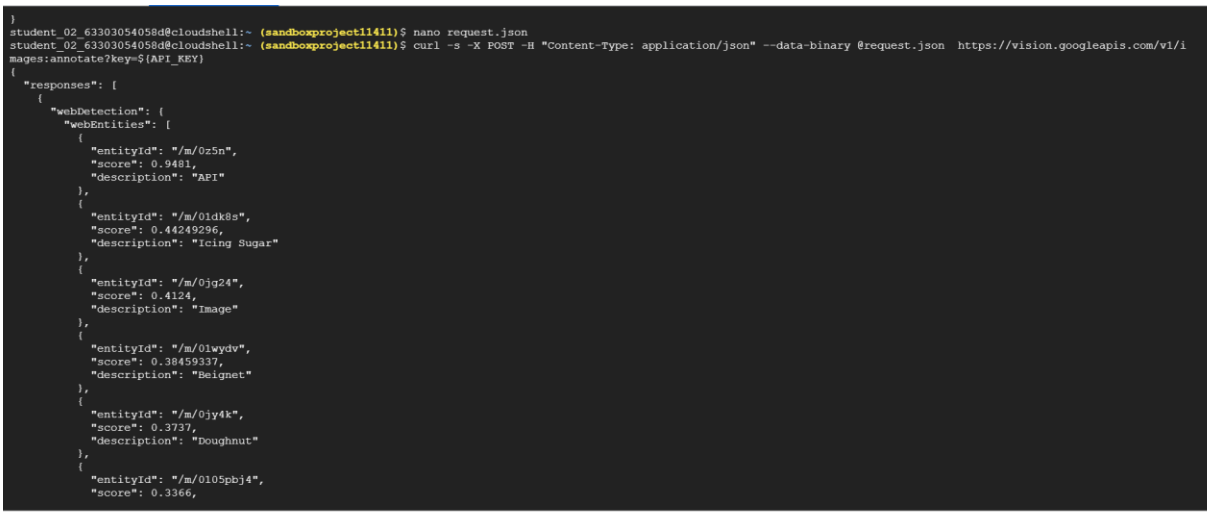
Task 4. Label Detection

The first Cloud Vision API feature you try out is label detection. This method returns a list of labels (words) of what's in your image.

Call the Vision API with curl:[copy paste this cmd]

```
curl -s -X POST -H "Content-Type: application/json" --data-binary
@request.json
https://vision.googleapis.com/v1/images:annotate?key=${API_KEY}
```

Output:



```
}
student_02_63303054058d@cloudshell:~ (sandboxproject11411)$ nano request.json
student_02_63303054058d@cloudshell:~ (sandboxproject11411)$ curl -s -X POST -H "Content-Type: application/json" --data-binary @request.json  https://vision.googleapis.com/v1/i
mages:annotate?key=${API_KEY}
{
  "responses": [
    {
      "webDetection": {
        "webEntities": [
          {
            "entityId": "/m/0z5n",
            "score": 0.9481,
            "description": "API"
          },
          {
            "entityId": "/m/01dk8s",
            "score": 0.44249296,
            "description": "Icing Sugar"
          },
          {
            "entityId": "/m/0jg24",
            "score": 0.4124,
            "description": "Image"
          },
          {
            "entityId": "/m/01wydv",
            "score": 0.38459337,
            "description": "Beignet"
          },
          {
            "entityId": "/m/0jy4k",
            "score": 0.3737,
            "description": "Doughnut"
          },
          {
            "entityId": "/m/0105pbj4",
            "score": 0.3366,
```

Task 5. Web Detection

- A list of entities found in your image, based on content from pages with similar images
- URLs of exact and partial matching images found across the web, along with the URLs of those pages
- URLs of similar images, like doing a reverse image search

1.Under the features list, change type from LABEL_DETECTION to WEB_DETECTION. The request.json should now look like this:

Note

Replace my-bucket-name with the name of your storage bucket.

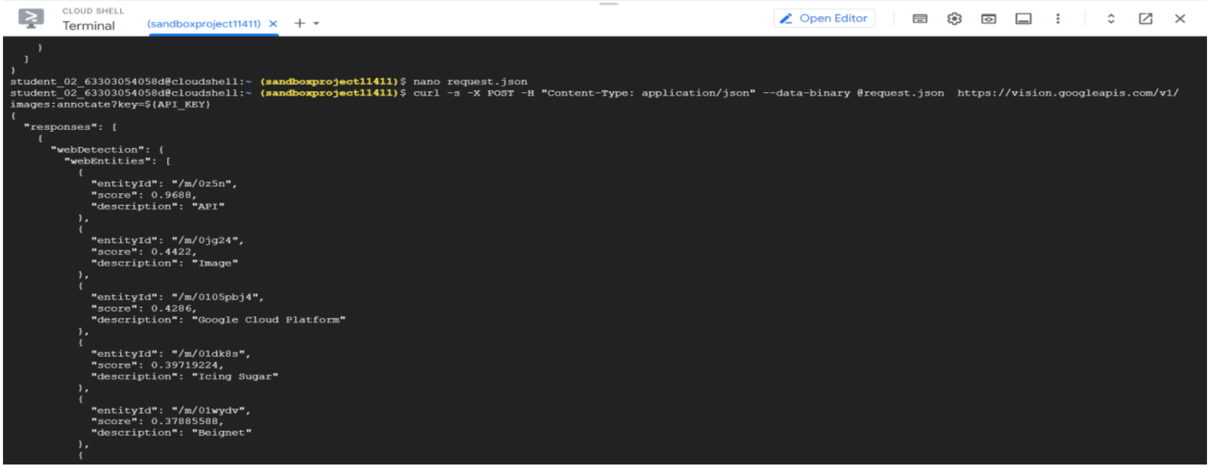
```
{
 "requests": [
   {
    "image": {
     "source": {
        "gcsImageUri": "gs://my-bucket-name/donuts.png"
     }
```

```
      },
      "features": [
       {
         "type": "WEB_DETECTION",
         "maxResults": 10
       }
      ]
     }
  ]
}
```

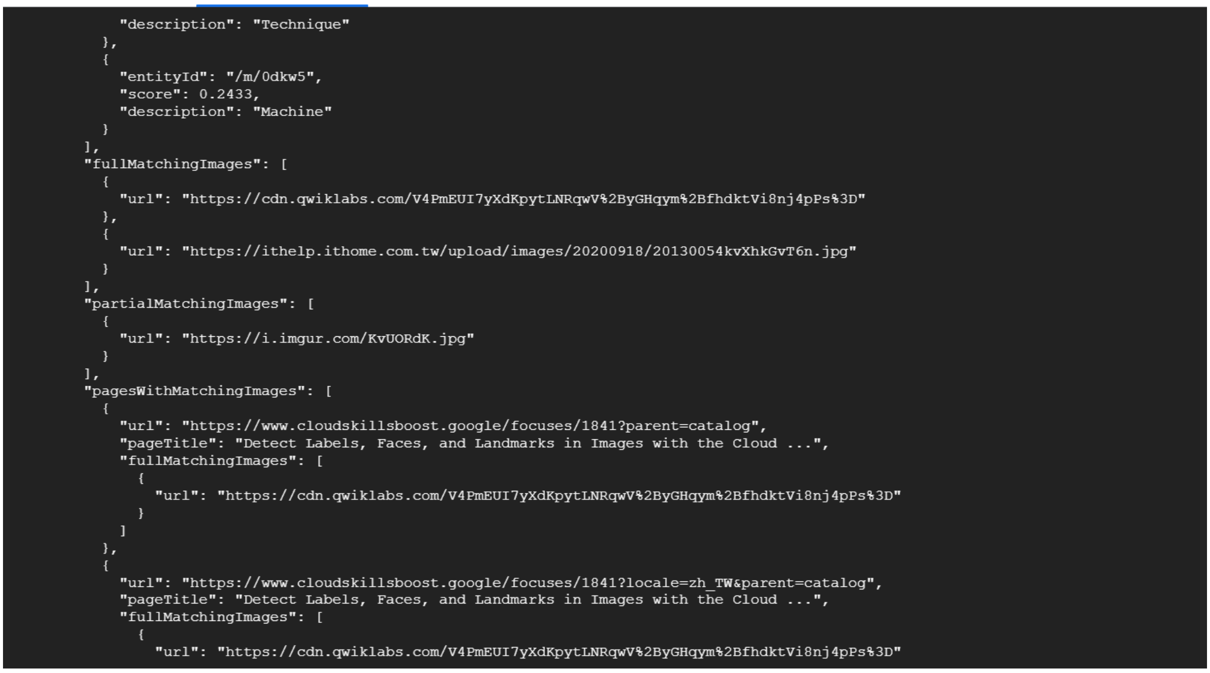
2. To send it to the Vision API, use the same curl command as before (just press the up arrow in Cloud Shell):

```
curl -s -X POST -H "Content-Type: application/json" --data-binary
@request.json
https://vision.googleapis.com/v1/images:annotate?key=${API_KEY}
```

Output:



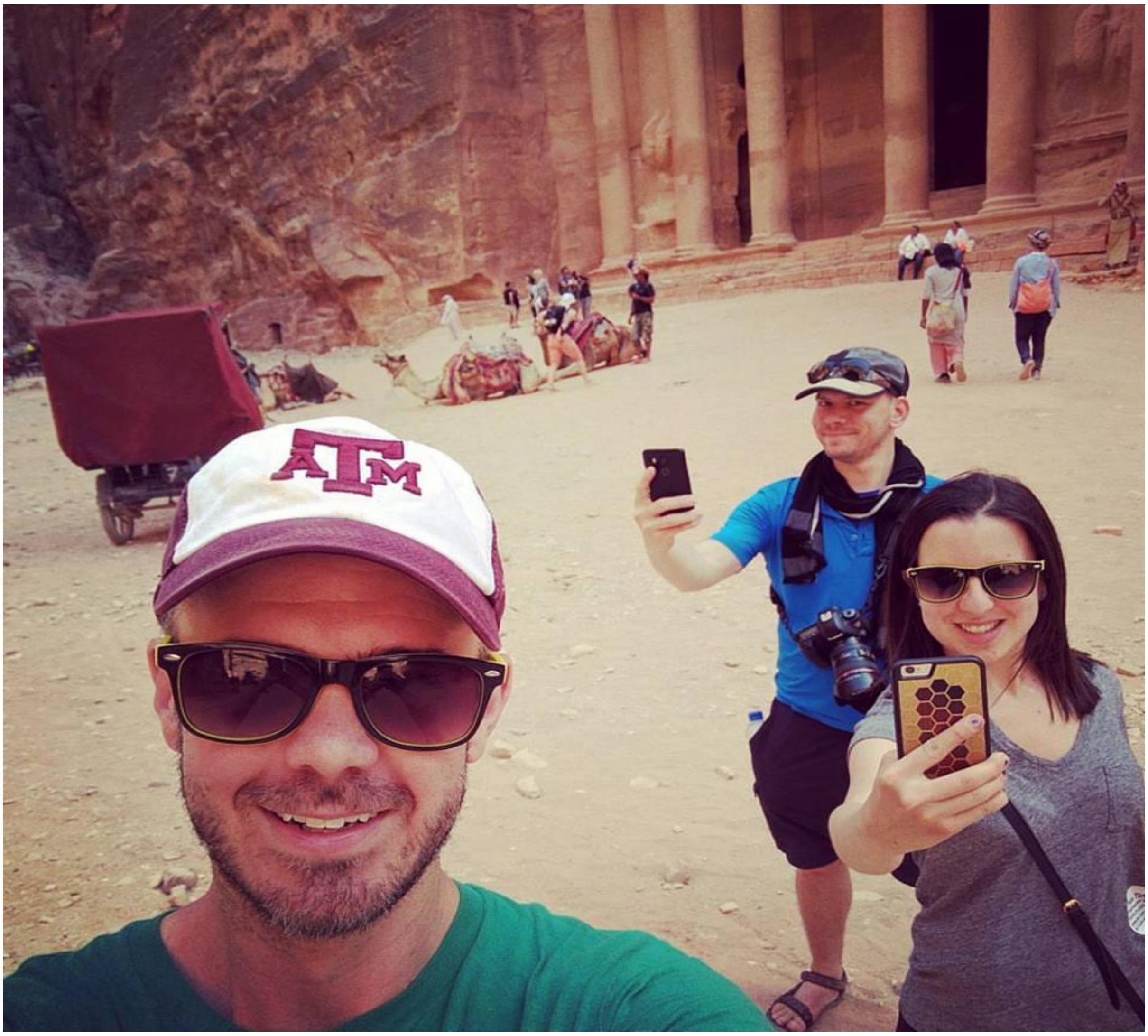
```
    }
  ]
}
student_02_63303054058d@cloudshell:~ (sandboxproject11411)$ nano request.json
student_02_63303054058d@cloudshell:~ (sandboxproject11411)$ curl -s -X POST -H "Content-Type: application/json" --data-binary @request.json  https://vision.googleapis.com/v1/
images:annotate?key=${API_KEY}
{
  "responses": [
    {
      "webDetection": {
        "webEntities": [
          {
            "entityId": "/m/0z5n",
            "score": 0.9688,
            "description": "API"
          },
          {
            "entityId": "/m/0jg24",
            "score": 0.4422,
            "description": "Image"
          },
          {
            "entityId": "/m/0105pbj4",
            "score": 0.4286,
            "description": "Google Cloud Platform"
          },
          {
            "entityId": "/m/01dk8s",
            "score": 0.39719224,
            "description": "Icing Sugar"
          },
          {
            "entityId": "/m/01wydv",
            "score": 0.37885588,
            "description": "Beignet"
          },
          {
```



```
            "description": "Technique"
          },
          {
            "entityId": "/m/0dkw5",
            "score": 0.2433,
            "description": "Machine"
          }
        ],
        "fullMatchingImages": [
          {
            "url": "https://cdn.qwiklabs.com/V4PmEUI7yXdKpytLNRqwV%2ByGHqym%2BfhdktVi8nj4pPs%3D"
          },
          {
            "url": "https://ithelp.ithome.com.tw/upload/images/20200918/20130054kvXhkGvT6n.jpg"
          }
        ],
        "partialMatchingImages": [
          {
            "url": "https://i.imgur.com/KvUORdK.jpg"
          }
        ],
        "pagesWithMatchingImages": [
          {
            "url": "https://www.cloudskillsboost.google/focuses/1841?parent=catalog",
            "pageTitle": "Detect Labels, Faces, and Landmarks in Images with the Cloud ...",
            "fullMatchingImages": [
              {
                "url": "https://cdn.qwiklabs.com/V4PmEUI7yXdKpytLNRqwV%2ByGHqym%2BfhdktVi8nj4pPs%3D"
              }
            ]
          },
          {
            "url": "https://www.cloudskillsboost.google/focuses/1841?locale=zh_TW&parent=catalog",
            "pageTitle": "Detect Labels, Faces, and Landmarks in Images with the Cloud ...",
            "fullMatchingImages": [
              {
                "url": "https://cdn.qwiklabs.com/V4PmEUI7yXdKpytLNRqwV%2ByGHqym%2BfhdktVi8nj4pPs%3D"
```

Task6. Face detection:

1. Right click on the following image, then click **Save image as** and save it to your computer as **selfie.png**.



2.Now upload it to your Cloud Storage bucket the same way you did before, and make it public.

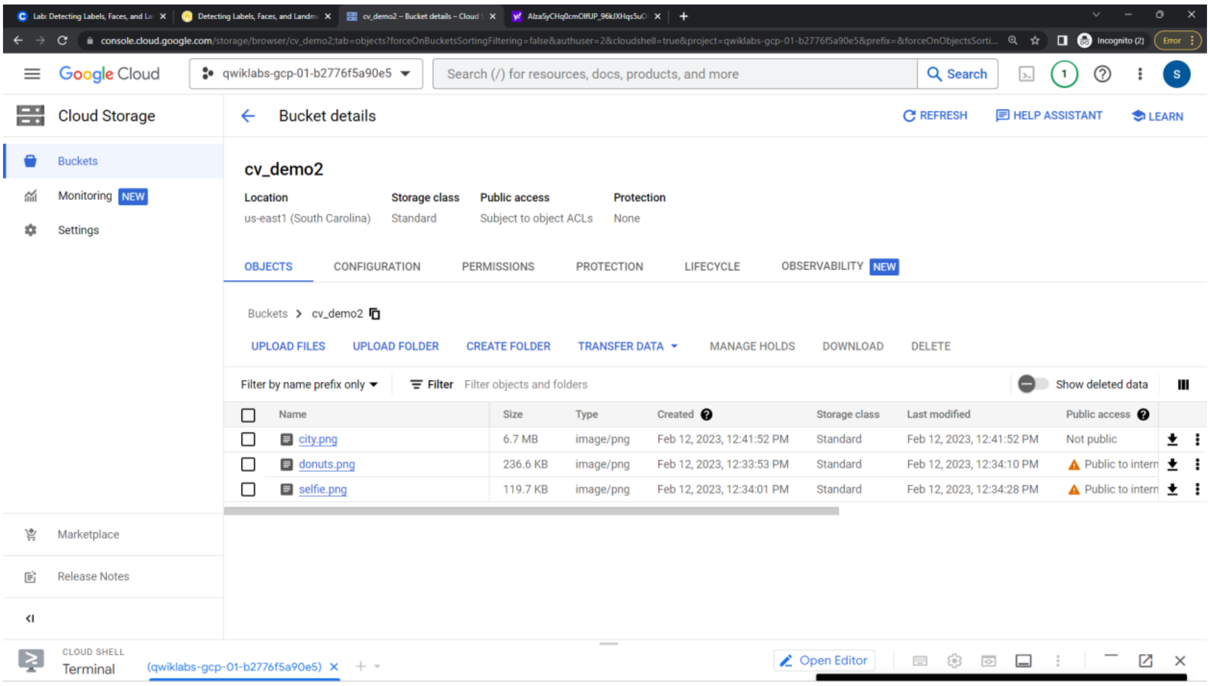
Update request file:

3. Edit the request.json file as follows:[Replace my-bucket-name with your bucket name]

[use nano request.json to edit the file].

```
{
  "requests": [
      {
        "image": {
          "source": {
              "gcsImageUri": "gs://my-bucket-name/selfie.png"
          }
        },
        "features": [
          {
            "type": "FACE_DETECTION"
          },
          {
            "type": "LANDMARK_DETECTION"
          }
        ]
      }
  ]
}
```

4.After editing press ctrl+o and ctrl+x



cv_demo2

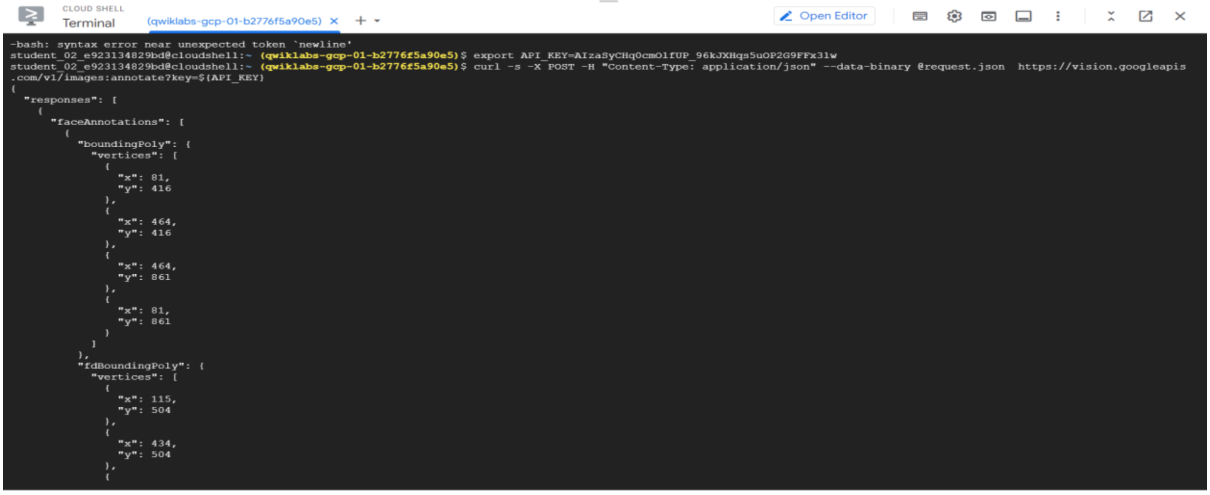
Location	Storage class	Public access	Protection
us-east1 (South Carolina)	Standard	Subject to object ACLs	None

	Name	Size	Type	Created	Storage class	Last modified	Public access
□	city.png	6.7 MB	image/png	Feb 12, 2023, 12:41:52 PM	Standard	Feb 12, 2023, 12:41:52 PM	Not public
□	donuts.png	236.6 KB	image/png	Feb 12, 2023, 12:33:53 PM	Standard	Feb 12, 2023, 12:34:10 PM	Public to intern
□	selfie.png	119.7 KB	image/png	Feb 12, 2023, 12:34:01 PM	Standard	Feb 12, 2023, 12:34:28 PM	Public to intern

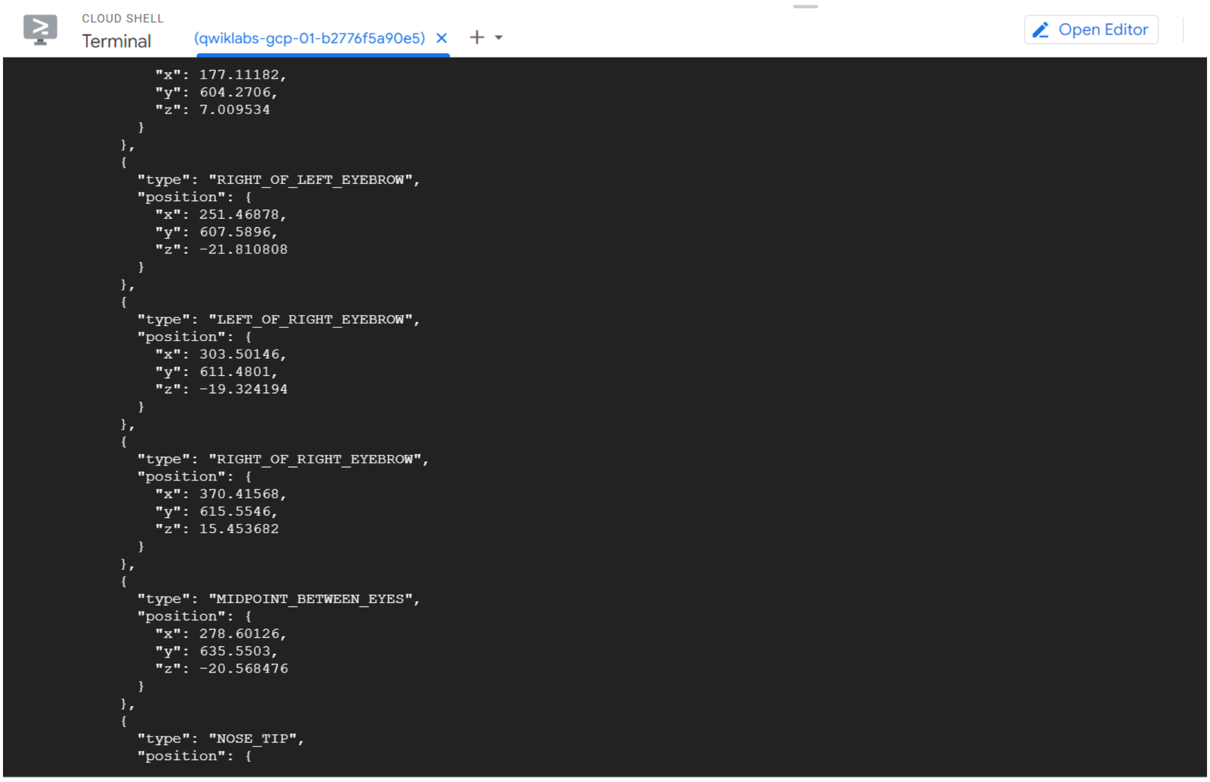
Task 7. Call the Vision API and parse the response

```
curl -s -X POST -H "Content-Type: application/json" --data-binary
@request.json
https://vision.googleapis.com/v1/images:annotate?key=${API_KEY}
```

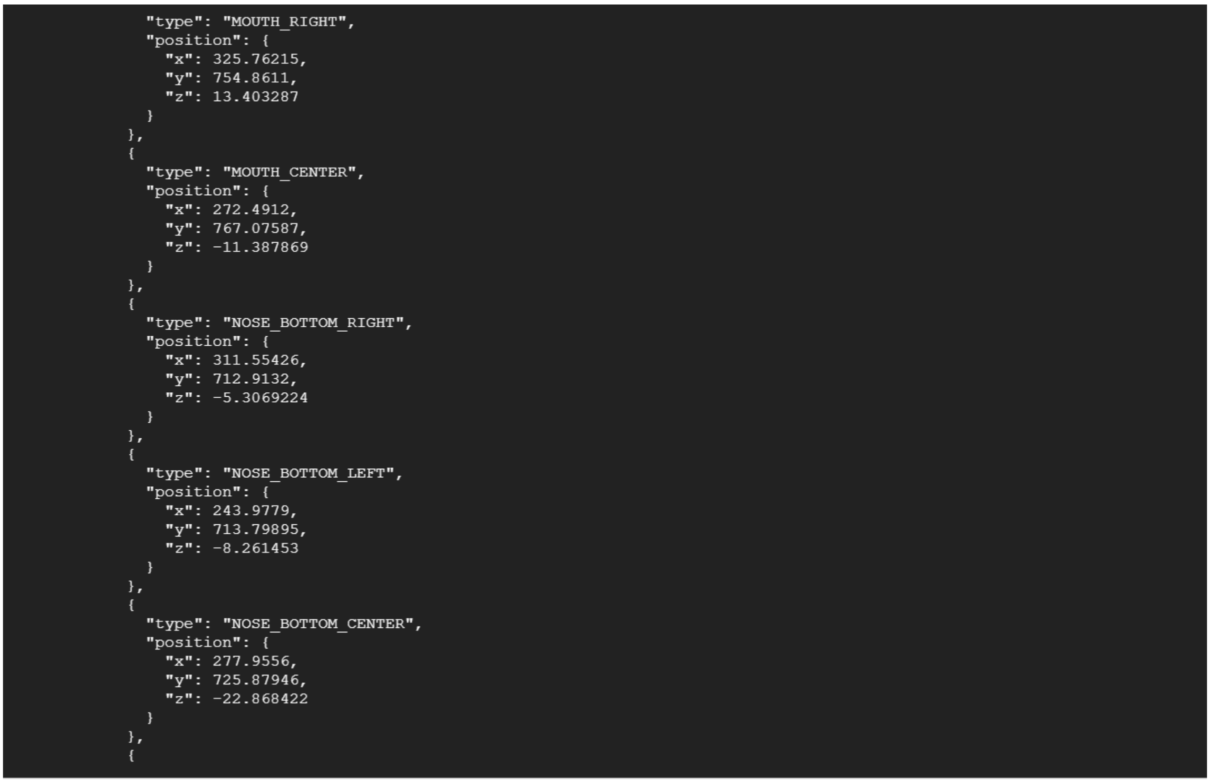
Output:



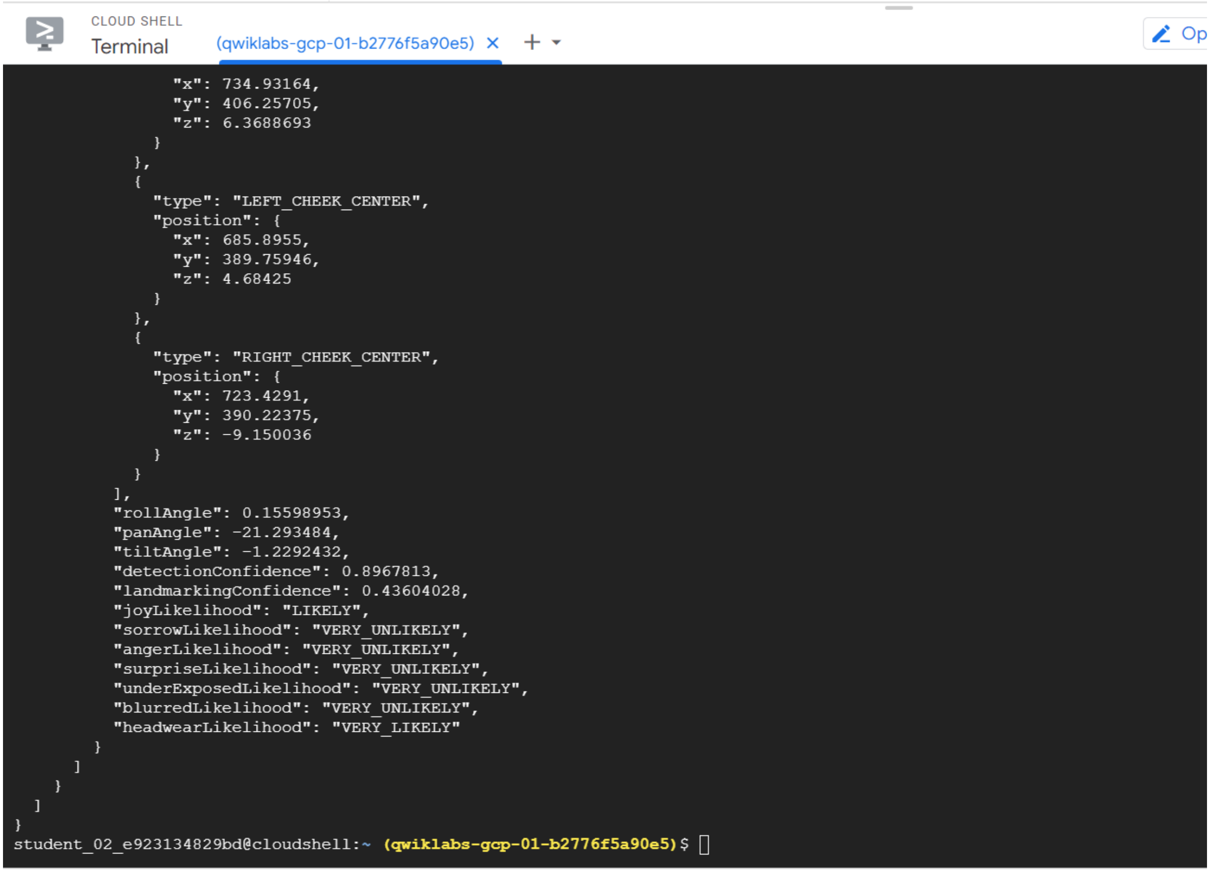
```
-bash: syntax error near unexpected token `newline'
student_02_e923134829bd@cloudshell:~ (qwiklabs-gcp-01-b2776f5a90e5)$ export API_KEY=AIzaSyCHq0cmOlfUP_96kJXHqs5uOP2G9FFx3lw
student_02_e923134829bd@cloudshell:~ (qwiklabs-gcp-01-b2776f5a90e5)$ curl -s -X POST -H "Content-Type: application/json" --data-binary @request.json  https://vision.googleapis
.com/v1/images:annotate?key=${API_KEY}
{
  "responses": [
    {
      "faceAnnotations": [
        {
          "boundingPoly": {
            "vertices": [
              {
                "x": 81,
                "y": 416
              },
              {
                "x": 464,
                "y": 416
              },
              {
                "x": 464,
                "y": 861
              },
              {
                "x": 81,
                "y": 861
              }
            ]
          },
          "fdBoundingPoly": {
            "vertices": [
              {
                "x": 115,
                "y": 504
              },
              {
                "x": 434,
                "y": 504
              },
              {
```



```
                "x": 177.11182,
                "y": 604.2706,
                "z": 7.009534
              }
            },
            {
              "type": "RIGHT_OF_LEFT_EYEBROW",
              "position": {
                "x": 251.46878,
                "y": 607.5896,
                "z": -21.810808
              }
            },
            {
              "type": "LEFT_OF_RIGHT_EYEBROW",
              "position": {
                "x": 303.50146,
                "y": 611.4801,
                "z": -19.324194
              }
            },
            {
              "type": "RIGHT_OF_RIGHT_EYEBROW",
              "position": {
                "x": 370.41568,
                "y": 615.5546,
                "z": 15.453682
              }
            },
            {
              "type": "MIDPOINT_BETWEEN_EYES",
              "position": {
                "x": 278.60126,
                "y": 635.5503,
                "z": -20.568476
              }
            },
            {
              "type": "NOSE_TIP",
              "position": {
```



```
              "type": "MOUTH_RIGHT",
              "position": {
                "x": 325.76215,
                "y": 754.8611,
                "z": 13.403287
              }
            },
            {
              "type": "MOUTH_CENTER",
              "position": {
                "x": 272.4912,
                "y": 767.07587,
                "z": -11.387869
              }
            },
            {
              "type": "NOSE_BOTTOM_RIGHT",
              "position": {
                "x": 311.55426,
                "y": 712.9132,
                "z": -5.3069224
              }
            },
            {
              "type": "NOSE_BOTTOM_LEFT",
              "position": {
                "x": 243.9779,
                "y": 713.79895,
                "z": -8.261453
              }
            },
            {
              "type": "NOSE_BOTTOM_CENTER",
              "position": {
                "x": 277.9556,
                "y": 725.87946,
                "z": -22.868422
              }
            },
            {
```

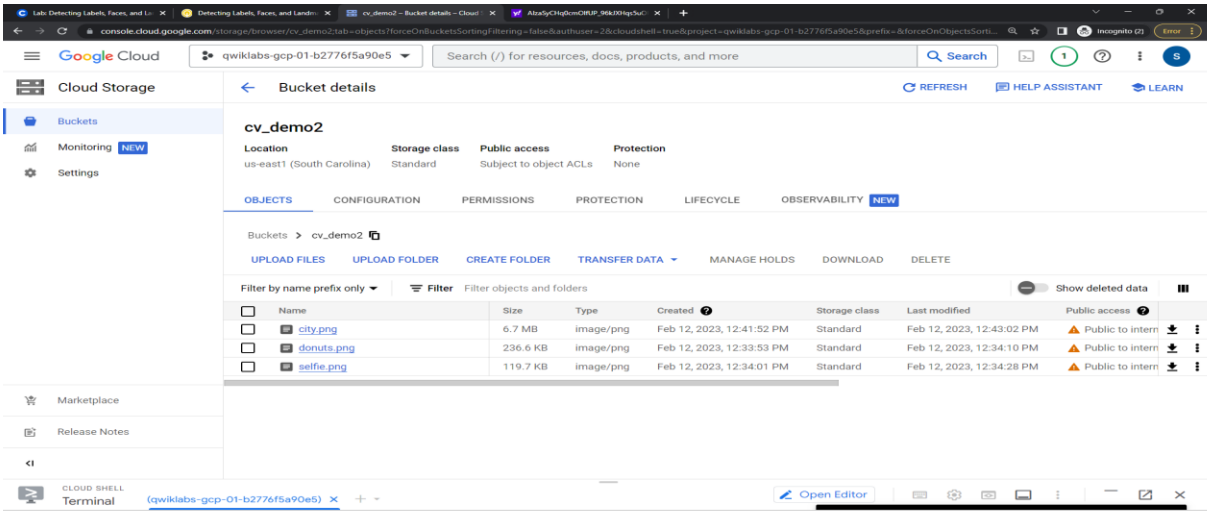


```
                "x": 734.93164,
                "y": 406.25705,
                "z": 6.3688693
              }
            },
            {
              "type": "LEFT_CHEEK_CENTER",
              "position": {
                "x": 685.8955,
                "y": 389.75946,
                "z": 4.68425
              }
            },
            {
              "type": "RIGHT_CHEEK_CENTER",
              "position": {
                "x": 723.4291,
                "y": 390.22375,
                "z": -9.150036
              }
            }
          ],
          "rollAngle": 0.15598953,
          "panAngle": -21.293484,
          "tiltAngle": -1.2292432,
          "detectionConfidence": 0.8967813,
          "landmarkingConfidence": 0.43604028,
          "joyLikelihood": "LIKELY",
          "sorrowLikelihood": "VERY_UNLIKELY",
          "angerLikelihood": "VERY_UNLIKELY",
          "surpriseLikelihood": "VERY_UNLIKELY",
          "underExposedLikelihood": "VERY_UNLIKELY",
          "blurredLikelihood": "VERY_UNLIKELY",
          "headwearLikelihood": "VERY_LIKELY"
        }
      ]
    }
  ]
}
student_02_e923134829bd@cloudshell:~ (qwiklabs-gcp-01-b2776f5a90e5)$
```

Task 8. Landmark Annotation

Landmark detection can identify common (and obscure) landmarks. It returns the name of the landmark, its latitude and longitude coordinates, and the location of where the landmark was identified in an image

1. 1. Right click on the following image, then click **Save image as** and save it to your computer as **city.png**.
2. Now upload it to your Cloud Storage bucket the same way you did before, and make it public.



cv_demo2

Location	Storage class	Public access	Protection
us-east1 (South Carolina)	Standard	Subject to object ACLs	None

Buckets > cv_demo2

Name	Size	Type	Created	Storage class	Last modified	Public access
city.png	6.7 MB	image/png	Feb 12, 2023, 12:41:52 PM	Standard	Feb 12, 2023, 12:43:02 PM	Public to intern
donuts.png	236.6 KB	image/png	Feb 12, 2023, 12:33:53 PM	Standard	Feb 12, 2023, 12:34:10 PM	Public to intern
selfie.png	119.7 KB	image/png	Feb 12, 2023, 12:34:01 PM	Standard	Feb 12, 2023, 12:34:28 PM	Public to intern

3. Edit the request.json file as follows:[Replace my-bucket-name with your bucket name]

[use nano request.json to edit the file].

```
{
  "requests": [
    {
      "image": {
        "source": {
            "gcsImageUri": "gs://my-bucket-name/city.png"
        }
      },
      "features": [
        {
          "type": "LANDMARK_DETECTION",
          "maxResults": 10
        }
      ]
    }
  ]
}
```

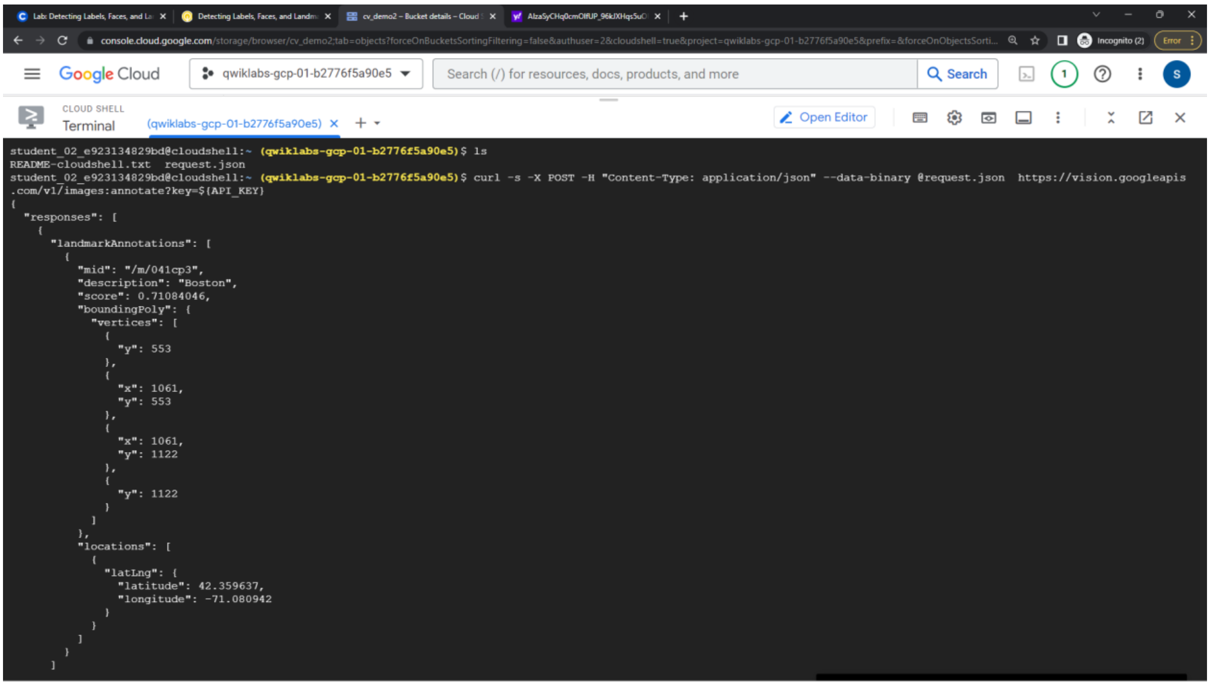
After editing press ctrl+o and ctrl+x

Task 9. Call the Vision API and parse the response

Paste this command on terminal :

curl -s -X POST -H "Content-Type: application/json" --data-binary @request.json https://vision.googleapis.com/v1/images:annotate?key=${API_KEY}

Output :


Lab: Detecting Labels, Faces, and La
Detecting Labels, Faces, and Landm
cv_demo2 – Bucket details – Cloud
AIzaSyCHq0cmOlfUP_96kJXHqs5uO
console.cloud.google.com/storage/browser/cv_demo2;tab=objects?forceOnBucketsSortingFiltering=false&authuser=2&cloudshell=true&project=qwiklabs-gcp-01-b2776f5a90e5&prefix=&forceOnObjectsSorti...
Incognito (2)
Error
Google Cloud
qwiklabs-gcp-01-b2776f5a90e5
Search (/) for resources, docs, products, and more
Search
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-b2776f5a90e5)
Open Editor

```
student_02_e923134829bd@cloudshell:~ (qwiklabs-gcp-01-b2776f5a90e5)$ ls
README-cloudshell.txt  request.json
student_02_e923134829bd@cloudshell:~ (qwiklabs-gcp-01-b2776f5a90e5)$ curl -s -X POST -H "Content-Type: application/json" --data-binary @request.json  https://vision.googleapis
.com/v1/images:annotate?key=${API_KEY}
{
  "responses": [
    {
      "landmarkAnnotations": [
        {
          "mid": "/m/041cp3",
          "description": "Boston",
          "score": 0.71084046,
          "boundingPoly": {
            "vertices": [
              {
                "y": 553
              },
              {
                "x": 1061,
                "y": 553
              },
              {
                "x": 1061,
                "y": 1122
              },
              {
                "y": 1122
              }
            ]
          },
          "locations": [
            {
              "latLng": {
                "latitude": 42.359637,
                "longitude": -71.080942
              }
            }
          ]
        }
      ]
```