C. ABDUL HAKEEM COLLEGE OF ENGINEERING
AND TECHNOLOGY

NAAN MUDHALVAN PROJECT

REPORT

NM1068 - CLOUD ENGINEERING

நான்
முதல்வன்
உலகை வெல்லும் இளைய தமிழகம்

C. ABDUL HAKEEM COLLEGE OF ENGINEERING AND TECHNOLOGY

Hakeem Nagar, Melvisharam - 632 509, Ranipet District, Tamil Nadu,India.
(Approved by AICTE, New Delhi and Affiliated to Anna University,Chennai)
Regd. Under Sec 2(F) & 12(B) of the UGC Act 1956)

Name of the Candidate:

Year: III **Semester:** VI **Degree/Branch:** B.TECH/IT

Subject Name: CLOUD ENGINEERING **Subject Code:** NM1068

University Register Number:

CERTIFICATE

Certified that this is the bonafide record of work done by the above student in **NM1068– CLOUD ENGINEERING** during the year 2024 - 2025.

Signature of Head of the Department **Signature of Lab In-charge**

Submitted for the University Practical Examination held on ____________________

EXAMINERS

Date:________________________ **Centre code:** 5106

Internal:__________________________________ **External:**________________________________

INDEX

EX.NO:01	**Creating VPC, Deleting Default VPC**
DATE:	

AIM:

To create a custom Virtual Private Cloud (VPC) and delete the default VPC in Google Cloud Platform.

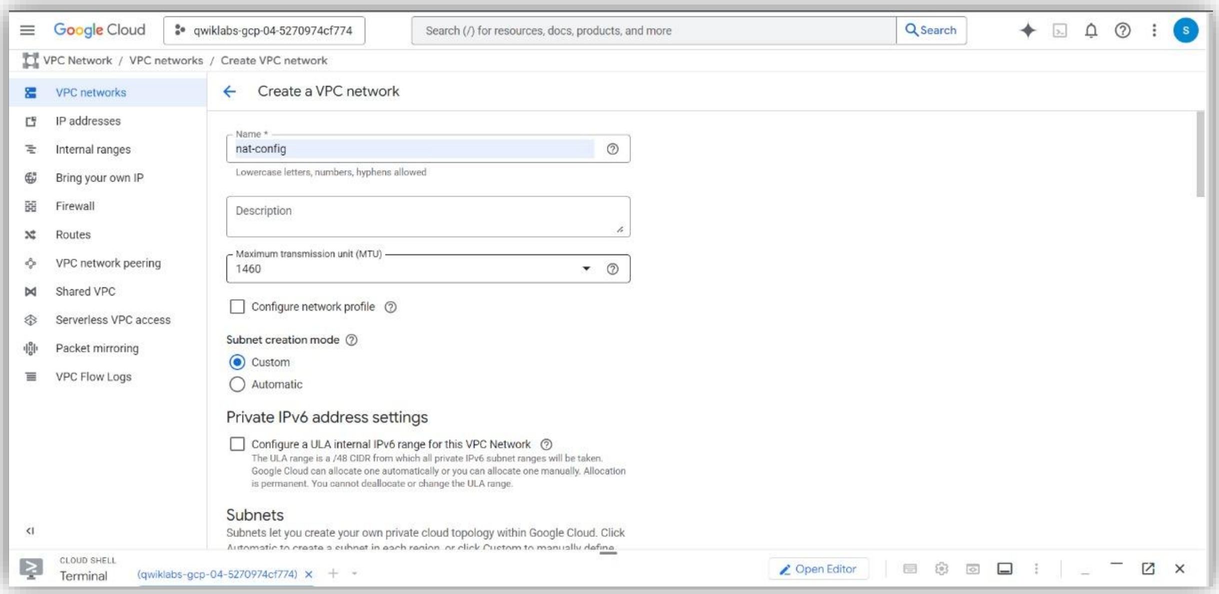
MATERIALS REQUIRED:

Google Cloud account, Internet access

PROCEDURE:

1. Open the Google Cloud Console.
2. Navigate to VPC Network > VPC networks.
3. Click Create VPC Network, add a custom subnet.
4. Save the network.
5. Locate the default VPC and click Delete.

OUTPUT:



Create a VPC network

Name *: nat-config

Lowercase letters, numbers, hyphens allowed

Description

Maximum transmission unit (MTU): 1460

□ Configure network profile

Subnet creation mode

● Custom

○ Automatic

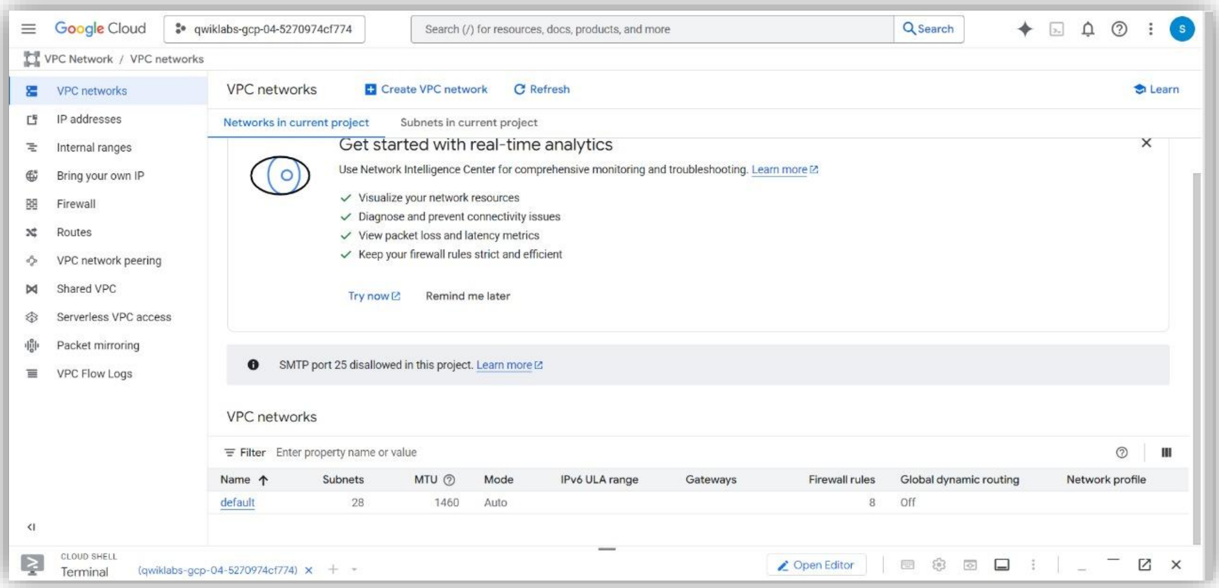
Private IPv6 address settings

□ Configure a ULA internal IPv6 range for this VPC Network

The ULA range is a /48 CIDR from which all private IPv6 subnet ranges will be taken. Google Cloud can allocate one automatically or you can allocate one manually. Allocation is permanent. You cannot deallocate or change the ULA range.

Subnets

Subnets let you create your own private cloud topology within Google Cloud. Click Automatic to create a subnet in each region, or click Custom to manually define



Get started with real-time analytics

Use Network Intelligence Center for comprehensive monitoring and troubleshooting. Learn more

- ✓ Visualize your network resources
- ✓ Diagnose and prevent connectivity issues
- ✓ View packet loss and latency metrics
- ✓ Keep your firewall rules strict and efficient

SMTP port 25 disallowed in this project. Learn more

VPC networks

Name ↑	Subnets	MTU	Mode	IPv6 ULA range	Gateways	Firewall rules	Global dynamic routing	Network profile
default	28	1460	Auto			8	Off	

RESULT:

Successfully created a custom VPC and deleted the default one.

EX.NO:02	**Exploring VM**
DATE:	

AIM:

To launch and access a virtual machine in Google Cloud.

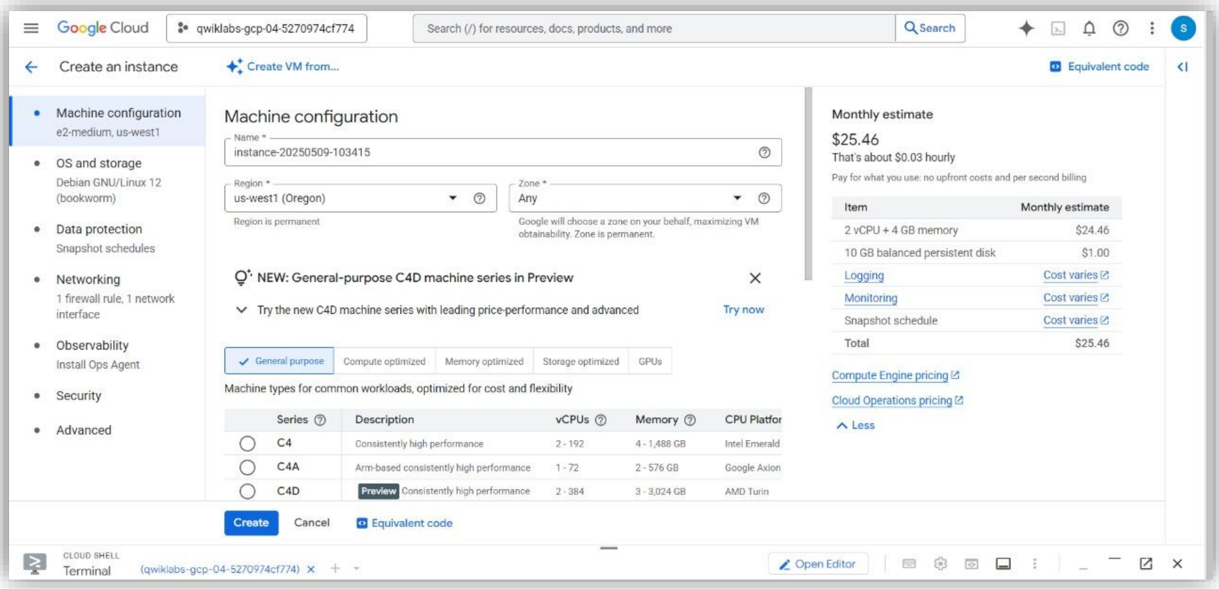
MATERIALS REQUIRED:

Google Cloud account, Internet access

PROCEDURE:

1. Go to Compute Engine > VM instances.
2. Click Create Instance, choose a region and machine type.
3. Allow HTTP/HTTPS traffic.
4. Click Create, and after provisioning, click SSH to access the VM.

OUTPUT:



Create an instance

- Machine configuration: e2-medium, us-west1
- OS and storage: Debian GNU/Linux 12 (bookworm)
- Data protection: Snapshot schedules
- Networking: 1 firewall rule, 1 network interface
- Observability: Install Ops Agent

Machine configuration

Name *: instance-20250509-103415

Region *: us-west1 (Oregon)

Region is permanent

Zone *: Any

Google will choose a zone on your behalf, maximizing VM obtainability. Zone is permanent.

NEW: General-purpose C4D machine series in Preview

Try the new C4D machine series with leading price-performance and advanced

Machine types for common workloads, optimized for cost and flexibility

	Series	Description	vCPUs	Memory	CPU Platfor
○	C4	Consistently high performance	2 - 192	4 - 1,488 GB	Intel Emerald
○	C4A	Arm-based consistently high performance	1 - 72	2 - 576 GB	Google Axion
○	C4D	Preview Consistently high performance	2 - 384	3 - 3,024 GB	AMD Turin

Monthly estimate

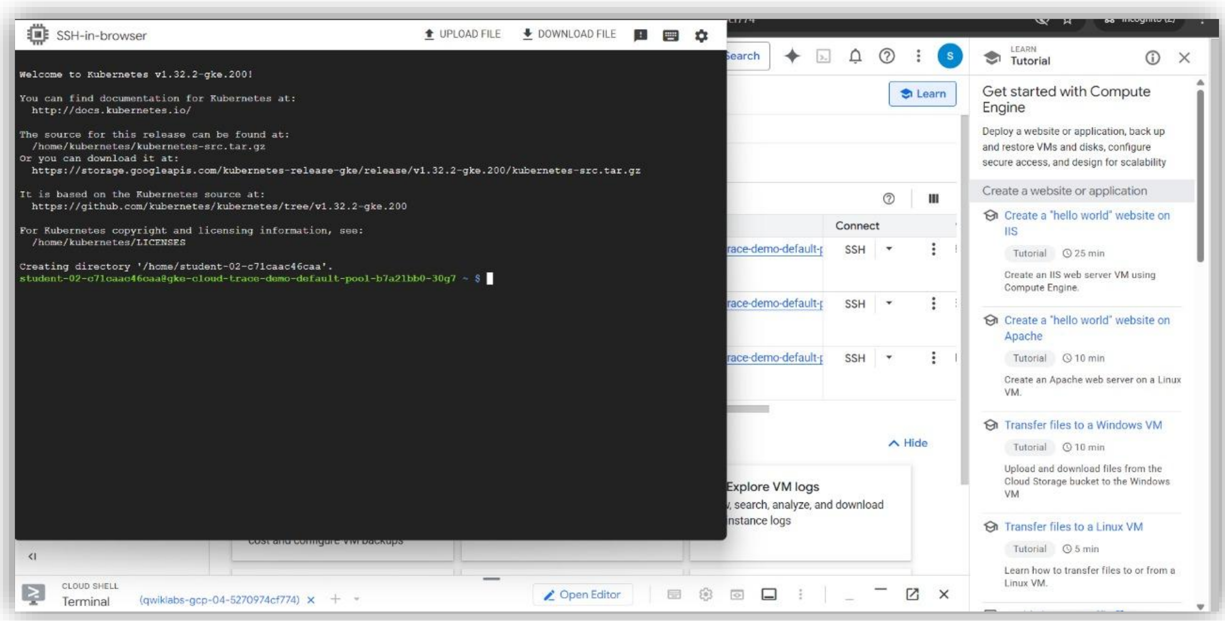
$25.46

That's about $0.03 hourly

Pay for what you use: no upfront costs and per second billing

Item	Monthly estimate
2 vCPU + 4 GB memory	$24.46
10 GB balanced persistent disk	$1.00
Logging	Cost varies
Monitoring	Cost varies
Snapshot schedule	Cost varies
Total	$25.46

(qwiklabs-gcp-04-5270974cf774)



```
Welcome to Kubernetes v1.32.2-gke.200!

You can find documentation for Kubernetes at:
  http://docs.kubernetes.io/

The source for this release can be found at:
  /home/kubernetes/kubernetes-src.tar.gz
Or you can download it at:
  https://storage.googleapis.com/kubernetes-release-gke/release/v1.32.2-gke.200/kubernetes-src.tar.gz

It is based on the Kubernetes source at:
  https://github.com/kubernetes/kubernetes/tree/v1.32.2-gke.200

For Kubernetes copyright and licensing information, see:
  /home/kubernetes/LICENSES

Creating directory '/home/student-02-c71caac46caa'.
student-02-c71caac46caa@gke-cloud-trace-demo-default-pool-b7a21bb0-30g7 ~ $
```

Explore VM logs

, search, analyze, and download instance logs

Get started with Compute Engine

Deploy a website or application, back up and restore VMs and disks, configure secure access, and design for scalability

Create a website or application

Create a "hello world" website on IIS

Tutorial 25 min

Create an IIS web server VM using Compute Engine.

Create a "hello world" website on Apache

Tutorial 10 min

Create an Apache web server on a Linux VM.

Transfer files to a Windows VM

Tutorial 10 min

Upload and download files from the Cloud Storage bucket to the Windows VM

Transfer files to a Linux VM

Tutorial 5 min

Learn how to transfer files to or from a Linux VM.

RESULT:

Successfully created and accessed a VM instance.

EX.NO:03	**Google Cloud Fundamental** **Getting Started with Cloud Marketplace**
DATE:	

AIM:

To deploy an application using Google Cloud Marketplace.

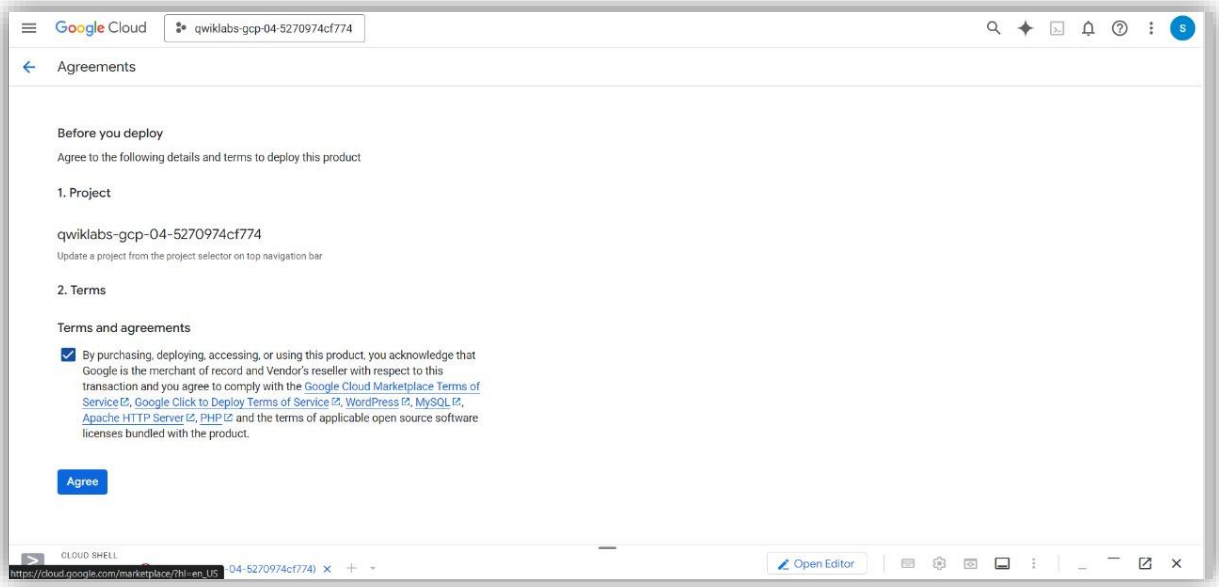
MATERIALS REQUIRED:

Google Cloud account, Internet access

PROCEDURE:

1. Navigate to Cloud Marketplace.
2. Search for WordPress or any available solution.
3. Click Launch and follow the deployment wizard.
4. Wait for the instance to be created and view the application.

OUTPUT:



Google Cloud
qwiklabs-gcp-04-5270974cf774
Agreements
Agree
CLOUD SHELL
-04-5270974cf774)
Open Editor
https://cloud.google.com/marketplace/?hl=en_US

Before you deploy

Agree to the following details and terms to deploy this product

1. Project

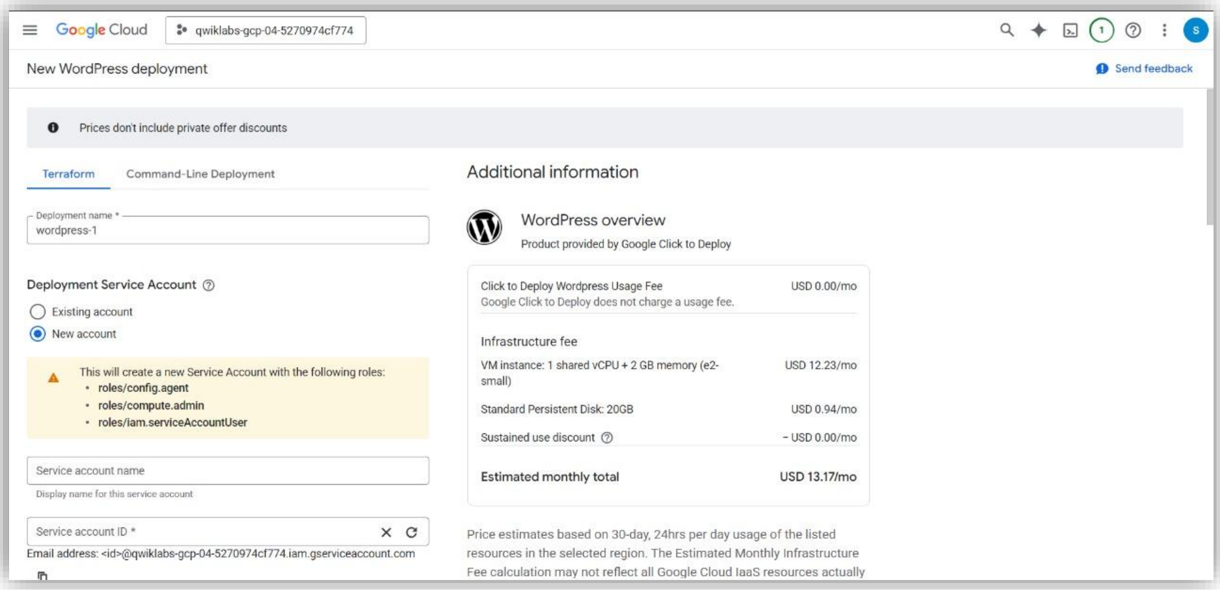
qwiklabs-gcp-04-5270974cf774

Update a project from the project selector on top navigation bar

2. Terms

Terms and agreements

☑ By purchasing, deploying, accessing, or using this product, you acknowledge that Google is the merchant of record and Vendor's reseller with respect to this transaction and you agree to comply with the Google Cloud Marketplace Terms of Service, Google Click to Deploy Terms of Service, WordPress, MySQL, Apache HTTP Server, PHP and the terms of applicable open source software licenses bundled with the product.



New WordPress deployment

Prices don't include private offer discounts

Deployment name * wordpress-1

Deployment Service Account

○ Existing account

● New account

This will create a new Service Account with the following roles:

- roles/config.agent
- roles/compute.admin
- roles/iam.serviceAccountUser

Service account name

Display name for this service account

Service account ID *

Email address: <id>@qwiklabs-gcp-04-5270974cf774.iam.gserviceaccount.com

Additional information

WordPress overview

Product provided by Google Click to Deploy

Click to Deploy Wordpress Usage Fee Google Click to Deploy does not charge a usage fee.	USD 0.00/mo
Infrastructure fee	
VM instance: 1 shared vCPU + 2 GB memory (e2-small)	USD 12.23/mo
Standard Persistent Disk: 20GB	USD 0.94/mo
Sustained use discount	- USD 0.00/mo
Estimated monthly total	USD 13.17/mo

Price estimates based on 30-day, 24hrs per day usage of the listed resources in the selected region. The Estimated Monthly Infrastructure Fee calculation may not reflect all Google Cloud IaaS resources actually

RESULT:

Successfully deployed a Marketplace application.

EX.NO:04	Getting Started with Cloud Storage and SQL
DATE:	

AIM:

To store files in Cloud Storage and manage databases using Cloud SQL.

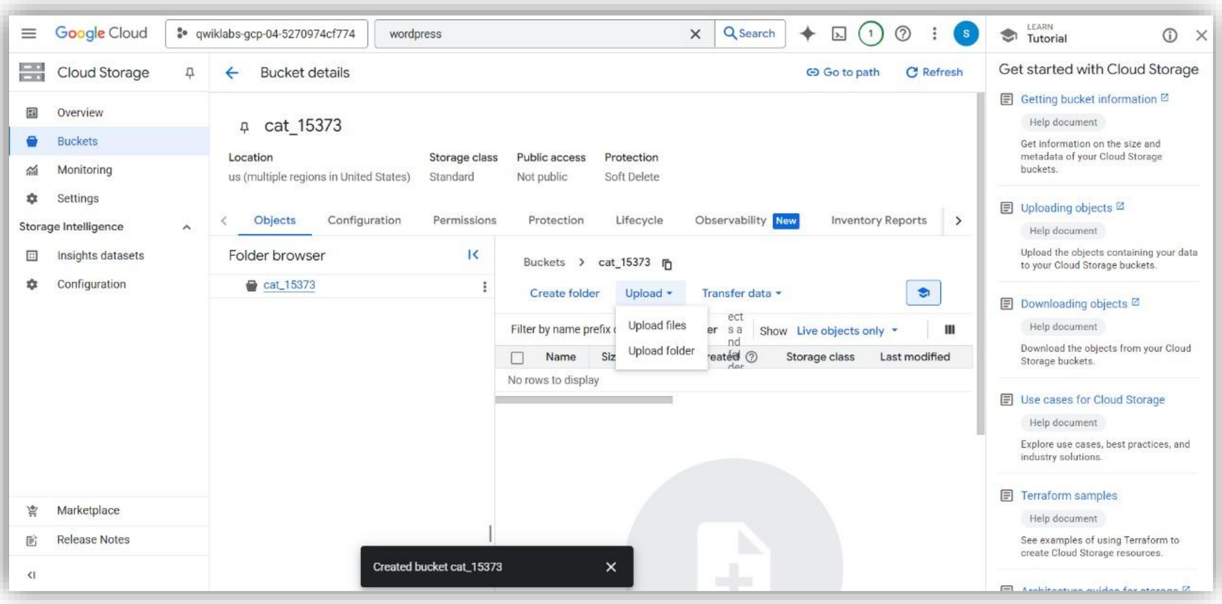
MATERIALS REQUIRED:

Google Cloud account, Internet access

PROCEDURE:

1. Cloud Storage:
2. Go to Cloud Storage > Buckets, click Create.
3. Choose a location and storage class.
4. Upload a file.
5. Go to SQL > Create Instance.
6. Select MySQL or PostgreSQL and configure settings.
7. Connect using Cloud Shell and perform basic queries.

OUTPUT:



Bucket details

cat_15373

Location	Storage class	Public access	Protection
us (multiple regions in United States)	Standard	Not public	Soft Delete

No rows to display

Created bucket cat_15373

Get started with Cloud Storage

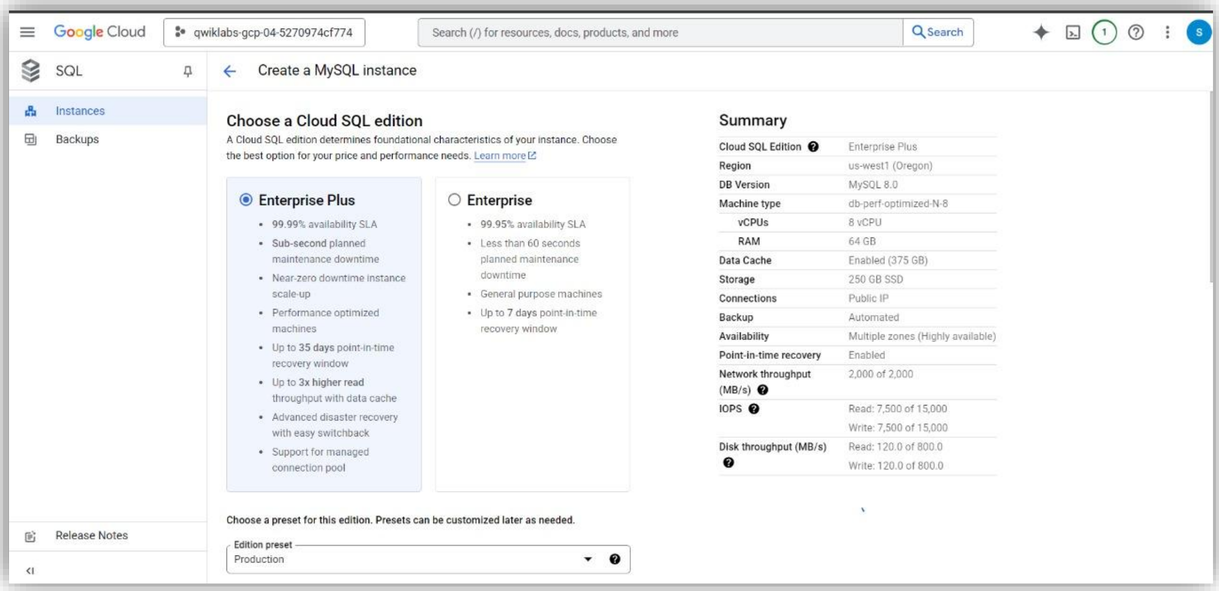
Getting bucket information
Help document
Get information on the size and metadata of your Cloud Storage buckets.

Uploading objects
Help document
Upload the objects containing your data to your Cloud Storage buckets.

Downloading objects
Help document
Download the objects from your Cloud Storage buckets.

Use cases for Cloud Storage
Help document
Explore use cases, best practices, and industry solutions.

Terraform samples
Help document
See examples of using Terraform to create Cloud Storage resources.



Google Cloud
qwiklabs-gcp-04-5270974cf774
Search (/) for resources, docs, products, and more
Search
SQL
Instances
Backups
Release Notes

Create a MySQL instance

Choose a Cloud SQL edition

A Cloud SQL edition determines foundational characteristics of your instance. Choose the best option for your price and performance needs. Learn more

● Enterprise Plus

- 99.99% availability SLA
- Sub-second planned maintenance downtime
- Near-zero downtime instance scale-up
- Performance optimized machines
- Up to 35 days point-in-time recovery window
- Up to 3x higher read throughput with data cache
- Advanced disaster recovery with easy switchback
- Support for managed connection pool

○ Enterprise

- 99.95% availability SLA
- Less than 60 seconds planned maintenance downtime
- General purpose machines
- Up to 7 days point-in-time recovery window

Choose a preset for this edition. Presets can be customized later as needed.

Edition preset: Production

Summary

Cloud SQL Edition	Enterprise Plus
Region	us-west1 (Oregon)
DB Version	MySQL 8.0
Machine type	db-perf-optimized-N-8
vCPUs	8 vCPU
RAM	64 GB
Data Cache	Enabled (375 GB)
Storage	250 GB SSD
Connections	Public IP
Backup	Automated
Availability	Multiple zones (Highly available)
Point-in-time recovery	Enabled
Network throughput (MB/s)	2,000 of 2,000
IOPS	Read: 7,500 of 15,000 Write: 7,500 of 15,000
Disk throughput (MB/s)	Read: 120.0 of 800.0 Write: 120.0 of 800.0

RESULT:

Successfully stored files and managed SQL databases.

EX.NO:05	Cloud Storage
DATE:	

AIM:

To configure advanced settings in Cloud Storage.

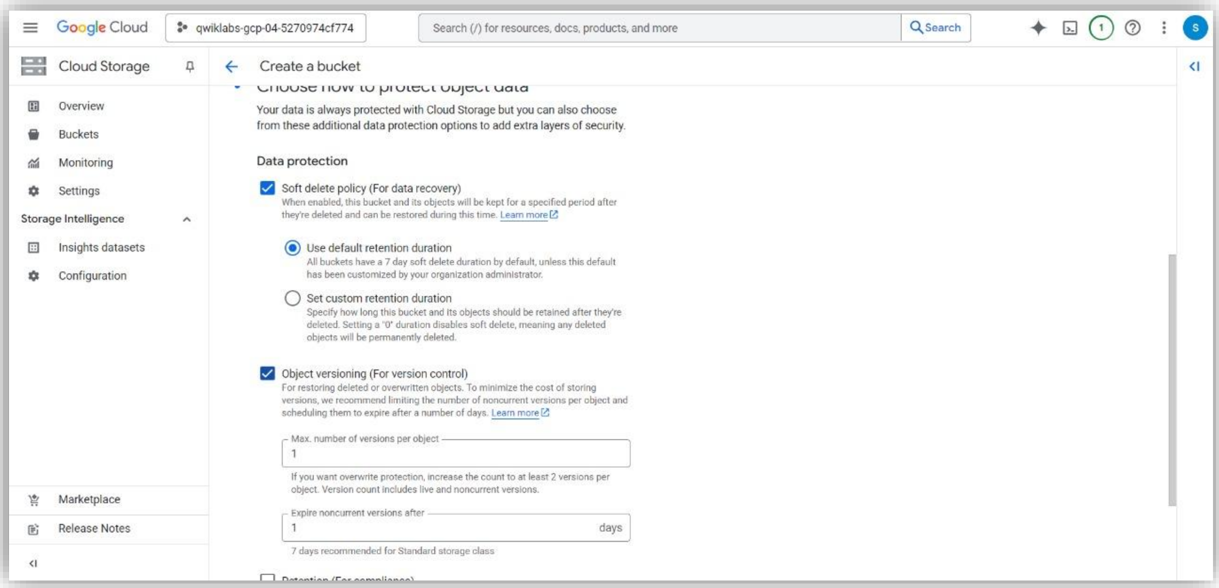
MATERIALS REQUIRED:

Google Cloud account, Internet access

PROCEDURE:

1. Enable Object Versioning on a bucket.
2. Upload multiple versions of a file.
3. Set Lifecycle Rules to auto-delete old versions.
4. Assign IAM roles to users for bucket access.

OUTPUT:



Create a bucket

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 add extra layers of security.

Data protection

☑ Soft delete policy (For data recovery)
When enabled, this bucket and its objects will be kept for a specified period after they're deleted and can be restored during this time. Learn more

● Use default retention duration
All buckets have a 7 day soft delete duration by default, unless this default has been customized by your organization administrator.

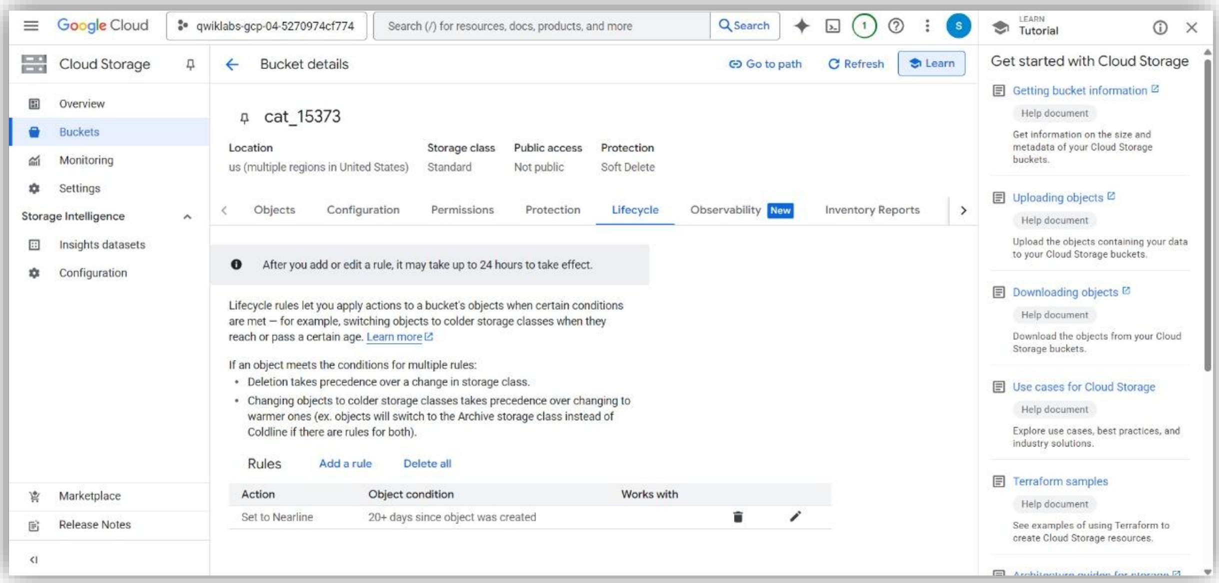
○ Set custom retention duration
Specify how long this bucket and its objects should be retained after they're deleted. Setting a '0' duration disables soft delete, meaning any deleted objects will be permanently deleted.

☑ Object versioning (For version control)
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

Max. number of versions per object: 1
If you want overwrite protection, increase the count to at least 2 versions per object. Version count includes live and noncurrent versions.

Expire noncurrent versions after: 1 days
7 days recommended for Standard storage class

□ Retention (For compliance)


Google Cloud
qwiklabs-gcp-04-5270974cf774
Search (/) for resources, docs, products, and more
Search
Cloud Storage
Overview
Buckets
Monitoring
Settings
Storage Intelligence
Insights datasets
Configuration
Marketplace
Release Notes
Bucket details
Go to path
Refresh
Learn
Objects
Configuration
Permissions
Protection
Lifecycle
Observability New
Inventory Reports
LEARN
Tutorial
Get started with Cloud Storage
Getting bucket information
Help document
Get information on the size and metadata of your Cloud Storage buckets.
Uploading objects
Help document
Upload the objects containing your data to your Cloud Storage buckets.
Downloading objects
Help document
Download the objects from your Cloud Storage buckets.
Use cases for Cloud Storage
Help document
Explore use cases, best practices, and industry solutions.
Terraform samples
Help document
See examples of using Terraform to create Cloud Storage resources.
Architecture guides for storage

cat_15373

Location	Storage class	Public access	Protection
us (multiple regions in United States)	Standard	Not public	Soft Delete

After you add or edit a rule, it may take up to 24 hours to take effect.

Lifecycle rules let you apply actions to a bucket's objects when certain conditions are met — for example, switching objects to colder storage classes when they reach or pass a certain age. Learn more

If an object meets the conditions for multiple rules:

- Deletion takes precedence over a change in storage class.
- Changing objects to colder storage classes takes precedence over changing to warmer ones (ex. objects will switch to the Archive storage class instead of Coldline if there are rules for both).

Rules Add a rule Delete all

Action	Object condition	Works with
Set to Nearline	20+ days since object was created	

RESULT:

Successfully configured versioning and lifecycle rules.

EX.NO:06	**Hello Cloud Run**
DATE:	

AIM:

To deploy a serverless container application using Cloud Run.

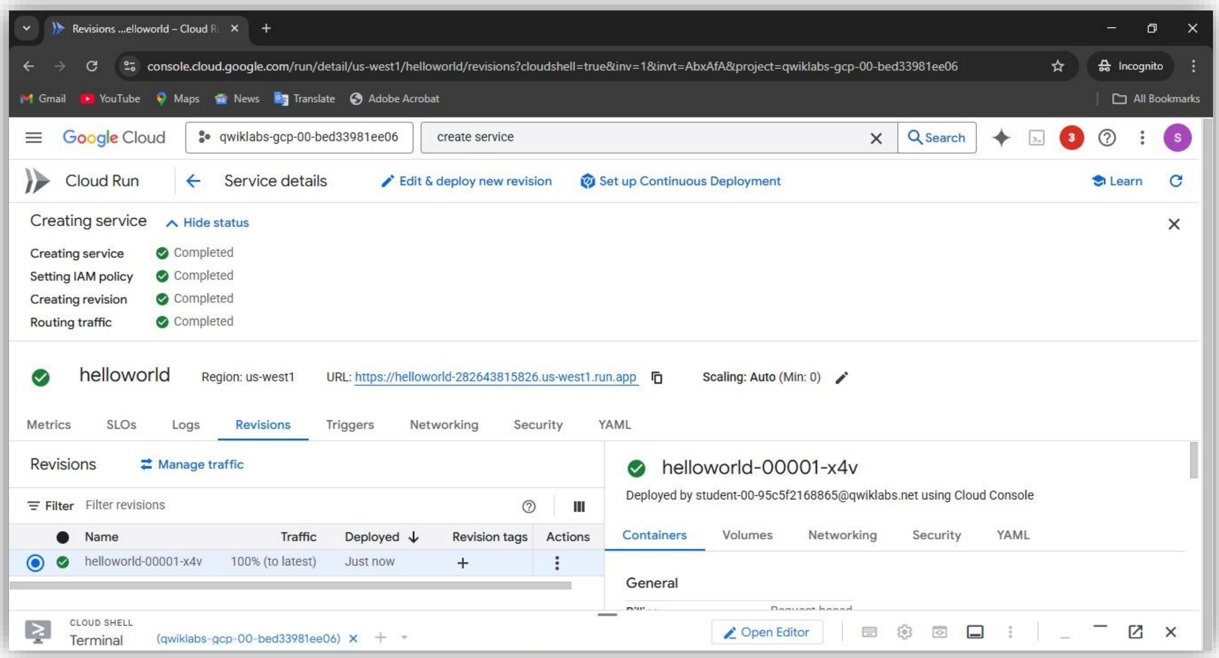
MATERIALS REQUIRED:

Google Cloud account, Internet access

PROCEDURE:

1. Use Cloud Shell to create a simple containerized app.
2. Build and push the container image to Container Registry.
3. Go to Cloud Run > Create Service.
4. Deploy the app and allow unauthenticated access.

OUTPUT:



console.cloud.google.com/run/detail/us-west1/helloworld/revisions?cloudshell=true&invt=1&invt=AbxAfA&project=qwiklabs-gcp-00-bed33981ee06

Creating service

Creating service	✓ Completed
Setting IAM policy	✓ Completed
Creating revision	✓ Completed
Routing traffic	✓ Completed

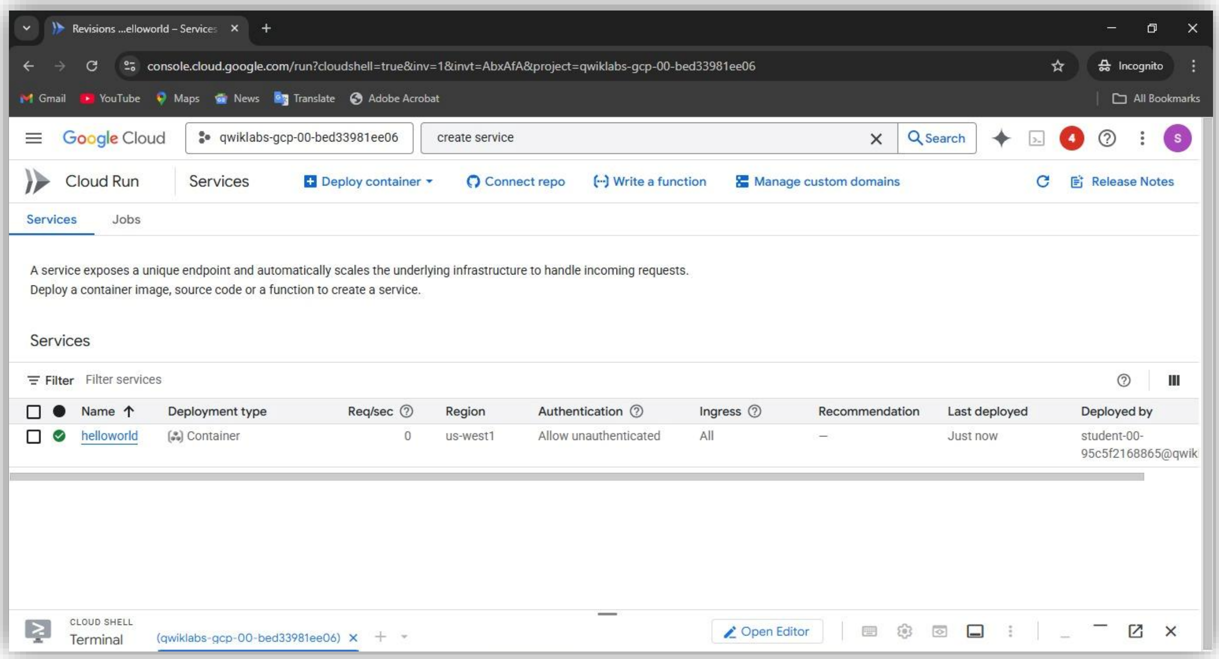
✓ helloworld Region: us-west1 URL: https://helloworld-282643815826.us-west1.run.app Scaling: Auto (Min: 0)

Revisions

	Name	Traffic	Deployed ↓	Revision tags	Actions
✓	helloworld-00001-x4v	100% (to latest)	Just now	+	⋮

✓ helloworld-00001-x4v

Deployed by student-00-95c5f2168865@qwiklabs.net using Cloud Console



A service exposes a unique endpoint and automatically scales the underlying infrastructure to handle incoming requests.
Deploy a container image, source code or a function to create a service.

Services

Filter Filter services

□	●	Name ↑	Deployment type	Req/sec	Region	Authentication	Ingress	Recommendation	Last deployed	Deployed by
□	✓	helloworld	Container	0	us-west1	Allow unauthenticated	All	–	Just now	student-00-95c5f2168865@qwik

RESULT:

Successfully deployed and accessed a Cloud Run service.

EX.NO:07	Exploring IAM
DATE:	

AIM:

To manage user permissions using Identity and Access Management (IAM).

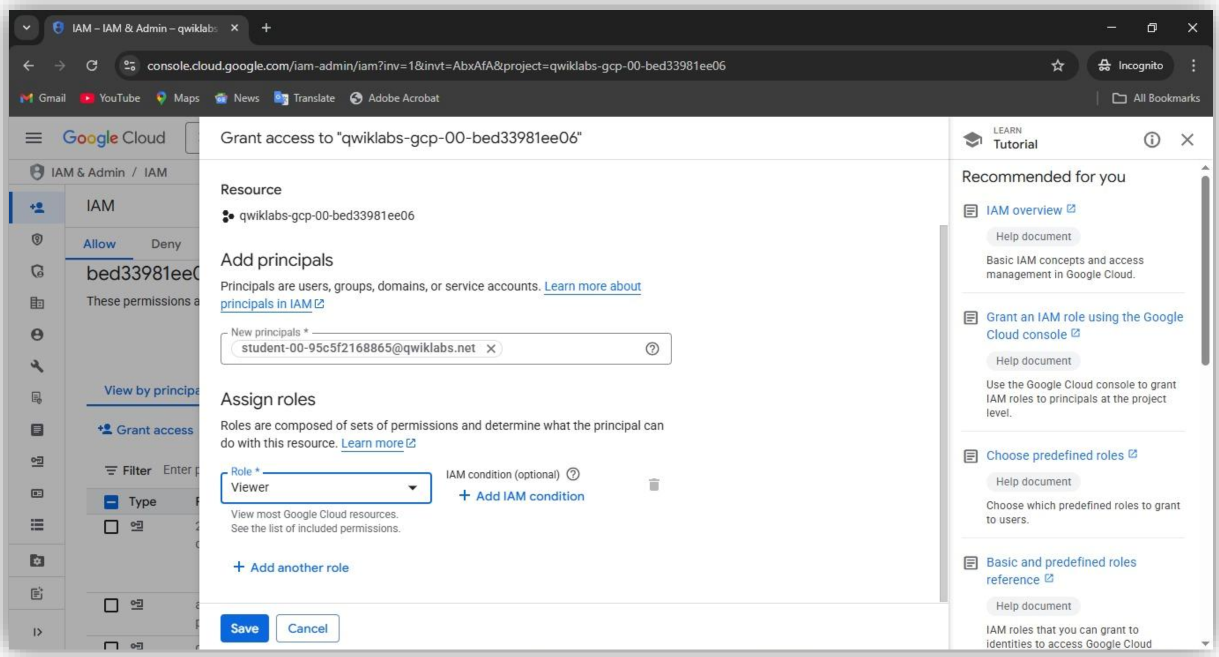
MATERIALS REQUIRED:

Google Cloud account, Internet access

PROCEDURE:

1. Navigate to IAM & Admin > IAM.
2. Click Add to add a new user and assign a role (e.g., Viewer).
3. Create a Service Account and grant appropriate roles.
4. Explore Audit Logs to verify activity.

OUTPUT:



Grant access to "qwiklabs-gcp-00-bed33981ee06"

Resource

qwiklabs-gcp-00-bed33981ee06

Add principals

Principals are users, groups, domains, or service accounts. Learn more about principals in IAM

New principals *: student-00-95c5f2168865@qwiklabs.net

Assign roles

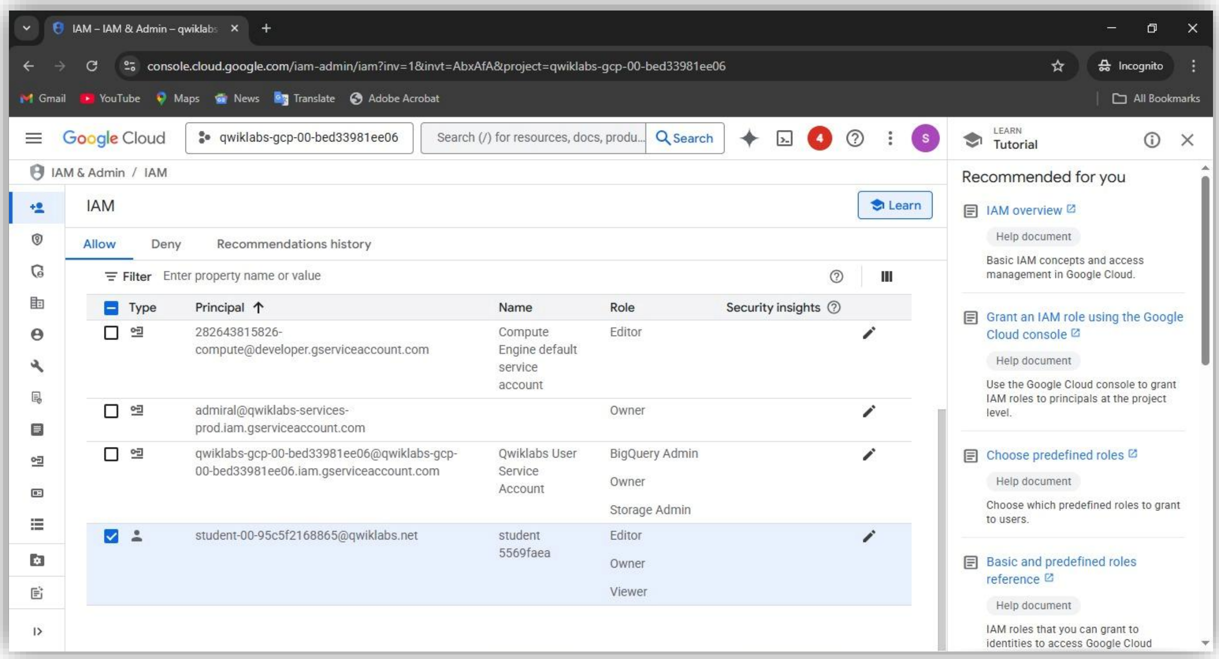
Roles are composed of sets of permissions and determine what the principal can do with this resource. Learn more

Role *: Viewer

View most Google Cloud resources. See the list of included permissions.

IAM condition (optional)

+ Add IAM condition
+ Add another role
Save
Cancel
LEARN
Tutorial
Recommended for you
IAM overview
Help document
Basic IAM concepts and access management in Google Cloud.
Grant an IAM role using the Google Cloud console
Help document
Use the Google Cloud console to grant IAM roles to principals at the project level.
Choose predefined roles
Help document
Choose which predefined roles to grant to users.
Basic and predefined roles reference
Help document
IAM roles that you can grant to identities to access Google Cloud



console.cloud.google.com/iam-admin/iam?inv=1&invt=AbxAfA&project=qwiklabs-gcp-00-bed33981ee06

IAM & Admin / IAM

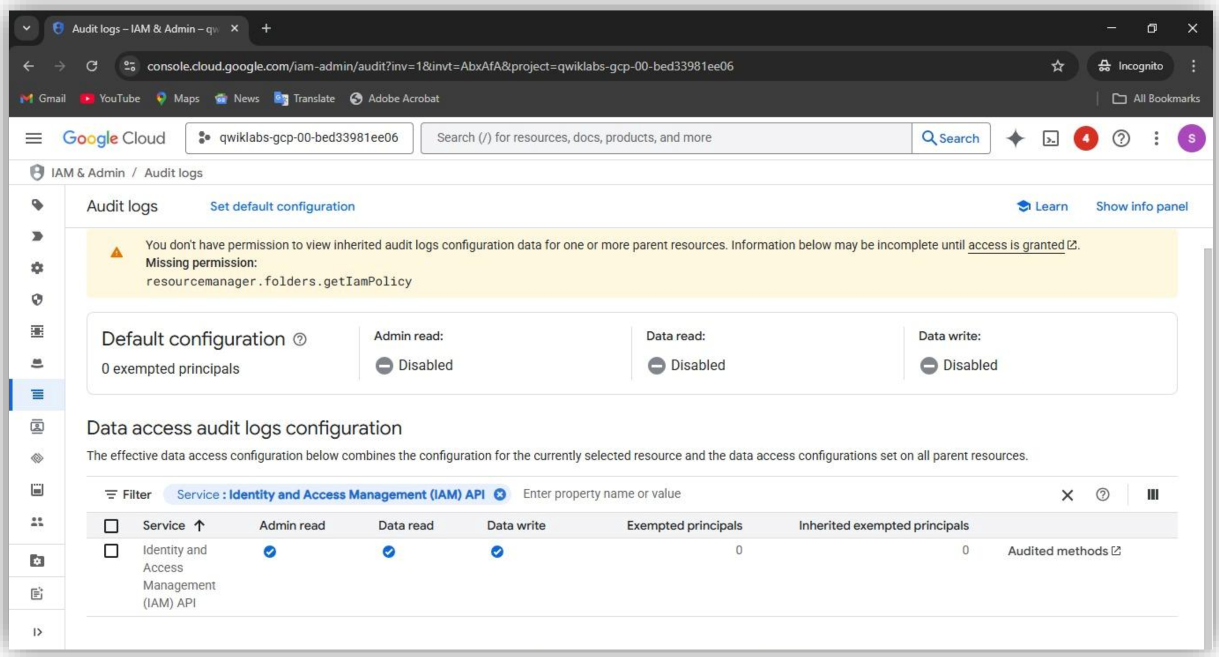
IAM

Allow | Deny | Recommendations history

Type	Principal ↑	Name	Role	Security insights
□	282643815826-compute@developer.gserviceaccount.com	Compute Engine default service account	Editor	
□	admiral@qwiklabs-services-prod.iam.gserviceaccount.com		Owner	
□	qwiklabs-gcp-00-bed33981ee06@qwiklabs-gcp-00-bed33981ee06.iam.gserviceaccount.com	Qwiklabs User Service Account	BigQuery Admin Owner Storage Admin	
☑	student-00-95c5f2168865@qwiklabs.net	student 5569faea	Editor Owner Viewer	

Tutorial — Recommended for you

- IAM overview — Help document — Basic IAM concepts and access management in Google Cloud.
- Grant an IAM role using the Google Cloud console — Help document — Use the Google Cloud console to grant IAM roles to principals at the project level.
- Choose predefined roles — Help document — Choose which predefined roles to grant to users.
- Basic and predefined roles reference — Help document — IAM roles that you can grant to identities to access Google Cloud



console.cloud.google.com/iam-admin/audit?inv=1&invt=AbxAfA&project=qwiklabs-gcp-00-bed33981ee06

IAM & Admin / Audit logs

Audit logs — Set default configuration

You don't have permission to view inherited audit logs configuration data for one or more parent resources. Information below may be incomplete until access is granted.
Missing permission:
`resourcemanager.folders.getIamPolicy`

Default configuration	Admin read:	Data read:	Data write:
0 exempted principals	Disabled	Disabled	Disabled

Data access audit logs configuration

The effective data access configuration below combines the configuration for the currently selected resource and the data access configurations set on all parent resources.

Filter: Service : Identity and Access Management (IAM) API

Service ↑	Admin read	Data read	Data write	Exempted principals	Inherited exempted principals	
Identity and Access Management (IAM) API	✓	✓	✓	0	0	Audited methods

RESULT:

Fine-grained access control was achieved through IAM conditions.

EX.NO:08	**Examining Billings data with Big Query**
DATE:	

AIM:

To analyze GCP billing data using BigQuery.

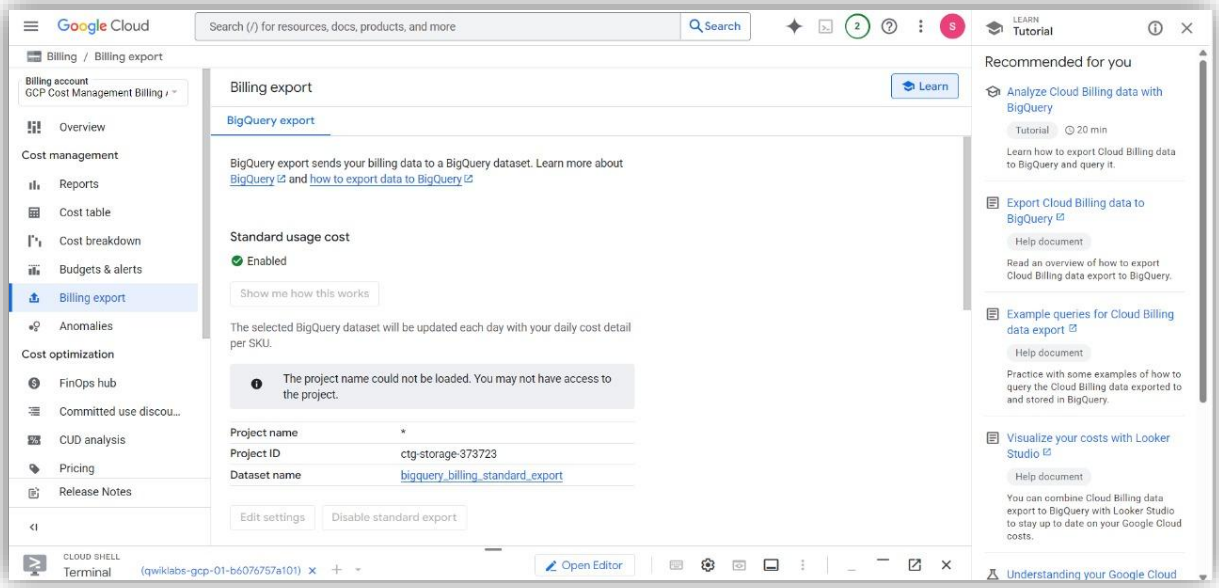
MATERIALS REQUIRED:

Google Cloud account, Internet access

PROCEDURE:

1. Enable Billing Export to BigQuery.
2. Wait for data to populate.
3. Open BigQuery editor and write a query to filter usage costs.
4. Run the query and export the results.

OUTPUT:



Billing export

BigQuery export

BigQuery export sends your billing data to a BigQuery dataset. Learn more about BigQuery and how to export data to BigQuery

Standard usage cost

Enabled

The selected BigQuery dataset will be updated each day with your daily cost detail per SKU.

The project name could not be loaded. You may not have access to the project.

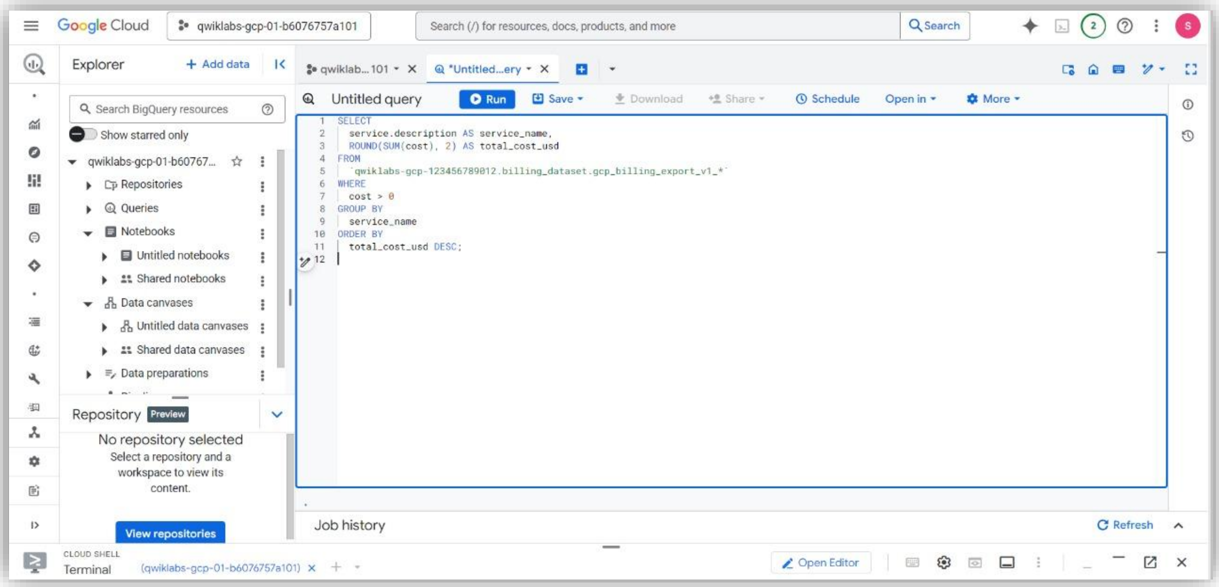
Project name	*
Project ID	ctg-storage-373723
Dataset name	bigquery_billing_standard_export

Learn how to export Cloud Billing data to BigQuery and query it.

Read an overview of how to export Cloud Billing data export to BigQuery.

Practice with some examples of how to query the Cloud Billing data exported to and stored in BigQuery.

You can combine Cloud Billing data export to BigQuery with Looker Studio to stay up to date on your Google Cloud costs.



```sql
SELECT
  service.description AS service_name,
  ROUND(SUM(cost), 2) AS total_cost_usd
FROM
  `qwiklabs-gcp-123456789012.billing_dataset.gcp_billing_export_v1_*`
WHERE
  cost > 0
GROUP BY
  service_name
ORDER BY
  total_cost_usd DESC;
```

RESULT:

Successfully analyzed billing data using Big Query.

EX.NO:09	# Configure An Application Load Balancer with Autoscaling
DATE:	

AIM:

To configure an HTTP(S) load balancer with an autoscaling backend.

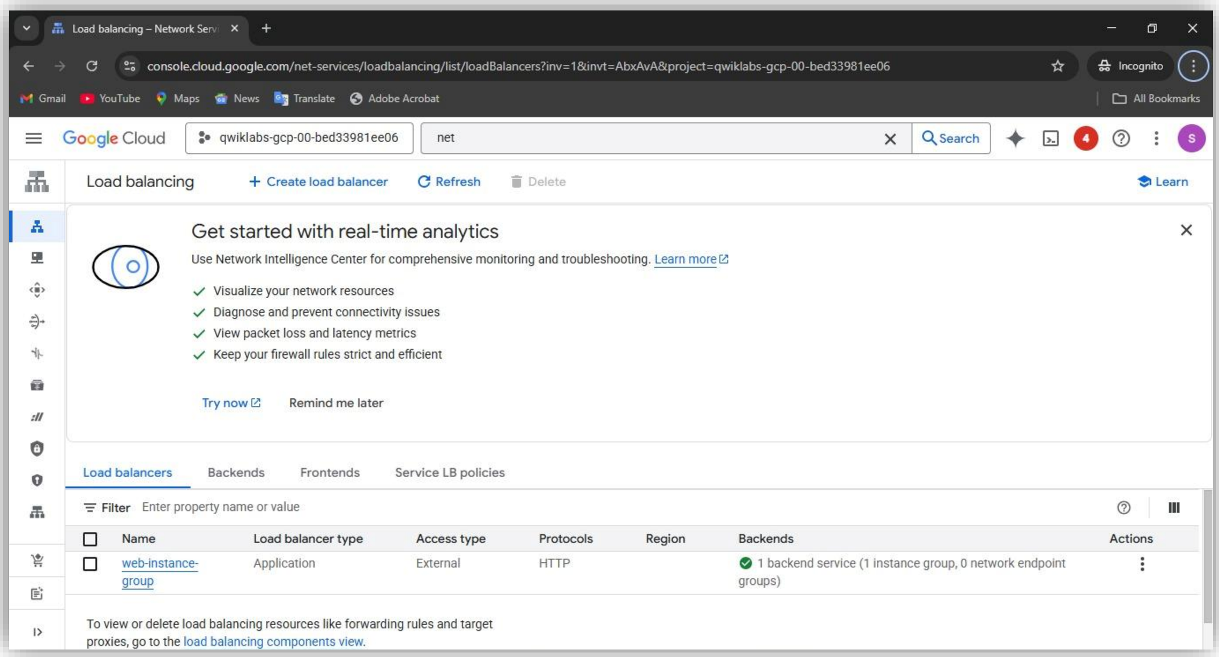
MATERIALS REQUIRED:

Google Cloud account, Internet access

PROCEDURE:

1. Create a Managed Instance Group with autoscaling.
2. Set up a Backend Service and attach the instance group.
3. Configure a Frontend IP and HTTP(S) load balancer.
4. Deploy and test autoscaling by simulating load.

OUTPUT:



Load balancing – Network Serv
console.cloud.google.com/net-services/loadbalancing/list/loadBalancers?inv=1&invt=AbxAvA&project=qwiklabs-gcp-00-bed33981ee06
Incognito
Gmail
YouTube
Maps
News
Translate
Adobe Acrobat
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Load balancing
+ Create load balancer
Refresh
Delete
Learn

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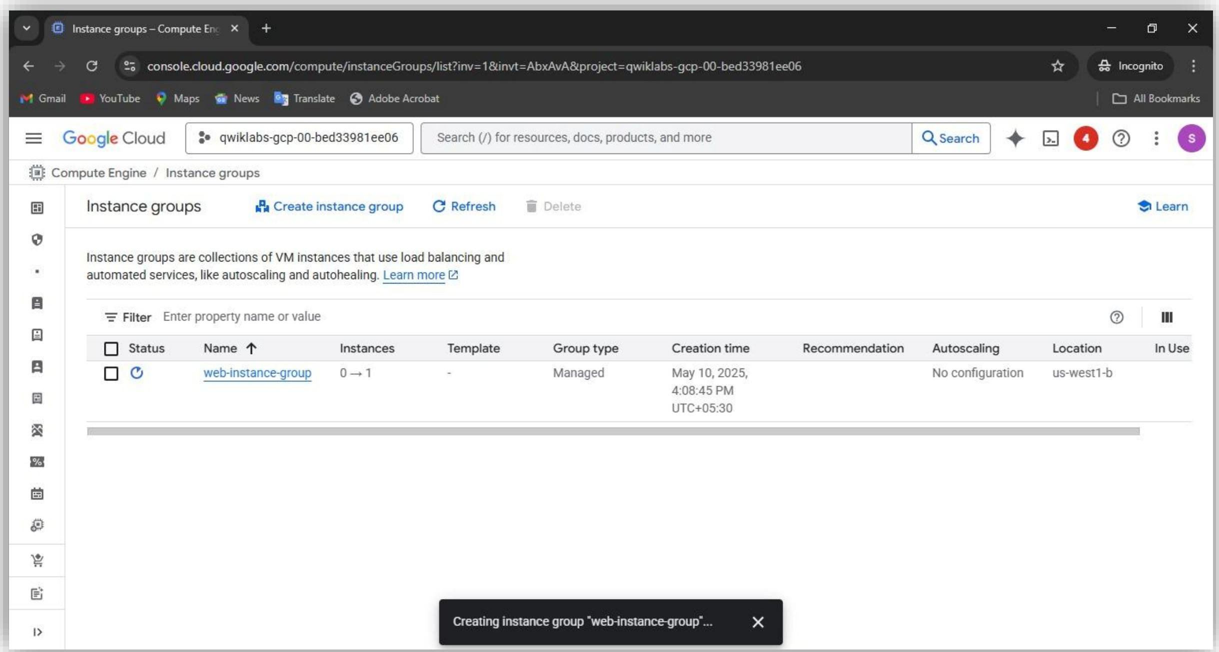
□	Name	Load balancer type	Access type	Protocols	Region	Backends	Actions
□	web-instance-group	Application	External	HTTP		✓ 1 backend service (1 instance group, 0 network endpoint groups)	⋮

To view or delete load balancing resources like forwarding rules and target proxies, go to the load balancing components view.



Instance groups – Compute Eng

console.cloud.google.com/compute/instanceGroups/list?inv=1&invt=AbxAvA&project=qwiklabs-gcp-00-bed33981ee06

Google Cloud | qwiklabs-gcp-00-bed33981ee06 | Search (/) for resources, docs, products, and more | Search

Compute Engine / Instance groups

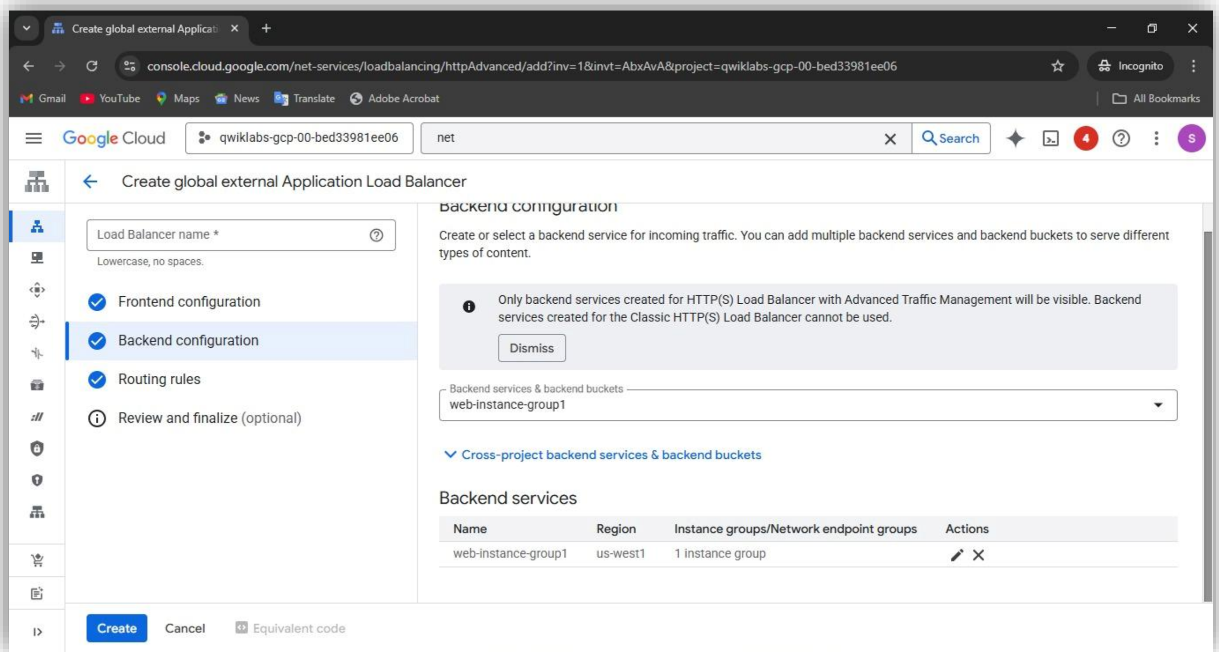
Instance groups | Create instance group | Refresh | Delete | Learn

Instance groups are collections of VM instances that use load balancing and automated services, like autoscaling and autohealing. Learn more

Filter Enter property name or value

Status	Name ↑	Instances	Template	Group type	Creation time	Recommendation	Autoscaling	Location	In Use
	web-instance-group	0 → 1	-	Managed	May 10, 2025, 4:08:45 PM UTC+05:30		No configuration	us-west1-b	

Creating instance group "web-instance-group"...



Create global external Applicat

console.cloud.google.com/net-services/loadbalancing/httpAdvanced/add?inv=1&invt=AbxAvA&project=qwiklabs-gcp-00-bed33981ee06

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Create global external Application Load Balancer

Load Balancer name *

Lowercase, no spaces.

- Frontend configuration
- Backend configuration
- Routing rules
- Review and finalize (optional)

Backend configuration

Create or select a backend service for incoming traffic. You can add multiple backend services and backend buckets to serve different types of content.

Only backend services created for HTTP(S) Load Balancer with Advanced Traffic Management will be visible. Backend services created for the Classic HTTP(S) Load Balancer cannot be used.

Dismiss

Backend services & backend buckets: web-instance-group1

Cross-project backend services & backend buckets

Backend services

Name	Region	Instance groups/Network endpoint groups	Actions
web-instance-group1	us-west1	1 instance group	

Create | Cancel | Equivalent code

RESULT:

Successfully configured and tested a load balancer with autoscaling.

EX.NO:10	Accessing The Google Cloud Console and Cloud Shell
DATE:	

AIM:

To explore and execute commands using Cloud Console and Cloud Shell.

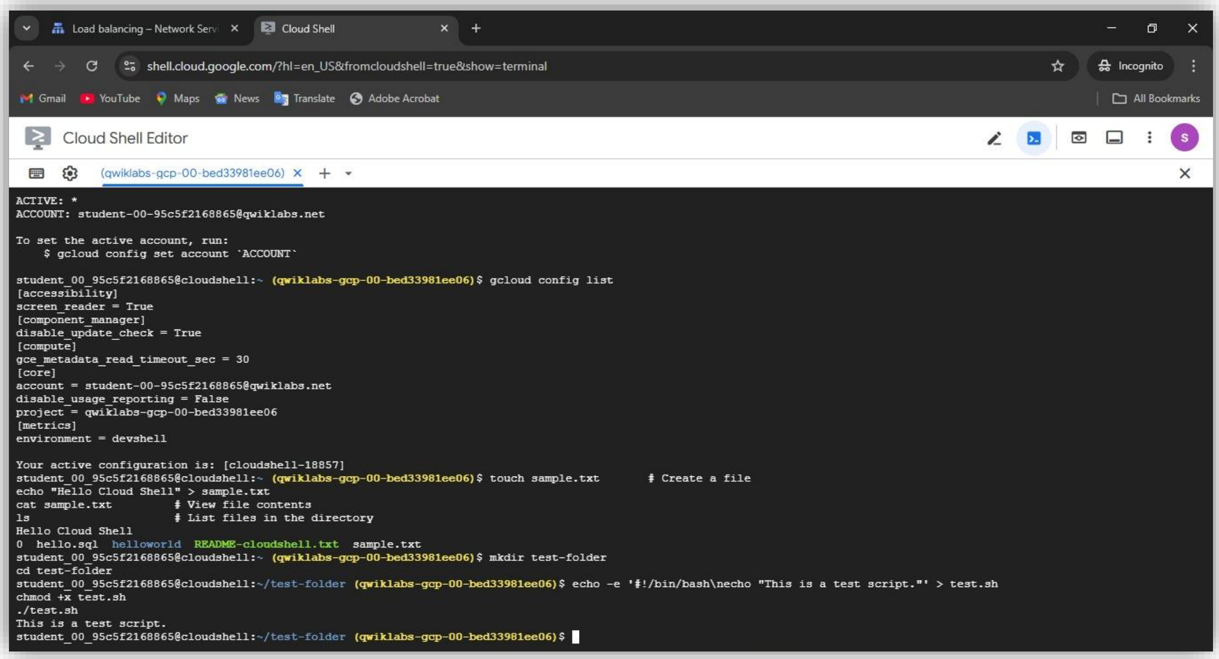
MATERIALS REQUIRED:

Google Cloud account, Internet access

PROCEDURE:

1. Log in to the Google Cloud Console.
2. Click on the Cloud Shell icon in the top right.
3. Run commands: gcloud auth list, gcloud config list, and file operations.
4. Navigate directories and run a script if available.

OUTPUT:

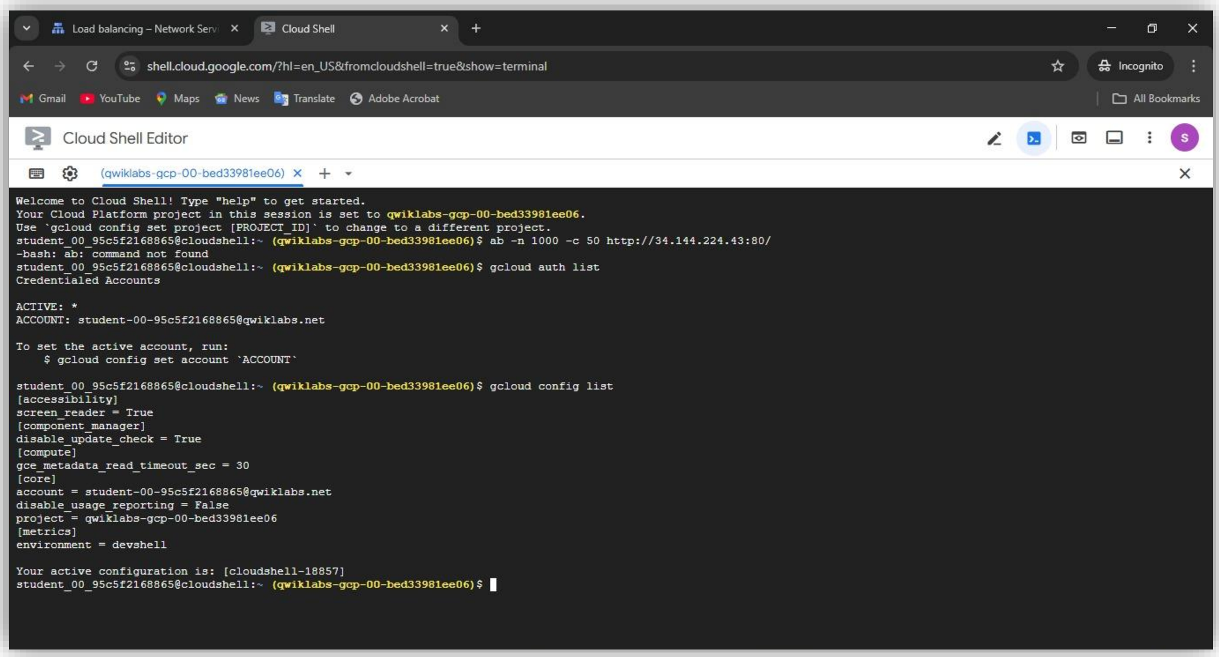

Load balancing – Network Serv
Cloud Shell
shell.cloud.google.com/?hl=en_US&fromcloudshell=true&show=terminal
Incognito
Gmail
YouTube
Maps
News
Translate
Adobe Acrobat
All Bookmarks
Cloud Shell Editor
(qwiklabs-gcp-00-bed33981ee06)

```
ACTIVE: *
ACCOUNT: student-00-95c5f2168865@qwiklabs.net

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

student_00_95c5f2168865@cloudshell:~ (qwiklabs-gcp-00-bed33981ee06)$ gcloud config list
[accessibility]
screen_reader = True
[component_manager]
disable_update_check = True
[compute]
gce_metadata_read_timeout_sec = 30
[core]
account = student-00-95c5f2168865@qwiklabs.net
disable_usage_reporting = False
project = qwiklabs-gcp-00-bed33981ee06
[metrics]
environment = devshell

Your active configuration is: [cloudshell-18857]
student_00_95c5f2168865@cloudshell:~ (qwiklabs-gcp-00-bed33981ee06)$ touch sample.txt       # Create a file
echo "Hello Cloud Shell" > sample.txt
cat sample.txt         # View file contents
ls                     # List files in the directory
Hello Cloud Shell
0  hello.sql  helloworld  README-cloudshell.txt  sample.txt
student_00_95c5f2168865@cloudshell:~ (qwiklabs-gcp-00-bed33981ee06)$ mkdir test-folder
cd test-folder
student_00_95c5f2168865@cloudshell:~/test-folder (qwiklabs-gcp-00-bed33981ee06)$ echo -e '#!/bin/bash\necho "This is a test script."' > test.sh
chmod +x test.sh
./test.sh
This is a test script.
student_00_95c5f2168865@cloudshell:~/test-folder (qwiklabs-gcp-00-bed33981ee06)$ 
```



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Cloud Shell
shell.cloud.google.com/?hl=en_US&fromcloudshell=true&show=terminal
Incognito
Gmail
YouTube
Maps
News
Translate
Adobe Acrobat
All Bookmarks
Cloud Shell Editor
(qwiklabs-gcp-00-bed33981ee06)

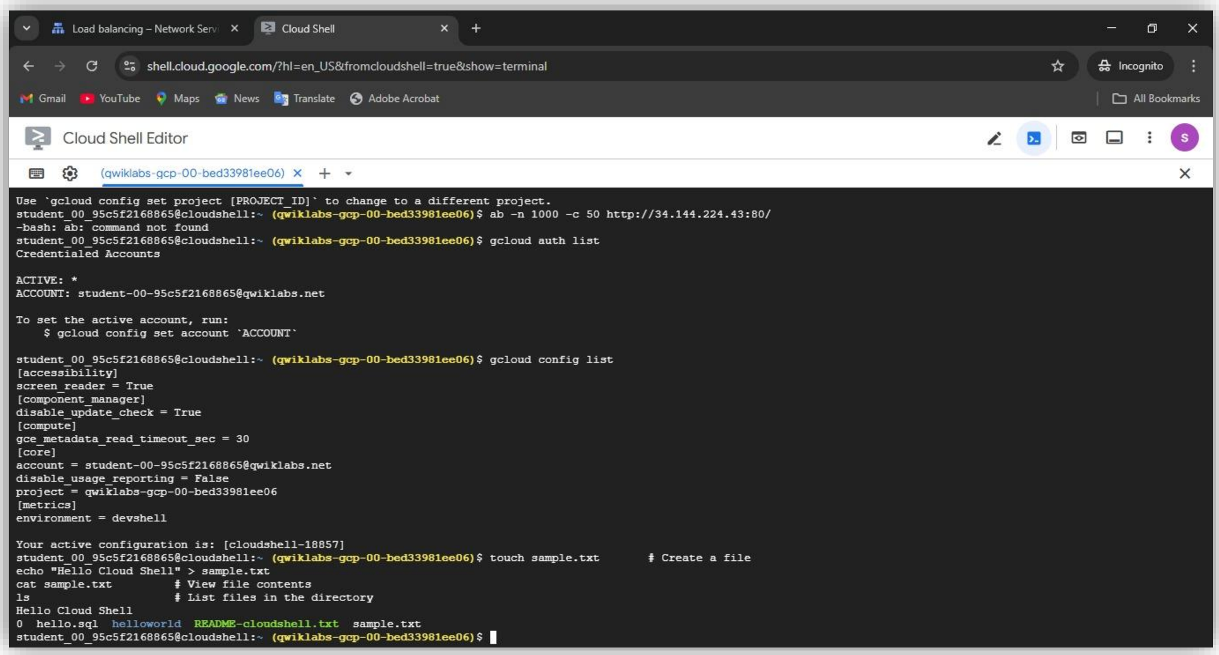
```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to qwiklabs-gcp-00-bed33981ee06.
Use `gcloud config set project [PROJECT_ID]` to change to a different project.
student_00_95c5f2168865@cloudshell:~ (qwiklabs-gcp-00-bed33981ee06)$ ab -n 1000 -c 50 http://34.144.224.43:80/
-bash: ab: command not found
student_00_95c5f2168865@cloudshell:~ (qwiklabs-gcp-00-bed33981ee06)$ gcloud auth list
Credentialed Accounts

ACTIVE: *
ACCOUNT: student-00-95c5f2168865@qwiklabs.net

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

student_00_95c5f2168865@cloudshell:~ (qwiklabs-gcp-00-bed33981ee06)$ gcloud config list
[accessibility]
screen_reader = True
[component_manager]
disable_update_check = True
[compute]
gce_metadata_read_timeout_sec = 30
[core]
account = student-00-95c5f2168865@qwiklabs.net
disable_usage_reporting = False
project = qwiklabs-gcp-00-bed33981ee06
[metrics]
environment = devshell

Your active configuration is: [cloudshell-18857]
student_00_95c5f2168865@cloudshell:~ (qwiklabs-gcp-00-bed33981ee06)$
```



Load balancing – Network Serv
Cloud Shell
shell.cloud.google.com/?hl=en_US&fromcloudshell=true&show=terminal
Incognito
Gmail
YouTube
Maps
News
Translate
Adobe Acrobat
All Bookmarks
Cloud Shell Editor
(qwiklabs-gcp-00-bed33981ee06)

```
Use `gcloud config set project [PROJECT_ID]` to change to a different project.
student_00_95c5f2168865@cloudshell:~ (qwiklabs-gcp-00-bed33981ee06)$ ab -n 1000 -c 50 http://34.144.224.43:80/
-bash: ab: command not found
student_00_95c5f2168865@cloudshell:~ (qwiklabs-gcp-00-bed33981ee06)$ gcloud auth list
Credentialed Accounts

ACTIVE: *
ACCOUNT: student-00-95c5f2168865@qwiklabs.net

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

student_00_95c5f2168865@cloudshell:~ (qwiklabs-gcp-00-bed33981ee06)$ gcloud config list
[accessibility]
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[compute]
gce_metadata_read_timeout_sec = 30
[core]
account = student-00-95c5f2168865@qwiklabs.net
disable_usage_reporting = False
project = qwiklabs-gcp-00-bed33981ee06
[metrics]
environment = devshell

Your active configuration is: [cloudshell-18857]
student_00_95c5f2168865@cloudshell:~ (qwiklabs-gcp-00-bed33981ee06)$ touch sample.txt       # Create a file
echo "Hello Cloud Shell" > sample.txt
cat sample.txt         # View file contents
ls                     # List files in the directory
Hello Cloud Shell
0  hello.sql  helloworld  README-cloudshell.txt  sample.txt
student_00_95c5f2168865@cloudshell:~ (qwiklabs-gcp-00-bed33981ee06)$
```

RESULT:

Successfully used Cloud Console and Cloud Shell for operations

EX.NO:11	Working with Cloud Build
DATE:	

AIM:

To automate builds using Cloud Build in GCP.

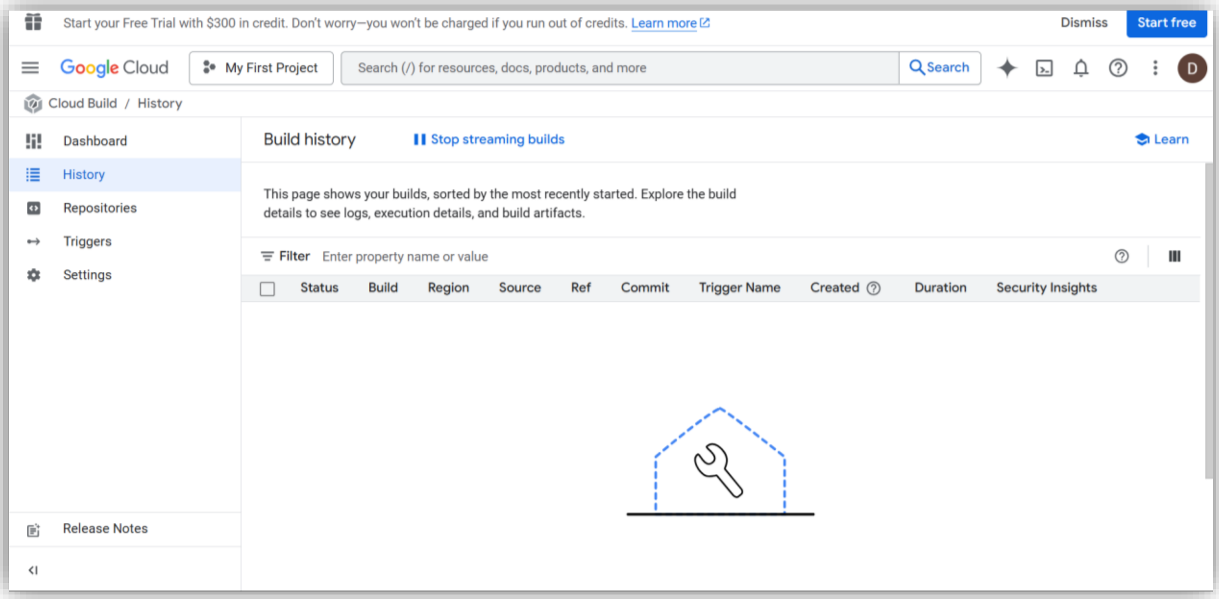
MATERIALS REQUIRED:

Google Cloud account, Internet access

PROCEDURE:

1. Create a cloudbuild.yaml file with build steps.
2. Push the code to Cloud Source Repositories or GitHub.
3. Trigger the build manually or via a push event.
4. Check build logs and status under Cloud Build > History.

OUTPUT:



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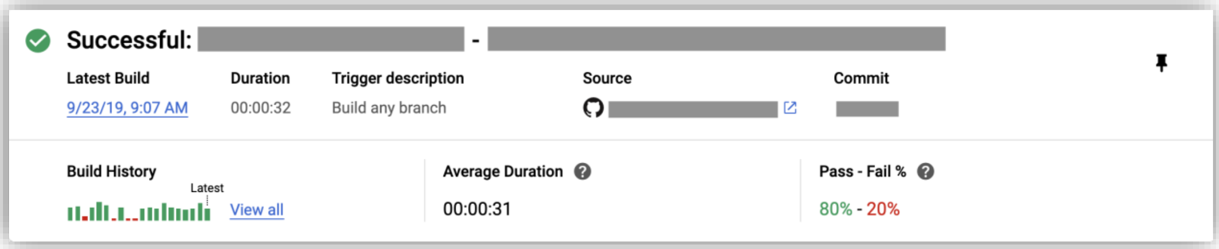
This page shows your builds, sorted by the most recently started. Explore the build details to see logs, execution details, and build artifacts.

□	Status	Build	Region	Source	Ref	Commit	Trigger Name	Created	Duration	Security Insights



Successful: [redacted] - [redacted]

Latest Build: 9/23/19, 9:07 AM

Duration: 00:00:32

Trigger description: Build any branch

Source: [redacted]

Commit: [redacted]

Build History

Average Duration

00:00:31

Pass - Fail %

80% - 20%

RESULT:

Successfully configured and executed a build with Cloud Build.