

# Connect an App to a Cloud SQL for PostgreSQL Instance

GSP919



- Cloud SQL provides fully managed PostgreSQL with automated backups, replication, and logging for Kubernetes applications.
- Lab deploys GKE cluster, simple app, then connects to existing Cloud SQL PostgreSQL instance for read/write verification.
- Core Tasks
  - Create GKE cluster and deploy sample application using standard kubectl manifests.
  - Configure Cloud SQL Auth Proxy (recommended) or direct private IP connection via VPC-native GKE cluster.
- Connectivity Setup
  - Cloud SQL Auth Proxy (preferred): Sidecar container handles IAM authentication, encryption to Cloud SQL.
  - Grant `Cloud SQL Client` IAM role to GKE service account; use workload identity binding.
  - Verify app writes data to database and reads it back successfully.

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Contents

Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 01:13:34 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdea

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

gcloud auth list

4. Click Authorize.

Output:

```
ACTIVE: *
ACCOUNT: student-02-d29f53c8bdea@qwiklabs.net

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

5. (Optional) You can list the project ID with this command:

gcloud config list project

Output:

```
[core]
```

Dashboard Catalog Paths

0/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Previous Next

4 16°C Sunny

Search

02:52 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) x + Open Editor

Welcome to Cloud Shell! Type "help" to get started, or type "gemini" to try prompting with Gemini CLI.  
Your Cloud Platform project in this session is set to **qwiklabs-gcp-01-3fa3d4ecdb2b**.  
Use `gcloud config set project [PROJECT\_ID]` to change to a different project.  
student\_02\_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)\$ gcloud auth list  
Credentialed Accounts

ACTIVE: \*  
ACCOUNT: student-02-d29f53c8bdea@qwiklabs.net

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

student\_02\_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)\$ gcloud config list project  
[core]  
project = qwiklabs-gcp-01-3fa3d4ecdb2b

Your active configuration is: [cloudshell-12239]  
student\_02\_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)\$

3 17°C Sunny

Search

02:53 PM 15-01-2026 ENG IN

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 01:13:23 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

Set your region and zone

Certain Compute Engine resources live in regions and zones. A region is a specific geographical location where you can run your resources. Each region has one or more zones.

Note: Learn more about regions and zones and see a complete list in [Regions & Zones documentation](#).

Run the following gcloud commands in Cloud Shell to set the default region and zone for your lab:

```
gcloud config set compute/zone "europe-west4-a"
export ZONE=$(gcloud config get compute/zone)

gcloud config set compute/region "europe-west4"
export REGION=$(gcloud config get compute/region)
```

0/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Next >

< Previous

4 16°C Sunny

Search

ENG IN

02:52 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasin... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) x +

Search (/) for resources, docs, products, and more

Open Editor

CLOUD SHELL

student\_02\_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)\$ gcloud config set compute/zone "europe-west4-a"  
export ZONE=\$(gcloud config get compute/zone)  
  
gcloud config set compute/region "europe-west4"  
export REGION=\$(gcloud config get compute/region)  
Updated property [compute/zone].  
Your active configuration is: [cloudshell-12239]  
Updated property [compute/region].  
Your active configuration is: [cloudshell-12239]  
student\_02\_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)\$

3 17°C Sunny

Search

02:53 PM 15-01-2026 ENG IN

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Contents Connect an App to a Cloud SQL for PostgreSQL I

Dashboard Catalog Paths

Lab setup instructions and requirements

Protect your account and

End Lab 01:12:06 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeaf

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

0/100 Lab instructions and tasks

GSP919 Overview Setup and requirements

Task 1. Initialize APIs and create a Cloud IAM service account

Task 2. Deploy a lightweight GKE application

Task 3. Connect the GKE application to an external load balancer

Task 4. Verify full read/write capabilities of application to database

Congratulations!

Task 1. Initialize APIs and create a Cloud IAM service account

To complete this task you must initialize the APIs and create an IAM service account that will be used to allow your application to connect to the Cloud SQL database.

## Enable the APIs

You must enable the required APIs for this lab. You will build and push a container to the Artifact Registry in a later task, so you must enable the Artifact Registry API first.

- In Cloud Shell, run the following command to enable the Artifact Registry API:

```
gcloud services enable artifactregistry.googleapis.com
```

## Create a Service Account for Cloud SQL

< Previous Next >

3 17°C Sunny

Search

Eng In

02:54 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and 01:11:44 End Lab Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeaf

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

0/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

## Create a Service Account for Cloud SQL

You need to configure IAM service account credentials for the application that you will deploy later. The service account must be bound to a role that allows it to create and access Cloud SQL databases.

1. In Cloud Shell, create a Service Account and bind it to the Cloud SQL admin role in the lab project:

```
export PROJECT_ID=$(gcloud config list --format 'value(core.project')  
export CLOUDSQL_SERVICE_ACCOUNT=cloudsql-service-account  
  
gcloud iam service-accounts create $CLOUDSQL_SERVICE_ACCOUNT --proj  
  
gcloud projects add-iam-policy-binding $PROJECT_ID \  
--member="serviceAccount:$CLOUDSQL_SERVICE_ACCOUNT@$PROJECT_ID.iam.  
--role="roles/cloudsql.admin"
```

2. In Cloud Shell, create and export keys to a local file:

< Previous Next >

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 01:11:35 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeaf

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

deploy later. The service account must be bound to a role that allows it to create and access Cloud SQL databases.

1. In Cloud Shell, create a Service Account and bind it to the Cloud SQL admin role in the lab project:

```
export PROJECT_ID=$(gcloud config list --format 'value(core.project')  
export CLOUDSQL_SERVICE_ACCOUNT=cloudsql-service-account  
  
gcloud iam service-accounts create $CLOUDSQL_SERVICE_ACCOUNT --proj  
  
gcloud projects add-iam-policy-binding $PROJECT_ID \  
--member="serviceAccount:$CLOUDSQL_SERVICE_ACCOUNT@$PROJECT_ID.iam.  
--role="roles/cloudsql.admin"
```

2. In Cloud Shell, create and export keys to a local file:

```
gcloud iam service-accounts keys create $CLOUDSQL_SERVICE_ACCOUNT.j  
--iam-account=$CLOUDSQL_SERVICE_ACCOUNT@$PROJECT_ID.iam.gservic  
--project=$PROJECT_ID
```

0/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Previous Next

Air: Severe Sunday 3 ENG IN 02:54 PM 15-01-2026

Dashboard - qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) x +

CLOUD SHELL

Search (/) for resources, docs, products, and more

Open Editor

Cloud Shell Terminal

```
student_02_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)$ gcloud services enable artifactregistry.googleapis.com
student_02_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)$
student_02_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)$ export PROJECT_ID=$(gcloud config list --format 'value(core.project)')
export CLOUDSQL_SERVICE_ACCOUNT=cloudsql-service-account

gcloud iam service-accounts create $CLOUDSQL_SERVICE_ACCOUNT --project=$PROJECT_ID

gcloud projects add-iam-policy-binding $PROJECT_ID \
--member="serviceAccount:$CLOUDSQL_SERVICE_ACCOUNT@$PROJECT_ID.iam.gserviceaccount.com" \
--role="roles/cloudsql.admin"
Created service account [cloudsql-service-account].
Updated IAM policy for project [qwiklabs-gcp-01-3fa3d4ecdb2b].
bindings:
- members:
  - user:student-02-d29f53c8bdea@qwiklabs.net
    role: roles/appengine.appAdmin
- members:
  - serviceAccount:qwiklabs-gcp-01-3fa3d4ecdb2b@qwiklabs-gcp-01-3fa3d4ecdb2b.iam.gserviceaccount.com
    role: roles/bigquery.admin
- members:
  - serviceAccount:553543977972@cloudbuild.gserviceaccount.com
    role: roles/cloudbuild.builds.builder
- members:
  - serviceAccount:service-553543977972@gcp-sa-cloudbuild.iam.gserviceaccount.com
    role: roles/cloudbuild.serviceAgent
- members:
  - serviceAccount:cloudsql-service-account@qwiklabs-gcp-01-3fa3d4ecdb2b.iam.gserviceaccount.com
    role: roles/cloudsql.admin
- members:
  - serviceAccount:service-553543977972@compute-system.iam.gserviceaccount.com
    role: roles/compute.serviceAgent
```

Air: Severe Sunday 3 ENG IN 02:54 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) + Open Editor

```
- members:
  - serviceAccount:553543977972@cloudbuild.gserviceaccount.com
    role: roles/cloudbuild.builds.builder
- members:
  - serviceAccount:service-553543977972@gcp-sa-cloudbuild.iam.gserviceaccount.com
    role: roles/cloudbuild.serviceAgent
- members:
  - serviceAccount:cloudsql-service-account@qwiklabs-gcp-01-3fa3d4ecdb2b.iam.gserviceaccount.com
    role: roles/cloudsql.admin
- members:
  - serviceAccount:service-553543977972@compute-system.iam.gserviceaccount.com
    role: roles/compute.serviceAgent
- members:
  - serviceAccount:553543977972-compute@developer.gserviceaccount.com
  - serviceAccount:553543977972@cloudservices.gserviceaccount.com
  - user:student-02-d29f53c8bdea@qwiklabs.net
    role: roles/editor
- members:
  - serviceAccount:admiral@qwiklabs-services-prod.iam.gserviceaccount.com
  - serviceAccount:qwiklabs-gcp-01-3fa3d4ecdb2b@qwiklabs-gcp-01-3fa3d4ecdb2b.iam.gserviceaccount.com
  - user:student-02-d29f53c8bdea@qwiklabs.net
    role: roles/owner
- members:
  - serviceAccount:qwiklabs-gcp-01-3fa3d4ecdb2b@qwiklabs-gcp-01-3fa3d4ecdb2b.iam.gserviceaccount.com
    role: roles/storage.admin
- members:
  - user:student-02-d29f53c8bdea@qwiklabs.net
    role: roles/viewer
etag: BwZIacvQUPg=
version: 1
student_02_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)$
```

Air: Severe Sunday 3 ENG IN 02:55 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) x + Open Editor

```
student_02_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)$ gcloud iam service-accounts keys create $CLOUDSQL_SERVICE_ACCOUNT.json \
--iam-account=$CLOUDSQL_SERVICE_ACCOUNT@$PROJECT_ID.iam.gserviceaccount.com \
--project=$PROJECT_ID
created key [d75790f69de6a6b75baa373a3c159a336c48dd8e] of type [json] as [cloudsql-service-account.json] for [cloudsql-service-account@qwiklabs-gcp-01-3fa3
d4ecdb2b.iam.gserviceaccount.com]
student_02_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)$
```

Air: Severe Sunday 3 ENG IN 02:55 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 01:10:01 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

Task 2. Deploy a lightweight GKE application

In this task you will create a Kubernetes cluster and deploy a lightweight Google Kubernetes Engine (GKE) application on that cluster. You will configure the application to have access to the supplied Cloud SQL instance.

The application provided is a simple Flask-SQLAlchemy web application called gMemegen. It creates memes by supplying a set of photographs and capturing header and footer text, storing them in the database and rendering the meme to a local folder. It runs on a single pod with two containers; one for the application and one for the Cloud SQL Auth Proxy deployed in the side-car pattern.

A load balancer will marshal requests between the app and the database through the side-car. This load balancer will expose an external Ingress IP address through which you will access the app in your browser.

Create a Kubernetes cluster

In this step, you will create a minimal Kubernetes cluster. The cluster will take a couple of minutes to be deployed.

25/100

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Previous Next

Air: Severe Sunday

Search

02:56 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Contents

Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 01:09:52 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

side-car. This load balancer will expose an external Ingress IP address through which you will access the app in your browser.

25/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Create a Kubernetes cluster

In this step, you will create a minimal Kubernetes cluster. The cluster will take a couple of minutes to be deployed.

1. In Cloud Shell, create a minimal Kubernetes cluster as follows:

```
ZONE=europe-west4-a
gcloud container clusters create postgres-cluster \
--zone=$ZONE --num-nodes=2
```

Create Kubernetes secrets for database access

In this step you will create a pair of Kubernetes secrets containing the credentials that are needed to connect to the Cloud SQL instance and database.

Previous Next

Air: Severe Sunday 3 ENG IN 02:56 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) x + Open Editor

```
student_02_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)$ ZONE=europe-west4-a
gcloud container clusters create postgres-cluster \
--zone=$ZONE --num-nodes=2
Note: Your Pod address range (`--cluster-ipv4-cidr`) can accommodate at most 1008 node(s).
Creating cluster postgres-cluster in europe-west4-a... Cluster is being health-checked (Kubernetes Control Plane is healthy)...done.
Created [https://container.googleapis.com/v1/projects/qwiklabs-gcp-01-3fa3d4ecdb2b/zones/europe-west4-a/clusters/postgres-cluster].
To inspect the contents of your cluster, go to: https://console.cloud.google.com/kubernetes/workload_gcloud/europe-west4-a/postgres-cluster?project=qwikla
bs-gcp-01-3fa3d4ecdb2b
kubeconfig entry generated for postgres-cluster.
NAME: postgres-cluster
LOCATION: europe-west4-a
MASTER_VERSION: 1.33.5-gke.2019000
MASTER_IP: 35.204.116.190
MACHINE_TYPE: e2-medium
NODE_VERSION: 1.33.5-gke.2019000
NUM_NODES: 2
STATUS: RUNNING
STACK_TYPE: IPV4
student_02_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)$
```

4 17°C Sunny

Search

03:04 PM 15-01-2026 ENG IN

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

--zone=\$ZONE --num-nodes=2

25/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

01:06:36 End Lab Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal Password: q1cf0H6nq4Vu Project ID: qwiklabs-gcp-01-3fa3d4e

Create Kubernetes secrets for database access

In this step you will create a pair of Kubernetes secrets containing the credentials that are needed to connect to the Cloud SQL instance and database.

1. In Cloud Shell, run the following commands to create the secrets:

```
kubectl create secret generic cloudsqli-instance-credentials \
--from-file=credentials.json=$CLOUDSQL_SERVICE_ACCOUNT.json
```

```
kubectl create secret generic cloudsqli-db-credentials \
--from-literal=username=postgres \
--from-literal=password=supersecret! \
--from-literal=dbname=gmemegen_db
```

Download and build the GKE application container

Previous Next

4 17°C Sunny

Search

02:59 PM 15-01-2026 ENG IN

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) x + Open Editor

```
student_02_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)$ kubectl create secret generic cloudsqli-instance-credentials \
--from-file=credentials.json=$CLOUDSQL_SERVICE_ACCOUNT.json

kubectl create secret generic cloudsqli-db-credentials \
--from-literal=username=postgres \
--from-literal=password=supersecret! \
--from-literal=dbname=gmemegen_db
secret/cloudsql-instance-credentials created
secret/cloudsql-db-credentials created
student_02_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)$
```

4 17°C Sunny

Search

03:04 PM 15-01-2026 ENG IN

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and 01:06:18 End Lab Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

Download and build the GKE application container

Before you can deploy the gMemegen application to your GKE cluster you need to build the container and push it to a repository.

1. In Cloud Shell, download the provided application code and change to the application directory:

```
gsutil -m cp -r gs://spl/gsp919/gmemegen .  
cd gmemegen
```

2. Create environment variables for the region, Project ID and Artifact Registry repository:

```
export REGION=europe-west4  
export PROJECT_ID=$(gcloud config list --format 'value(core.project')  
export REPO=gmemegen
```

25/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Next >

4 17°C Sunny

Search

02:59 PM 15-01-2026 ENG IN

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Contents

Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 01:06:06 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

export PROJECT\_ID=\$(gcloud config list --format 'value(core.project)')  
export REPO=gmemegen

3. Configure Docker authentication for the Artifact Registry:

gcloud auth configure-docker \${REGION}-docker.pkg.dev

- Enter Y if you are asked for confirmation.

4. Create the Artifact Registry repository:

gcloud artifacts repositories create \$REPO --repository-format=docker --location=\${REGION}

5. Build a local Docker image:

docker build -t \${REGION}-docker.pkg.dev/\${PROJECT\_ID}/gmemegen/gmemegen-app:v1 .

25/100

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Next >

4 17°C Sunny

Search

ENG IN

02:59 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasin... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 01:05:59 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

4 17°C Sunny

25/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

4. Create the Artifact Registry repository:

```
gcloud artifacts repositories create $REPO \
    --repository-format=docker --location=$REGION
```

5. Build a local Docker image:

```
docker build -t ${REGION}-
    docker.pkg.dev/${PROJECT_ID}/gmemegen/gmemegen-app:v1 .
```

For the purposes of this lab, you may ignore the warning about running 'pip' as the 'root' user, although you should note that, in general, especially when working on your local machine, it is best practice to use a virtual environment.

6. Push the image to the Artifact Registry:

```
docker push ${REGION}-
    docker.pkg.dev/${PROJECT_ID}/gmemegen/gmemegen-app:v1
```

Previous Next

Search

ENG IN 03:00 PM 15-01-2026

Dashboard - qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) x + Open Editor

```
role: roles/bigquery.admin
- members:
student_02_d29f53c8bdea@cloudshell:~ (qwiklabs-gcp-01-3fa3d4ecdb2b)$ gsutil -m cp -r gs://spls/gsp919/gmemegen .
cd gmemegen
Copying gs://spls/gsp919/gmemegen/.DS_Store...
Copying gs://spls/gsp919/gmemegen/.circleci/config.yml...
Copying gs://spls/gsp919/gmemegen/.flake8...
Copying gs://spls/gsp919/gmemegen/.git/HEAD...
Copying gs://spls/gsp919/gmemegen/.git/description...
Copying gs://spls/gsp919/gmemegen/.git/hooks/applypatch-msg.sample...
Copying gs://spls/gsp919/gmemegen/.git/config...
Copying gs://spls/gsp919/gmemegen/.git/hooks/fsmonitor-watchman.sample...
Copying gs://spls/gsp919/gmemegen/.git/hooks/commit-msg.sample...
Copying gs://spls/gsp919/gmemegen/.git/hooks/post-update.sample...
Copying gs://spls/gsp919/gmemegen/.git/hooks/pre-applypatch.sample...
Copying gs://spls/gsp919/gmemegen/.git/hooks/pre-commit.sample...
Copying gs://spls/gsp919/gmemegen/.git/hooks/pre-push.sample...
Copying gs://spls/gsp919/gmemegen/.git/hooks/pre-rebase.sample...
Copying gs://spls/gsp919/gmemegen/.git/hooks/pre-receive.sample...
Copying gs://spls/gsp919/gmemegen/.git/hooks/prepare-commit-msg.sample...
Copying gs://spls/gsp919/gmemegen/.git/hooks/update.sample...
Copying gs://spls/gsp919/gmemegen/.git/index...
Copying gs://spls/gsp919/gmemegen/.git/info/exclude...
Copying gs://spls/gsp919/gmemegen/.git/logs/HEAD...
Copying gs://spls/gsp919/gmemegen/.git/logs/refs/heads/master...
Copying gs://spls/gsp919/gmemegen/.git/logs/refs/remotes/origin/HEAD...
Copying gs://spls/gsp919/gmemegen/.git/objects/pack/pack-7464aa72e0e0b308b6cd0d765dfba7a19c8e87dc.idx...
Copying gs://spls/gsp919/gmemegen/.git/objects/pack/pack-7464aa72e0e0b308b6cd0d765dfba7a19c8e87dc.pack...
Copying gs://spls/gsp919/gmemegen/.git/packed-refs...
Copying gs://spls/gsp919/gmemegen/.git/refs/heads/master...
Copying gs://spls/gsp919/gmemegen/.git/refs/remotes/origin/HEAD...
```

4 17°C Sunny

Search

ENG IN 03:05 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) +

Search (/) for resources, docs, products, and more

Open Editor | ☰ ⚙️ 🌐 📁 🎥 ⋮

Copying gs://spl/gsp919/gmemegen/app/static/images/Kubernetes\_logo.png...  
Copying gs://spl/gsp919/gmemegen/app/static/images/Kubernetes\_name.png...  
Copying gs://spl/gsp919/gmemegen/app/static/images/blb.png...  
Copying gs://spl/gsp919/gmemegen/app/static/images/cloudsql.jpg...  
Copying gs://spl/gsp919/gmemegen/app/static/images/gmemegen.png...  
Copying gs://spl/gsp919/gmemegen/app/static/images/gmemegen2.png...  
Copying gs://spl/gsp919/gmemegen/app/static/images/kubernetes.png...  
Copying gs://spl/gsp919/gmemegen/app/static/images/logo\_gcp\_hexagon\_rgb.png...  
Copying gs://spl/gsp919/gmemegen/app/static/images/logo\_gcp\_horizontal\_rgb.png...  
Copying gs://spl/gsp919/gmemegen/app/static/images/random.png...  
Copying gs://spl/gsp919/gmemegen/app/static/images/recent.png...  
Copying gs://spl/gsp919/gmemegen/app/static/images/submit.png...  
Copying gs://spl/gsp919/gmemegen/app/static/templates/aliens.jpg...  
Copying gs://spl/gsp919/gmemegen/app/static/templates/awkwardpenguin.jpg...  
Copying gs://spl/gsp919/gmemegen/app/static/templates/bill-lumbergh.jpg...  
Copying gs://spl/gsp919/gmemegen/app/static/templates/confessionbear.jpg...  
Copying gs://spl/gsp919/gmemegen/app/static/templates/fry.jpg...  
Copying gs://spl/gsp919/gmemegen/app/static/templates/successkid.jpg...  
Copying gs://spl/gsp919/gmemegen/app/templates/create\_meme.html...  
Copying gs://spl/gsp919/gmemegen/app/templates/footer.html...  
Copying gs://spl/gsp919/gmemegen/app/templates/header.html...  
Copying gs://spl/gsp919/gmemegen/app/templates/recent.html...  
Copying gs://spl/gsp919/gmemegen/app/templates/view.html...  
Copying gs://spl/gsp919/gmemegen/app/uwsgi.ini...  
Copying gs://spl/gsp919/gmemegen/cloud\_sql\_proxy...  
Copying gs://spl/gsp919/gmemegen/cloudbuild.yaml...  
Copying gs://spl/gsp919/gmemegen/gmemegen\_deployment.yaml...  
Copying gs://spl/gsp919/gmemegen/setup.sh...  
- [84/84 files] [ 21.5 MiB/ 21.5 MiB] 100% Done 3.0 MiB/s ETA 00:00:00  
Operation completed over 84 objects/21.5 MiB.  
student\_02\_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b) \$

4 17°C Sunny

Search

ENG IN

03:05 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasin... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) x + Open Editor

```
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ export REGION=europe-west4
export PROJECT_ID=$(gcloud config list --format 'value(core.project)')
export REPO=gmemegen
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ 
```

4 17°C Sunny

Search

03:06 PM 15-01-2026 ENG IN

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) x + Open Editor

```
export REPO=gmemegen
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ gcloud auth configure-docker ${REGION}-docker.pkg.dev
WARNING: Your config file at [/home/student_02_d29f53c8bdea/.docker/config.json] contains these credential helper entries:

{
  "credHelpers": {
    "gcr.io": "gcloud",
    "us.gcr.io": "gcloud",
    "eu.gcr.io": "gcloud",
    "asia.gcr.io": "gcloud",
    "staging-k8s.gcr.io": "gcloud",
    "marketplace.gcr.io": "gcloud",
    "africa-south1-docker.pkg.dev": "gcloud",
    "docker.africa-south1.rep.pkg.dev": "gcloud",
    "asia-docker.pkg.dev": "gcloud",
    "asia-east1-docker.pkg.dev": "gcloud",
    "docker.asia-east1.rep.pkg.dev": "gcloud",
    "asia-east2-docker.pkg.dev": "gcloud",
    "docker.asia-east2.rep.pkg.dev": "gcloud",
    "asia-northeast1-docker.pkg.dev": "gcloud",
    "docker.asia-northeast1.rep.pkg.dev": "gcloud",
    "asia-northeast2-docker.pkg.dev": "gcloud",
    "docker.asia-northeast2.rep.pkg.dev": "gcloud",
    "asia-northeast3-docker.pkg.dev": "gcloud",
    "docker.asia-northeast3.rep.pkg.dev": "gcloud",
    "asia-south1-docker.pkg.dev": "gcloud",
    "docker.asia-south1.rep.pkg.dev": "gcloud",
    "asia-south2-docker.pkg.dev": "gcloud",
    "docker.asia-south2.rep.pkg.dev": "gcloud",
    "asia-southeast1-docker.pkg.dev": "gcloud",
    "docker.asia-southeast1.rep.pkg.dev": "gcloud",
```

4 17°C Sunny Search ENG IN 03:06 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) +

CLOUD SHELL

Search (/) for resources, docs, products, and more

Open Editor

Cloud Shell Settings View More

```
"southamerica-west1-docker.pkg.dev": "gcloud",
"docker.southamerica-west1.rep.pkg.dev": "gcloud",
"us-docker.pkg.dev": "gcloud",
"us-central1-docker.pkg.dev": "gcloud",
"docker.us-central1.rep.pkg.dev": "gcloud",
"us-central2-docker.pkg.dev": "gcloud",
"docker.us-central2.rep.pkg.dev": "gcloud",
"us-east1-docker.pkg.dev": "gcloud",
"docker.us-east1.rep.pkg.dev": "gcloud",
"us-east4-docker.pkg.dev": "gcloud",
"docker.us-east4.rep.pkg.dev": "gcloud",
"us-east5-docker.pkg.dev": "gcloud",
"docker.us-east5.rep.pkg.dev": "gcloud",
"us-east7-docker.pkg.dev": "gcloud",
"docker.us-east7.rep.pkg.dev": "gcloud",
"us-south1-docker.pkg.dev": "gcloud",
"docker.us-south1.rep.pkg.dev": "gcloud",
"us-west1-docker.pkg.dev": "gcloud",
"docker.us-west1.rep.pkg.dev": "gcloud",
"us-west2-docker.pkg.dev": "gcloud",
"docker.us-west2.rep.pkg.dev": "gcloud",
"us-west3-docker.pkg.dev": "gcloud",
"docker.us-west3.rep.pkg.dev": "gcloud",
"us-west4-docker.pkg.dev": "gcloud",
"docker.us-west4.rep.pkg.dev": "gcloud",
"us-west8-docker.pkg.dev": "gcloud"
}
}
Adding credentials for: europe-west4-docker.pkg.dev
gcloud credential helpers already registered correctly.
```

student\_02\_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b) \$

4 17°C Sunny

Search

Cloud Shell Settings View More

ENG IN

03:06 PM 15-01-2026

```
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b) $ gcloud artifacts repositories create $REPO \
    --repository-format=docker --location=$REGION
Create request issued for: [gmemegen]
Waiting for operation [projects/qwiklabs-gcp-01-3fa3d4ecdb2b/locations/europe-west4/operations/4f516835-ed2c-4d96-b451-defbf3ede2df] to complete...working
...
Waiting for operation [projects/qwiklabs-gcp-01-3fa3d4ecdb2b/locations/europe-west4/operations/4f516835-ed2c-4d96-b451-defbf3ede2df] to complete...working
...
Waiting for operation [projects/qwiklabs-gcp-01-3fa3d4ecdb2b/locations/europe-west4/operations/4f516835-ed2c-4d96-b451-defbf3ede2df] to complete...working
...
Waiting for operation [projects/qwiklabs-gcp-01-3fa3d4ecdb2b/locations/europe-west4/operations/4f516835-ed2c-4d96-b451-defbf3ede2df] to complete...done.
Created repository [gmemegen].
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b) $
```

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) x +

Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) x +

Open Editor

student\_02\_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)\$ docker build -t \${REGION}-docker.pkg.dev/\${PROJECT\_ID}/gmemegen/gmemegen-app: v1 .

[+] Building 40.3s (8/8) FINISHED docker:default

=> [internal] load build definition from Dockerfile 0.0s

=> => transferring dockerfile: 379B 0.0s

=> [internal] load metadata for docker.io/tiangolo/uwsgi-nginx-flask:python3.6 1.2s

=> [internal] load .dockerignore 0.0s

=> => transferring context: 2B 0.0s

=> [internal] load build context 0.2s

=> => transferring context: 4.21MB 0.1s

=> [1/3] FROM docker.io/tiangolo/uwsgi-nginx-flask:python3.6@sha256:07b3a61dc2f6d6b294065f929d33cdf6416133320cf61cc66b7cdb1428460e75 24.7s

=> => resolve docker.io/tiangolo/uwsgi-nginx-flask:python3.6@sha256:07b3a61dc2f6d6b294065f929d33cdf6416133320cf61cc66b7cdb1428460e75 0.0s

=> => sha256:22f54745300f3bcff5d61e3d1ad2f56ad0ee1c8e6150c9dedb9e93d23c0979ec 769B / 769B 0.2s

=> => sha256:2d8416768318fc03218e4d07952785c10dc2247829f12a0e171fb06282186e1 769B / 769B 0.2s

=> => sha256:c426d5c1c45db8d9cbc6180ead79e7d02448337255b5dca1cf8bb50425a1 158B / 158B 0.2s

=> => sha256:e8f1891867bb2616d34f886a3ce5018d5970aa9d78979bf21c3615e250927d6f 1.21kB / 1.21kB 0.2s

=> => sha256:e35b52c78ecbc3a83b4c850b8a4245ae0a3779fd70e9f9f081ef4957d785d87c 1.42MB / 1.42MB 0.2s

=> => sha256:8207fd6f90f6de062a0330e65077994726a229d5a1901875ea55ddc94b725f5 583B / 583B 0.2s

=> => sha256:dd4f9dfeb1aa3413c6195e0cc617fa3e8e93c7abfa132d8bcd3f45528dfae3e 566B / 566B 0.2s

=> => sha256:34a5c6a1c2a1a97545eb6578f728f35ab2948a70010899cd9cf14b6501aa1ba5 1.18kB / 1.18kB 0.2s

=> => sha256:9e7c88149aebf9056b6e760e6a8c5b8c3fae85727b59ea2f11c3c3b5a5721754 321B / 321B 0.2s

=> => sha256:885120729d88ef07f72a04774b37f5dd87f40b3706a2374c3fb5d53f5dd12489 1.18kB / 1.18kB 0.2s

=> => sha256:6be9e12f32d2504e33c99b232ef0d771fd54a214a11c4a50253820996d854739 464B / 464B 0.1s

=> => sha256:30a7f564ed9b7656309f4a3653c73fd46be5efeecc5bcc21ad855e45880e32f08 319B / 319B 0.2s

=> => sha256:665c733fa791b5b1df28fce65e9a5cb685beba70ab0fa0a3eb10358e1d25222a 466B / 466B 0.3s

=> => sha256:8d912340d42fd5298f74c7245724842c63186e0e412d535feff261adf5335c1a 468B / 468B 0.3s

=> => sha256:84955850c449a24d18b2449cc4b04b1e0fc92bc0da47ff71d9211aed3fc9b930 1.31MB / 1.31MB 0.2s

=> => sha256:f8c9873f4d43621c6e90da7d19e635cf3deab60dcb3cf62997b2ef7b9903ffa5 379B / 379B 0.2s

=> => sha256:acb7c5d0483a0a69632769b7ad92cbe54a435aed9603b0340e39acb0ff10edd2 3.35MB / 3.35MB 0.6s

4 17°C Sunny

Search

Cloud Shell

ENG IN

03:09 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) + Open Editor

```
=> => extracting sha256:0c185d5f06f52a76d6ab07ac7aad846305da1f872164d74d45c3341146f3743b 0.0s
=> => extracting sha256:f8c9873f4d43621c6e90da7d19e635cf3deab60dc3cf62997b2ef7b9903ffa5 0.0s
=> => extracting sha256:84955850c449a24d18b2449cc4b04ble0fc92bc0da47ff71d9211aed3fc9b930 0.1s
=> => extracting sha256:8d912340d42fd5298f74c7245724842c63186e0e412d535feff261adf5335c1a 0.0s
=> => extracting sha256:665c733fa791b5b1df28fce65e9a5cb685beba70ab0fa0a3eb10358e1d25222a 0.0s
=> => extracting sha256:6be9e12f32d2504e33c99b232ef0d771fd54a214a11c4a50253820996d854739 0.0s
=> => extracting sha256:30a7f564ed9b7656309f4a3653c73fd46be5feec5bcc21ad855e45880e32f08 0.0s
=> => extracting sha256:9e7c88149aebf9056b6e760e6a8c5b8c3fae85727b59ea2f11c3c3b5a5721754 0.0s
=> => extracting sha256:885120729d88ef07f72a04774b37f5dd87f40b3706a2374c3fb5d53f5dd12489 0.0s
=> => extracting sha256:34a5c6a1c2a1a97545eb6578f728f35ab2948a70010899cd9cf14b6501aa1ba5 0.0s
=> => extracting sha256:dd4f9dfeb1aa3413c6195e0cc617fa3e8e93c7abfa132d8bcd3f45528dfa3e 0.0s
=> => extracting sha256:c426d5c1c45db8d9cbc6180ead79e7d02448337255b5dca1cf8bbed50425a1 0.0s
=> => extracting sha256:e35b52c78ecbc3a83b4c850b8a4245ae0a3779fd70e9f9f081ef4957d785d87c 0.1s
=> => extracting sha256:8207fdd6f90f6de062a0330e65077994726a229d5a1901875ea55ddc94b725f5 0.0s
=> => extracting sha256:e8f1891867bb2616d34f886a3ce5018d5970aa9d78979bf21c3615e250927d6f 0.0s
=> => extracting sha256:2d8416768318fc03218e4d07952785c10dc2247829f12a0e171fb06282186e1 0.0s
=> => extracting sha256:22f54745300f3bcff5d61e3d1ad2f56adeee1c8e6150c9dedb9e93d23c0979ec 0.0s
=> [2/3] COPY ./app /app 1.4s
=> [3/3] RUN pip3 install -r /app/requirements.txt 9.6s
=> exporting to image 3.0s
=> => exporting layers 2.2s
=> => exporting manifest sha256:868980e7078d9257c313cdccb7f894c723bd6b0e06e3edffd8ff5d7e61d86f43 0.0s
=> => exporting config sha256:0b47bab8295b4782ed066993023b665d76f3838800115b4725bfa5e1f384f32b 0.0s
=> => exporting attestation manifest sha256:36922ef419fdadb60375dc963277f2dc69f619160dcaf484d40dfd5c7e06f28 0.0s
=> => exporting manifest list sha256:f4da77d34f9ff818d459e896a3cda4f41e6898914f5978097ff3ea4de5187c75 0.0s
=> => naming to europe-west4-docker.pkg.dev/qwiklabs-gcp-01-3fa3d4ecdb2b/gmemegen/gmemegen-app:v1 0.0s
=> => unpacking to europe-west4-docker.pkg.dev/qwiklabs-gcp-01-3fa3d4ecdb2b/gmemegen/gmemegen-app:v1 0.7s

1 warning found (use docker --debug to expand):
- LegacyKeyValueFormat: "ENV key=value" should be used instead of legacy "ENV key value" format (line 4)
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b) $
```

4 17°C Sunny

Search

Cloud Shell

ENG IN

03:09 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3f1 x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) x + Open Editor

```
=> => extracting sha256:acb7c5d0483a0a69632769b7ad92cbe54a435aed9603b0340e39acb0ff10edd2 0.3s
=> => extracting sha256:0c185d5f06f52a76d6ab07ac7aad846305da1f872164d74d45c3341146f3743b 0.0s
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ docker push ${REGION}-docker.pkg.dev/${PROJECT_ID}/gmemegen/gmemegen-app:v1
The push refers to repository [europe-west4-docker.pkg.dev/qwiklabs-gcp-01-3fa3d4ecdb2b/gmemegen/gmemegen-app]
9e7c88149aeb: Waiting
50544bfef33d: Waiting
84955850c449: Waiting
50544bfef33d: Pushed
c426d5c1c45d: Pushed
bbcед17b6899: Pushed
1d082f1c77ef: Pushed
ed4a97ae5ac7: Pushed
acb7c5d0483a: Pushed
885120729d88: Pushed
9b99af5931b3: Pushed
665c733fa791: Pushed
8207fdd6f90f: Pushed
964244a92902: Pushed
f8c9873f4d43: Pushed
1d4127870efc: Pushed
6be9e12f32d2: Pushed
ef5d3eb9cc29: Pushed
30a7f564ed9b: Pushed
dd4f9dfcb1aa: Pushed
2d8416768318: Pushed
b6013b3e77fe: Pushed
8b609dabefa8: Pushed
0c185d5f06f5: Pushed
22f54745300f: Pushed
82cee9e5607e: Pushed
aa6096e9247c: Pushed
```

4 17°C Sunny

Search

03:10 PM 15-01-2026 ENG IN

```
c426d5c1c45d: Pushed
bbc17b6899: Pushed
1d082f1c77ef: Pushed
ed4a97ae5ac7: Pushed
acb7c5d0483a: Pushed
885120729d88: Pushed
9b99af5931b3: Pushed
665c733fa791: Pushed
8207fdd6f90f: Pushed
964244a92902: Pushed
f8c9873f4d43: Pushed
1d4127870efc: Pushed
6be9e12f32d2: Pushed
ef5d3eb9cc29: Pushed
30a7f564ed9b: Pushed
dd4f9dfcb1aa: Pushed
2d8416768318: Pushed
b6013b3e77fe: Pushed
8b609dabefa8: Pushed
0c185d5f06f5: Pushed
22f54745300f: Pushed
82cee9e5607e: Pushed
aa6096e9247c: Pushed
34a5c6a1c2a1: Pushed
e8f1891867bb: Pushed
79b42778a55c: Pushed
bde3605d7017: Pushed
035717d61e63: Pushed
e35b52c78ecb: Pushed
v1: digest: sha256:f4da77d34f9ff818d459e896a3cda4f41e6898914f5978097ff3ea4de5187c75 size: 856
student_02_d29f53c8bdea@cloudshell:~/gmemegen (gwiklabs-gcp-01-3fa3d4ecdb2b) $
```

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 01:05:42 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4ecdb2b

Configure and deploy the GKE application

You must modify the Kubernetes deployment manifest for the gMemegen application to point at the correct container and configure the Cloud SQL Auth Proxy side-car with the connection string for the Cloud SQL PostgreSQL instance.

The instructions explain how to edit the file using the Cloud Shell Editor, but if you prefer you can use another editor, such as `vi` or `nano`, from Cloud Shell for these steps.

1. On the Cloud Shell menu bar, click **Open Editor** to open the Cloud Shell Editor.
2. Navigate the **Explorer** panel on the left hand side, expanding the `gmemegen` folder and then selecting `gmemegen_deployment.yaml` to edit the file.
3. On **line 33**, in the `image` attribute, replace  `${REGION}`  with `europe-west4` and  `${PROJECT_ID}`  with `qwiklabs-gcp-01-3fa3d4ecdb2b`. The line should now read:

```
image: europe-west4-docker.pkg.dev/qwiklabs-gcp-01-3fa3d4ecdb2b/gmemegen/gm
```

25/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Next >

< Previous

4 17°C Sunny

Search

ENG IN

03:00 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Contents Connect an App to a Cloud SQL for PostgreSQL Instance

Lab setup instructions and requirements

Protect your account and

End Lab 01:05:31 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: quickstart-gcp-01-3fa3d4ecdb2b

3. On line 33, in the `image` attribute, replace  `${REGION}`  with  `europe-west4`  and  `${PROJECT_ID}`  with  `quicklabs-gcp-01-3fa3d4ecdb2b` . The line should now read:

```
image: europe-west4-docker.pkg.dev/quicklabs-gcp-01-3fa3d4ecdb2b/gmemegen/gmeme
```

4. On line 60, replace  `${REGION}`  with  `europe-west4`  and  `${PROJECT_ID}`  with  `quicklabs-gcp-01-3fa3d4ecdb2b` . The line should now read:

```
-instances=quicklabs-gcp-01-3fa3d4ecdb2b:europe-west4:postgres-gmemegen=tcp
```

To confirm that the connection name is correct, in the Cloud Console, navigate to **Databases > SQL**, select the `postgres-gmemegen` instance and compare with the **Connection name** in the **Overview** pane. A valid connection name is of the format `PROJECT_ID:REGION:CLOUD_SQL_INSTANCE_ID`.

5. Save your changes by selecting **File > Save** from the Cloud Shell Editor menu.

6. In the Cloud console click the **Open Terminal** to re-open Cloud Shell. You may

25/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Next >

4 17°C Sunny

Search

ENG IN

03:00 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 01:05:26 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

To confirm that the connection name is correct, in the Cloud Console, navigate to **Databases > SQL**, select the `postgres-gmemegen` instance and compare with the **Connection name** in the **Overview** pane. A valid connection name is of the format `PROJECT_ID:REGION:CLOUD_SQL_INSTANCE_ID`.

5. Save your changes by selecting **File > Save** from the Cloud Shell Editor menu.

6. In the Cloud console click the **Open Terminal** to re-open Cloud Shell. You may need to resize the Terminal window by dragging down the handle at the centre top of the menu bar, in order to see your Cloud Console window above.

7. In Cloud Shell, deploy the application by running the following command:

```
kubectl create -f gmemegen_deployment.yaml
```

8. In Cloud Shell, check that the deployment was successful by running the following command:

```
kubectl get pods
```

25/100

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Next >

< Previous

4 17°C Sunny

Search

ENG IN 03:00 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 01:05:15 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

5. Save your changes by selecting **File > Save** from the Cloud Shell Editor menu.

6. In the Cloud console click the **Open Terminal** to re-open Cloud Shell. You may need to resize the Terminal window by dragging down the handle at the centre top of the menu bar, in order to see your Cloud Console window above.

7. In Cloud Shell, deploy the application by running the following command:

```
kubectl create -f gmemegen_deployment.yaml
```

8. In Cloud Shell, check that the deployment was successful by running the following command:

```
kubectl get pods
```

It may take a minute or so for the pods to start up, because they need to pull the image from the repository. Repeat the above command until you see a pod, with 2 containers, with status Running.

Click **Check my progress** to verify the objective.

25/100

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Previous Next

4 17°C Sunny

Search

ENG IN 03:00 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3f x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) +

Search (/) for resources, docs, products, and more

Open Editor

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b)

```
c426d5c1c45d: Pushed  
bbcfd17b6899: Pushed  
1d082f1c77ef: Pushed  
ed4a97ae5ac7: Pushed  
acb7c5d0483a: Pushed  
885120729d88: Pushed  
9b99af5931b3: Pushed  
665c733fa791: Pushed  
8207fdd6f90f: Pushed  
964244a92902: Pushed  
f8c9873f4d43: Pushed  
1d4127870efc: Pushed  
6be9e12f32d2: Pushed  
ef5d3eb9cc29: Pushed  
30a7f564ed9b: Pushed  
dd4f9dfcb1aa: Pushed  
2d8416768318: Pushed  
b6013b3e77fe: Pushed  
8b609dabefa8: Pushed  
0c185d5f06f5: Pushed  
22f54745300f: Pushed  
82cee9e5607e: Pushed  
aa6096e9247c: Pushed  
34a5c6a1c2a1: Pushed  
e8f1891867bb: Pushed  
79b42778a55c: Pushed  
bde3605d7017: Pushed  
035717d61e63: Pushed  
e35b52c78ecb: Pushed  
v1: digest: sha256:f4da77d34f9ff818d459e896a3cda4f41e6898914f5978097ff3ea4de5187c75 size: 856  
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b) $
```

4 17°C Sunny

Search

03:11 PM 15-01-2026 ENG IN

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Editor Open Terminal

File Edit Selection View Go Run Terminal Help student\_02\_d29f53c8bdea

EXPLORER STUDENT\_02\_D29F53C8BDEA gmemegen app cloud\_sql\_proxy cloudbuild.yaml0 CONTRIBUTING.md Dockerfile gmemegen\_deployment.yaml README.md setup.sh cloudsqli-service-account.json README-cloudshell.txt

Walkthrough: Setup Code OSS Web gmemegen\_deployment.yaml M x gmemegen > gmemegen\_deployment.yaml > {} spec > {} template > {} spec > [ ] containers > image

```
21
22 r:
23 : gmemegen
24 e:
25 ata:
26 els:
27 pp: gmemegen
28
29
30 his section describes the containers that make up the deployment
31 tainers:
32 name: gmemegen
33 image: europe-west4-docker.pkg.dev/qwiklabs-gcp-01-3fa3d4ecdb2b/gmemegen/gmemegen-app:v1
34 imagePullPolicy: Always
35 ports:
36 - containerPort: 8080
37 # Set env variables used for Postgres Connection
38 env:
39 - name: DB_USER
40   valueFrom:
41     secretKeyRef:
42       name: cloudsqli-db-credentials
43       key: username
44 - name: DB_PASS
45   valueFrom:
46     secretKeyRef:
```

Hello, student  
How can Gemini help?

Tips for getting started

- Open a file, get code suggestions as you type, and press `tab` to accept
- Press `ctrl/cmd+i` to ask Gemini to create or modify code
- Select code in the editor to reveal additional Gemini actions, such as `Explain Code`
- Pass in files to take advantage of Gemini Code

master\* 0 0 Cloud Code - No Project Ln 33, Col 74 Spaces: 2 UTF-8 LF {} YAML Layout: US 17°C Sunny

Search

03:12 PM 15-01-2026 ENG IN



Dashboard – qwiklabs-gcp-01-3fa... – qwiklabs-gcp-01-3fa... – Google +

https://console.cloud.google.com/welcome?project=qwiklabs-gcp-01-3fa3d4ecdb2b

Free AI Paraphrasin... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b

Welcome

You're working in [qwiklabs-gcp-01-3f...](#)

Project number: 553543977972

Dashboard Cloud Hub New

+ Create a VM + Run a query in BigQuery + Create a storage bucket

Recommended based on your activity

Unlock powerful insights

You use Logging for app data; now get data from images. Automatically extract text, detect objects, and understand image content to save time on manual business tasks.

See code samples

Cloud SQL

generative ai rag with cloud sql

X Search

Top results

-  [Cloud SQL](#)  
Product · Managed MySQL, PostgreSQL, SQL Server
-  [Cloud SQL](#)  
Marketplace · A fully-managed MySQL, PostgreSQL, and SQL Server database service
-  [Monitoring](#)  
Product · Infrastructure and application quality checks

Products & pages

-  [Cloud SQL](#)  
Product · Managed MySQL, PostgreSQL, SQL Server
-  [Monitoring](#)  
Product · Infrastructure and application quality checks
-  [Databases home](#)  
Product · Menu for core database services

Documentation & tutorials

-  [Cloud SQL for MySQL, PostgreSQL, and SQL Server](#)  
Documentation · Cloud SQL is a service that delivers fully managed relational databases in the...
-  [Cloud SQL overview](#)

ENG IN 03:14 PM 15-01-2026

4 17°C Sunny

Search

Cloud SQL

Cloud SQL

Monitoring

Databases home

Cloud SQL for MySQL, PostgreSQL, and SQL Server

Cloud SQL overview

Dashboard – qwiklabs-gcp-01-3fa... – postgres-gmemegen – Overview + https://console.cloud.google.com/sql/instances/postgres-gmemegen/overview?project=qwiklabs-gcp-01-3fa3d4ecdb2b | 2

Free AI Paraphrasin... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Cloud SQL Cloud SQL Overview Edit Import Export Restart Stop Delete Clone Migrate to AlloyDB Search

Primary instance

Overview Cloud SQL Studio System insights Query insights Connections Users Databases Backups Replicas Operations Release Notes

Get started in Datastream

Connect to this instance

Connection name	qwiklabs-gcp-01-3fa3d4ecdb2b:europe-west4:postgres-gmemegen
Private IP connectivity	Disabled
Public IP connectivity	Enabled
Public IP address	34.6.235.149
Outgoing IP address	34.12.122.12
Default TCP database port number	5432

Need help connecting?  
Review the documentation to learn about the many ways to connect to your instance. [Learn more](#)

To connect using gcloud,  
[Open Cloud Shell](#)

Suggested actions

Auto storage increase is enabled

Backup Tier: Standard

Automated backups are enabled  
Stored in Multi-region: default

Point-in-time recovery is disabled

Instance deletion prevention is disabled

Backup retention after deletion is disabled

Located in europe-west4-a

Not highly available (zonal)

Database flags and parameters  
Vertex AI Integration is disabled

No labels set

Edit configuration

Maintenance

4 17°C Sunny

Search

ENG IN 03:16 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3f1 ✘ postgres-gmemegen – Overview – Cli +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) + Open Editor

```
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ kubectl create -f gmemegen_deployment.yaml
deployment.apps/gmemegen created
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ kubectl get pods
NAME           READY   STATUS      RESTARTS   AGE
gmemegen-95bc6cf8c-fb7jm   0/2     ContainerCreating   0          8s
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ kubectl get pods
NAME           READY   STATUS      RESTARTS   AGE
gmemegen-95bc6cf8c-fb7jm   0/2     ContainerCreating   0          17s
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ kubectl get pods
NAME           READY   STATUS      RESTARTS   AGE
gmemegen-95bc6cf8c-fb7jm   0/2     ContainerCreating   0          20s
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ kubectl get pods
NAME           READY   STATUS    RESTARTS   AGE
gmemegen-95bc6cf8c-fb7jm   2/2     Running   0          2m34s
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ █
```

4 17°C Sunny

Search

03:19 PM 15-01-2026 ENG IN

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

## Task 3. Connect the GKE application to an external load balancer

In this task you will create a load balancer to marshal requests between the containers in your GKE pods and access the application using its external IP address from your browser.

### Create a load balancer to make your GKE application accessible from the web

In this step you will create a Kubernetes load balancer service that will provide your application with a public IP address.

1. In Cloud Shell, run the following command to create a load balancer for the application:

```
kubectl expose deployment gmemegen \
  --type "LoadBalancer" \
  --port 80 --target-port 8080
```

50/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

17°C 4 Sunny ENG IN 03:19 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 00:46:13 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeaf

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

Create a load balancer to make your GKE application accessible from the web

In this step you will create a Kubernetes load balancer service that will provide your application with a public IP address.

1. In Cloud Shell, run the following command to create a load balancer for the application:

```
kubectl expose deployment gmemegeen \
  --type "LoadBalancer" \
  --port 80 --target-port 8080
```

Test the application to generate some data

In this step you will access the gMemegen application from your web browser.

The application has a very simple interface. It launches to the application home page, which displays 6 candidate images for making memes. You can select an image by clicking on it.

50/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Previous Next

4 17°C Sunny

Search

ENG IN

03:19 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3f | postgres-gmemegen – Overview – Cli +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) + Open Editor

```
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ kubectl expose deployment gmemegen \
--type "LoadBalancer" \
--port 80 --target-port 8080
service/gmemegen exposed
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$
```

4 17°C Sunny

Search

03:20 PM 15-01-2026 ENG IN

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 00:44:46 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

Test the application to generate some data

In this step you will access the gMemegen application from your web browser.

The application has a very simple interface. It launches to the application home page, which displays 6 candidate images for making memes. You can select an image by clicking on it.

The **Create Meme** page is displayed, where you enter two items of text, to be displayed at the top and bottom of the image. Clicking **Submit** renders the meme and displays it. The interface provides no navigation from the completed meme page. You will have to use the browser's back button to return to the home page.

There are two other pages, **Recent** and **Random**, which display a set of recently generated memes and a random meme, respectively. Generating memes and navigating the UI will generate database activity which you can view in the logs as described below.

Wait for the load balancer to expose an external IP, which you can retrieve as follows:

1. In Cloud Shell, copy the external IP address attribute of the LoadBalancer Ingress from the output of:

50/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Previous Next

4 17°C Sunny

Search

03:21 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 00:44:36 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal Password: q1cf0H6nq4Vu Project ID: qwiklabs-gcp-01-3fa3d4e

1. In Cloud Shell, copy the external IP address attribute of the LoadBalancer Ingress from the output of:

```
kubectl describe service gmemegen
```

Output:

Name:	gmemegen
Namespace:	default
Labels:	app=gmemegen
Annotations:	<none>
Selector:	app=gmemegen
Type:	LoadBalancer
IP Families:	<none>
IP:	10.3.240.201
IPs:	10.3.240.201
LoadBalancer Ingress:	34.67.122.203
Port:	<unset> 80/TCP
TargetPort:	8080/TCP
NodePort:	<unset> 31837/TCP
Endpoints:	10.0.0.7:8080

50/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Next >

4 17°C Sunny Search

ENG IN 03:21 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL Instance

Lab setup instructions and requirements

Protect your account and 00:44:24 End Lab Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal Password: q1cf0H6nq4Vu Project ID: qwiklabs-gcp-01-3fa3d4e

Nominal EnsuredLoadBalancer 30s SERVICE\_CONTROLLER Ensured load balancer

</unset></unset></none></none>

It will take a minute or so for the LoadBalancer Ingress attribute to be included in the output (see above), so repeat the command until it is there before performing the next step.

2. In a browser, navigate to the load balancer's Ingress IP address.

You can create a clickable link to the external IP address of the load balancer in Cloud Shell using the following commands:

```
export LOAD_BALANCER_IP=$(kubectl get svc gmemegen \
-o=jsonpath='{.status.loadBalancer.ingress[0].ip}' -n default)
echo gMemegen Load Balancer Ingress IP: http://$LOAD_BALANCER_IP
```

4. Click the link in Cloud Shell and you will see the gMemegen application running in a new tab in your browser.

5. Create a meme as follows:

- On the Home page, click on one of the presented images.

50/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Next >

4 17°C Sunny

Search

ENG IN

03:21 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 00:44:09 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

50/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

my GKE app is connected to Cloud SQL

YES!!!

Enter text in the **Top** and **Bottom** text boxes.

Click the **Submit** button.

Your new meme is displayed.

6. To create more memes, use the browser's back button to navigate to the home page.

7. To view existing memes, click **Recent** or **Random** in the application menu. (Note that **Random** opens a new browser tab)

8. In Cloud Shell, view the application's activity by running the following:

Previous Next

4 17°C Sunny

Search

ENG IN

03:21 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 00:44:03 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cfoH6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

YES!!!

50/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

6. To create more memes, use the browser's back button to navigate to the home page.

7. To view existing memes, click **Recent** or **Random** in the application menu. (Note that **Random** opens a new browser tab)

8. In Cloud Shell, view the application's activity by running the following:

```
POD_NAME=$(kubectl get pods --output=json | jq -r ".items[0].metadata.name")
kubectl logs $POD_NAME gmemegen | grep "INFO"
```

This queries the logs from the `gmemegen` container and will display the activity of the application on the pod, including the SQL statements, which are logged to stderr as they are executed.

Previous Next >

4 17°C Sunny

Search

ENG IN

03:22 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa3d4ecdb2b x postgres-gmemegen – Overview – Cli +

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) + Open Editor

```
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ kubectl describe service gmemegen
Name: gmemegen
Namespace: default
Labels: app=gmemegen
Annotations: cloud.google.com/neg: {"ingress":true}
Selector: app=gmemegen
Type: LoadBalancer
IP Family Policy: SingleStack
IP Families: IPv4
IP: 34.118.236.169
IPs: 34.118.236.169
LoadBalancer Ingress: 34.7.255.163 (VIP)
Port: <unset> 80/TCP
TargetPort: 8080/TCP
NodePort: <unset> 32278/TCP
Endpoints: 10.104.1.5:8080
Session Affinity: None
External Traffic Policy: Cluster
Internal Traffic Policy: Cluster
Events:
  Type Reason Age From Message
  ---- ---- -- -- -----
  Normal EnsuringLoadBalancer 2m16s service-controller Ensuring load balancer
  Normal EnsuredLoadBalancer 99s service-controller Ensured load balancer
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$
```

4 17°C Sunny

Search

ENG IN 03:22 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3f | postgres-gmemegen – Overview – Cloud Shell

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b)

Search (/) for resources, docs, products, and more

Open Editor

CLOUD SHELL

```
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ export LOAD_BALANCER_IP=$(kubectl get svc gmemegen \
-o=jsonpath='{.status.loadBalancer.ingress[0].ip}' -n default)
echo gMemegen Load Balancer Ingress IP: http://$LOAD_BALANCER_IP
gMemegen Load Balancer Ingress IP: http://34.7.255.163
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$
```

4 17°C Sunny

Search

Cloud Shell

ENG IN

03:23 PM 15-01-2026

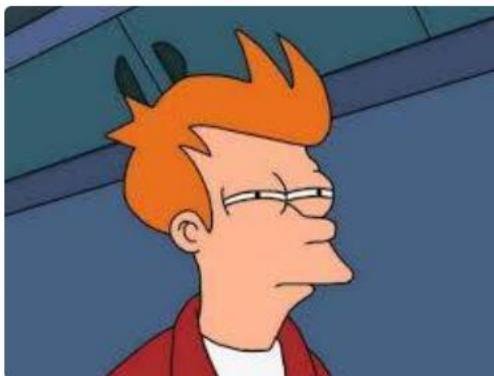
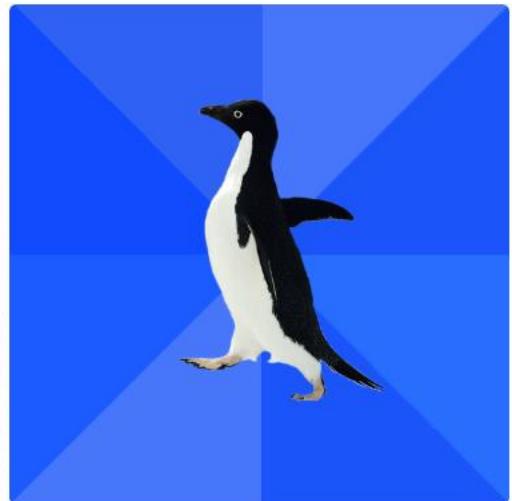
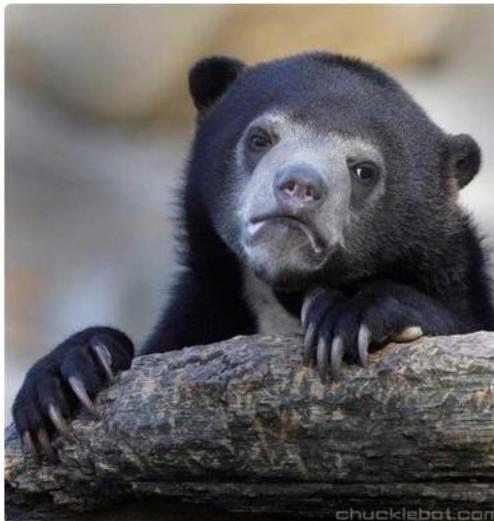
Dashboard – qwiklabs-gcp-01-3fa... | postgres-gmemegen – Overview – Cl gMemegen x +

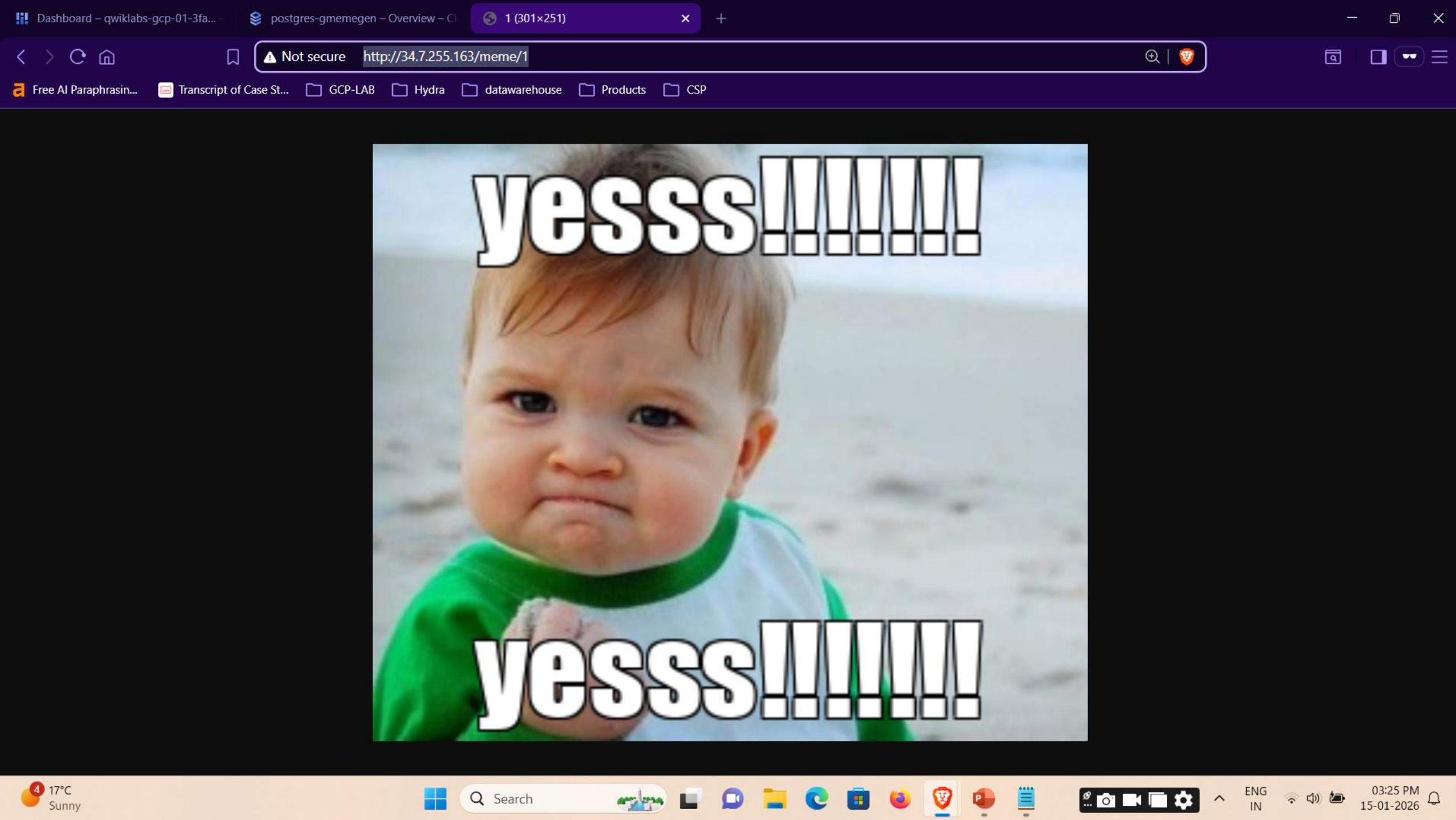
Not secure http://34.7.255.163/template

Free AI Paraphrasin... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

gMemegen Home Recent Random

## Create your meme





Dashboard – qwiklabs-gcp-01-3fa... | postgres-gmemegen – Overview – Cli | gMemegen x +

Not secure http://34.7.255.163/recent

Free AI Paraphrasin... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

gMemegen Home Recent Random

## Recent Memes



Rendered in 23 ms

4 17°C Sunny

Search

03:25 PM 15-01-2026

https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-3fa3d4ecdb2b&pli=1&cloudshell=true

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) + Open Editor

```
student_02_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)$ POD_NAME=$(kubectl get pods --output=json | jq -r ".items[0].metadata.name")  
kubectl logs $POD_NAME gmemegen | grep "INFO"  
2026-01-15 09:46:47,278 INFO Included extra file "/etc/supervisor/conf.d/supervisord.conf" during parsing  
2026-01-15 09:46:47,288 INFO RPC interface 'supervisor' initialized  
2026-01-15 09:46:47,288 INFO supervisord started with pid 1  
2026-01-15 09:46:48,291 INFO spawned: 'quit_on_failure' with pid 10  
2026-01-15 09:46:48,294 INFO spawned: 'nginx' with pid 11  
2026-01-15 09:46:48,297 INFO spawned: 'uwsgi' with pid 12  
2026-01-15 09:46:48,308 INFO success: nginx entered RUNNING state, process has stayed up for > than 0 seconds (startsecs)  
2026-01-15 09:46:48,308 INFO success: uwsgi entered RUNNING state, process has stayed up for > than 0 seconds (startsecs)  
2026-01-15 09:46:49,339 INFO success: quit_on_failure entered RUNNING state, process has stayed up for > than 1 seconds (startsecs)  
2026-01-15 09:53:53,619 INFO sqlalchemy.engine.Engine select pg_catalog.version()  
2026-01-15 09:53:53,620 INFO sqlalchemy.engine.Engine [raw sql] ()  
2026-01-15 09:53:53,629 INFO sqlalchemy.engine.Engine select current_schema()  
2026-01-15 09:53:53,629 INFO sqlalchemy.engine.Engine [raw sql] ()  
2026-01-15 09:53:53,634 INFO sqlalchemy.engine.Engine show standard_conforming_strings  
2026-01-15 09:53:53,634 INFO sqlalchemy.engine.Engine [raw sql] ()  
2026-01-15 09:53:53,638 INFO sqlalchemy.engine.Engine BEGIN (implicit)  
2026-01-15 09:53:53,640 INFO sqlalchemy.engine.Engine select relname from pg_class c join pg_namespace n on n.oid=c.relnamespace where pg_catalog.pg_table_is_visible(c.oid) and relname=%s  
2026-01-15 09:53:53,640 INFO sqlalchemy.engine.Engine [generated in 0.00033s] ('meme',)  
2026-01-15 09:53:53,651 INFO sqlalchemy.engine.Engine  
2026-01-15 09:53:53,652 INFO sqlalchemy.engine.Engine [no key 0.00024s] ()  
2026-01-15 09:53:53,720 INFO sqlalchemy.engine.Engine COMMIT  
2026-01-15 09:53:53,998 INFO sqlalchemy.engine.Engine select pg_catalog.version()  
2026-01-15 09:53:53,999 INFO sqlalchemy.engine.Engine [raw sql] ()  
2026-01-15 09:53:54,004 INFO sqlalchemy.engine.Engine select current_schema()  
2026-01-15 09:53:54,004 INFO sqlalchemy.engine.Engine [raw sql] ()  
2026-01-15 09:53:54,008 INFO sqlalchemy.engine.Engine show standard_conforming_strings  
2026-01-15 09:53:54,008 INFO sqlalchemy.engine.Engine [raw sql] ()  
2026-01-15 09:53:54,011 INFO sqlalchemy.engine.Engine BEGIN (implicit)
```

Dashboard – qwiklabs-gcp-01-3f1 ✘ postgres-gmemegen – Overview – Cli | gMemegen +

Free AI Paraphrasing... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) + Open Editor

```
2026-01-15 09:53:53,998 INFO sqlalchemy.engine.Engine select pg_catalog.version()
2026-01-15 09:53:53,999 INFO sqlalchemy.engine.Engine [raw sql] ()
2026-01-15 09:53:54,004 INFO sqlalchemy.engine.Engine select current_schema()
2026-01-15 09:53:54,004 INFO sqlalchemy.engine.Engine [raw sql] ()
2026-01-15 09:53:54,008 INFO sqlalchemy.engine.Engine show standard_conforming_strings
2026-01-15 09:53:54,008 INFO sqlalchemy.engine.Engine [raw sql] ()
2026-01-15 09:53:54,011 INFO sqlalchemy.engine.Engine BEGIN (implicit)
2026-01-15 09:53:54,013 INFO sqlalchemy.engine.Engine select relname from pg_class c join pg_namespace n on n.oid=c.relnamespace where pg_catalog.pg_table_is_visible(c.oid) and relname=%s
2026-01-15 09:53:54,014 INFO sqlalchemy.engine.Engine [generated in 0.00038s] ('meme',)
2026-01-15 09:53:54,022 INFO sqlalchemy.engine.Engine COMMIT
2026-01-15 09:54:58,472 INFO sqlalchemy.engine.Engine BEGIN (implicit)
2026-01-15 09:54:58,475 INFO sqlalchemy.engine.Engine INSERT INTO meme (template, top_text, bot_text) VALUES (%s, %s, %s) RETURNING meme.id
2026-01-15 09:54:58,475 INFO sqlalchemy.engine.Engine [generated in 0.00034s] ('successkid.jpg', 'yesss!!!!!!', 'yesss!!!!!!')
2026-01-15 09:54:58,483 INFO sqlalchemy.engine.Engine COMMIT
2026-01-15 09:54:58,488 INFO sqlalchemy.engine.Engine BEGIN (implicit)
2026-01-15 09:54:58,492 INFO sqlalchemy.engine.Engine SELECT meme.id AS meme_id, meme.template AS meme_template, meme.top_text AS meme_top_text, meme.bot_text AS meme_bot_text
2026-01-15 09:54:58,492 INFO sqlalchemy.engine.Engine [generated in 0.00033s] (1,)
2026-01-15 09:54:58,499 INFO sqlalchemy.engine.Engine ROLLBACK
2026-01-15 09:54:58,693 INFO sqlalchemy.engine.Engine BEGIN (implicit)
2026-01-15 09:54:58,695 INFO sqlalchemy.engine.Engine SELECT meme.id AS meme_id, meme.template AS meme_template, meme.top_text AS meme_top_text, meme.bot_text AS meme_bot_text
2026-01-15 09:54:58,695 INFO sqlalchemy.engine.Engine [generated in 0.00031s] (1, 1)
2026-01-15 09:54:58,804 INFO sqlalchemy.engine.Engine ROLLBACK
2026-01-15 09:55:31,088 INFO sqlalchemy.engine.Engine BEGIN (implicit)
2026-01-15 09:55:31,092 INFO sqlalchemy.engine.Engine SELECT meme.id AS meme_id, meme.template AS meme_template, meme.top_text AS meme_top_text, meme.bot_text AS meme_bot_text
2026-01-15 09:55:31,092 INFO sqlalchemy.engine.Engine [generated in 0.00036s] (20,)
2026-01-15 09:55:31,104 INFO sqlalchemy.engine.Engine ROLLBACK
```

student\_02\_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b) \$

4 17°C Sunny Search

ENG IN 03:26 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 00:39:33 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

Task 4. Verify full read/write capabilities of application to database

In this task you will verify that the application is able to write to and read from the database.

Connect to the database and query an application table

In this step you will connect to the Cloud SQL instance by running PL/SQL in Cloud Shell.

1. In Google Cloud Console, navigate to Databases > SQL and select the postgres-gmemegen instance.
2. In the Overview pane, scroll down to Connect to this instance and click the Open Cloud Shell button.
3. Run the auto-populated command in Cloud Shell.
4. When prompted, enter the password: supersecret!

50/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Previous Next

4 17°C Sunny

Search

ENG IN

03:26 PM 15-01-2026

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Lab setup instructions and requirements

Protect your account and

End Lab 00:39:17 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-d29f53c8bdeal

Password: q1cf0H6nq4Vu

Project ID: qwiklabs-gcp-01-3fa3d4e

Connect to the database and query an application table

In this step you will connect to the Cloud SQL instance by running PL/SQL in Cloud Shell.

1. In Google Cloud Console, navigate to Databases > SQL and select the `postgres-gmemegen` instance.
2. In the Overview pane, scroll down to Connect to this instance and click the Open Cloud Shell button.
3. Run the auto-populated command in Cloud Shell.
4. When prompted, enter the password: `supersecret!`
5. At the `postgres=>` prompt enter the following command to select the `gmemegen_db` database:  
`\c gmemegen_db`
6. When prompted, enter the password: `supersecret!`

50/100 Lab instructions and tasks

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Previous Next

4 17°C Sunny

Search

03:26 PM 15-01-2026 ENG IN

Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course\_templates/652/labs/564280

Free AI Paraphrasing... Transcript of Case Study GCP-LAB Hydra datawarehouse Products CSP

Google Cloud Partner

Dashboard Catalog Paths

Contents Connect an App to a Cloud SQL for PostgreSQL I

Open Cloud Shell button.

3. Run the auto-populated command in Cloud Shell.

4. When prompted, enter the password: supersecret!

5. At the `postgres=>` prompt enter the following command to select the `gmemegen_db` database:

```
\c gmemegen_db
```

6. When prompted, enter the password: supersecret!

7. At the `gmemegen_db=>` prompt enter:

```
select * from meme;
```

This will display a row for each meme you have generated through the gMemegen app.

Click **Check my progress** to verify the objective.

100/100

GSP919 Overview Setup and requirements Task 1. Initialize APIs and create a Cloud IAM service account Task 2. Deploy a lightweight GKE application Task 3. Connect the GKE application to an external load balancer Task 4. Verify full read/write capabilities of application to database Congratulations!

Next >

16°C Sunny

Search

ENG IN

03:32 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa... – postgres-gmemegen – Overview – gMemegen +

https://console.cloud.google.com/sql/instances/postgres-gmemegen/overview?project=qwiklabs-gcp-01-3fa3d4ecdb2b | 1

Free AI Paraphrasin... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

Cloud SQL Overview Edit Import Export Restart Stop Delete Clone Migrate to AlloyDB

Primary instance

Overview Cloud SQL Studio System insights Query insights Connections Users Databases Backups Replicas Operations Release Notes

Connection name: **qwiklabs-gcp-01-3fa3d4ecdb2b:europe-west4:postgres-gmemegen**

Private IP connectivity: **Disabled**

Public IP connectivity: **Enabled**

Public IP address: **34.6.235.149**

Outgoing IP address: **34.12.122.12**

Default TCP database port number: **5432**

Need help connecting?

Review the documentation to learn about the many ways to connect to your instance. [Learn more](#)

To connect using gcloud, [Open Cloud Shell](#)

Suggested actions

→ Enable high availability

Service account

Automated backups are enabled  
Stored in Multi-region: default

Point-in-time recovery is disabled

Instance deletion prevention is disabled

Backup retention after deletion is disabled

Located in europe-west4-a

Not highly available (zonal)

Database flags and parameters

Vertex AI Integration is disabled

No labels set

Edit configuration

Maintenance

Maintenance timing: **Cloud SQL chooses the maintenance timing.**

Maintenance window: **Updates may occur any day of the week.**

4 17°C Sunny

Search

17°C Sunny

ENG IN 03:27 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa... – postgres-gmemegen – Overview – gMemegen +

https://console.cloud.google.com/sql/instances/postgres-gmemegen/overview?project=qwiklabs-gcp-01-3fa3d4ecdb2b&cloudshell=true | 3

Free AI Paraphrasin... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

Cloud SQL Overview Edit Import Export Restart Stop Delete Clone Migrate to AlloyDB

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) + Open Editor

2026-01-15 09:55:31,104 INFO sqlalchemy.engine.Engine ROLLBACK  
student\_02\_d29f53c8bdea@cloudshell:~/gmemegen (qwiklabs-gcp-01-3fa3d4ecdb2b)\$ gcloud sql connect postgres-gmemegen --user=postgres --quiet  
Allowlisting your IP for incoming connection for 5 minutes...done.  
Connecting to database with SQL user [postgres].Password:  
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 13.23)  
SSL connection (protocol: TLSv1.3, cipher: TLS\_AES\_256\_GCM\_SHA384, compression: off)  
Type "help" for help.

postgres=>  
postgres=> \c gmemegen\_db  
Password:  
connection to server at "34.6.235.149", port 5432 failed: fe\_sendauth: no password supplied  
Previous connection kept  
postgres=> \c gmemegen\_db  
Password:  
connection to server at "34.6.235.149", port 5432 failed: FATAL: password authentication failed for user "postgres"  
connection to server at "34.6.235.149", port 5432 failed: FATAL: password authentication failed for user "postgres"  
Previous connection kept  
postgres=> \c gmemegen\_db  
Password:  
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 13.23)

Air: Severe Sunday 3 Search Eng IN 03:31 PM 15-01-2026

Dashboard – qwiklabs-gcp-01-3fa... – postgres-gmemegen – Overview – gMemegen +

https://console.cloud.google.com/sql/instances/postgres-gmemegen/overview?project=qwiklabs-gcp-01-3fa3d4ecdb2b&cloudshell=true | 3

Free AI Paraphrasin... Transcript of Case St... GCP-LAB Hydra datawarehouse Products CSP

Google Cloud qwiklabs-gcp-01-3fa3d4ecdb2b Search (/) for resources, docs, products, and more Search

Cloud SQL Overview Edit Import Export Restart Stop Delete Clone Migrate to AlloyDB

CLOUD SHELL Terminal (qwiklabs-gcp-01-3fa3d4ecdb2b) + Open Editor

```
postgres=>
postgres=>
postgres=>
postgres=>
postgres=>
postgres=>
postgres=>
postgres=> \c gmemegen_db
Password:
connection to server at "34.6.235.149", port 5432 failed: fe_sendauth: no password supplied
Previous connection kept
postgres=> \c gmemegen_db
Password:
connection to server at "34.6.235.149", port 5432 failed: FATAL:  password authentication failed for user "postgres"
connection to server at "34.6.235.149", port 5432 failed: FATAL:  password authentication failed for user "postgres"
Previous connection kept
postgres=> \c gmemegen_db
Password:
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 13.23)
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
You are now connected to database "gmemegen_db" as user "postgres".
gmemegen_db=>
gmemegen_db=>
gmemegen_db=> select * from meme;
 id | template | top_text | bot_text
---+---+---+---+
  1 | successkid.jpg | yessss!!!!!! | yessss!!!!!!
(1 row)

gmemegen_db=>
```

Air: Severe Sunday

Search

03:31 PM 15-01-2026 ENG IN