

Google Cloud Workshop

By:- Mr Vimal Daga Sir



Google Cloud

Summary:

Day 1, 22 August 2020

We started the session with a discussion on cloud computing and its real-world use cases. We discussed the data centre Google has on a regional basis and why a region contains 3 zones generally for tackling the disaster kind of situation. On the very first day, we learnt about how to create VM instance i.e. how to launch an operating system on GCP on default VPC with the help of compute engine service provided by the GCP. And then in second practice, we have created 2 different VPC with 1 o.s. launch on each VPC i.e. on the subnet. and then we used VPC peering to share data over both this separate VPC located at a different location. And we also learnt to configure the firewall for these networks.

Day 2, 23 August 2020

We started our discussion with Kubernetes Or GKE i.e. Google Kubernetes Engine. We discuss how Kubernetes provides a high-level feature to provide management over the master-slave architecture of nodes. If somehow some pod fails then Kubernetes has the power to launch the o.s. on pod again. Then we discussed the clusters and launch our first Kubernetes cluster with Kubernetes service of GCP. and then we create 3 nodes on 3 different zones in one region Singapore. We also discussed scale-out deployment and replication mechanism and then we launched our first WordPress docker image on GCP with Kubernetes.

In the second half, we discussed the SQL service of GCP which is similar to RDS of AWS. Then we create our first database in SQL and launch it on the GCP.

We also discussed the load balancer and how it can be achieved to manage very large traffic on your website.

Then finally we discussed the IAM service used to provide various accessibility like viewing, editing to the different users on any project.

Thank You Note To LinuxWorld:-

Have an amazing 2 days workshop on GCP(Google Cloud Platform) organized by [LinuxWorld Informatics Pvt Ltd](#) under the guidance of world record holder Mr [Vimal Daga](#) sir. The workshop covers all the useful services of GCP from basic to advanced. Covering services from compute engine, VPC, VPC peering to Kubernetes cluster and so many. The way Vimal sir teaches is absolutely what the [#righteducation](#) means. Thanks, Mr [Vimal Daga](#) sir for this wonderful workshop. Expecting some more training and workshop from [#linuxworld](#).



Task Description:-

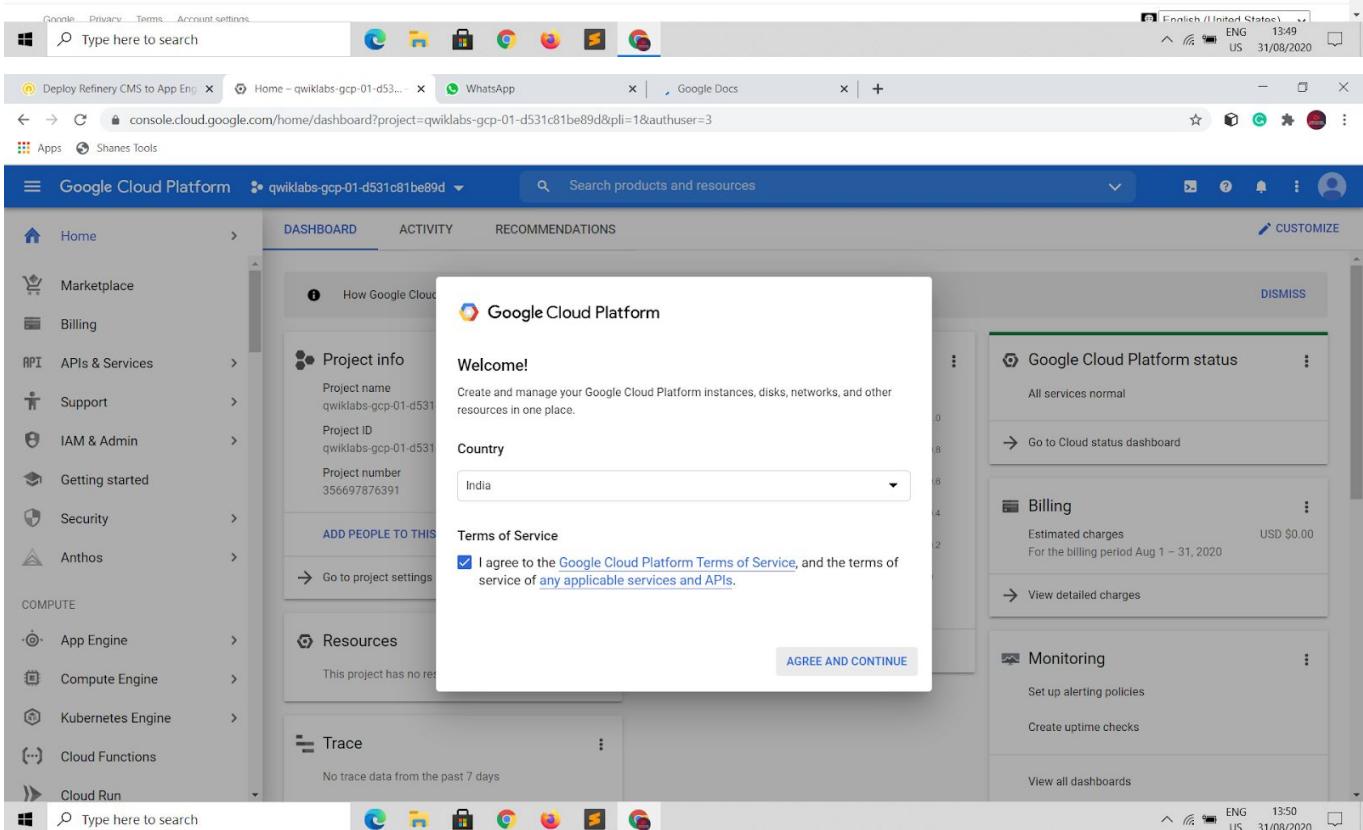
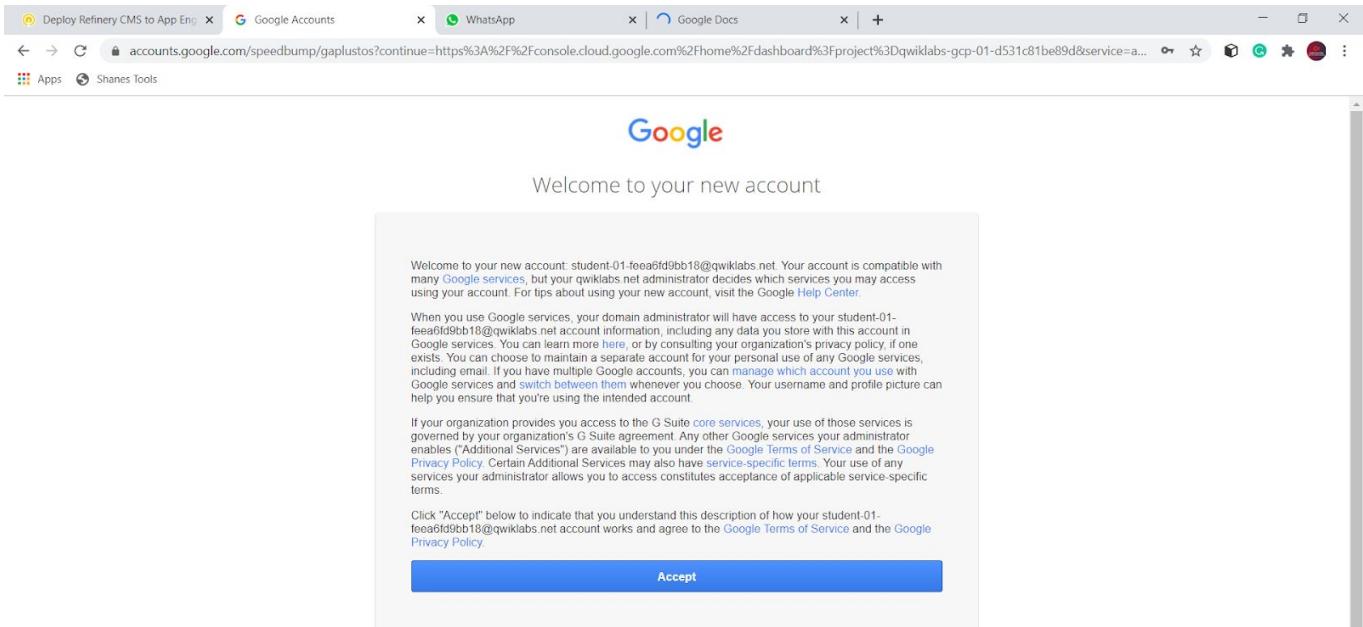
The Below Tasks are performed on Qwiklabs in a Single Project

! Task Details !

1. Create multiple projects namely developer and production
2. Create a VPC network for both the projects
3. Create a link between both the VPC networks using VPC Peering
4. Create a Kubernetes Cluster in developer project and launch any web application with the Load balancer
5. Create a SQL server in the production project and create a database
6. Connect the SQL database to the web application launched in the Kubernetes cluster

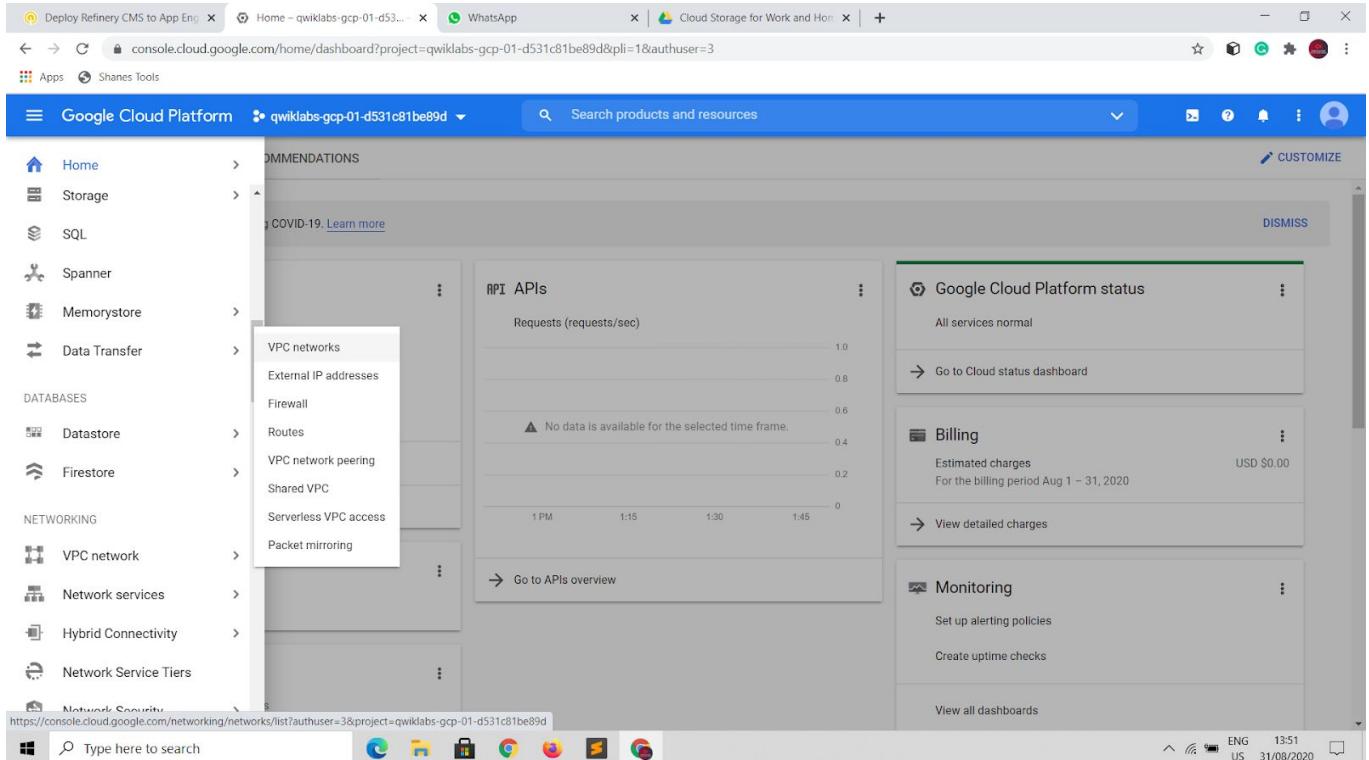
Task 1: Create multiple projects namely developer and production.

Since the Task is performed on Qwiklabs so the project is already created.



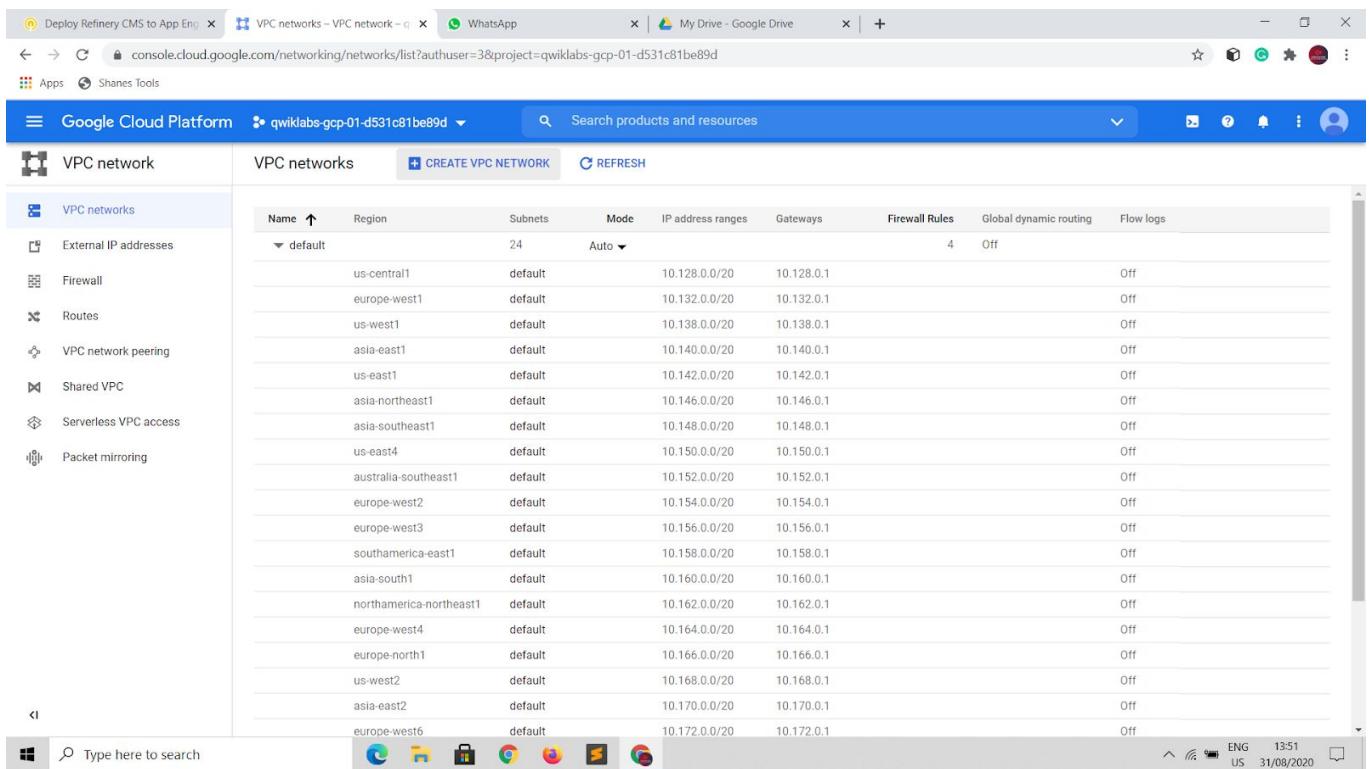
Task 2: Create a VPC network for both the projects

Since we are having the same project so we are creating 2 different vpc in the same project.



The screenshot shows the Google Cloud Platform dashboard. The left sidebar has a 'VPC network' section with several options: VPC networks, External IP addresses, Firewall, Routes, VPC network peering, Shared VPC, Serverless VPC access, and Packet mirroring. The 'VPC networks' option is currently selected and highlighted with a white background and black border. The main content area displays API APIs usage statistics and various monitoring and status cards.

Creating myvpc1:



The screenshot shows the 'VPC networks' list page in the Google Cloud Platform. On the left, there's a sidebar with options like VPC networks, External IP addresses, Firewall, Routes, VPC network peering, Shared VPC, Serverless VPC access, and Packet mirroring. The main area is titled 'VPC networks' and contains a table with columns: Name, Region, Subnets, Mode, IP address ranges, Gateways, Firewall Rules, Global dynamic routing, and Flow logs. A new row is being created, with 'Name' set to 'default', 'Region' set to 'us-central1', and 'Mode' set to 'Auto'. The table shows many other existing VPC networks across various regions with their respective configurations.

Deploy Refinery CMS to App Eng | Create a VPC network - VPC net | WhatsApp | 22ndAug2020 - Google Docs | 23rdAug2020 GCP - Google Doc | +

console.cloud.google.com/networking/networks/add?authuser=3&project=qwiklabs-gcp-01-d531c81be89d

Apps Shanes Tools

Google Cloud Platform qwiklabs-gcp-01-d531c81be89d Search products and resources

VPC network [Create a VPC network](#)

VPC networks External IP addresses Firewall Routes VPC network peering Shared VPC Serverless VPC access Packet mirroring

Name * myvpc1 Lowercase letters, numbers, hyphens allowed Description

Subnets
Subnets let you create your own private cloud topology within Google Cloud. Click Automatic to create a subnet in each region, or click Custom to manually define the subnets. [Learn more](#)

Subnet creation mode Custom Automatic

New subnet

Name * lab1 Lowercase letters, numbers, hyphens allowed Add a description Region *

ENG US 13:53 31/08/2020

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console.cloud.google.com/networking/networks/add?authuser=3&project=qwiklabs-gcp-01-d531c81be89d

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VPC network [Create a VPC network](#)

VPC networks External IP addresses Firewall Routes VPC network peering Shared VPC Serverless VPC access Packet mirroring

New subnet

Name * lab1 Lowercase letters, numbers, hyphens allowed Add a description Region * asia-east1 IP address range * 10.0.1.0/24 Create secondary IP range Private Google access ? On Off Flow logs Turning on VPC flow logs doesn't affect performance, but some systems generate a large number of logs, which can increase costs in Stackdriver. [Learn more](#) On Off CANCEL DONE ADD SUBNET

ENG US 13:54 31/08/2020

Deploy Refinery CMS to App Engine | Create a VPC network - VPC network | WhatsApp | 22ndAug2020 - Google Docs | 23rdAug2020 GCP - Google Doc | +

console.cloud.google.com/networking/networks/add?authuser=3&project=qwiklabs-gcp-01-d531c81be89d

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VPC network [Create a VPC network](#)

VPC networks

External IP addresses

Firewall

Routes

VPC network peering

Shared VPC

Serverless VPC access

Packet mirroring

On

Off

Flow logs

Turning on VPC flow logs doesn't affect performance, but some systems generate a large number of logs, which can increase costs in Stackdriver. [Learn more](#)

On

Off

CANCEL DONE

ADD SUBNET

Dynamic routing mode [?](#)

Regional Cloud Routers will learn routes only in the region in which they were created

Global Global routing lets you dynamically learn routes to and from all regions with a single VPN or interconnect and Cloud Router

DNS server policy [?](#)

No server policy

CREATING CANCEL

Equivalent [REST](#) or [command line](#)

Creating network "myvpc1"...

Type here to search

ENG US 13:54 31/08/2020

Creating myvpc2:

The screenshot shows the 'Create a VPC network' page in the Google Cloud Platform. The left sidebar lists options like VPC networks, External IP addresses, Firewall, Routes, VPC network peering, Shared VPC, Serverless VPC access, and Packet mirroring. The main form has a 'Name' field set to 'myvpc2' and a 'Description' field. Below this is a section for 'Subnets' with a 'Subnet creation mode' dropdown set to 'Custom'. A 'New subnet' card is expanded, showing a 'Name' field with 'lab2', a 'Region' dropdown set to 'asia-east1', and an 'IP address range' field with '10.0.2.0/24'. There's a note about traffic outside the RFC 1918 space and a warning about potential conflicts with on-premises networks. At the bottom, there are sections for 'Create secondary IP range', 'Private Google access' (set to 'Off'), and 'Flow logs' (set to 'Off').

The screenshot shows the 'Create a VPC network' dialog box. On the left, a sidebar lists VPC-related options: VPC networks, External IP addresses, Firewall, Routes, VPC network peering, Shared VPC, Serverless VPC access, and Packet mirroring. The main area contains settings for flow logs (Off), dynamic routing mode (Regional), and DNS server policy (No server policy). A progress bar at the bottom indicates 'CREATING'. A status message says 'Creating network "myvpc2"...'. The browser's address bar shows the URL: console.cloud.google.com/networking/networks/add?authuser=3&project=qwiklabs-gcp-01-d531c81be89d.

We can see the active vpc's myvpc1 and myvpc2 in the below image:

The screenshot shows the 'VPC networks' page. The sidebar on the left is identical to the previous screenshot. The main table lists various VPC networks across different regions, including default networks like 'australia-southeast1' and 'europe-west2', and custom networks like 'myvpc1' and 'myvpc2'. The 'myvpc1' row shows one subnet named 'lab1' with a custom range of 10.0.1.0/24 and gateway 10.0.1.1. The 'myvpc2' row shows one subnet named 'lab2' with a custom range of 10.0.2.0/24 and gateway 10.0.2.1. The browser's address bar shows the URL: console.cloud.google.com/networking/networks/list?authuser=3&project=qwiklabs-gcp-01-d531c81be89d.

| Region | Network | Subnets | Range | Gateway | Flow Logs |
|-------------------------|------------|---------|---------------|------------|-----------|
| australia-southeast1 | default | 1 | 10.152.0.0/20 | 10.152.0.1 | Off |
| europe-west2 | default | 1 | 10.154.0.0/20 | 10.154.0.1 | Off |
| europe-west3 | default | 1 | 10.156.0.0/20 | 10.156.0.1 | Off |
| southamerica-east1 | default | 1 | 10.158.0.0/20 | 10.158.0.1 | Off |
| asia-south1 | default | 1 | 10.160.0.0/20 | 10.160.0.1 | Off |
| northamerica-northeast1 | default | 1 | 10.162.0.0/20 | 10.162.0.1 | Off |
| europe-west4 | default | 1 | 10.164.0.0/20 | 10.164.0.1 | Off |
| europe-north1 | default | 1 | 10.166.0.0/20 | 10.166.0.1 | Off |
| us-west2 | default | 1 | 10.168.0.0/20 | 10.168.0.1 | Off |
| asia-east2 | default | 1 | 10.170.0.0/20 | 10.170.0.1 | Off |
| europe-west6 | default | 1 | 10.172.0.0/20 | 10.172.0.1 | Off |
| asia-northeast2 | default | 1 | 10.174.0.0/20 | 10.174.0.1 | Off |
| asia-northeast3 | default | 1 | 10.178.0.0/20 | 10.178.0.1 | Off |
| us-west3 | default | 1 | 10.180.0.0/20 | 10.180.0.1 | Off |
| us-west4 | default | 1 | 10.182.0.0/20 | 10.182.0.1 | Off |
| asia-southeast2 | default | 1 | 10.184.0.0/20 | 10.184.0.1 | Off |
| myvpc1 | 1 | 1 | Custom | 0 | Off |
| myvpc1 | asia-east1 | lab1 | 10.0.1.0/24 | 10.0.1.1 | Off |
| myvpc2 | 1 | 1 | Custom | 0 | Off |
| myvpc2 | asia-east1 | lab2 | 10.0.2.0/24 | 10.0.2.1 | Off |

Task 3: Create a link between both the VPC networks using VPC Peering. Make sure that peering should be done from both the sides.

The screenshot shows the Google Cloud Platform interface. The left sidebar is titled 'VPC network' and includes options like 'VPC networks', 'External IP addresses', 'Firewall', 'Routes', 'VPC network peering' (which is selected), 'Shared VPC', 'Serverless VPC access', and 'Packet mirroring'. The main content area is titled 'VPC Network' and 'VPC network peering'. It explains that Cloud VPC Network Peering lets you privately connect two VPC networks, which can reduce latency, cost, and increase security. It includes a 'Create connection' button and a 'Learn more' link.

The screenshot shows the 'Create peering connection' dialog box. The left sidebar is identical to the previous screenshot. The main form has a 'Name*' field containing 'peeringVPC' (with a red border indicating it's required). Below it is a 'Your VPC network*' dropdown menu showing 'default', 'myvpc1', and 'myvpc2'. At the bottom are 'EXCHANGE CUSTOM ROUTES' buttons, a 'CREATE' button, and a 'CANCEL' button.

Screenshot of the Google Cloud Platform VPC network interface showing the 'Create peering connection' form.

The left sidebar shows the following menu items:

- VPC networks
- External IP addresses
- Firewall
- Routes
- VPC network peering** (selected)
- Shared VPC
- Serverless VPC access
- Packet mirroring

The main form fields are:

- Name ***: peerengvpc
- Your VPC network ***: myvpc1
- Peered VPC network**:
 - In project qwiklabs-gcp-01-d531c81be89d
 - In another project
- VPC network name ***:
 - Type to filter
 - default
 - myvpc2** (selected)

Screenshot of the Google Cloud Platform VPC network interface showing the 'Create peering connection' form, identical to the one above but with a progress bar and a status message.

The left sidebar shows the same menu items as the first screenshot.

The main form fields are identical to the first screenshot.

A progress bar at the bottom indicates the process is in progress:

- CREATING
- CANCEL

A status message in a box says: "Creating peering connection "peerengvpc"..."

Doing VPC peering from myvpc2 VPC Network.

The screenshot shows the 'Create peering connection' page in the Google Cloud Platform. The left sidebar is titled 'VPC network' and includes options like 'VPC networks', 'External IP addresses', 'Firewall', 'Routes', 'VPC network peering' (which is selected), 'Shared VPC', 'Serverless VPC access', and 'Packet mirroring'. The main form has a title 'Create peering connection'. A note says: 'Your VPC network will be fully connected to the peered VPC network (full mesh topology). Routes to subnets in the peered VPC network will be automatically created.' The 'Name' field is set to 'peeringvpc'. The 'Your VPC network' dropdown is set to 'myvpc2'. Under 'Peered VPC network', the 'In project' radio button is selected, and the 'Peered VPC network name' dropdown is set to 'myvpc1'. At the bottom are 'CREATE' and 'CANCEL' buttons.

As soon as the peering is done from both the sides it becomes active.

The screenshot shows the 'VPC network peering' list page in the Google Cloud Platform. The left sidebar is the same as the previous screenshot. The main area shows a table of peering connections:

| Name | Your VPC network | Peered VPC network | Peered project ID | Status | Exchange custom routes |
|------------|------------------|--------------------|------------------------------|--------|------------------------|
| peeringvpc | myvpc2 | myvpc1 | qwiklabs-gcp-01-d531c81be89d | Active | None |
| peeringvpc | myvpc1 | myvpc2 | qwiklabs-gcp-01-d531c81be89d | Active | None |

At the top of the table are buttons for '+ CREATE PEERING CONNECTION', 'REFRESH', and 'DELETE'.

Task 4: Create a Kubernetes Cluster in our project and launch any web application with the Load balancer.

The screenshot shows two separate browser windows. The top window displays the 'VPC network peering' section of the Google Cloud Platform, specifically for the project 'qwiklabs-gcp-01-d531c81be89d'. It lists two peering connections: 'peeringvpc' connecting 'myvpc2' to 'myvpc1' and 'peeringvpc' connecting 'myvpc1' to 'myvpc2'. Both are active and have no custom exchange routes. The bottom window shows the 'Clusters' section under the 'Kubernetes Engine' heading. It lists several options: Clusters, Workloads, Services & Ingress, Applications, Configuration, Storage, Object Browser, and Migrate to containers. A sub-section titled 'Kubernetes Engine' with 'Kubernetes clusters' is shown, containing a brief description of what Kubernetes does and three buttons: 'Create cluster', 'Deploy container', and 'Take the quickstart'.

Screenshot of the Google Cloud Platform 'Create a Kubernetes cluster' page.

The left sidebar shows the navigation path: Deploy Refinery CMS to App Engine > Create a Kubernetes cluster - Kul > Google Cloud Platform > qwiklabs-gcp-01-d531c81be89d > Create a Kubernetes cluster.

The main form is titled 'Cluster basics'. It includes fields for 'Name' (cluster-1), 'Location type' (set to 'Regional'), 'Region' (asia-east1), and 'Specify default node locations' (checkbox checked, showing zones asia-east1-a, b, c selected). A note says: 'To experiment with an affordable cluster, try My first cluster in the Cluster set-up guides'. A 'Cluster set-up guides' section shows a card for 'My first cluster'.

At the bottom are 'CREATE' and 'CANCEL' buttons, and a note: 'Equivalent REST or command line'.

Screenshot of the Google Cloud Platform 'Create a Kubernetes cluster' page, showing the 'Master version' section.

The left sidebar shows the navigation path: Deploy Refinery CMS to App Engine > Create a Kubernetes cluster - Kul > Google Cloud Platform > qwiklabs-gcp-01-d531c81be89d > Create a Kubernetes cluster.

The main form is titled 'Cluster basics'. It includes fields for 'Location type' (set to 'Regional'), 'Region' (asia-east1), and 'Specify default node locations' (checkbox checked, showing zones asia-east1-a, b, c selected). A note says: 'The same number of nodes will be deployed to each selected zone'. Below this is the 'Master version' section, which includes 'Release channel' (radio button) and 'Static version' (radio button selected). The static version dropdown shows '1.15.12-gke.2 (default)'.

At the bottom are 'CREATE' and 'CANCEL' buttons, and a note: 'Equivalent REST or command line'.

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console.cloud.google.com/kubernetes/add?project=qwiklabs-gcp-01-d531c81be89d&authuser=3

Shanes Tools

Google Cloud Platform qwiklabs-gcp-01-d531c81be89d Search products and resources

Create a Kubernetes cluster ADD NODE POOL REMOVE NODE POOL

Cluster basics

NODE POOLS default-pool Nodes Security Metadata

CLUSTER Automation Networking Security Metadata Features

Nodes

Image type Container-Optimized OS (cos) (default)

Machine Configuration Machine family GENERAL-PURPOSE COMPUTE-OPTIMIZED MEMORY-OPTIMIZED

Machine types for common workloads, optimized for cost and flexibility

Series N1 Powered by Intel Skylake CPU platform or one of its predecessors

Machine type n1-standard-1 (1 vCPU, 3.75 GB memory)

vCPU 1 Memory 3.75 GB

CPU PLATFORM AND GPU Boot disk type Standard persistent disk

CREATE CANCEL Equivalent REST or command line

Type here to search ENG US 14:06 31/08/2020

Deploy Refinery CMS to App Engine | Create a Kubernetes cluster - Kul | WhatsApp | 22ndAug2020 - Google Docs | 23rdAug2020 GCP - Google Docs | +

console.cloud.google.com/kubernetes/add?project=qwiklabs-gcp-01-d531c81be89d&authuser=3

Shanes Tools

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Create a Kubernetes cluster ADD NODE POOL REMOVE NODE POOL

Cluster basics

NODE POOLS default-pool Nodes Security Metadata

CLUSTER Automation Networking Security Metadata Features

CPU PLATFORM AND GPU

Boot disk type Standard persistent disk

Boot disk size (GB) 100

Enable customer-managed encryption for boot disk

Local SSD disks

Enable preemptible nodes

Networking

The cluster settings specify a maximum of 110 Pods per node, but you can override that setting at the node pool level.

Maximum Pods per node

Mask for Pod address range per node: /24

Network tags

CREATE CANCEL Equivalent REST or command line

Type here to search ENG US 14:06 31/08/2020

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console.cloud.google.com/kubernetes/add?project=qwiklabs-gcp-01-d531c81be89d&authuser=3

Shanes Tools

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Create a Kubernetes cluster ADD NODE POOL REMOVE NODE POOL

Cluster basics

NODE POOLS default-pool Nodes Security Metadata

CLUSTER Automation Networking Security Metadata Features

Advanced networking options

Enable VPC-native traffic routing (uses alias IP) ?

Automatically create secondary ranges ?

Pod address range

Maximum Pods per node Mask for Pod address range per node: /24

Service address range

Enable Intranode visibility ?

Reveals your intranode traffic to Google's networking fabric. To get logs, you need to enable VPC flow logs in the [selected subnetwork](#).

Enable NodeLocal DNSCache Beta ?

Enable HTTP load balancing ?

Enable master authorized networks ?

Enable network policy ?

CREATE CANCEL Equivalent REST or command line

Type here to search ENG US 14:07 31/08/2020

Here we have successfully created our Kubernetes cluster

Deploy Refinery CMS to App Eng | Google Cloud Platform | WhatsApp | 22ndAug2020 - Google Docs | 23rdAug2020 GCP - Google Doc | +

console.cloud.google.com/kubernetes/list?project=qwiklabs-gcp-01-d531c81be89d&authuser=3

Shanes Tools

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Kubernetes Engine Clusters CREATE CLUSTER DEPLOY REFRESH DELETE SHOW INFO PANEL LEARN

Clusters

A Kubernetes cluster is a managed group of VM instances for running containerized applications. Learn more

Filter by label or name

| Name | Location | Cluster size | Total cores | Total memory | Notifications | Labels |
|-----------|------------|--------------|-------------|--------------|---------------|--------|
| cluster-1 | asia-east1 | 3 | 3 vCPUs | 11.25 GB | | |

Connect

Marketplace

Type here to search ENG US 14:11 31/08/2020

We are using a cloud shell for doing any of the operations on the cluster that we have formed like

- Getting the information about the services we are running.
- Getting information about pods running and the nodes running in the cluster.

The screenshot shows the Google Cloud Platform interface for the Kubernetes Engine. On the left, there's a sidebar with options like Clusters, Workloads, Services & Ingress, Applications, Configuration, Storage, Object Browser, and Migrate to containers. The main area is titled 'Kubernetes clusters' and shows a single cluster named 'cluster-1'. A modal window titled 'Connect to the cluster' is open, containing sections for 'Command-line access' and 'Cloud Console dashboard'. It includes a command-line snippet for 'gcloud container clusters get-credentials' and a 'Run in Cloud Shell' button. Below the modal, there's an 'OK' button. At the bottom of the screen, there's a taskbar with various icons and a system tray showing the date and time as 31/08/2020 at 14:15.

This screenshot shows the same Google Cloud Platform interface as the previous one, but with a terminal session open in the 'CLOUD SHELL' tab. The terminal window is titled '(qwiklabs-gcp-01-d531c81be89d)' and displays a series of commands being run. The commands include setting the project to 'qwiklabs-gcp-01-d531c81be89d', fetching the cluster endpoint, and listing pods and nodes in the default namespace. The terminal output is as follows:

```
Welcome to Cloud Shell! Type "help" to get started.  
Your Cloud Platform project in this session is set to qwiklabs-gcp-01-d531c81be89d.  
Use "gcloud config set project [PROJECT ID]" to change to a different project.  
student_01_feaa6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)$ gcloud container clusters get-credentials cluster-1 --region asia-east1 --project qwiklabs-gcp-01-d531c81be89d  
Fetching cluster endpoint and auth data.  
kubeconfig entry generated for cluster-1.  
student_01_feaa6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)$ kubectl.exe get pods  
-bash: kubectl.exe: command not found  
student_01_feaa6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)$ kubectl get pods  
No resources found in default namespace.  
student_01_feaa6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)$ kubectl get nodes  
NAME STATUS ROLES AGE VERSION  
gke-cluster-1-default-pool-000fe505-rpgb Ready <none> 6m27s v1.15.12-gke.2  
gke-cluster-1-default-pool-5e6ecda4-6sn Ready <none> 6m30s v1.15.12-gke.2  
gke-cluster-1-default-pool-9e0058cf-v1zx Ready <none> 6m29s v1.15.12-gke.2  
student_01_feaa6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)$
```

At the bottom of the screen, there's a taskbar with various icons and a system tray showing the date and time as 31/08/2020 at 14:17.

Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to **qwiklabs-gcp-01-d531c81be89d**.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
student_01_f6ea6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)\$ gcloud container clusters get-credentials cluster-1 --region asia-east1 --project qwiklabs-gcp-01-d531c81be89d
Setting active configuration to [qwiklabs-gcp-01-d531c81be89d].
kubeconfig entry generated for cluster-1.
student_01_f6ea6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)\$ kubectl.exe get pods
No resources found in default namespace.
student_01_f6ea6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)\$ kubectl get nodes
NAME STATUS ROLES AGE VERSION
gke-cluster-1-default-pool-000fe505-rpgb Ready <none> 6m27s v1.15.12-gke.2
gke-cluster-1-default-pool-5e6ecda4-6sn Ready <none> 6m30s v1.15.12-gke.2
gke-cluster-1-default-pool-9e0058cf-vlxz Ready <none> 6m29s v1.15.12-gke.2
student_01_f6ea6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)\$ kubectl get service
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
kubernetes ClusterIP 10.137.0.1 <none> 443/TCP 7m18s
student_01_f6ea6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)\$

student_01_f6ea6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)\$ kubectl create deployment myweb --image=wordpress
deployment.apps/myweb created
student_01_f6ea6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)\$ kubectl get pods
NAME READY STATUS RESTARTS AGE
myweb-7c6995bf5-vjj7c 0/1 ContainerCreating 0 15s
student_01_f6ea6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)\$ kubectl get pods -o wide
NAME READY STATUS RESTARTS AGE IP NODE NOMINATED NODE READINESS GATES
myweb-7c6995bf5-vjj7c 1/1 Running 0 40s 10.8.1.5 gke-cluster-1-default-pool-000fe505-rpgb <none> <none>
student_01_f6ea6fd9bb18@cloudshell:~ (qwiklabs-gcp-01-d531c81be89d)\$

We will create and deploy our website with the load balancer at the time of deployment(in Task 6).

The screenshot shows two separate sessions of the Google Cloud Platform web interface.

Top Session (Kubernetes Clusters):

- The URL is <https://console.cloud.google.com/kubernetes/list?project=qwiklabs-gcp-01-d531c81be89d&authuser=3&cloudshell=false>.
- The page displays a list of Kubernetes clusters, with one cluster named "cluster-1" listed under "asia-east1".
- A dropdown menu is open under the "Networking" section, showing options like Load balancing, Cloud DNS, Cloud CDN, Cloud NAT, Traffic Director, and Service Directory.

Bottom Session (Network Services - Load Balancing):

- The URL is <https://console.cloud.google.com/net-services/loadbalancing/list?project=qwiklabs-gcp-01-d531c81be89d&authuser=3>.
- The page shows the "Load balancing" section under "Network services".
- The "Load balancers" tab is selected, showing a summary of load balancers and a "Create load balancer" button.
- A tooltip message states: "Load balancers distribute incoming network traffic across multiple VM instances to help your application scale. Learn more".
- The status bar at the bottom indicates the date as 31/08/2020 and the time as 14:23.

Task 5: Create a SQL server in the qwiklab project and create a database.

Creating a Database on SQL server.

The screenshot shows the 'Cloud SQL Instances' page in the Google Cloud Platform. The top navigation bar includes tabs for 'Deploy Refinery CMS to App Engine', 'Instances - SQL - qwiklabs-gcp...', 'WhatsApp', '22ndAug2020 - Google Docs', and '23rdAug2020 GCP - Google Doc'. Below the navigation is a search bar and a user profile icon. The main content area has a blue header 'Cloud SQL Instances'. It contains a brief description of Cloud SQL instances and two buttons at the bottom: 'CREATE INSTANCE' and 'MIGRATE DATA'.

The screenshot shows the 'Create an instance' page in the Google Cloud Platform. The top navigation bar includes tabs for 'Deploy Refinery CMS to App Engine', 'Create an instance - SQL - qwik...', 'WhatsApp', '22ndAug2020 - Google Docs', and '23rdAug2020 GCP - Google Doc'. Below the navigation is a search bar and a user profile icon. The main content area has a blue header 'Create an instance'. It displays three options for choosing a database engine: MySQL, PostgreSQL, and SQL Server, each with a 'Choose [engine]' button. A note at the bottom says 'Want more context on the Cloud SQL database engines? [Learn more](#)'.

The screenshot shows the browser's address bar with the URL <https://console.cloud.google.com/sql/create-instance-mysql?authuser=3&project=qwiklabs-gcp-01-d531c81be89d>. The browser interface includes a search bar, a taskbar with various icons, and a status bar showing 'ENG US 14:28 31/08/2020'.

The screenshot shows a web browser window with multiple tabs open. The active tab is titled "Create MySQL instance - qwiklabs" and is located at console.cloud.google.com/sql/create-instance-mysql?authuser=3&project=qwiklabs-gcp-01-d531c81be89d. The browser's address bar also shows other tabs like "Deploy Refinery CMS to App Engine", "WhatsApp", "22ndAug2020 - Google Docs", and "23rdAug2020 GCP - Google Docs".

The main content area is the "Create a MySQL instance" form. It includes fields for:

- Instance info:** Instance ID is set to "mydbos".
- Root password:** A masked password is entered, with a "Generate" button available.
- Location:** Region is "us-central1 (Iowa)" and Zone is "us-central1-a".
- Database version:** MySQL 5.7.

At the bottom are "Create" and "Cancel" buttons.



Here we have successfully launched mydbos instance on google cloud in us-central region.

The screenshot shows the Google Cloud Platform interface for managing Cloud SQL users. The left sidebar lists several options: Overview, Connections, Users (which is selected), Databases, Backups, Replicas, and Operations. The main content area displays the 'mydbos' user account under the 'mydbos' instance. It shows two entries in the user list:

| User name | Host name |
|-----------|--------------|
| mysql.sys | localhost |
| root | % (any host) |

At the bottom of the page, there is a search bar and a toolbar with various icons.

I am adding a user to the database server for my personal use.

The screenshot shows the Google Cloud Platform SQL Users interface. On the left sidebar, under the 'mydbos' instance, the 'Users' section is selected. A modal window titled 'Add a user account to instance mydbos' is open, prompting for a user name ('dikshant') and password ('*****'). Below the modal, the main table lists existing users: 'mysql.sys' with host 'localhost' and 'root' with host '% (any host)'. At the bottom right of the modal are 'ADD' and 'CANCEL' buttons.

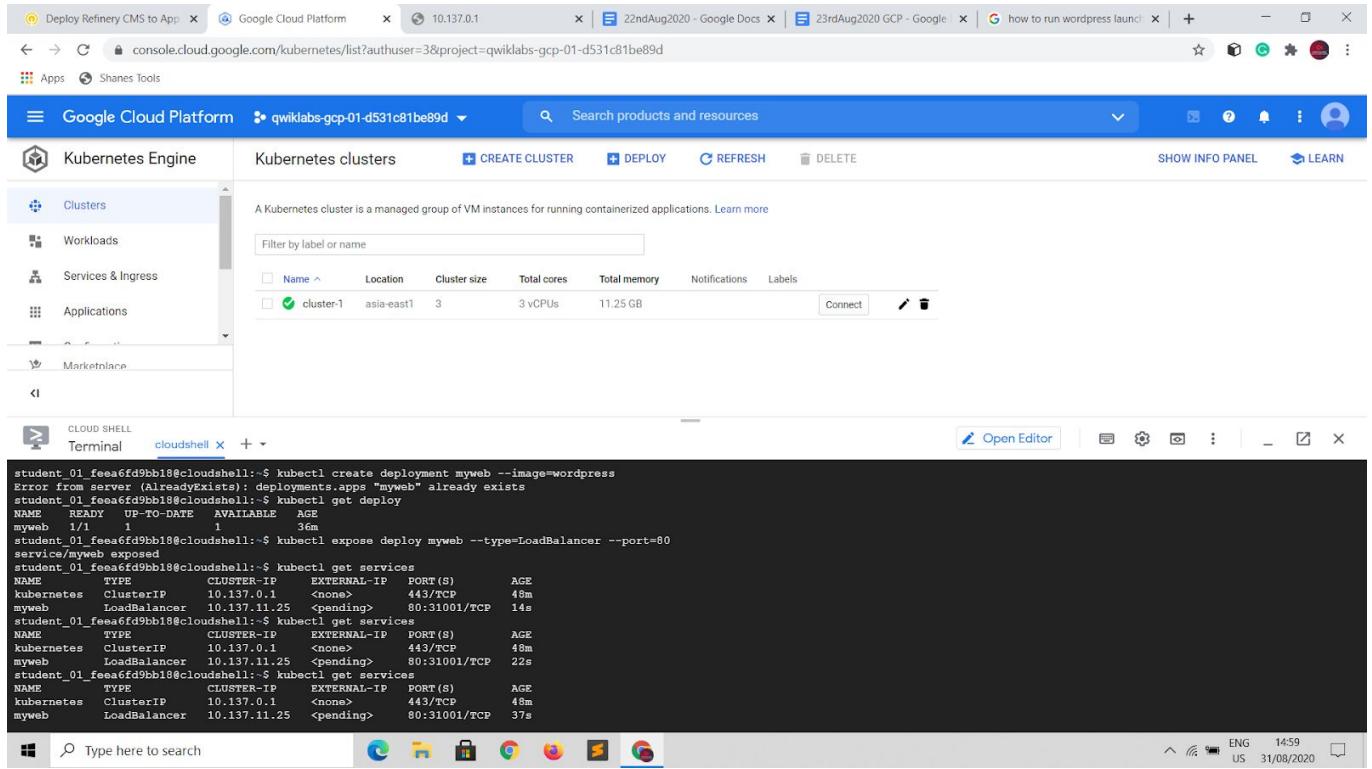
Create database with the name db1.

The screenshot shows the Google Cloud Platform SQL Databases interface. Under the 'mydbos' instance, the 'Databases' section is selected. A modal window titled 'Create a database' is open, with the 'Database Name' field set to 'db1'. Other fields include 'Character set' (utf8), 'Collation' (utf8_general_ci), and 'Type' (System). Below the modal, the main table lists standard MySQL databases: 'information_schema', 'mysql', 'performance_schema', and 'sys'. At the bottom right of the modal are 'CREATE' and 'CANCEL' buttons.

We have successfully created our database on SQL

Task 6: Connect the SQL database to the web application launched in the Kubernetes cluster.

Here we are launching our wordpress website with LoadBalancer and connecting it to the SQL database we have created.



The screenshot shows a Google Cloud Platform interface with a terminal window and a browser tab.

Terminal:

```
student_01_fea6fd9bb1@cloudshell:~$ kubectl create deployment myweb --image=wordpress
Error from server (AlreadyExists): deployments.apps "myweb" already exists
student_01_fea6fd9bb1@cloudshell:~$ kubectl get deploy
NAME      READY  UP-TO-DATE   AVAILABLE AGE
myweb     1/1    1           1           36m
student_01_fea6fd9bb1@cloudshell:~$ kubectl expose deploy myweb --type=LoadBalancer --port=80
service/myweb exposed
student_01_fea6fd9bb1@cloudshell:~$ kubectl get services
NAME        TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
kubernetes  ClusterIP  10.137.0.1  <none>       443/TCP   48m
myweb       LoadBalancer 10.137.11.25 <pending>    80:31001/TCP 14s
student_01_fea6fd9bb1@cloudshell:~$ kubectl get services
NAME        TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
kubernetes  ClusterIP  10.137.0.1  <none>       443/TCP   48m
myweb       LoadBalancer 10.137.11.25 <pending>    80:31001/TCP 22s
student_01_fea6fd9bb1@cloudshell:~$ kubectl get services
NAME        TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
kubernetes  ClusterIP  10.137.0.1  <none>       443/TCP   48m
myweb       LoadBalancer 10.137.11.25 <pending>    80:31001/TCP 37s
```

Browser:

http://10.137.0.1

The browser shows a successful connection to a MySQL database, displaying the following information:

| Host | Port | Database | User | Authenticator |
|------------|------|------------------------------|------|-----------------------|
| 10.137.0.1 | 3306 | qwiklabs-gcp-01-d531c81be89d | root | mysql_native_password |

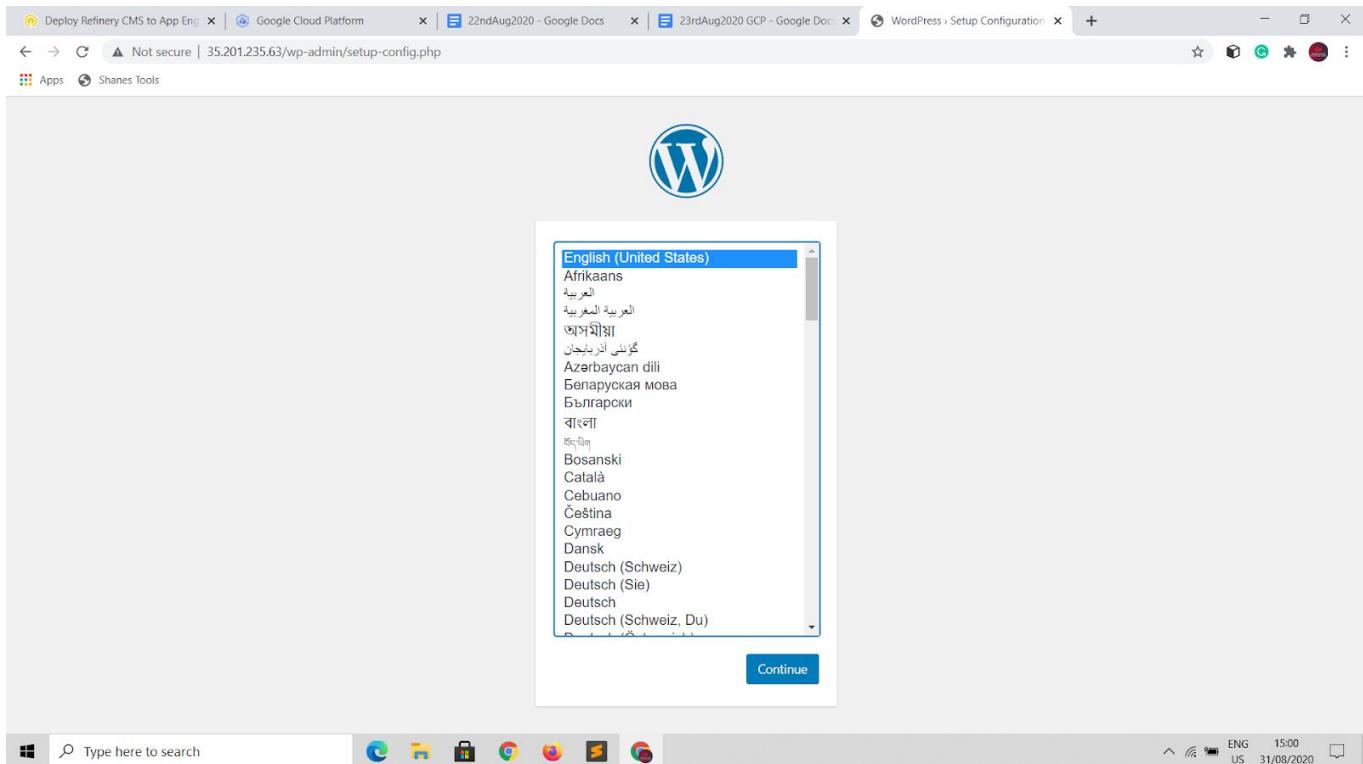
```

student_01_feaaf6fd9bb1@cloudshell:~$ kubectl describe service wordpress
Error from server (NotFound): services "wordpress" not found
student_01_feaaf6fd9bb1@cloudshell:~$ kubectl describe service myweb
Name:           myweb
Namespace:      default
Labels:         app=myweb
Annotations:   <none>
Selector:       app=myweb
Type:          LoadBalancer
IP:            10.137.11.25
LoadBalancer Ingress: 35.201.235.63
Port:          80/TCP
TargetPort:    80/TCP
NodePort:     <none>  31001/TCP
Endpoints:    10.8.1.5:80
Session Affinity: None
External Traffic Policy: Cluster
Events:
  Type  Reason     Age   From           Message
  ----  ----     --   --   --
  Normal  EnsuringLoadBalancer  87s  service-controller  Ensuring load balancer
  Normal  EnsuredLoadBalancer  48s  service-controller  Ensured load balancer
student_01_feaaf6fd9bb1@cloudshell:~$ 

```

As shown in the above image we have to copy the address written in front of LoadBalancer Ingress and open it in the new tab.

Wow we have launched our wordpress website.



Welcome to WordPress. Before getting started, we need some information on the database. You will need to know the following items before proceeding.

1. Database name
2. Database username
3. Database password
4. Database host
5. Table prefix (if you want to run more than one WordPress in a single database)

We're going to use this information to create a `wp-config.php` file. **If for any reason this automatic file creation doesn't work, don't worry. All this does is fill in the database information to a configuration file. You may also simply open `wp-config-sample.php` in a text editor, fill in your information, and save it as `wp-config.php`.** Need more help? [We got it.](#)

In all likelihood, these items were supplied to you by your Web Host. If you don't have this information, then you will need to contact them before you can continue. If you're all ready...

[Let's go!](#)



Welcome

Welcome to the famous five-minute WordPress installation process! Just fill in the information below and you'll be on your way to using the most extendable and powerful personal publishing platform in the world.

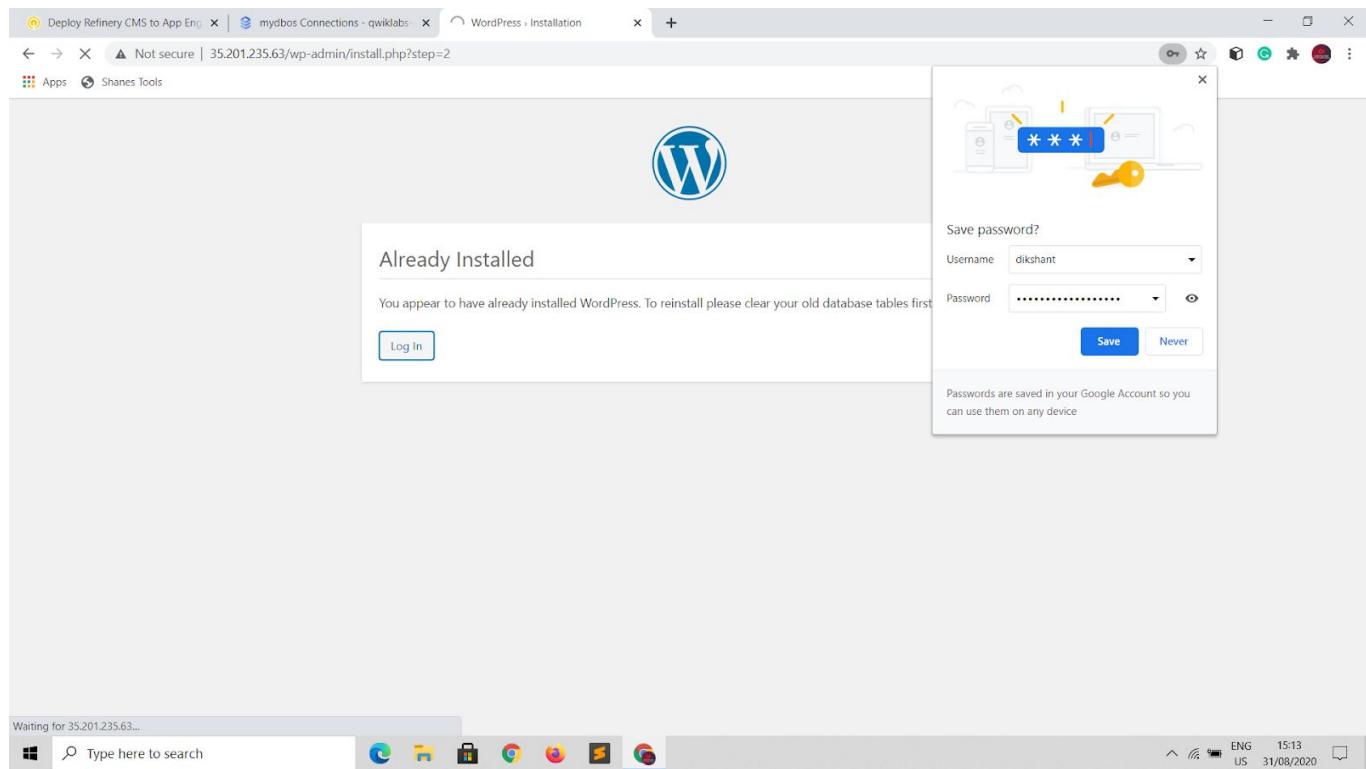
Information needed

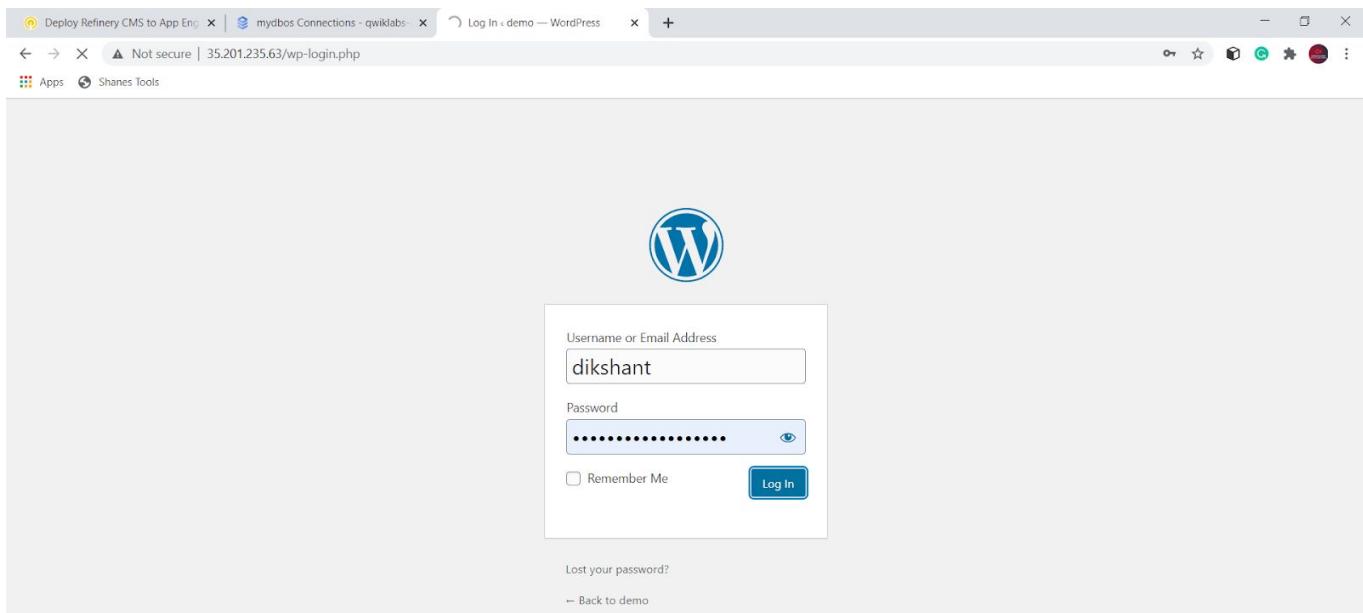
Please provide the following information. Don't worry, you can always change these settings later.

| | |
|--|--|
| Site Title | <input type="text" value="demo"/> |
| Username | <input type="text" value="dikshant"/> Usernames can have only alphanumeric characters, spaces, underscores, hyphens, periods, and the @ symbol. |
| Password | <input type="password" value="mwdAJKXrSkEiR\$%KE"/> Strong Hide |
| Important: You will need this password to log in. Please store it in a secure location. | |
| Your Email | <input type="text" value="dikshantmail.dev@gmail.com"/> Double-check your email address before continuing. |
| Search engine visibility | <input type="checkbox"/> Discourage search engines from indexing this site It is up to search engines to honor this request. |

[Install WordPress](#)







Waiting for 35.201.235.63...

Type here to search ENG US 15:14 31/08/2020

Deploy Refinery CMS to App Eng | mydbos Connections - qwiklabs | Dashboard demo — WordPress | +

Home Updates Posts Media Pages Comments Appearance Plugins Users Tools Settings Collapse menu

Dashboard

Welcome to WordPress!
We've assembled some links to get you started:

Get Started

Customize Your Site

or, change your theme completely

Next Steps

- Write your first blog post
- Add an About page
- Set up your homepage
- View your site

More Actions

- Manage widgets
- Manage menus
- Turn comments on or off
- Learn more about getting started

Site Health Status

No information yet...

Site health checks will automatically run periodically to gather information about your site. You can also visit the [Site Health screen](#) to gather information about your site now.

At a Glance

1 Post 1 Page
1 Comment

WordPress 5.5 running [Twenty Twenty](#) theme.

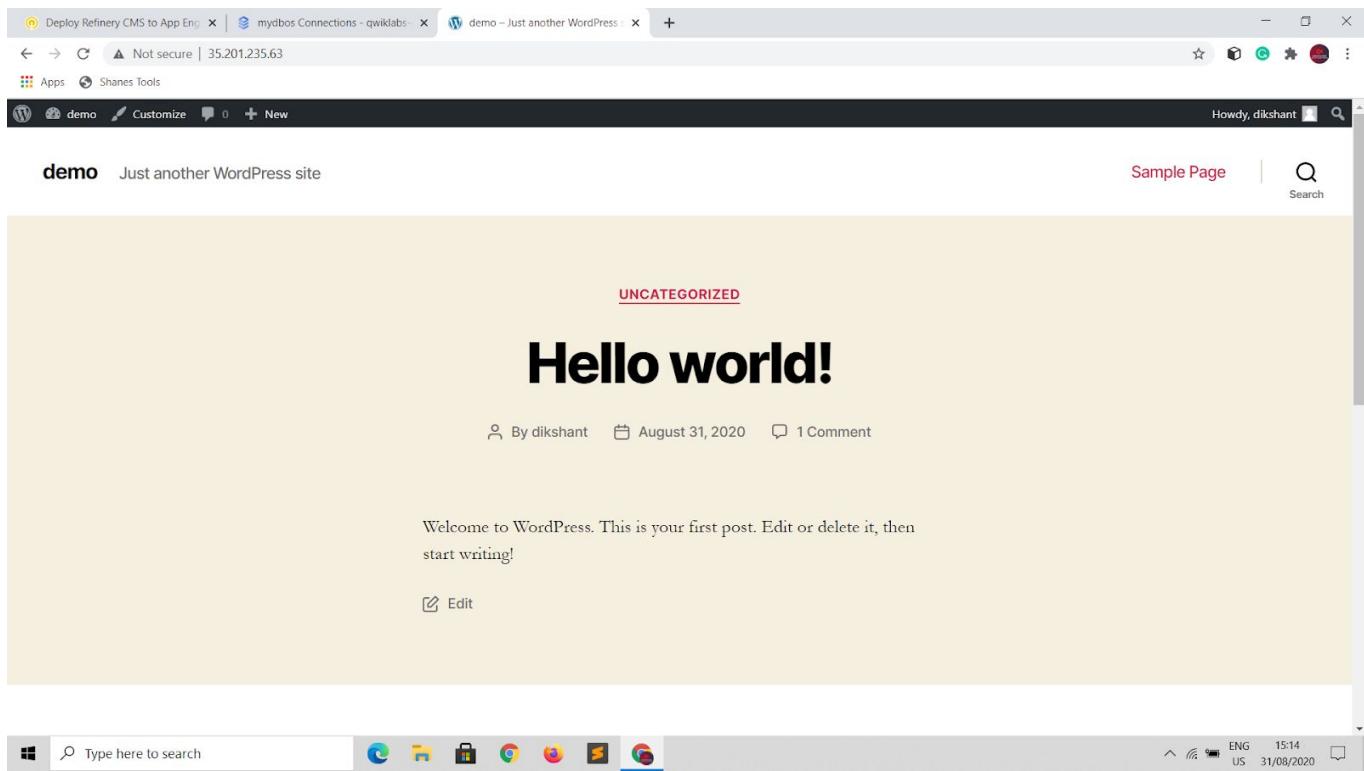
Quick Draft

Title
Content
What's on your mind?

Save Draft

Drag boxes here

Type here to search ENG US 15:14 31/08/2020



This is how I have completed all of the above mentioned tasks.

**Thanks again
LinuxWorld
Dikshant Mali
dikshantmali.dev@gmail.com**