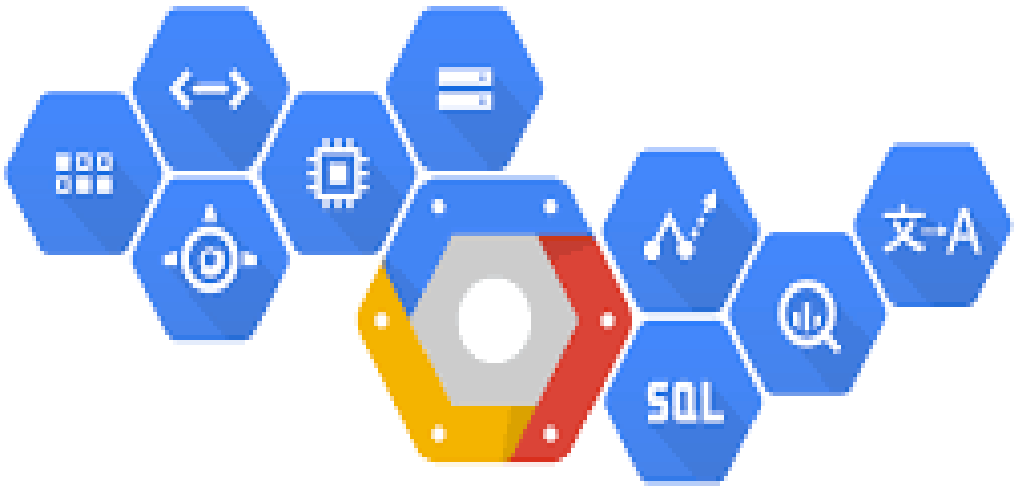


Google Cloud Platform

Hello Everyone, in this Article, I shared in detail about the Task done on Google Cloud. I have done the following as follows –

1. Created Multi Projects using WebUI and CLI

2. Enabled Google Compute Engine for both the Projects.

3. Created VPC in both the Projects. One VPC in Singapore Region while Other VPC in US region.

4. Created Subnet in both the VPC.

5. Connected both the VPC using VPC Peering.

6. Created Google Kubernetes Engine — GKE in 1 VPC.

7. Created SQL Server in another VPC and Created MySQL database.

8. Launched WordPress Pod on the top of Kubernetes Cluster.

9. Created Load Balancer for disaster Recovery.

10. Installed WordPress in 1 VPC using Database running in another VPC.

Google Cloud Platform

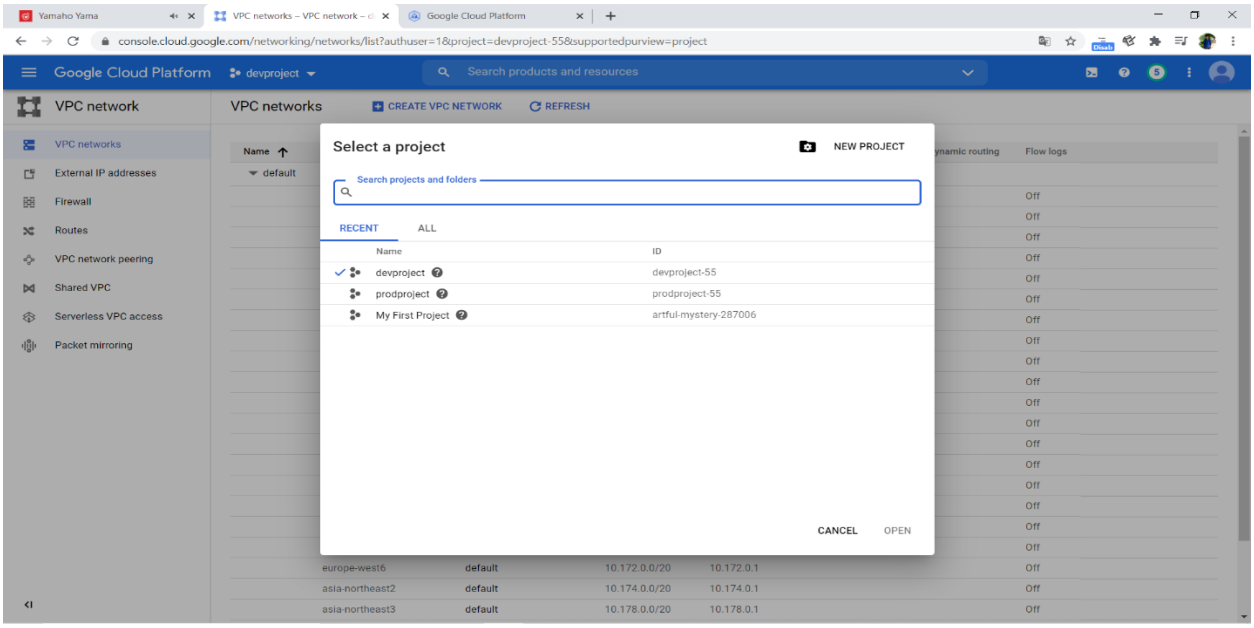
GCP is one of the Product from the Google, Which is providing services for Public Cloud.

What is Project?

A project consists of a set of users; a set of APIs; and billing, authentication, and monitoring settings for those APIs.

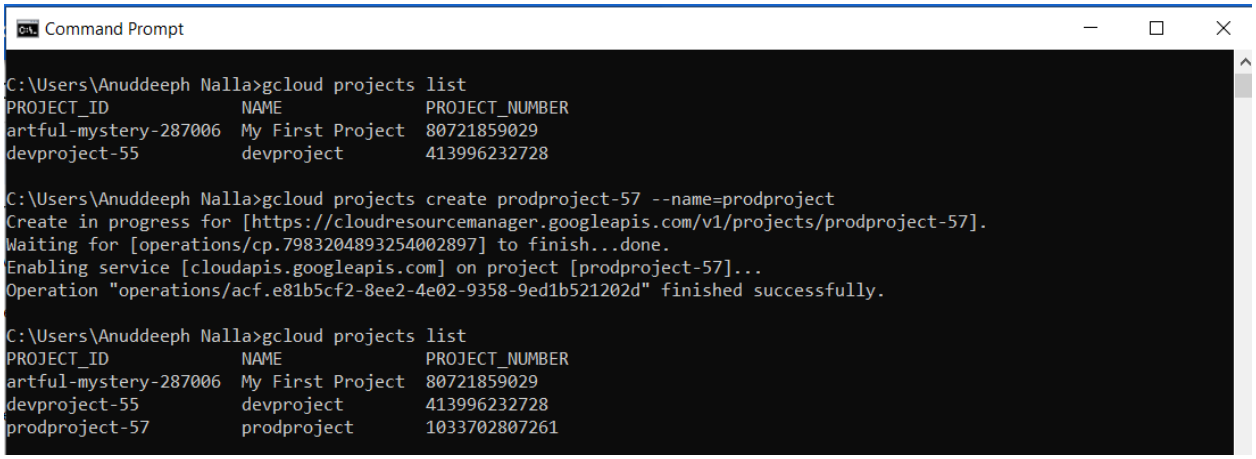
Creation of Projects –

a) Click on New Project to create new projects and fill the details in GCP.

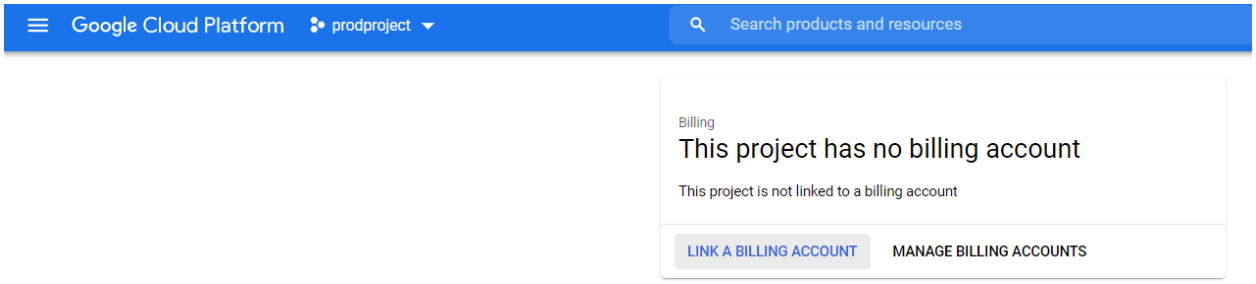


➔Projects are used to manage the things in GCP.

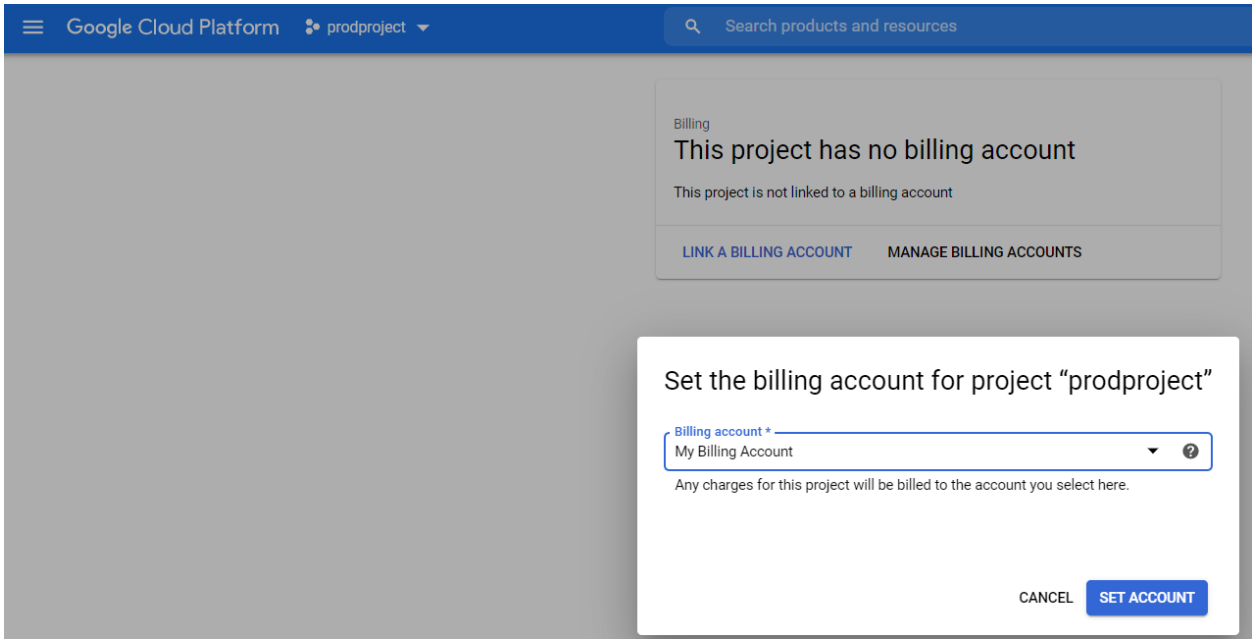
Creation of Projects using CLI



After Creating Projects, Set-up Billings for the Projects.



➔Click on Link a Billing Account

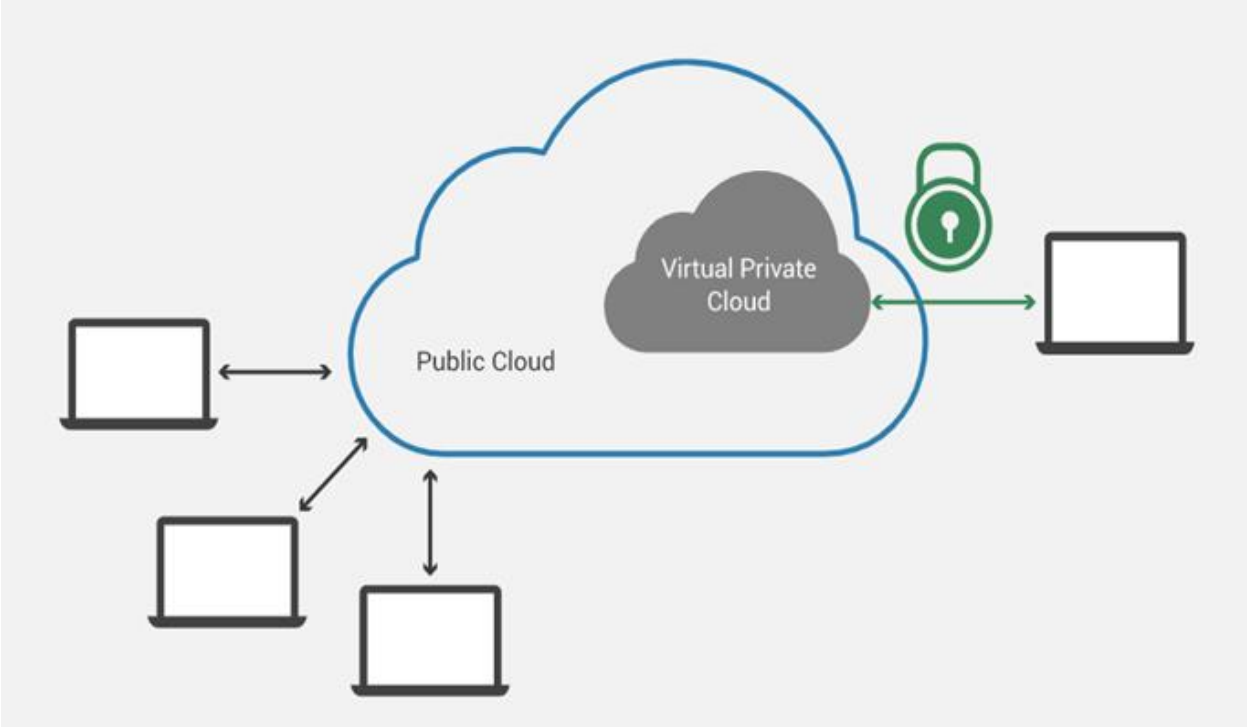


➔Click on Set Account

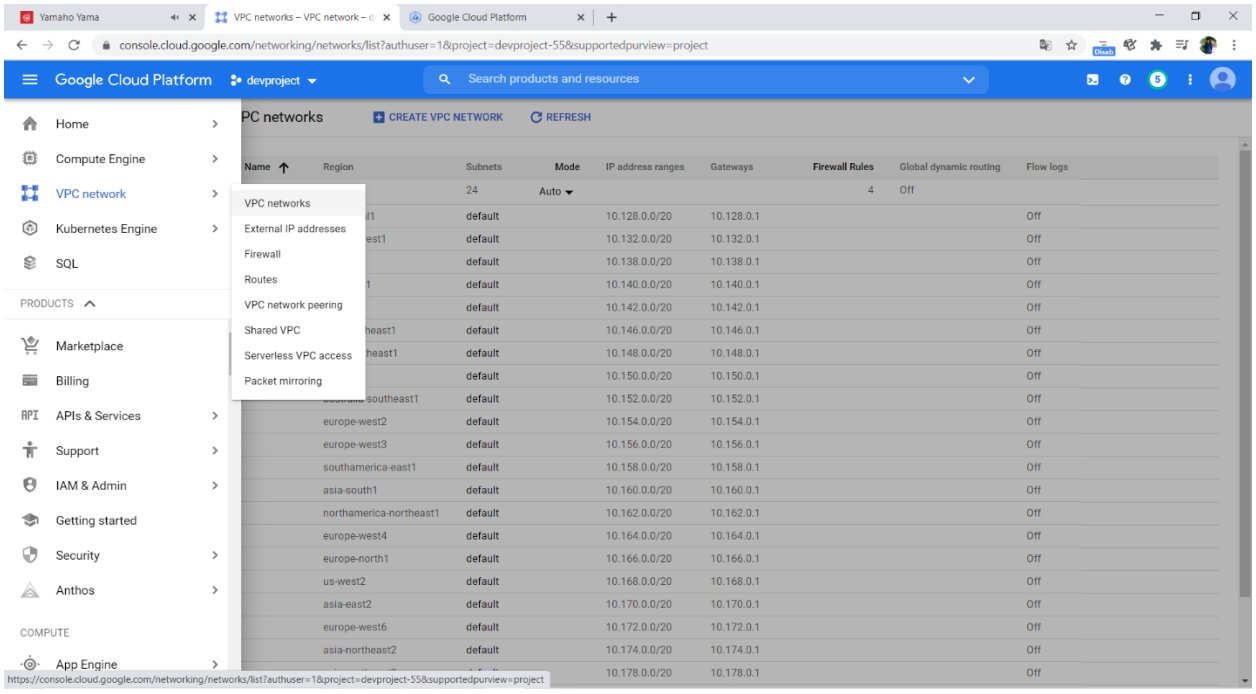
What is VPC?

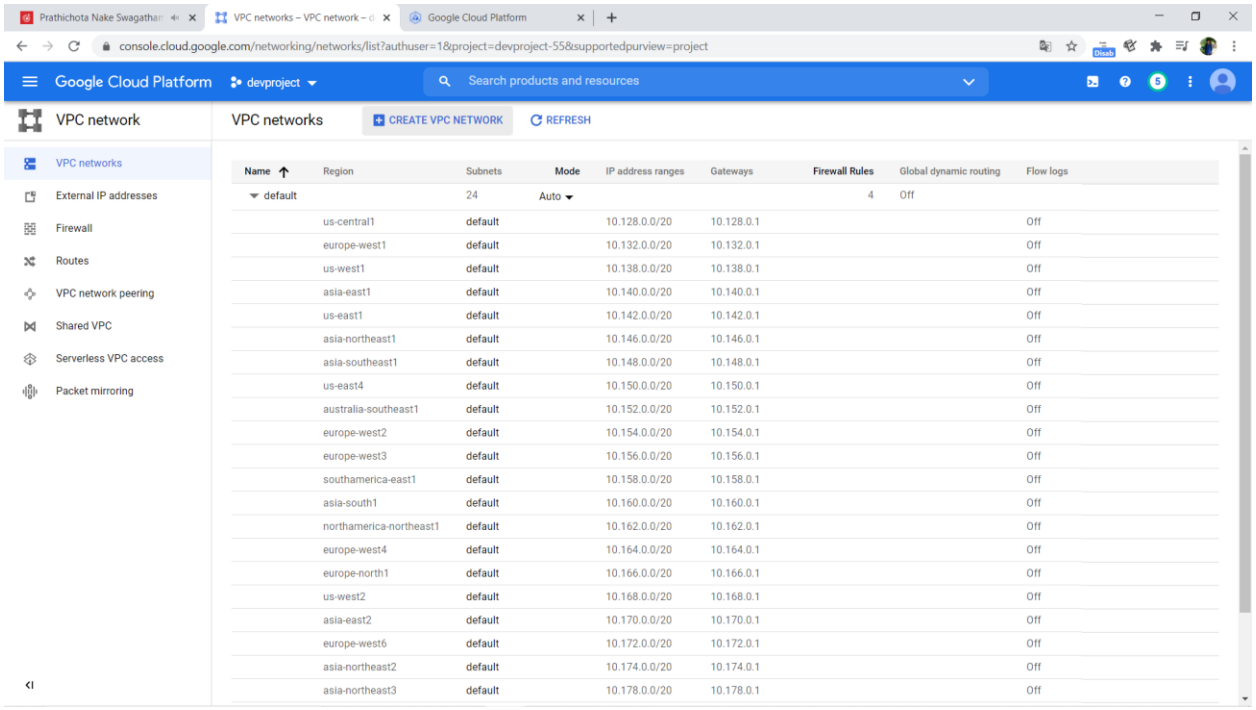
Virtual Private Cloud (VPC) enables us to launch resources into a virtual network that you have defined. This virtual network closely resembles a traditional network that you would operate in your own data center, with the benefits of using the scalable infrastructure of GCP.

VPC provide us border, which isolate us from outside. So any vpc cannot able to see our Infrastructure like RAM/CPU/Switch/db etc..



Creation of VPC in GCP in a Project named devproject in Singapore Region.


Yamaho Yama
VPC networks – VPC network – d
Google Cloud Platform
console.cloud.google.com/networking/networks/list?authuser=1&project=devproject-55&supportedpurview=project
Google Cloud Platform
devproject
Search products and resources
Home
Compute Engine
VPC network
Kubernetes Engine
SQL
PRODUCTS
Marketplace
Billing
APIs & Services
Support
IAM & Admin
Getting started
Security
Anthos
COMPUTE
App Engine
VPC networks
External IP addresses
Firewall
Routes
VPC network peering
Shared VPC
Serverless VPC access
Packet mirroring
PC networks
CREATE VPC NETWORK
REFRESH
Name
Region
Subnets
Mode
IP address ranges
Gateways
Firewall Rules
Global dynamic routing
Flow logs
24
Auto
4
Off
default
10.128.0.0/20
10.128.0.1
10.132.0.0/20
10.132.0.1
10.138.0.0/20
10.138.0.1
10.140.0.0/20
10.140.0.1
10.142.0.0/20
10.142.0.1
10.146.0.0/20
10.146.0.1
10.148.0.0/20
10.148.0.1
10.150.0.0/20
10.150.0.1
10.152.0.0/20
10.152.0.1
europe-west2
10.154.0.0/20
10.154.0.1
europe-west3
10.156.0.0/20
10.156.0.1
southamerica-east1
10.158.0.0/20
10.158.0.1
asia-south1
10.160.0.0/20
10.160.0.1
northamerica-northeast1
10.162.0.0/20
10.162.0.1
europe-west4
10.164.0.0/20
10.164.0.1
europe-north1
10.166.0.0/20
10.166.0.1
us-west2
10.168.0.0/20
10.168.0.1
asia-east2
10.170.0.0/20
10.170.0.1
europe-west6
10.172.0.0/20
10.172.0.1
asia-northeast2
10.174.0.0/20
10.174.0.1
10.178.0.0/20
10.178.0.1
Off
https://console.cloud.google.com/networking/networks/list?authuser=1&project=devproject-55&supportedpurview=project


Prathichota Nake Swagathan
VPC networks – VPC network – d
Google Cloud Platform
console.cloud.google.com/networking/networks/list?authuser=1&project=devproject-55&supportedpurview=project
Google Cloud Platform
devproject
Search products and resources
VPC network
VPC networks
External IP addresses
Firewall
Routes
VPC network peering
Shared VPC
Serverless VPC access
Packet mirroring
VPC networks
CREATE VPC NETWORK
REFRESH
Name
Region
Subnets
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IP address ranges
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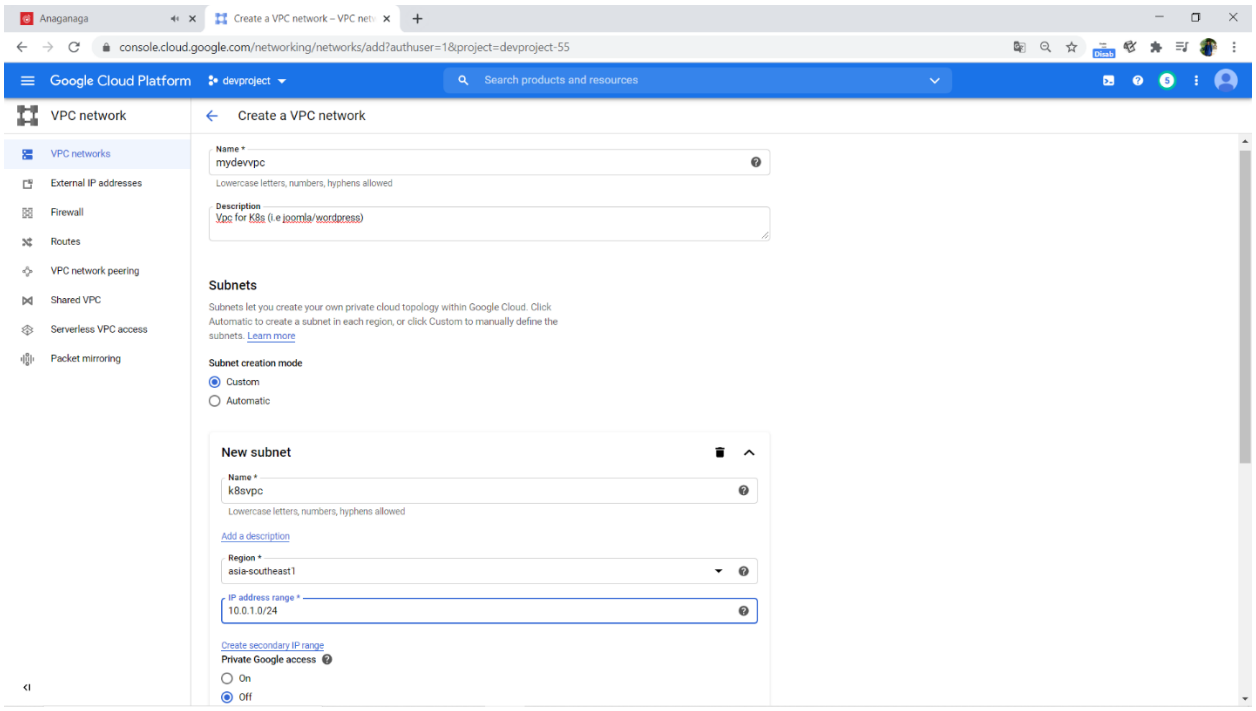
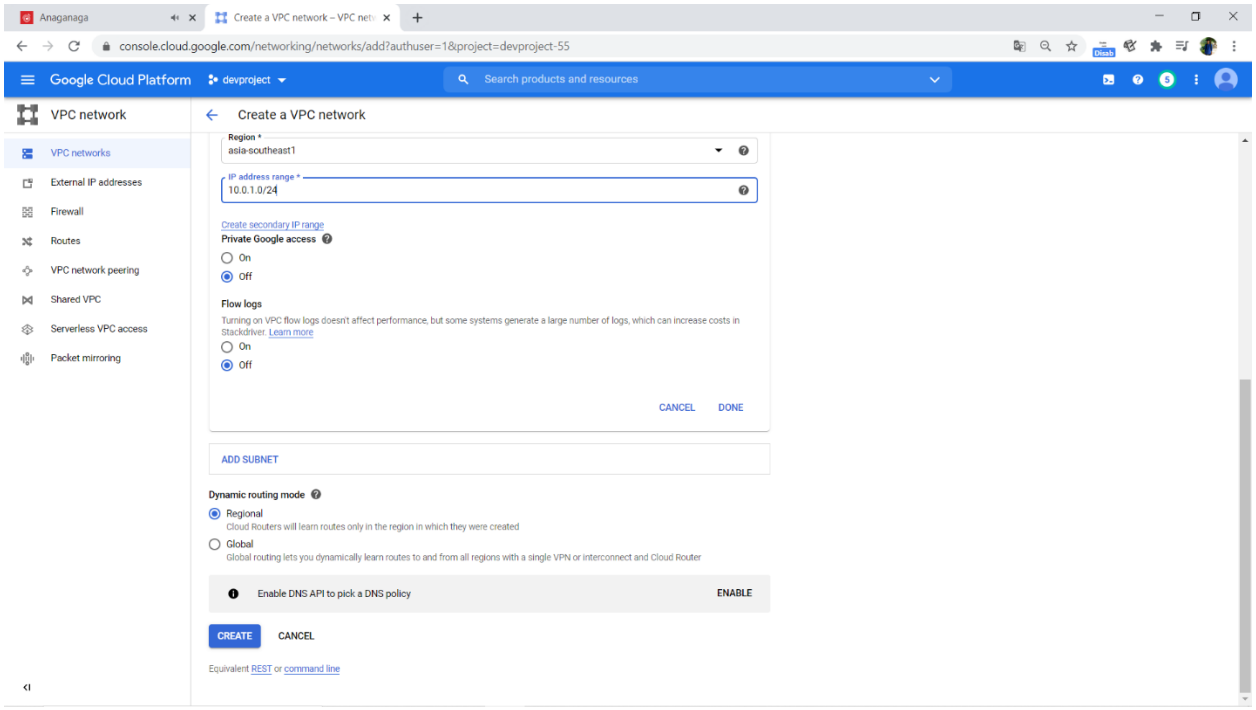
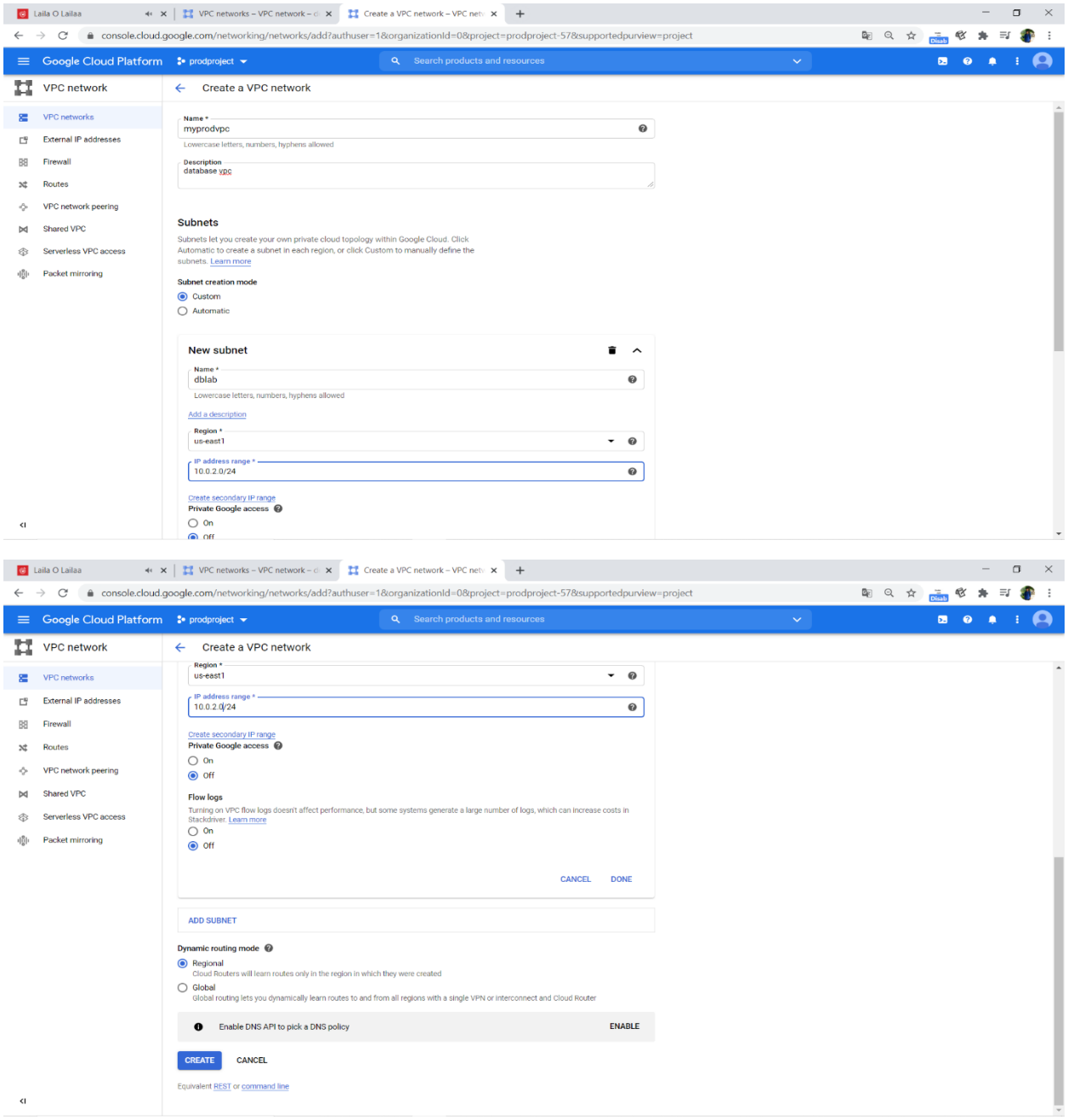
Firewall Rules
Global dynamic routing
Flow logs
default
24
Auto
4
Off
us-central1
10.128.0.0/20
10.128.0.1
europe-west1
10.132.0.0/20
10.132.0.1
us-west1
10.138.0.0/20
10.138.0.1
asia-east1
10.140.0.0/20
10.140.0.1
us-east1
10.142.0.0/20
10.142.0.1
asia-northeast1
10.146.0.0/20
10.146.0.1
asia-southeast1
10.148.0.0/20
10.148.0.1
us-east4
10.150.0.0/20
10.150.0.1
australia-southeast1
10.152.0.0/20
10.152.0.1
europe-west2
10.154.0.0/20
10.154.0.1
europe-west3
10.156.0.0/20
10.156.0.1
southamerica-east1
10.158.0.0/20
10.158.0.1
asia-south1
10.160.0.0/20
10.160.0.1
northamerica-northeast1
10.162.0.0/20
10.162.0.1
europe-west4
10.164.0.0/20
10.164.0.1
europe-north1
10.166.0.0/20
10.166.0.1
us-west2
10.168.0.0/20
10.168.0.1
asia-east2
10.170.0.0/20
10.170.0.1
europe-west6
10.172.0.0/20
10.172.0.1
asia-northeast2
10.174.0.0/20
10.174.0.1
asia-northeast3
10.178.0.0/20
10.178.0.1
Off





Similar, VPC is Created in another Project named Prodproject US Region.

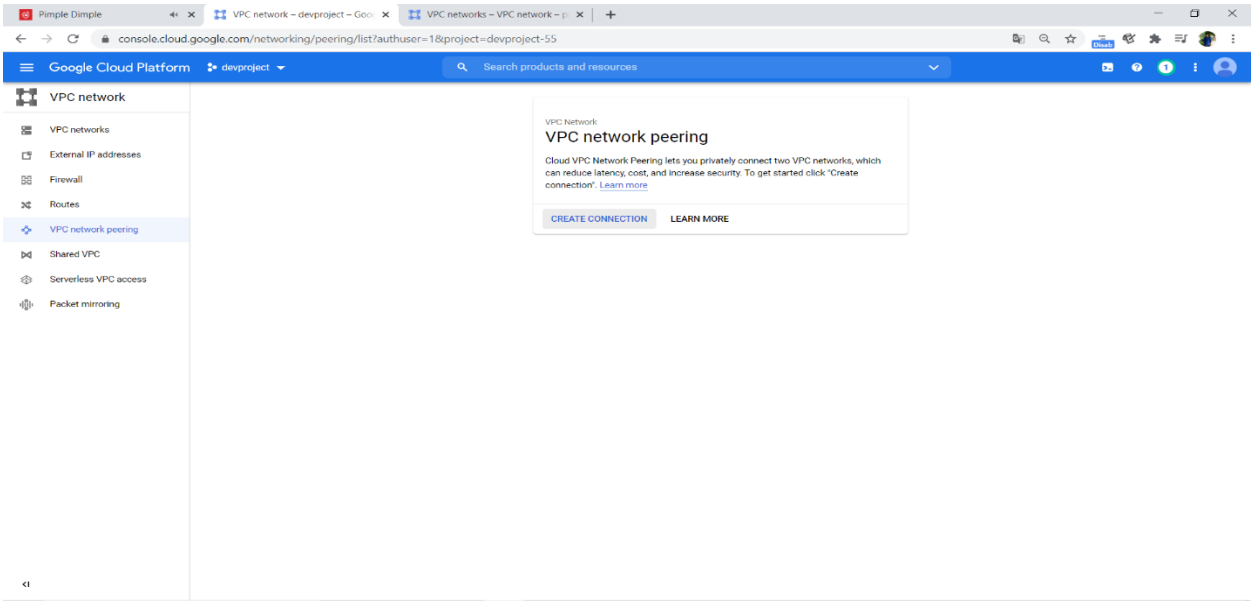


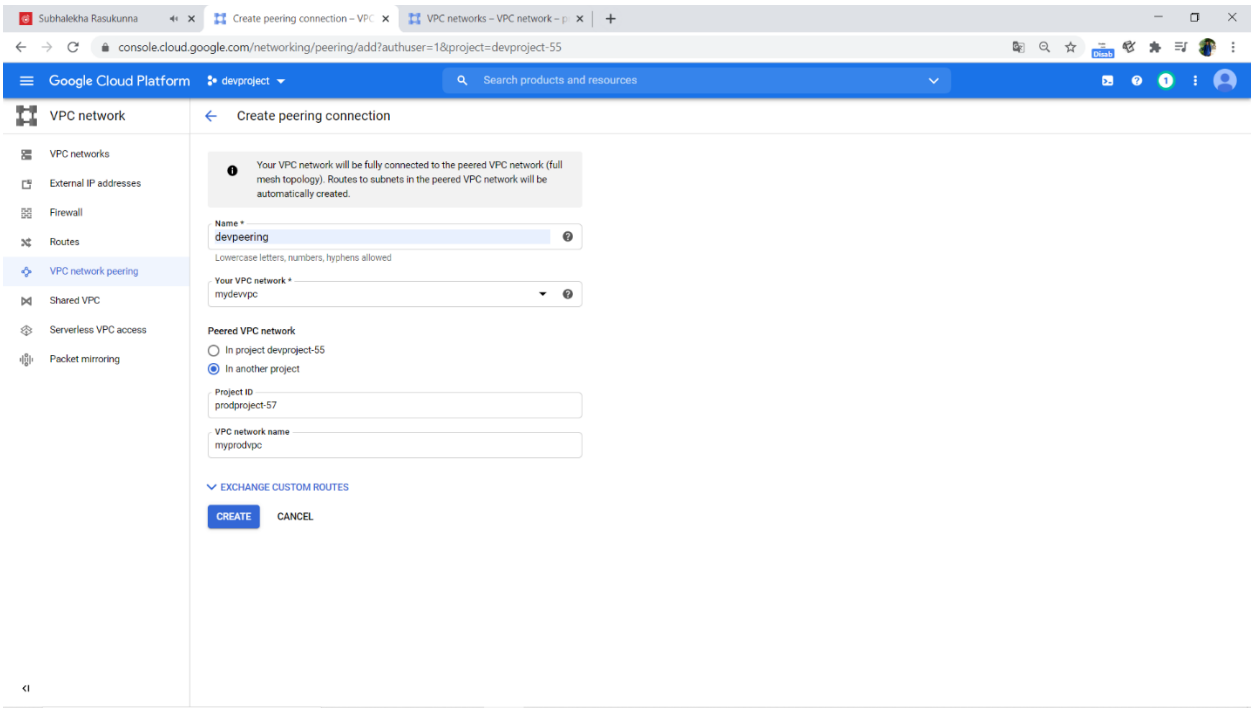
What is VPC Peering?

Google Cloud **VPC** Network **Peering** allows internal IP address connectivity across two Virtual Private Cloud (**VPC**) networks regardless of whether they belong to the same project or the same

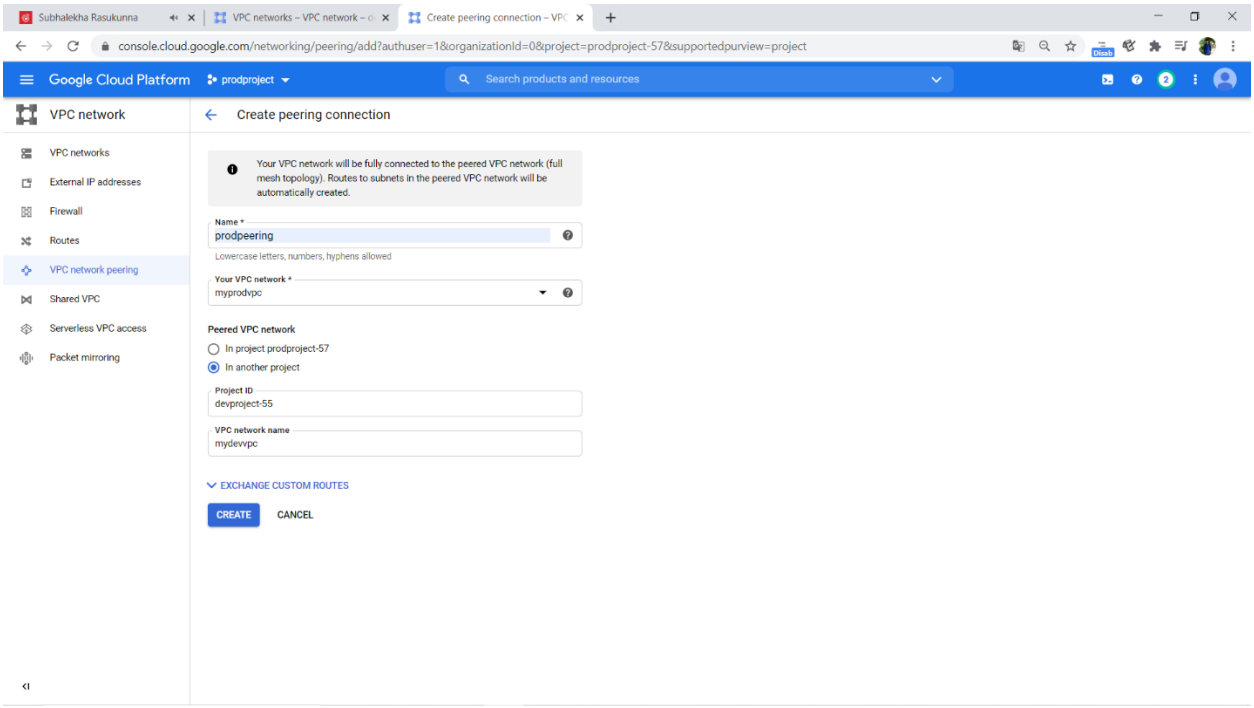
organization. You can make services available privately across different **VPC** networks within and across organizations.

Creation of VPC Peering from devproject to prodproject.



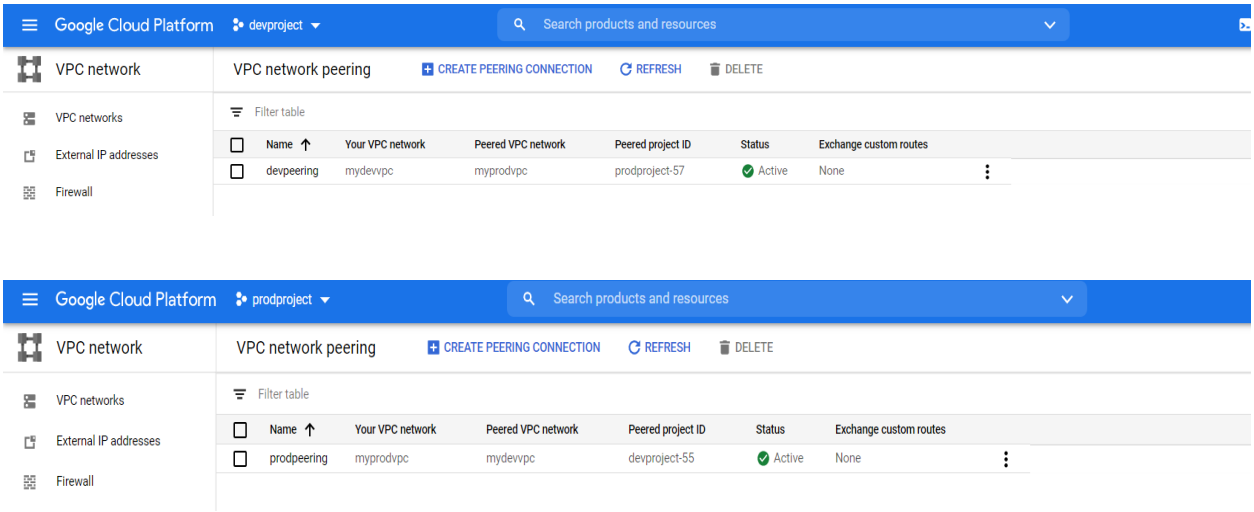


Creation of VPC Peering from prodproject to devproject.

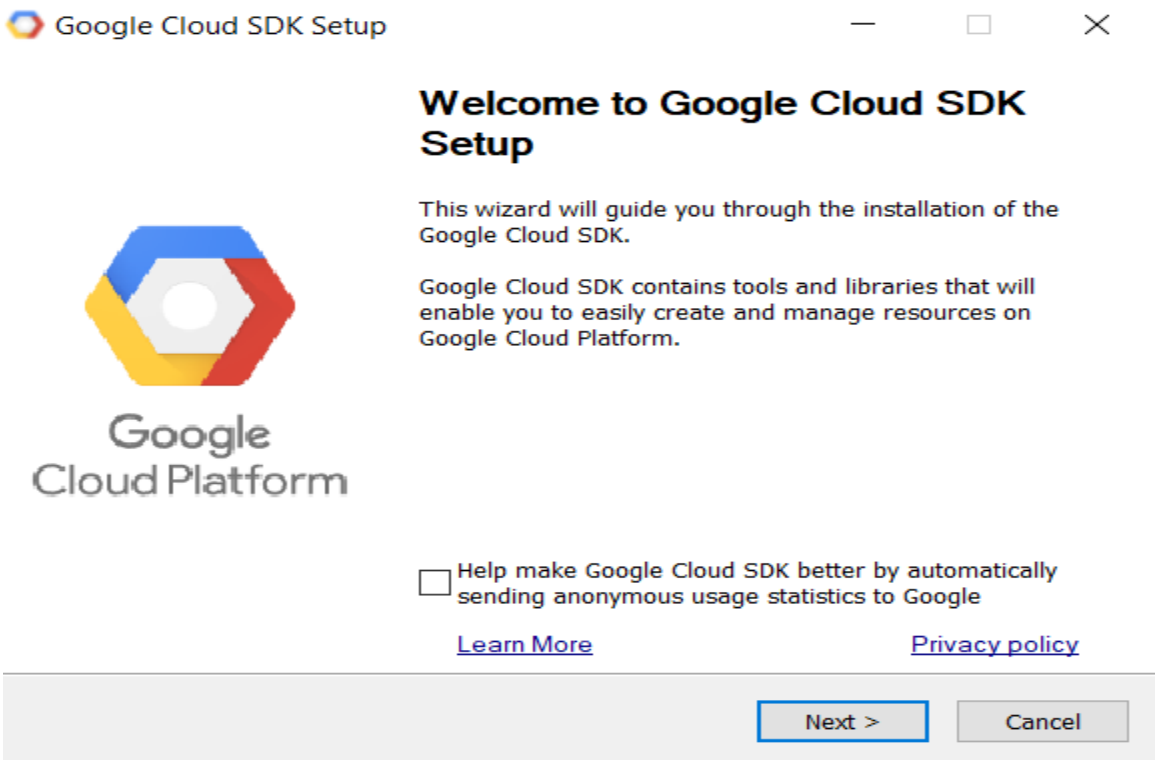


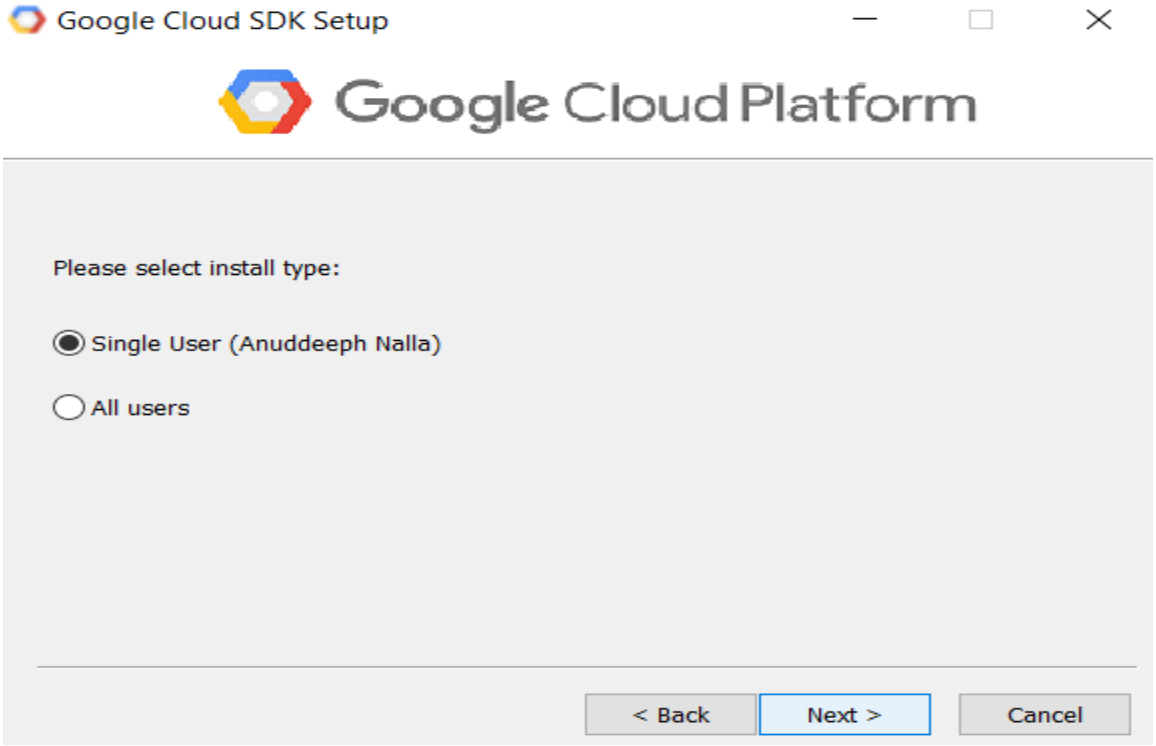
Note: The devpeering will be inactive till the prodpeering is created.

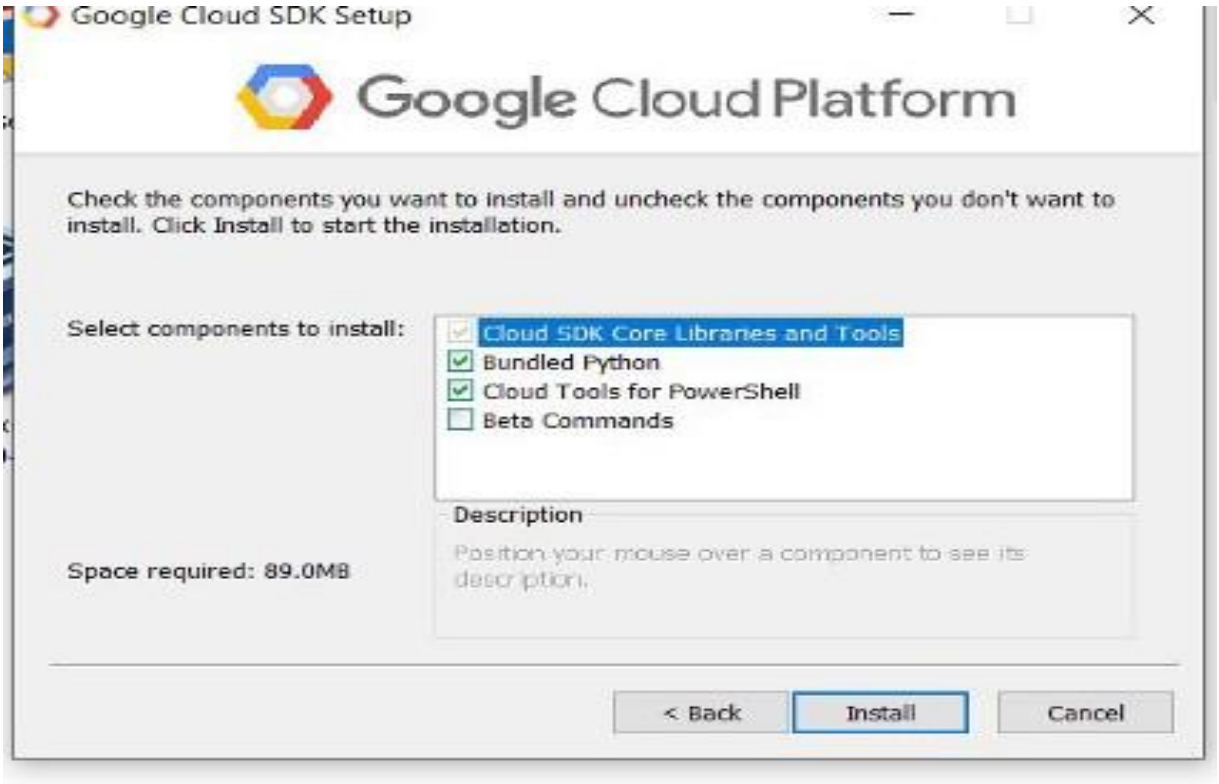
Finally, both are active.

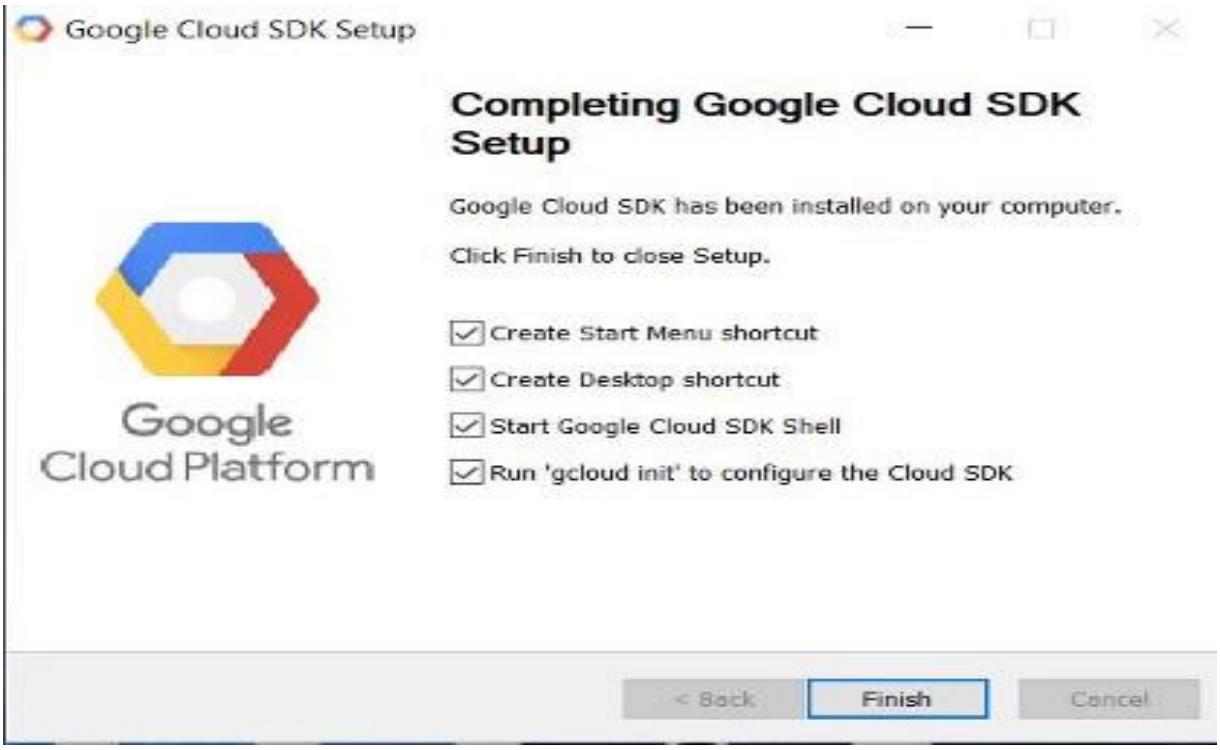


Steps to Google Cloud SDK set-up

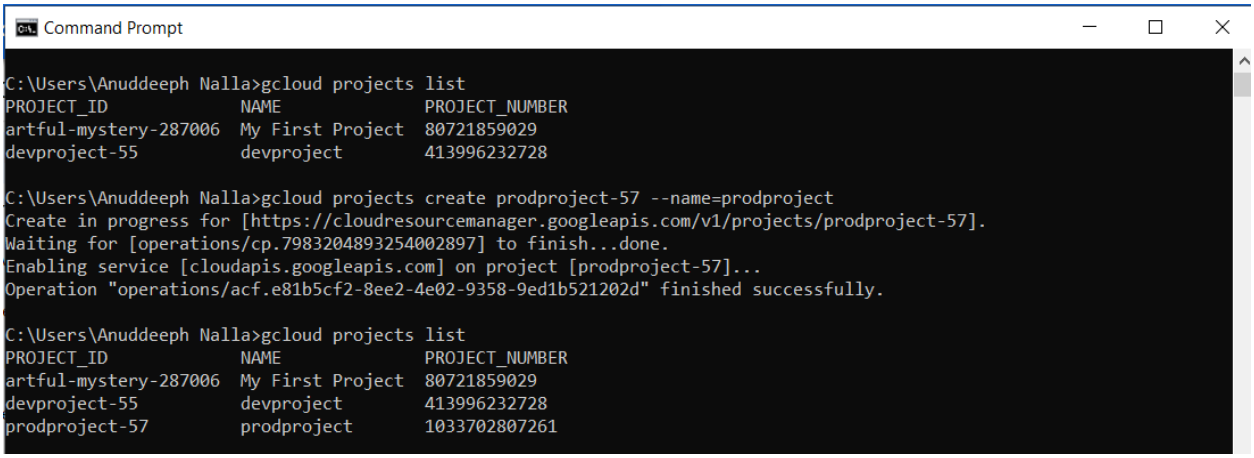





Google Cloud SDK Setup
Google Cloud Platform
Check the components you want to install and uncheck the components you don't want to install. Click Install to start the installation.
Select components to install:
Cloud SDK Core Libraries and Tools
Bundled Python
Cloud Tools for PowerShell
Beta Commands
Description
Position your mouse over a component to see its description.
Space required: 89.0MB
< Back
Install
Cancel


Google Cloud SDK Setup
Completing Google Cloud SDK Setup
Google Cloud SDK has been installed on your computer.
Click Finish to close Setup.
Create Start Menu shortcut
Create Desktop shortcut
Start Google Cloud SDK Shell
Run 'gcloud init' to configure the Cloud SDK
Google Cloud Platform
< Back
Finish
Cancel

After Installing, it asks to authenticate with your GCP Account.



What is Kubernetes?

Kubernetes is an open-source container-orchestration system for automating application deployment, scaling, and management.

Kubernetes, Powerful tool, have a inbuilt capacity to keep on watching a container (POD). As soon as, OS goes down or fails they automatically launch another OS (internally instruct docker). Kubernetes manages docker and having a feature of Load Balancing and Service Discovery (Dynamic IP created by Kubernetes).

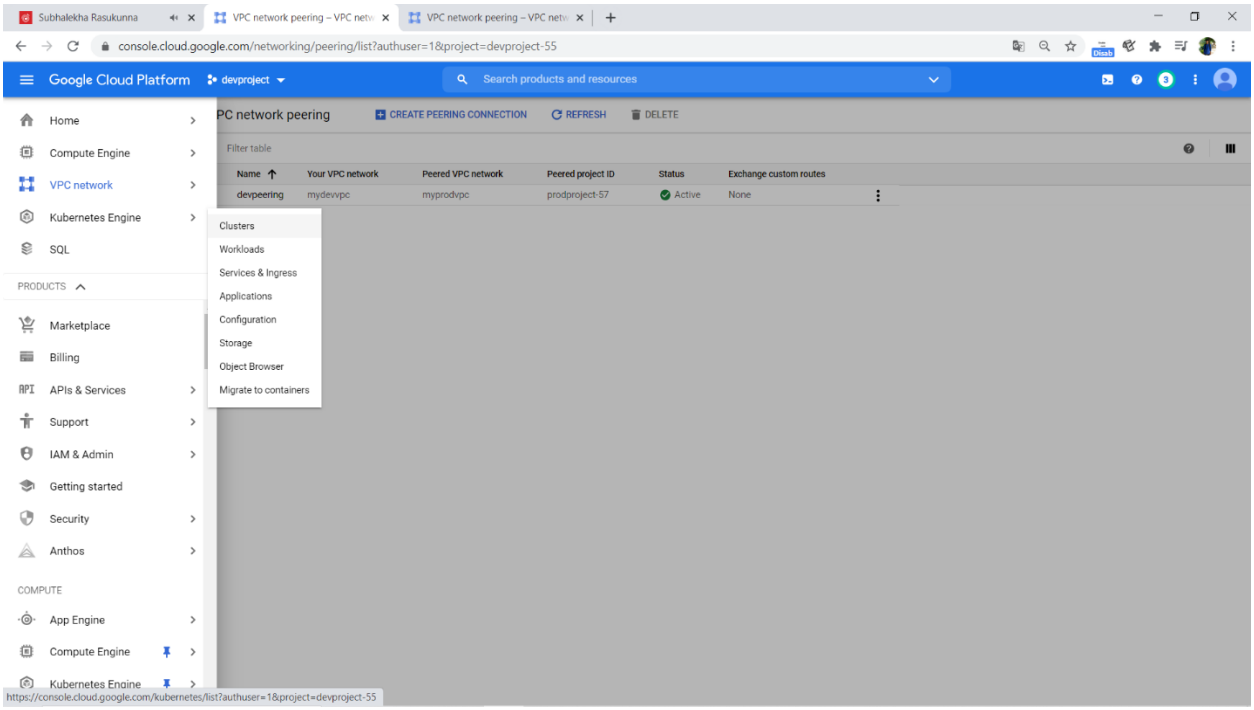
Kubernetes has the capability to ask/Instruct the docker to launch an OS.
Slave Node — Node working for Kubernetes.
Master Node — Node manages the slave node .
If there are more than one Node , they are known as Multi-Node Cluster .

Behind the Scenes, Kubernetes is used to manage the complete Infrastructure because Kubernetes is good in launching the container in a second and manages the container automatically.

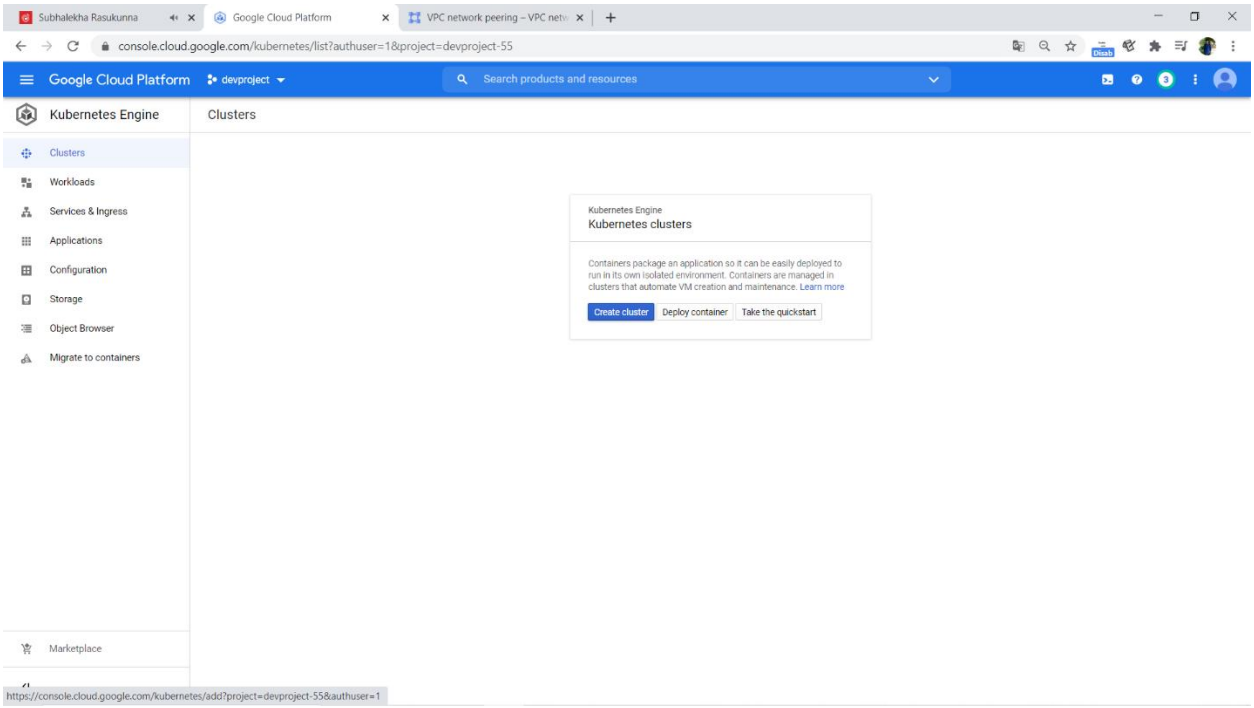
Technically, Kubernetes never monitor Container, instead they monitor POD and POD monitor container and manages it automatically. POD is the one who launches the container.

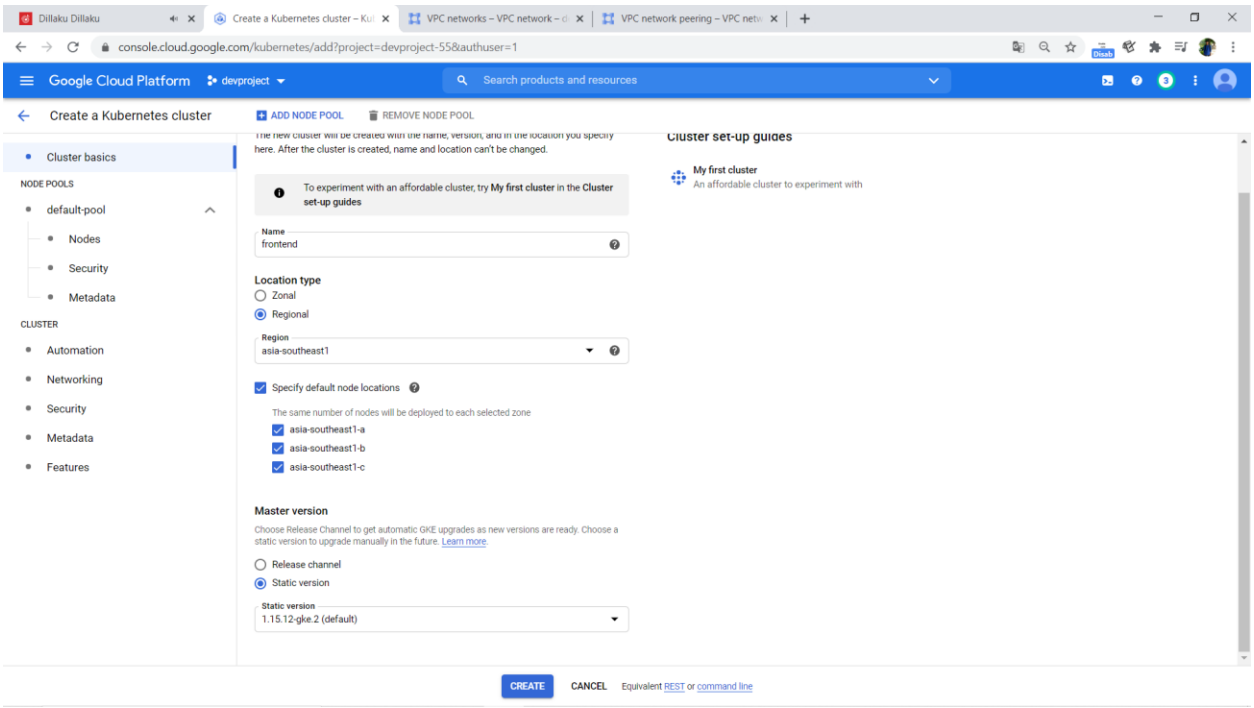
What is Pod?

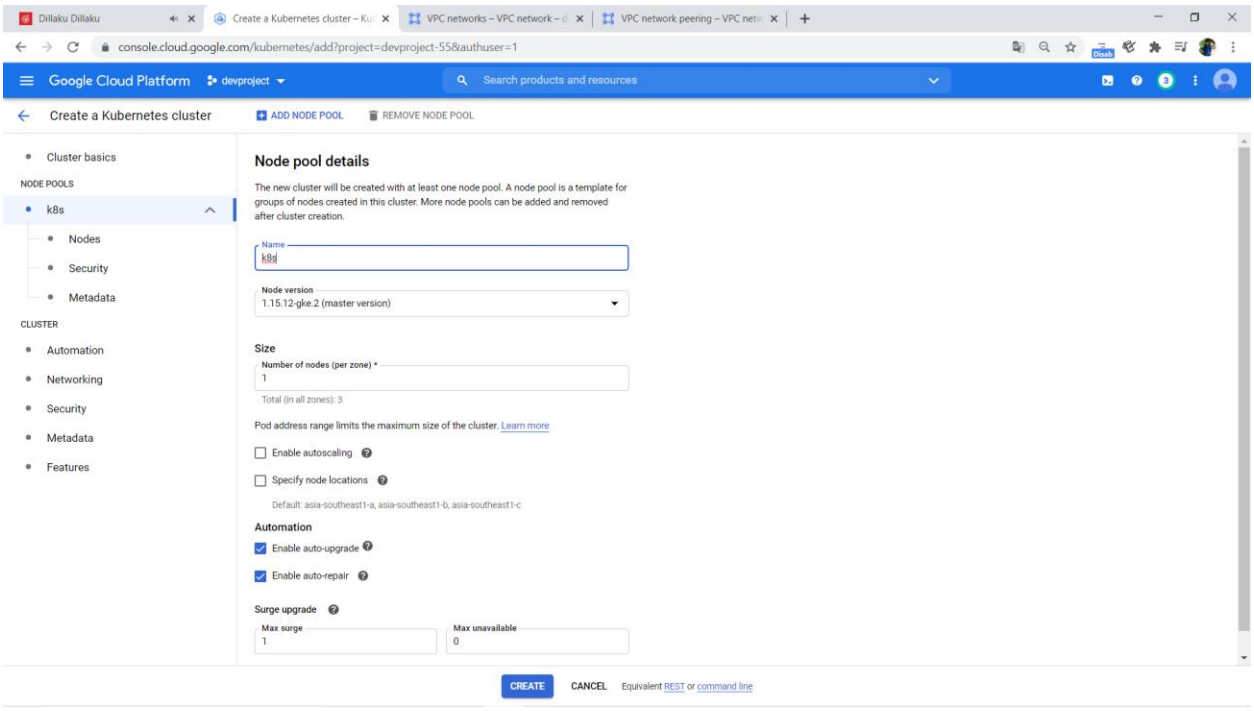
A pod is a collection of containers and its storage inside a node of Kubernetes cluster. It is possible to create a pod with multiple containers inside it. Eg: - one container for DB and one container for WordPress in the same POD.

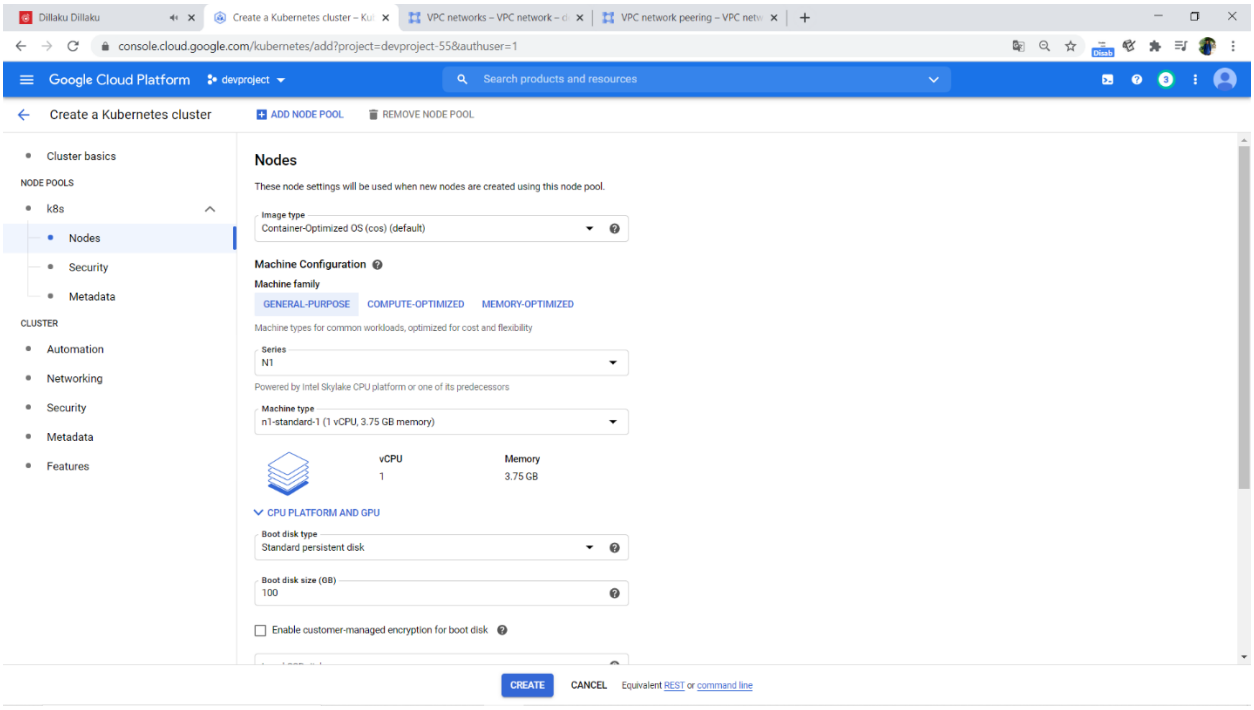


➔Click on create cluster






Dillaku Dillaku
Create a Kubernetes cluster – Ku
VPC networks – VPC network – c
VPC network peering – VPC netw
console.cloud.google.com/kubernetes/add?project=devproject-55&authuser=1
Google Cloud Platform
devproject
Search products and resources
Create a Kubernetes cluster
ADD NODE POOL
REMOVE NODE POOL
Cluster basics
NODE POOLS
k8s
Nodes
Security
Metadata
CLUSTER
Automation
Networking
Security
Metadata
Features
Node pool details
The new cluster will be created with at least one node pool. A node pool is a template for groups of nodes created in this cluster. More node pools can be added and removed after cluster creation.
Name
k8s
Node version
1.15.12-gke.2 (master version)
Size
Number of nodes (per zone) *
1
Total (in all zones): 3
Pod address range limits the maximum size of the cluster. Learn more
Enable autoscaling
Specify node locations
Default: asia-southeast1-a, asia-southeast1-b, asia-southeast1-c
Automation
Enable auto-upgrade
Enable auto-repair
Surge upgrade
Max surge
1
Max unavailable
0
CREATE
CANCEL
Equivalent REST or command line


Dillaku Dillaku
Create a Kubernetes cluster – Ku
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Google Cloud Platform
devproject
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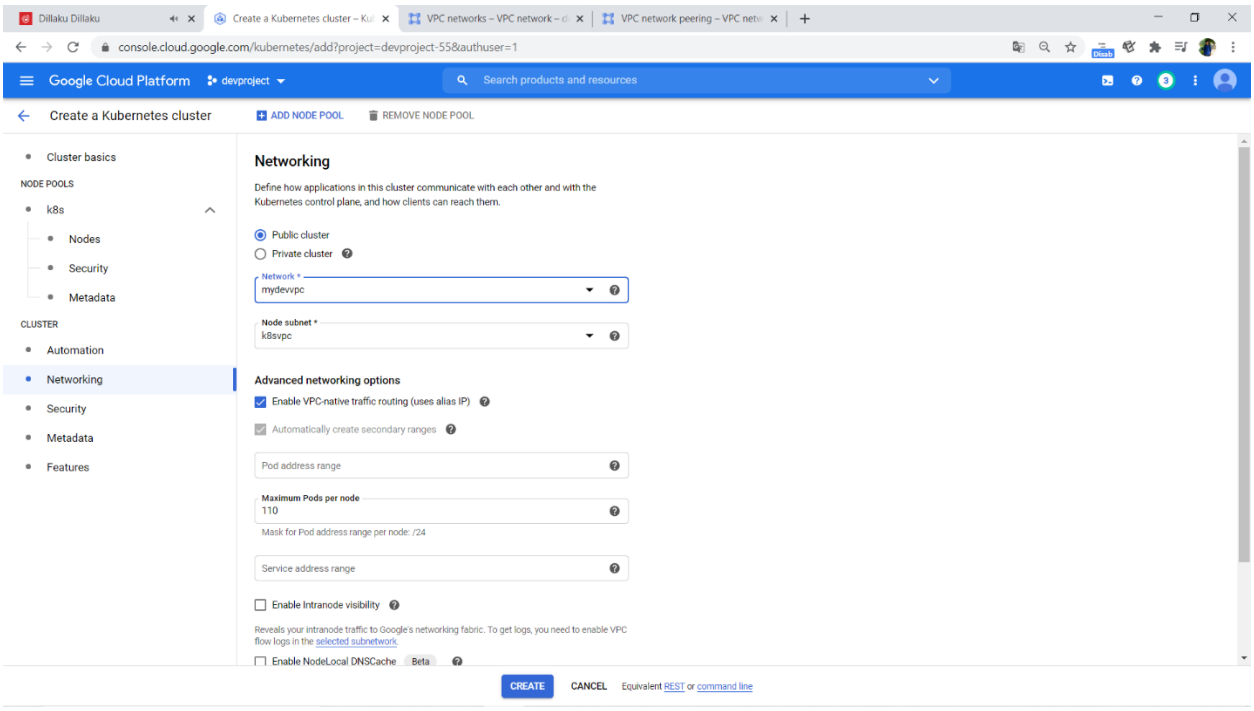
REMOVE NODE POOL
Cluster basics
NODE POOLS
k8s
Nodes
Security
Metadata
CLUSTER
Automation
Networking
Security
Metadata
Features
Nodes
These node settings will be used when new nodes are created using this node pool.
Image type
Container-Optimized OS (cos) (default)
Machine Configuration
Machine family
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
Boot disk size (GB)
100
Enable customer-managed encryption for boot disk
CREATE
CANCEL
Equivalent REST or command line


Dillaku Dillaku
Create a Kubernetes cluster – Ku
VPC networks – VPC network – c
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Google Cloud Platform
devproject
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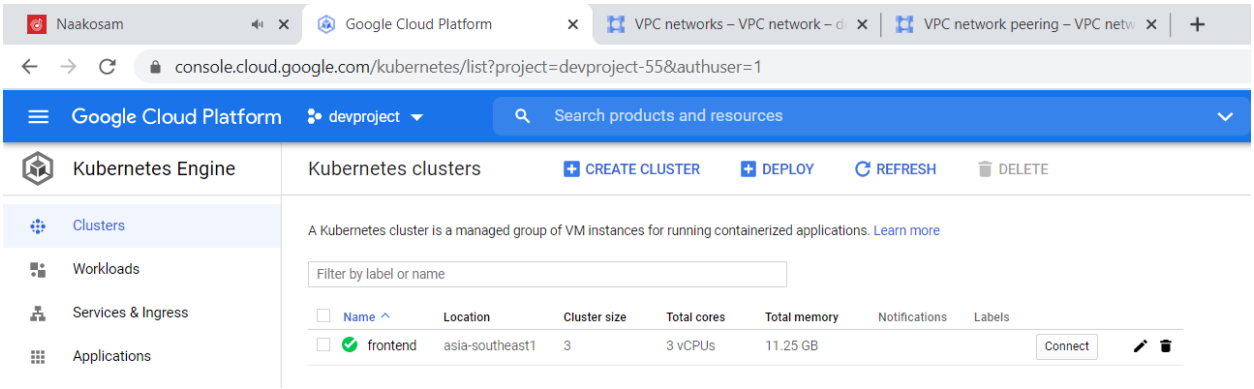
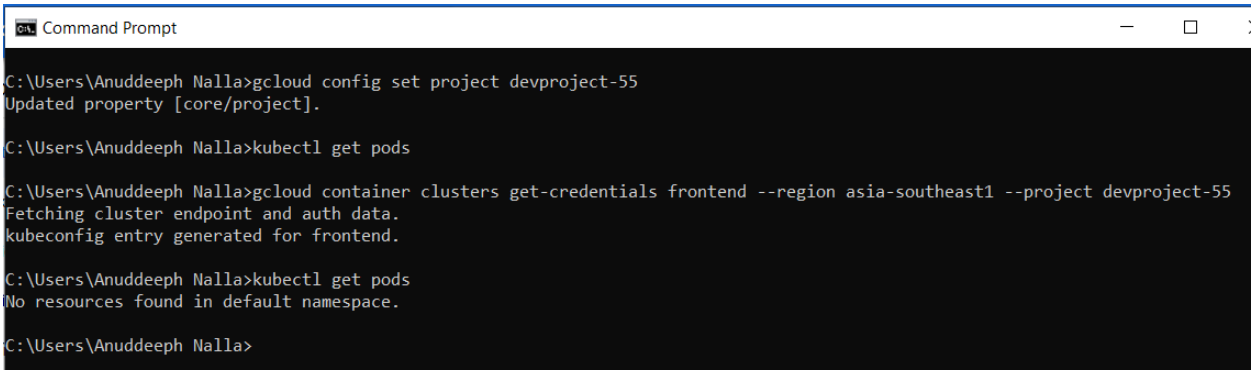
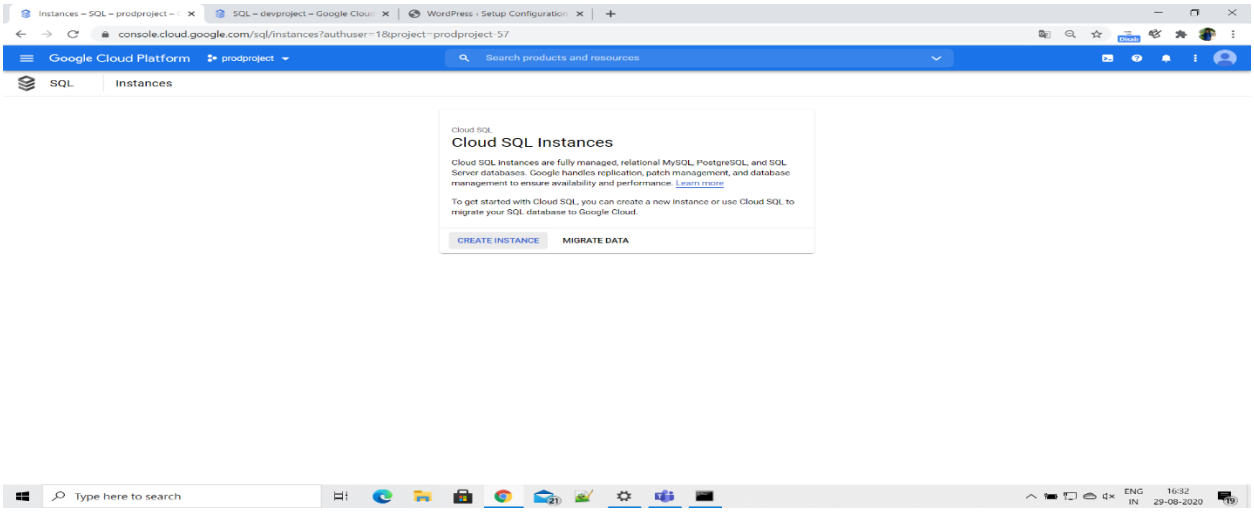
ADD NODE POOL
REMOVE NODE POOL
Cluster basics
NODE POOLS
k8s
Nodes
Security
Metadata
CLUSTER
Automation
Networking
Security
Metadata
Features
Networking
Define how applications in this cluster communicate with each other and with the Kubernetes control plane, and how clients can reach them.
Public cluster
Private cluster
Network *
mydevvpc
Node subnet *
k8svpc
Advanced networking options
Enable VPC-native traffic routing (uses alias IP)
Automatically create secondary ranges
Pod address range
Maximum Pods per node
110
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
CREATE
CANCEL
Equivalent REST or command line


Naakosam
Google Cloud Platform
VPC networks – VPC network – d
VPC network peering – VPC netw
console.cloud.google.com/kubernetes/list?project=devproject-55&authuser=1
Google Cloud Platform
devproject
Search products and resources
Kubernetes Engine
Kubernetes clusters
CREATE CLUSTER
DEPLOY
REFRESH
DELETE
Clusters
Workloads
Services & Ingress
Applications
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
frontend
asia-southeast1
3
3 vCPUs
11.25 GB
Connect

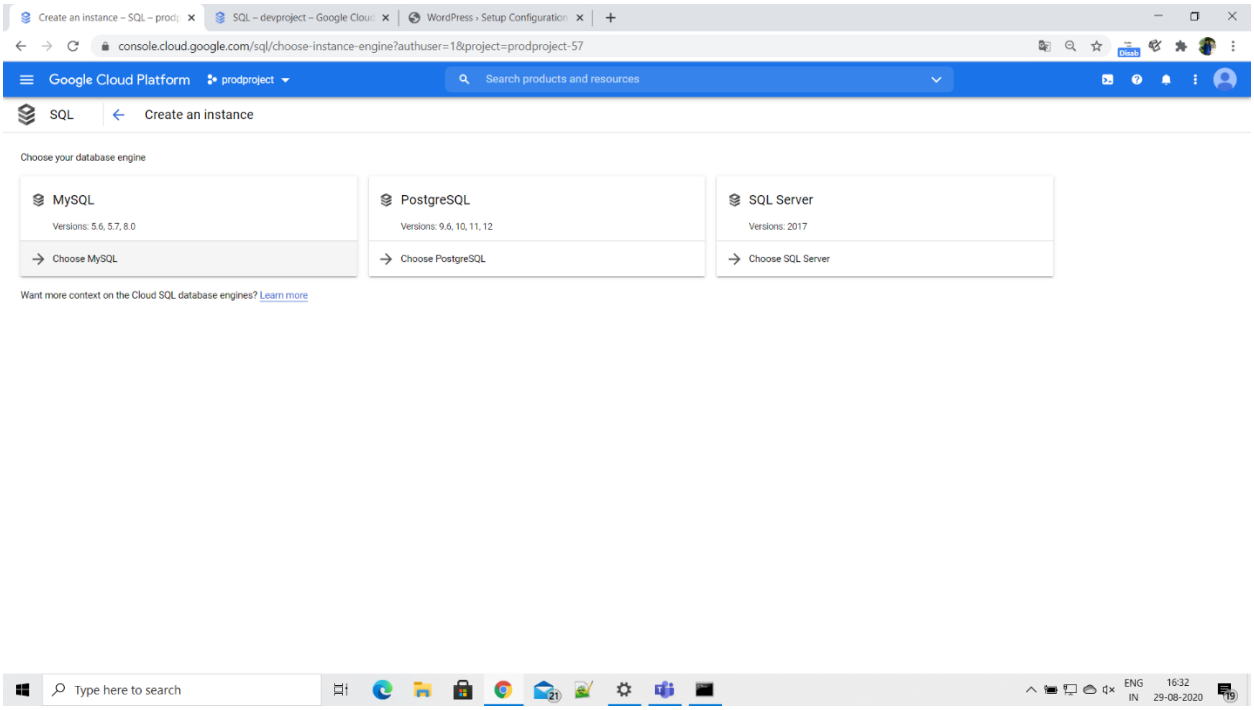

Command Prompt
C:\Users\Anuddeeph Nalla>gcloud config set project devproject-55
Updated property [core/project].
C:\Users\Anuddeeph Nalla>kubectl get pods
C:\Users\Anuddeeph Nalla>gcloud container clusters get-credentials frontend --region asia-southeast1 --project devproject-55
Fetching cluster endpoint and auth data.
kubeconfig entry generated for frontend.
C:\Users\Anuddeeph Nalla>kubectl get pods
No resources found in default namespace.
C:\Users\Anuddeeph Nalla>

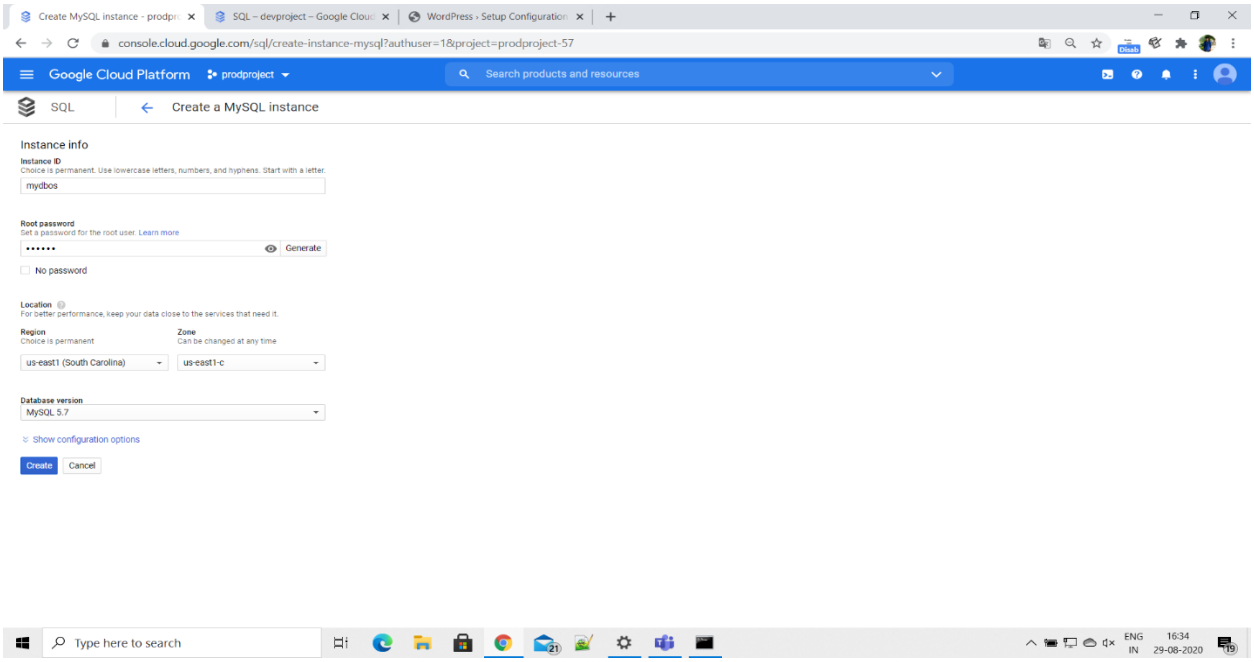
Creation of SQL Server in US Region in prodproject

Creation of MySQL Database

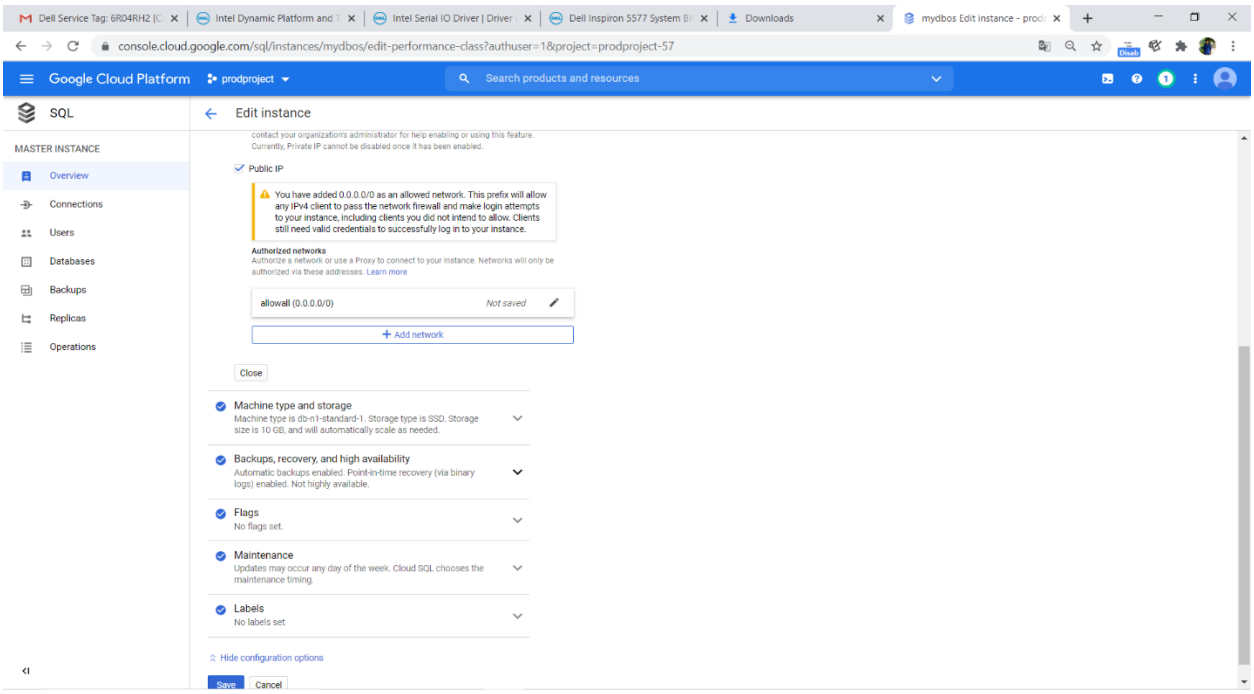


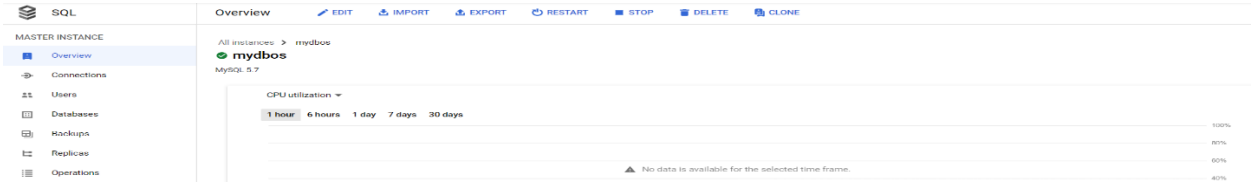
Choose MYSQL



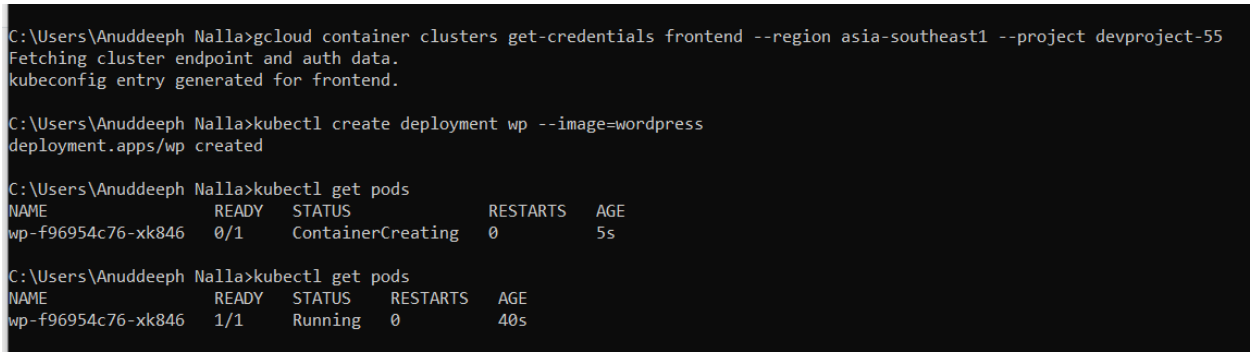

Create MySQL instance - prodpr
SQL – devproject – Google Cloud
WordPress › Setup Configuration
console.cloud.google.com/sql/create-instance-mysql?authuser=1&project=prodproject-57
Google Cloud Platform
prodproject
Search products and resources
SQL
Create a MySQL instance
Instance info
Instance ID
Choice is permanent. Use lowercase letters, numbers, and hyphens. Start with a letter.
mydbos
Root password
Set a password for the root user. Learn more
Generate
No password
Location
For better performance, keep your data close to the services that need it.
Region
Choice is permanent
Zone
Can be changed at any time
us-east1 (South Carolina)
us-east1-c
Database version
MySQL 5.7
Show configuration options
Create
Cancel

Type here to search
ENG
IN
16:34
29-08-2020

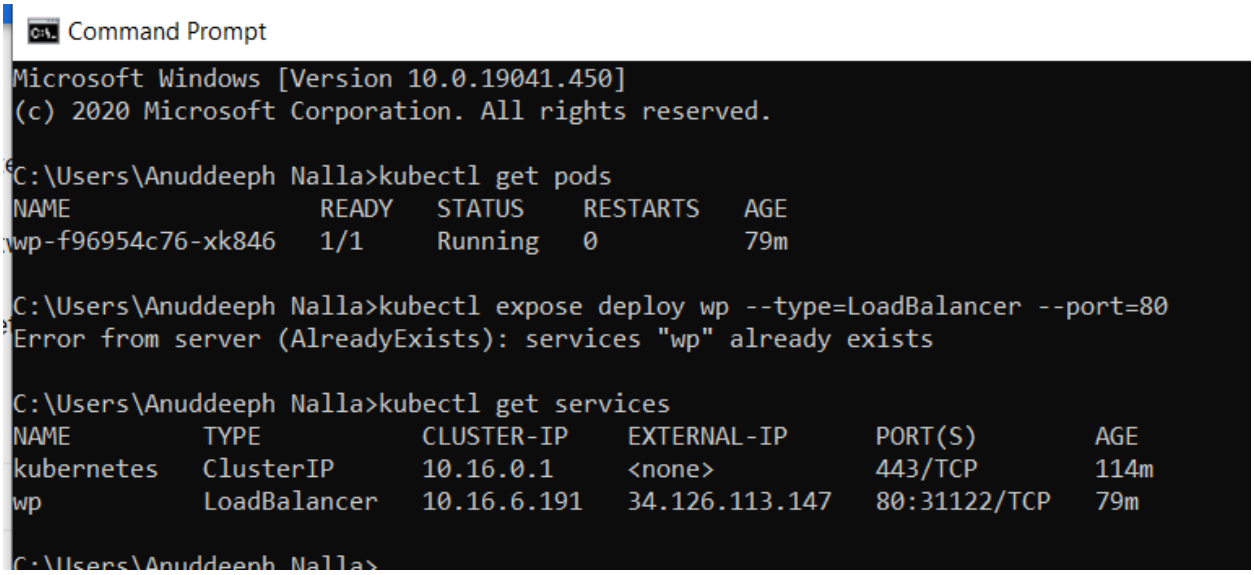

Dell Service Tag: 6R04RH2 |C
Intel Dynamic Platform and T
Intel Serial IO Driver | Driver
Dell Inspiron 5577 System Bi
Downloads
mydbos Edit instance - prodj
console.cloud.google.com/sql/instances/mydbos/edit-performance-class?authuser=1&project=prodproject-57
Google Cloud Platform
prodproject
Search products and resources
SQL
Edit instance
MASTER INSTANCE
Overview
Connections
Users
Databases
Backups
Replicas
Operations
contact your organization's administrator for help enabling or using this feature.
Currently, Private IP cannot be disabled once it has been enabled.
Public IP
You have added 0.0.0.0/0 as an allowed network. This prefix will allow any IPv4 client to pass the network firewall and make login attempts to your instance, including clients you did not intend to allow. Clients still need valid credentials to successfully log in to your instance.
Authorized networks
Authorize a network or use a Proxy to connect to your instance. Networks will only be authorized via these addresses. Learn more
allowall (0.0.0.0/0)
Not saved
+ Add network
Close
Machine type and storage
Machine type is db-n1-standard-1. Storage type is SSD. Storage size is 10 GB, and will automatically scale as needed.
Backups, recovery, and high availability
Automatic backups enabled. Point-in-time recovery (via binary logs) enabled. Not highly available.
Flags
No flags set.
Maintenance
Updates may occur any day of the week. Cloud SQL chooses the maintenance timing.
Labels
No labels set
Hide configuration options
Save
Cancel


SQL
Overview
EDIT
IMPORT
EXPORT
RESTART
STOP
DELETE
CLONE
MASTER INSTANCE
Overview
Connections
Users
Databases
Backups
Replicas
Operations
All instances > mydbos
mydbos
MySQL 5.7
CPU utilization
1 hour
6 hours
1 day
7 days
30 days
No data is available for the selected time frame.

Launching WordPress Pod on the top of Kubernetes Cluster running in Singapore Region.

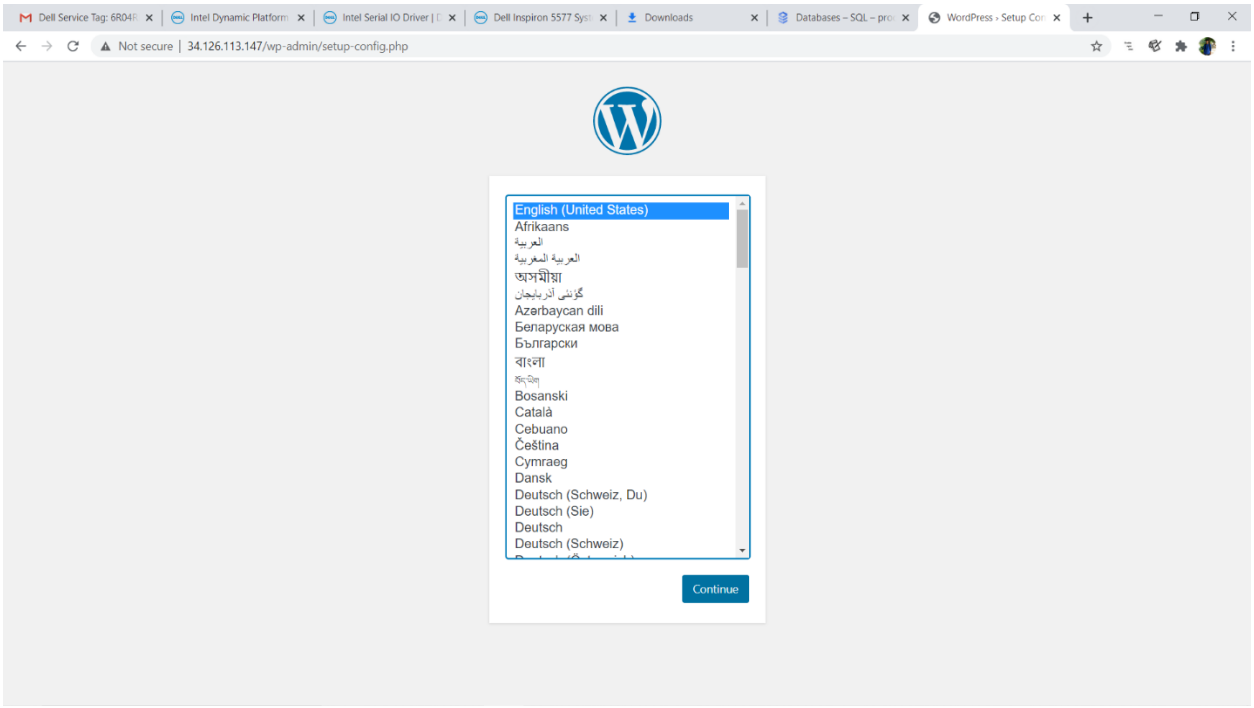


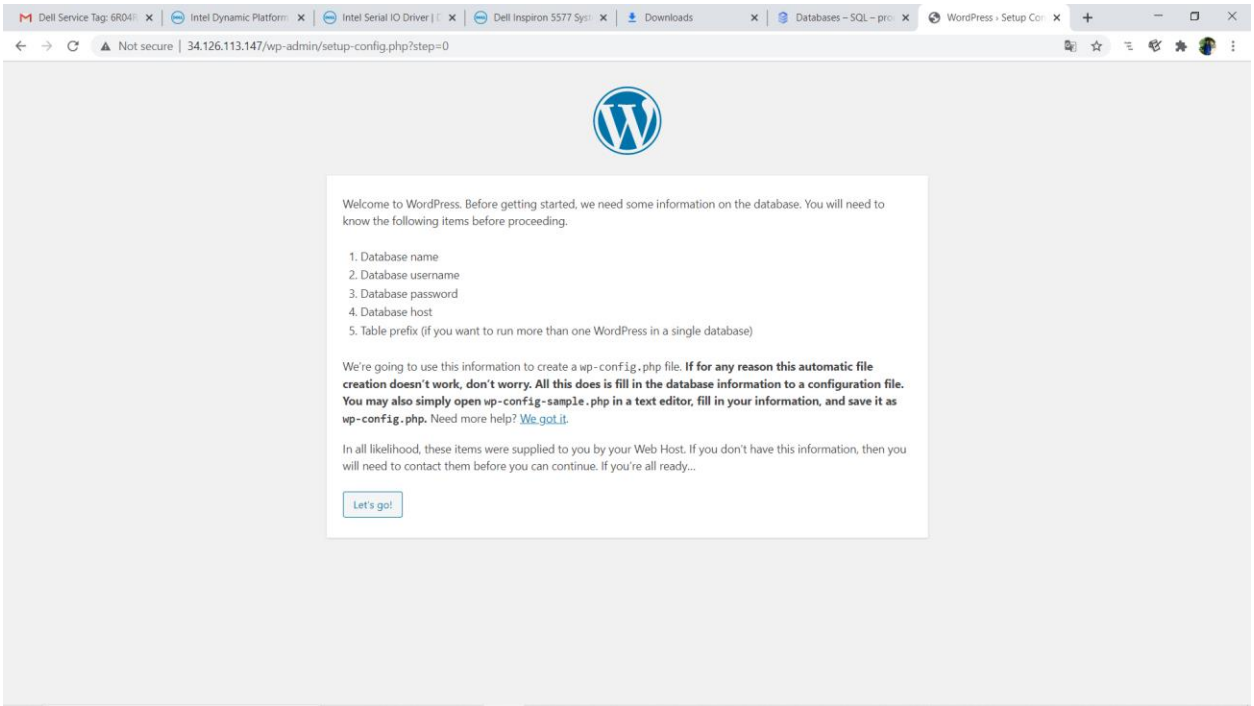
By default, Kubernetes have their own Load Balancer, Here we associate the Pod using Load Balancer provided by GCP.

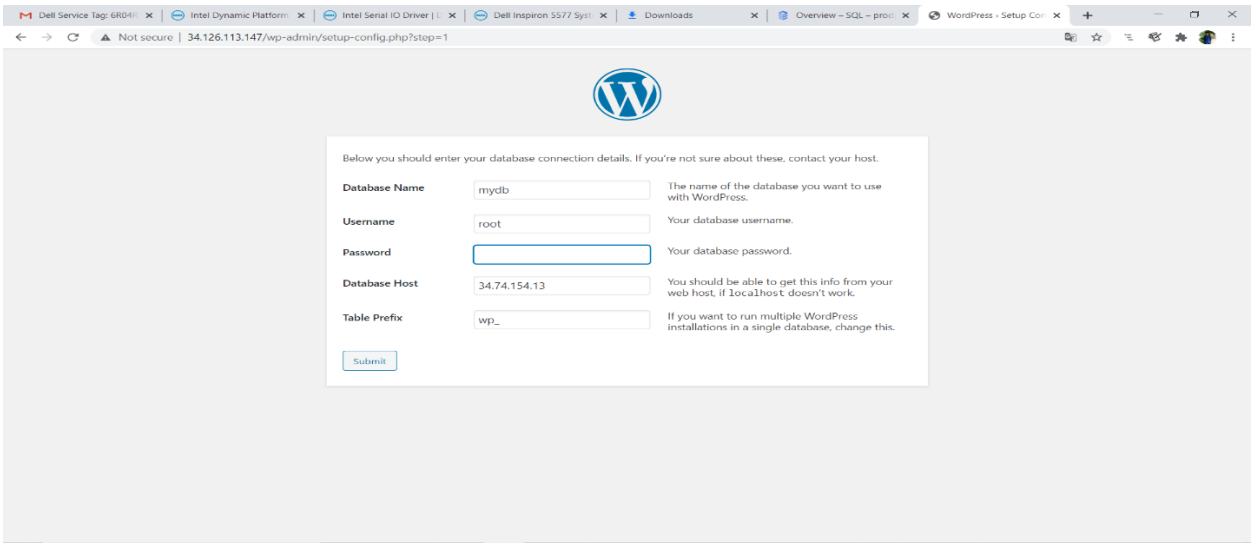


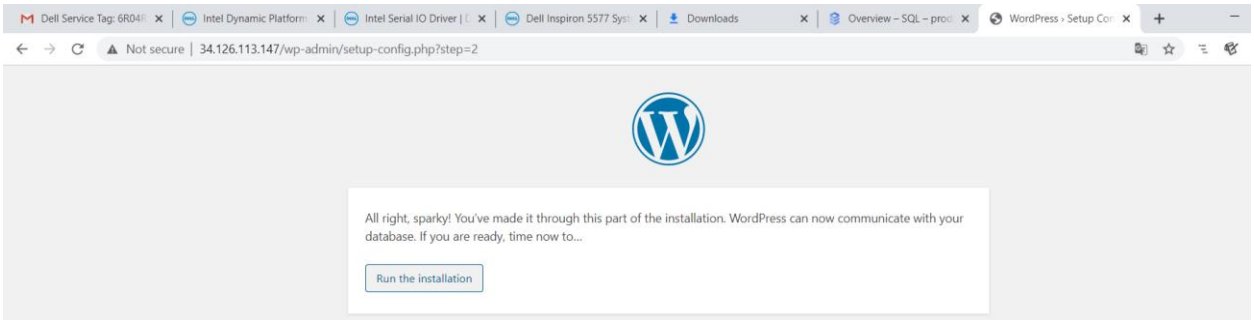
As soon as, we expose the Pod running over K8S Cluster using Load Balancer. One Load Balancer is created automatically in the GCP.

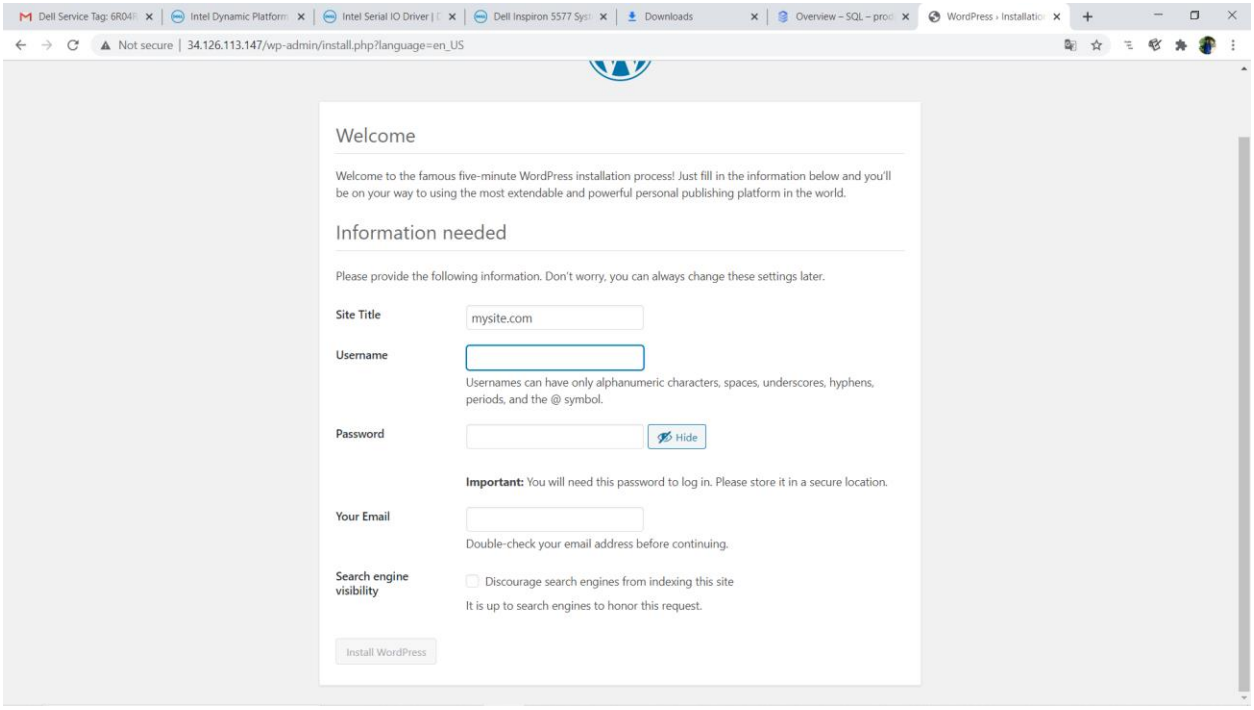
If Pod goes down due to any reason, Deployment will automatically deploy pod.



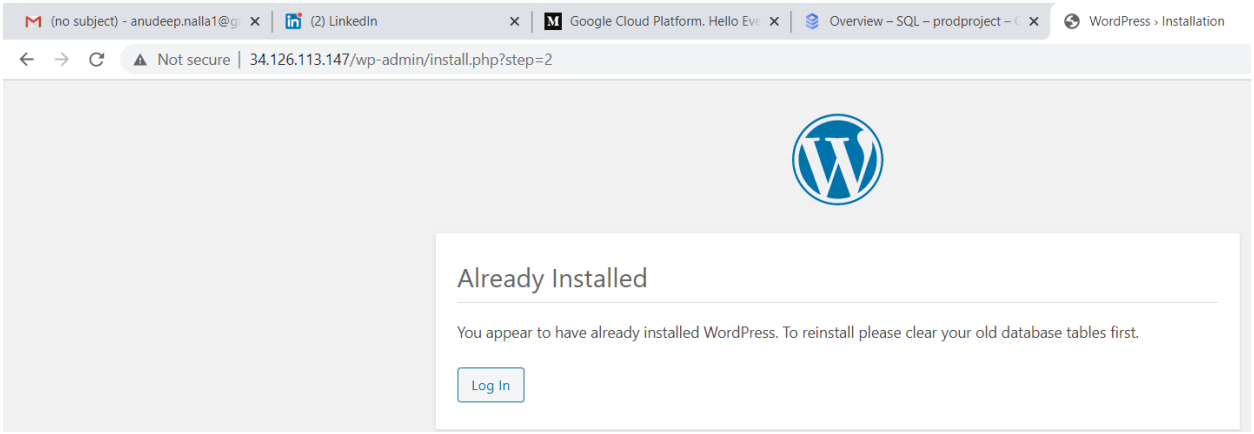


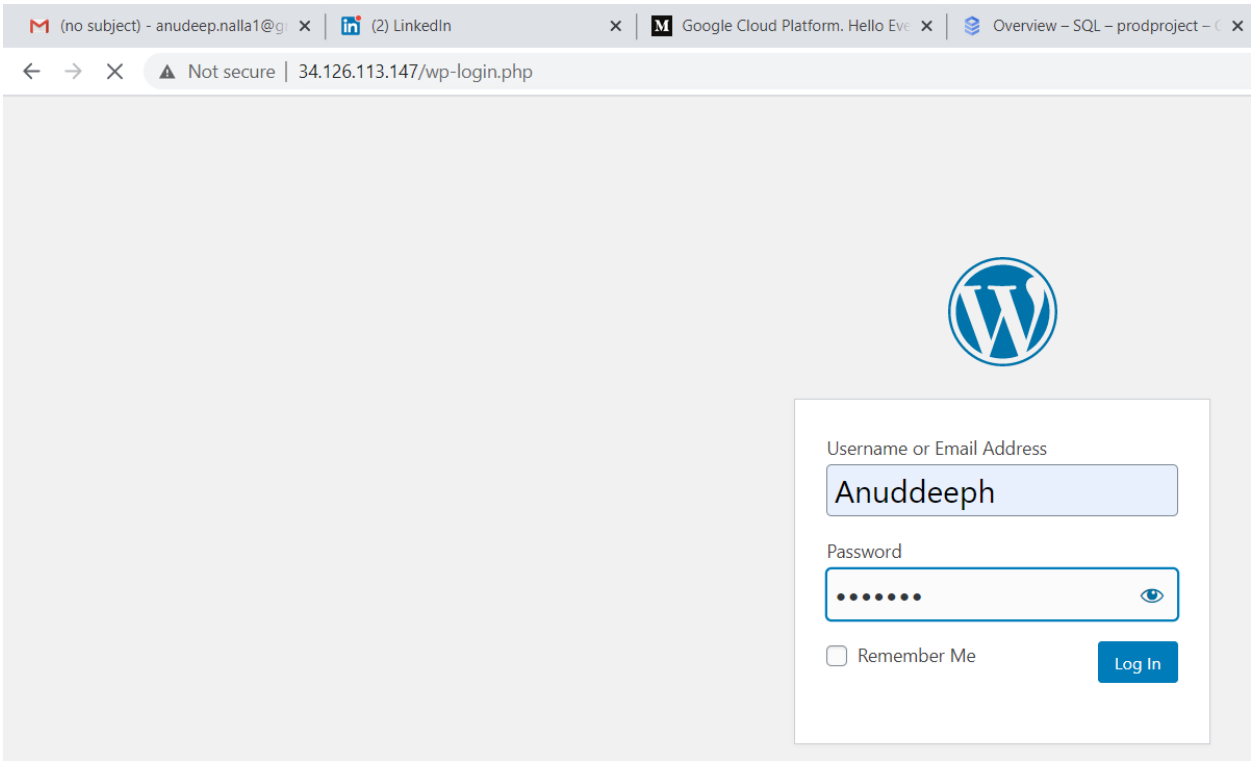

Not secure | 34.126.113.147/wp-admin/setup-config.php?step=1
Below you should enter your database connection details. If you're not sure about these, contact your host.
Database Name
mydb
The name of the database you want to use with WordPress.
Username
root
Your database username.
Password
Your database password.
Database Host
34.74.154.13
You should be able to get this info from your web host, if localhost doesn't work.
Table Prefix
wp_
If you want to run multiple WordPress installations in a single database, change this.
Submit

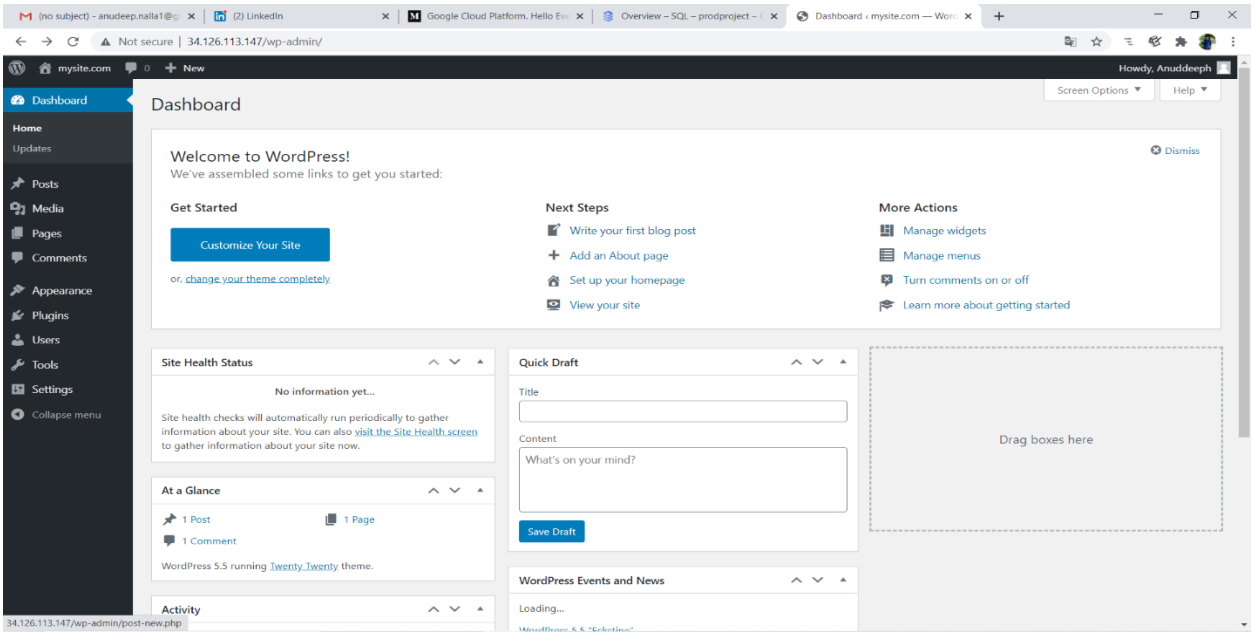

Not secure | 34.126.113.147/wp-admin/setup-config.php?step=2
All right, sparky! You've made it through this part of the installation. WordPress can now communicate with your database. If you are ready, time now to...
Run the installation

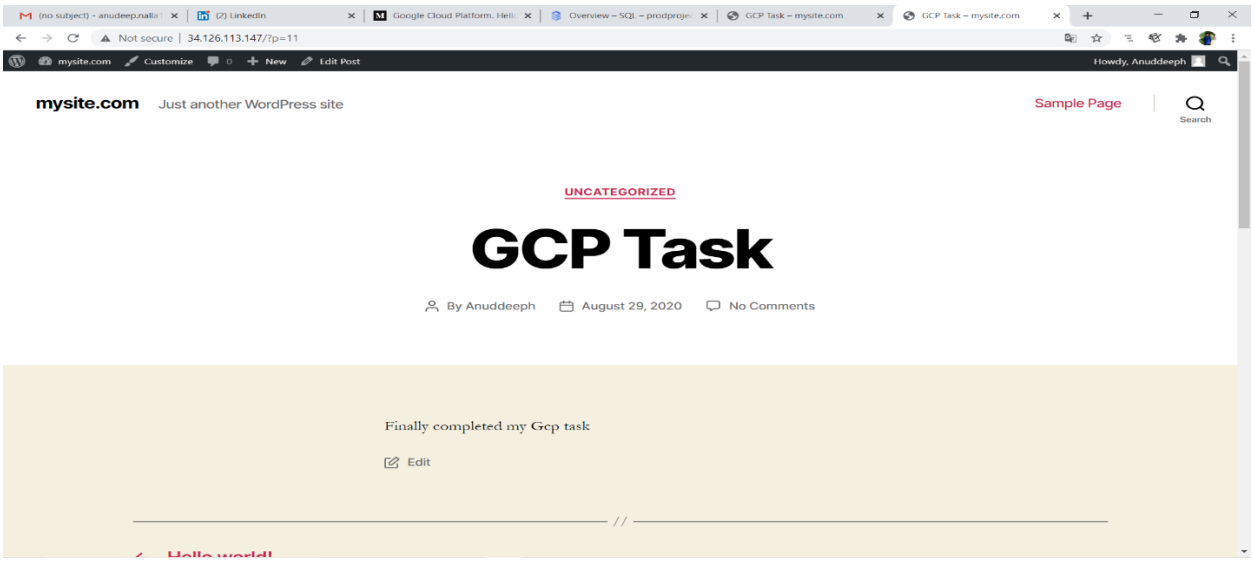

Not secure | 34.126.113.147/wp-admin/install.php?language=en_US
Welcome
Welcome to the famous five-minute WordPress installation process! Just fill in the information below and you'll be on your way to using the most extendable and powerful personal publishing platform in the world.
Information needed
Please provide the following information. Don't worry, you can always change these settings later.
Site Title
mysite.com
Username
Usernames can have only alphanumeric characters, spaces, underscores, hyphens, periods, and the @ symbol.
Password
Hide
Important: You will need this password to log in. Please store it in a secure location.
Your Email
Double-check your email address before continuing.
Search engine visibility
Discourage search engines from indexing this site
It is up to search engines to honor this request.
Install WordPress

Fill the above credentials,









Here, automatically table is created when WordPress is attached to the Database.

So, Finally the GCP task done successful.

Thank You.