Create VM using GUI :

Compute engine > VM instance > Create instance

USING GCLOUD COMMAND :

gcloud compute instance create instance-name –zone=specify\_zone –machine-type=() –boot-disk-size=19GB

Install CLOUD SDK locally :

<https://cloud.google.com/sdk/docs/install>

Create VM using cloud sdk :

gcloud compute instance create instance-name –zone=specify\_zone –machine-type=() –boot-disk-size=19GB

gcloud compute instances list

Accessing VM :

For the instances that are started, the option of SSH is enabled. SSH is a protocol for accessing remote Linux instances and other Unix type instances. Now if I click ssh, It will open a new browser window,

**Exercise: Create a Virtual Machine**

1. Open the cloud console and navigate to the Compute Engine console
2. Select VM Instances
3. Click on Create Instance icon at the top of the page
4. Create an instance using the following parameters:
   1. Name - my-ace-instance-1
   2. Machine configuration: f1-micro
   3. Operating system: Ubuntu 16.04 LTS Minimal (or any other version of Ubuntu)
   4. Boot disk Type: SSD persistent disk
   5. Size: 16 GB

We can use filters with operators in GCP .

Compute engine machine types .

We can add additional disks .

While creating virtual machines or create disk from disk option and later attach to vm .

Custom machine type:

From machine type select custom and select cores and memory .

Creating snapshots :

Make a copy of the disk by creating snapshots .

Compute engine > snapshot > name , description , source disk , location , label ,

Google offers a chance to save up to 80% off the cost of instances if you're willing to have the machines terminated at any time. These are preempt instances,

If you have workloads that can recover from an instance failure, this is a good way to cut your computing costs. To create a preemptible instance, navigate to the create instance console, and we're gonna roll down to the management security discs networking sole tendency. And then we'll scroll to the area labeled availability policy. There is an option called preempt ability and we will turn it on.

Notice when you turn on preempt ability, on-host maintenance and automatic restart are disabled. Preemptible VMs will not automatically restart by themselves when they're shut down. Also, they will not migrate to another server in the event of maintenance on this server. Preemptible instances are a good way to cut computing costs, but it's important to keep in mind the limitations of these preemptible instances.

**Exercise: Create a Preemptible Instance**

1. Open the create instance form
2. Enter an instance name
3. Select f1-mirco for machine type
4. Make the instance preemptible
5. Start the instance
6. Shutdown the instance
7. Delete the instance

“gcloud compute disk list” : The command will show a list of disks available in a project. It does not show disks associated with the Cloud Shell VM. Gsutil is used for working with Cloud Storage. There is no such thing as a default VM in GCP.

Users can specify which type of GPU they would like and how many of them they would like. There is no option for changing the memory on each GPU.

The root of the hierarchy is an organization, which can contain folders and projects. Folders can contain other folders and projects. Projects contain resources.

Compute admin roles give the user all necessary permissions to manage an instance.

Preemptible machines will run up to 24 hours before they are shut down. Running Shielded VMs instances would not make the instances shutdown after at most 24 hours of runtime.

The command to create a virtual machine starts with 'gcloud compute instances create' followed by parameters.

Shared core machines are designed for the light use scenario described. Preemptible machines may be shut down at any time so are not a good option for a website that needs to be available 24x7. Sole tenancy configurations only run instances in the same project on a single physical server. There is no machine type called low memory in GCP.

you can specify the number of vCPUs and the amount of memory. You can specify the disks you would like to attach to virtual machines in general.

quickly create other instances for machine learning but don’t want to manually install the machine learning tools each time they start an instance. : Once the tools have been installed you can create a snapshot and specify that snapshot as the boot disk source.

You could use a Compute Engine to run containers but that would require more systems administration than Kubernetes Engine.

gcloud config configurations create.

Gcloud init will authorize access and perform other common setup steps. Gcloud auth login will authorize access only.

Shielded VMs are hardened virtual machines that use Secure Boot, virtual trusted platform module enabled Measured Boot, and integrity monitoring.

On a sole tenant node, only VMs from the same project will run on that node. They do not need to use the same operating system. Sole tenant nodes are not restricted to a single VM.

GCP assigns regional internal IP addresses for VM instances, including GKE pods, nodes, and services. They are also used for Internal TCP/UDP Load Balancing and Internal HTTP(S) Load Balancing

The source and cloned disk must be in the same zone and region and must be of the same type. The size of the clone must be at least the size of the source disk.