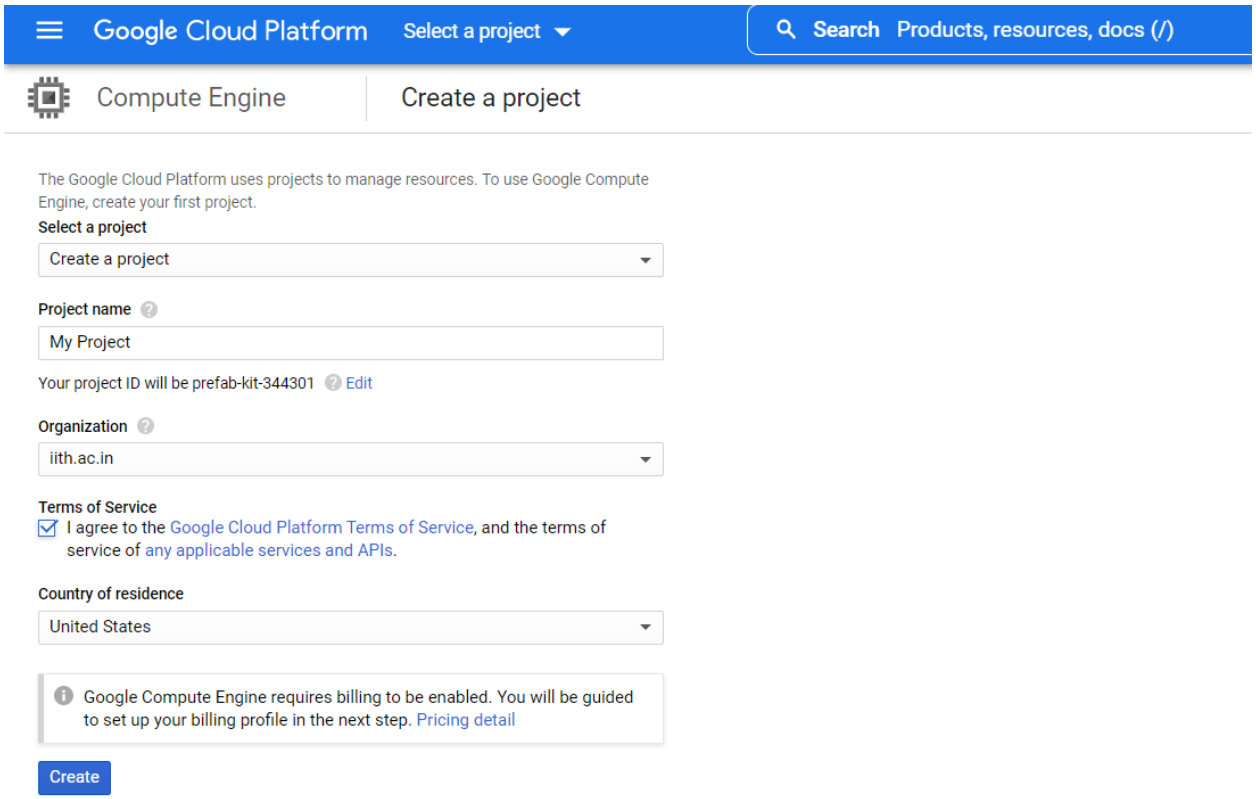
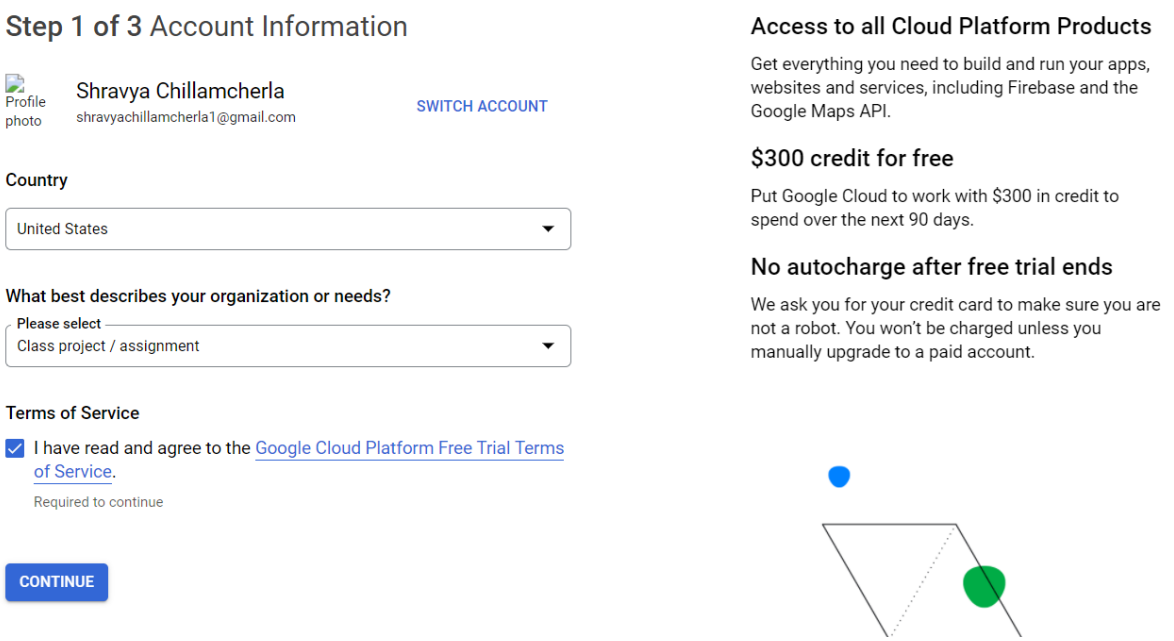
GOOGLE CLOUD PLATFORM

We'll go over how to set up a GCP project, billing, and create GPU-powered virtual machines in this guide.

First create a project,
The below link helps you to create a project
[Creating and managing projects | Resource Manager Documentation | Google Cloud]

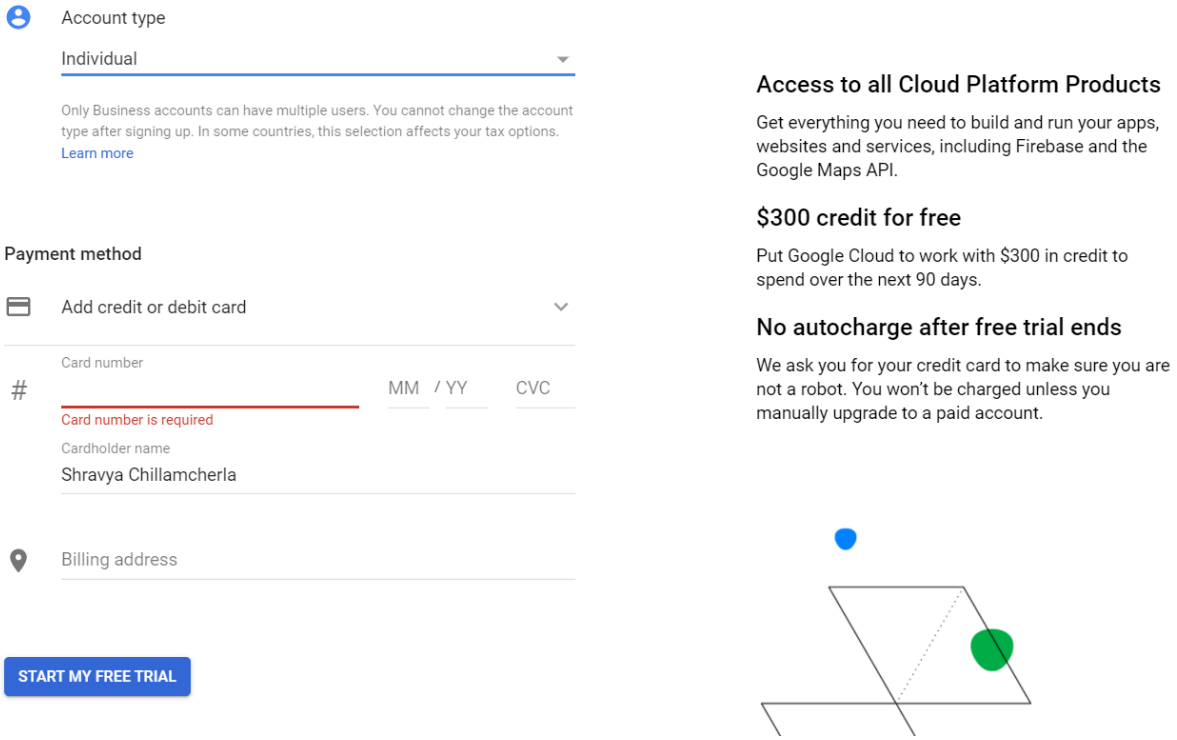


You will be redirected to the billing profile and looks as shown below



Choose organization as Class project/ Assignment.
In the next step, you need to verify the payment method as shown below.

Choose the account type as Individual and give your payment method details.



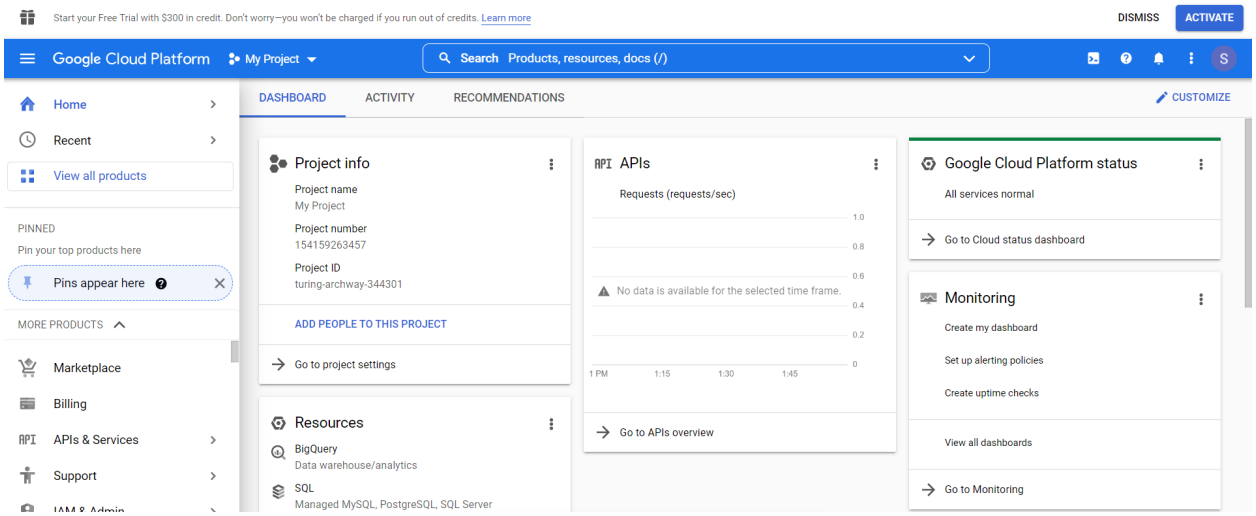
If you are using the GCP platform for the first time, it provides you a free credit of $300.

Your Free Trial ends when one of the following occurs:

- You've spent the $300 in credits.
- 90 days have elapsed since you signed up.

To activate your free credit

- Sign in to the google console https://console.cloud.google.com/
- Look for the ***Free trial status*** banner at the top of the page.
- Click **Activate**.

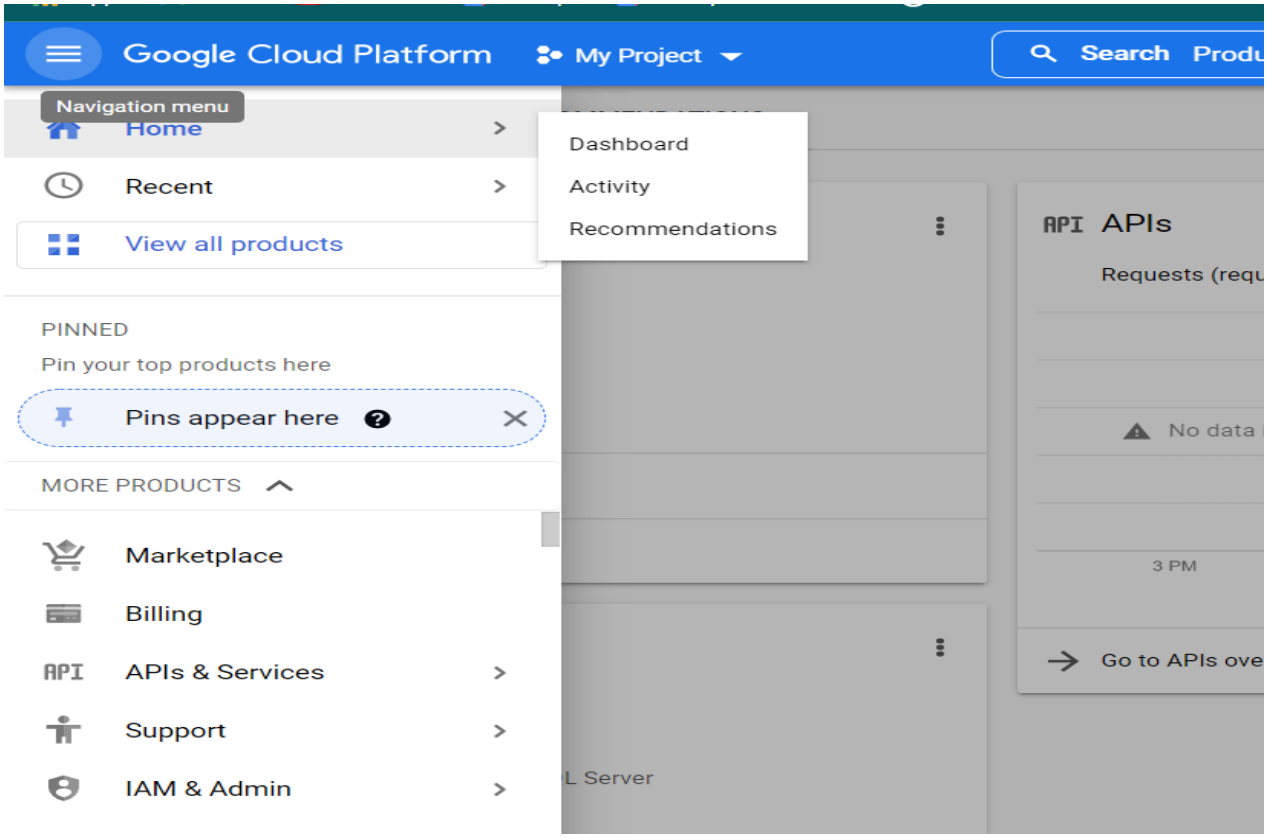


This link gives you more information on google cloud free-tier.
https://cloud.google.com/free/docs/gcp-free-tier

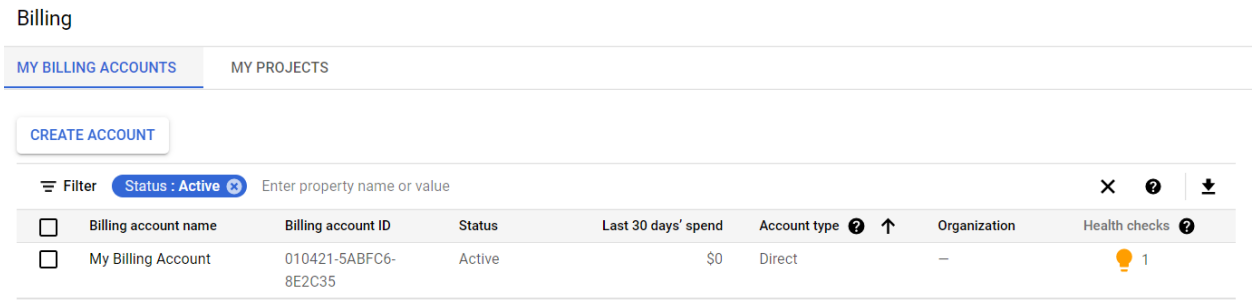
In order to create VM instances with GPU, you need to update the free-tier account to paid account

NOTE :
You can upgrade to a paid account at any time during the trial. After you have upgraded, you can still use any remaining credits (within the 90-day period). You will be charged after completely using $ 300 credits or after the 90-day free period.

You can upgrade from the free trial to a paid Cloud Billing account through the Google Cloud Console.
In the Navigation bar, at top left , you can see an option billing . Click on it.

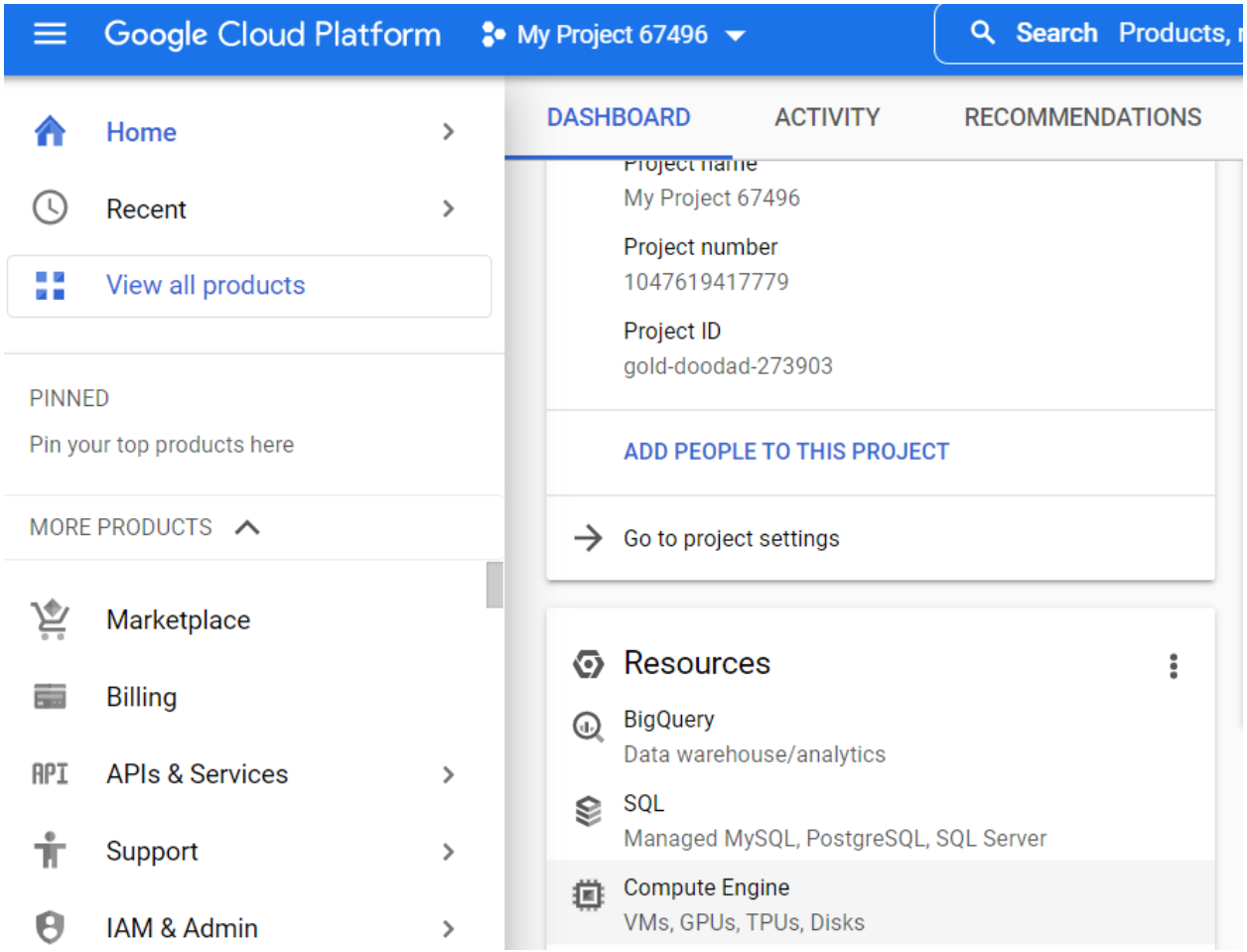


You can either an existing billing account or manage billing accounts for the project which you created.
After adding billing details, you can find the details as shown below.

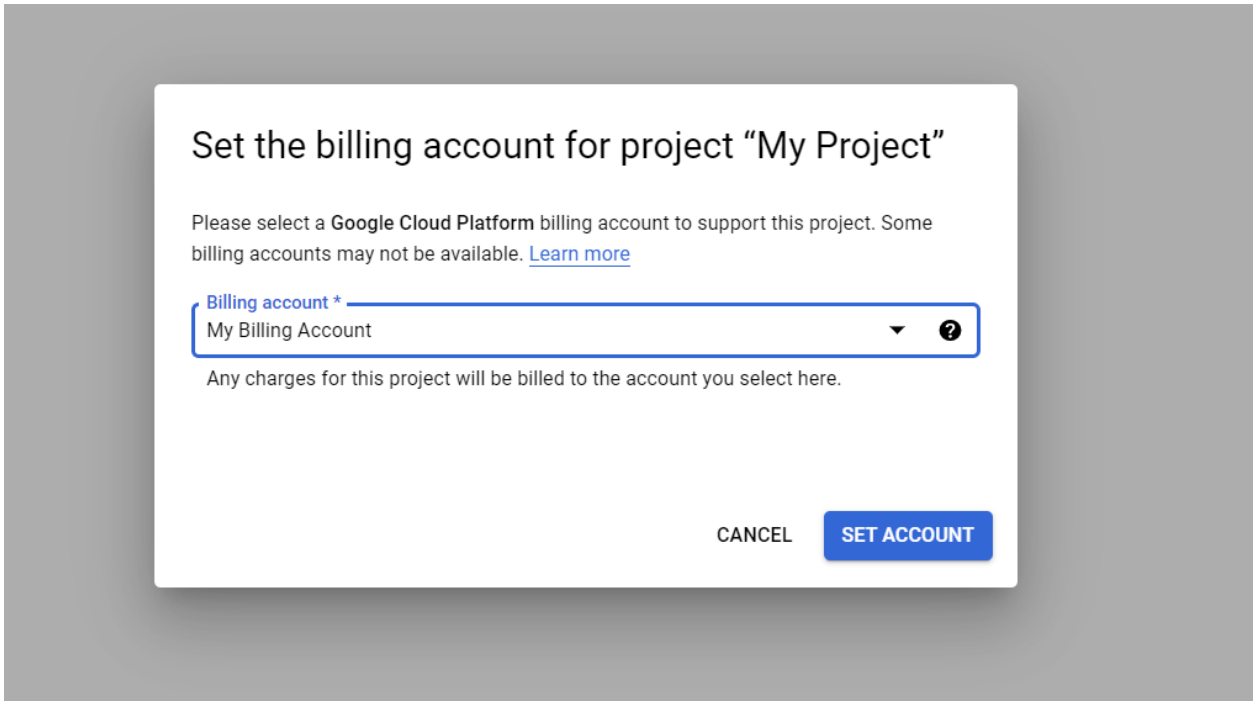


The below two links can help you understand on how to upgrade and status of the billing account
https://cloud.google.com/free/docs/gcp-free-tier#how-to-upgrade
https://cloud.google.com/free/docs/gcp-free-tier#confirm-status-of-account

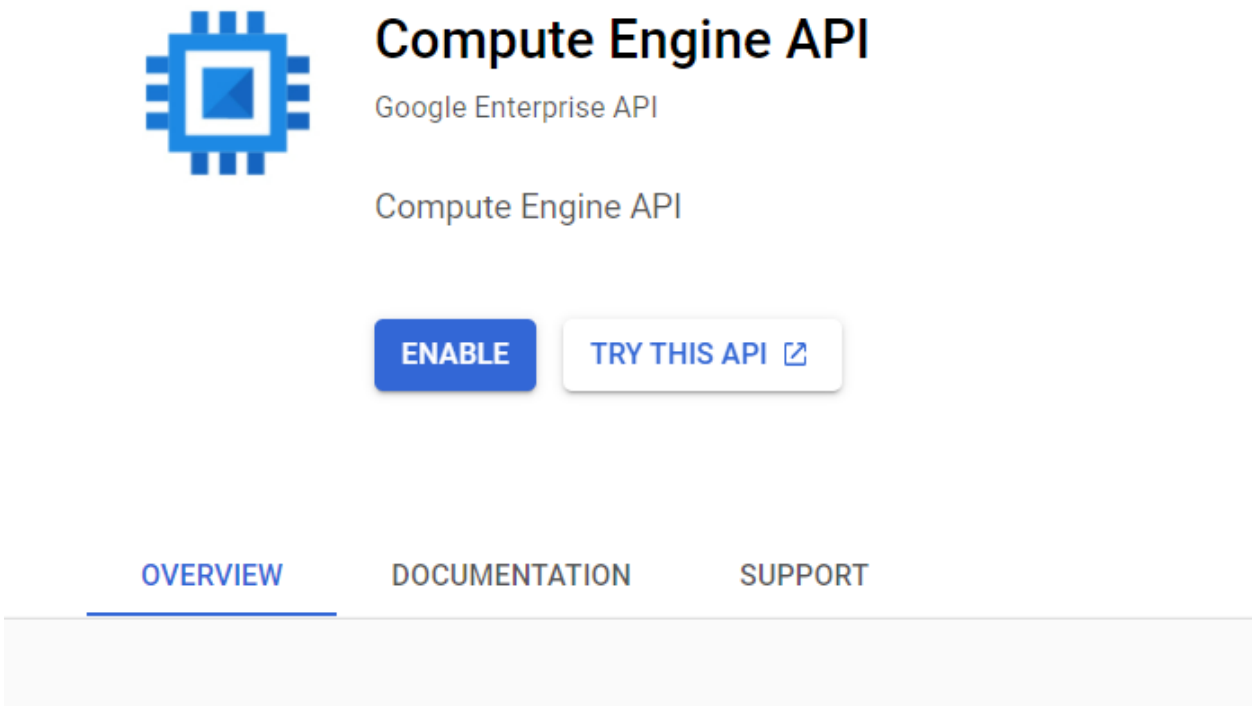
Click on the compute Engine in the resources tab



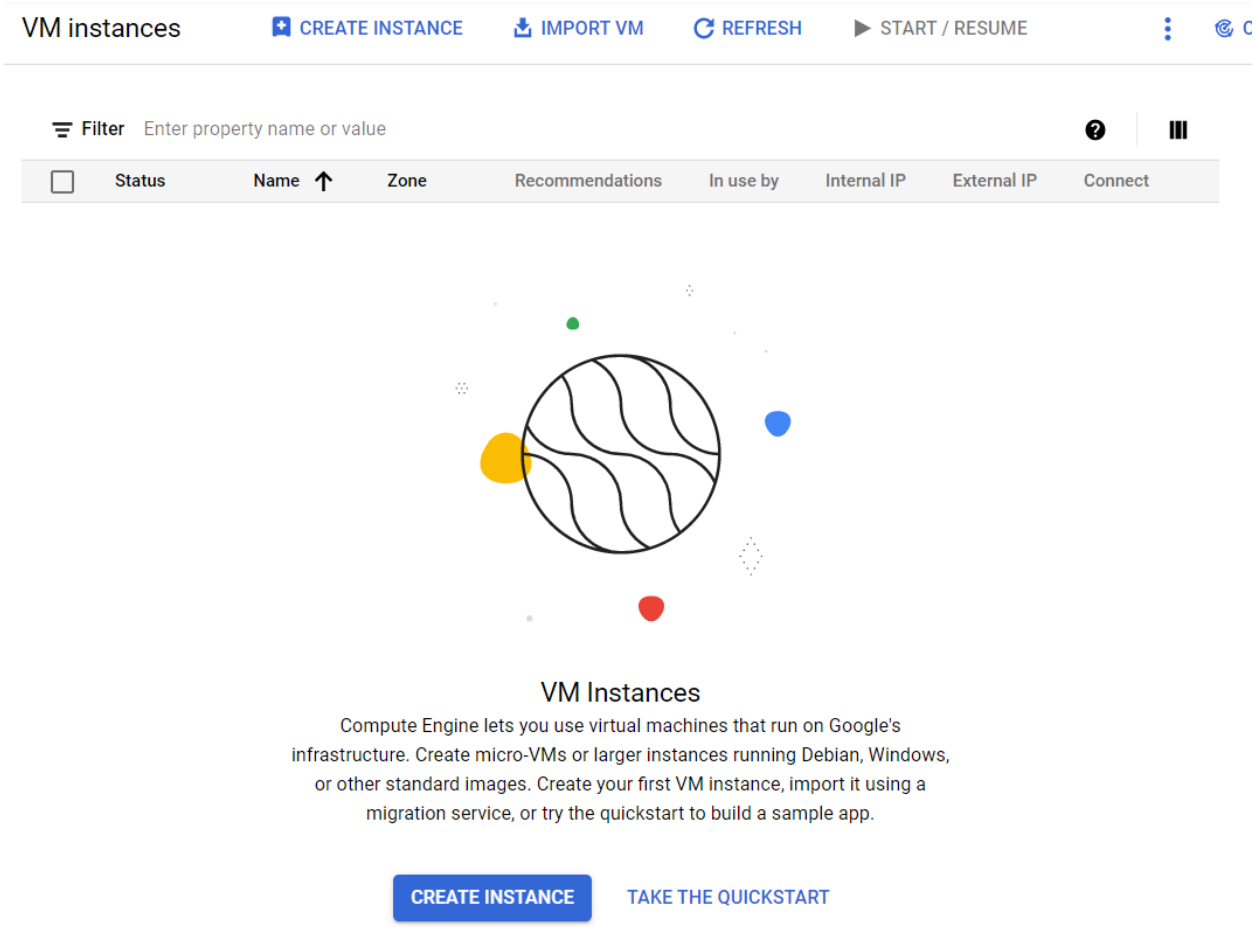
Choose the billing type for your project



Click enable



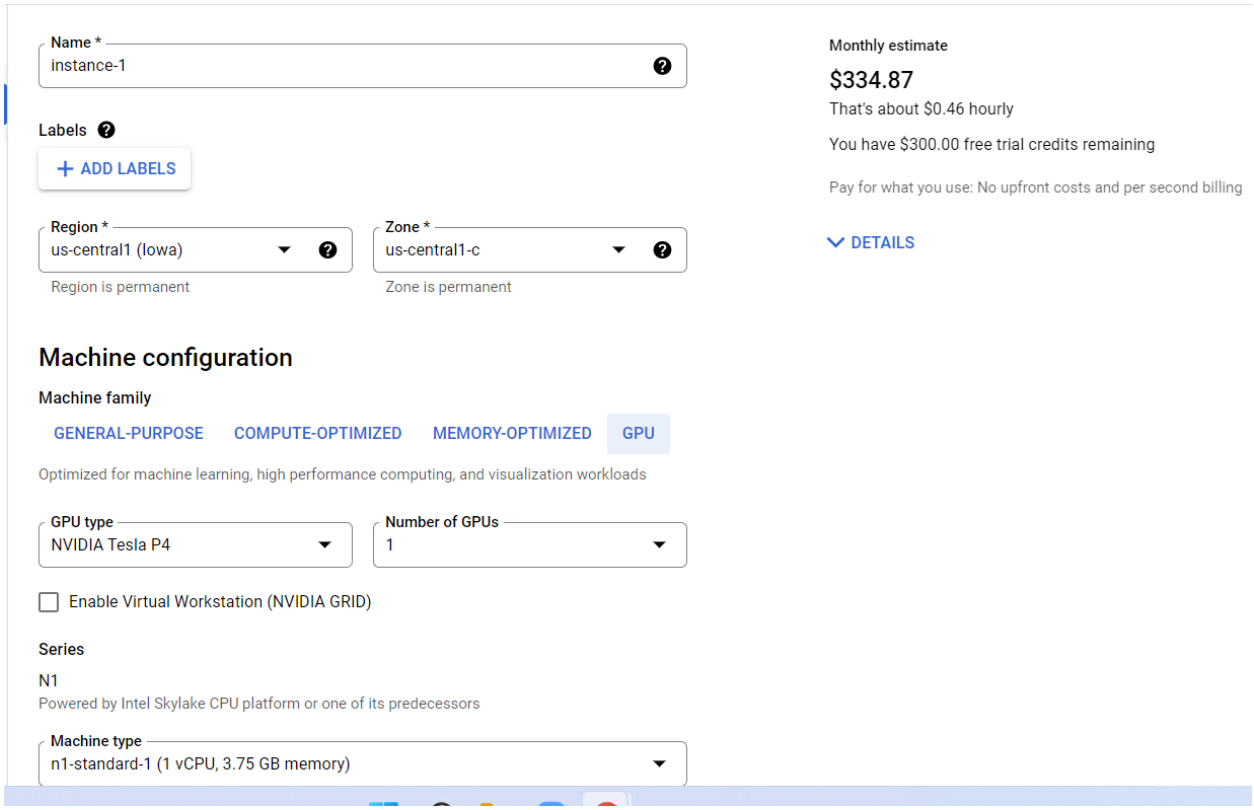
Click on create instance



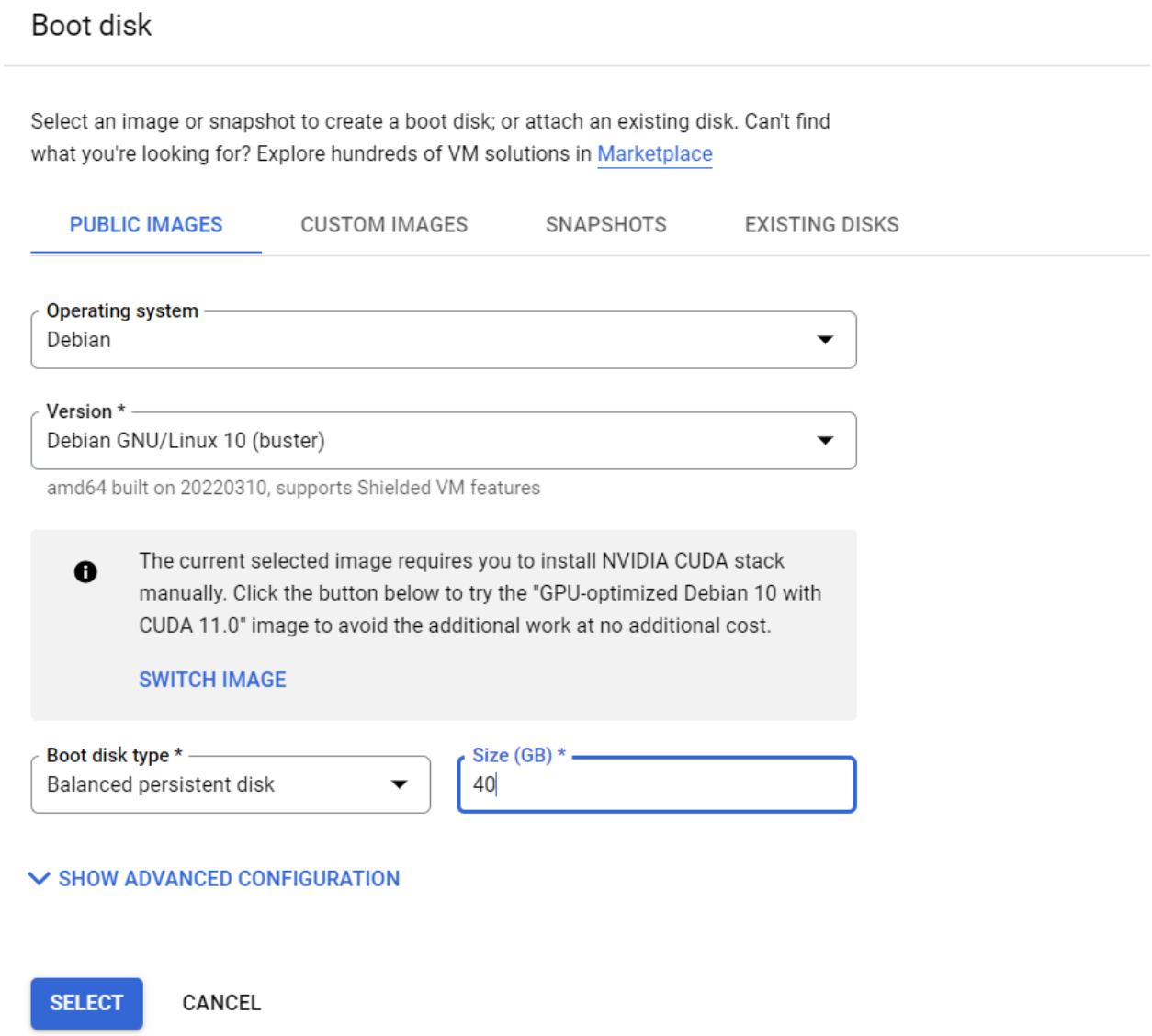
Creating VM instances with GPU :

Give the instance name , region and zone.In the **Machine configuration** section, select the **GPU** machine family, you can choose the NVIDIA Tesla P4 as it costs less. Select the number of GPUs according to the requirement.

The below link has regions and zones with GPUs
https://cloud.google.com/compute/docs/gpus/gpu-regions-zones



1. In the **Boot disk** section, click **Change**. This opens the **Boot disk configuration** page.
2. On the **Boot disk configuration** page, do the following:
    1. On the **Public images** tab, choose a supported Compute Engine image or Deep Learning VM image.
    2. Specify a boot disk size of at least 40 GB.
    3. To confirm your boot disk options, click **Save**.



To create and start the VM, click **Create**.

More information can be found here :
https://cloud.google.com/compute/docs/gpus/create-vm-with-gpus#create-new-gpu-vm-a100

Installing GPU drivers on VMs

One way to install the NVIDIA driver on most VMs is to install the NVIDIA CUDA Toolkit.

To install the NVIDIA toolkit, complete the following steps:

1. Select a CUDA toolkit that supports the minimum driver that you need.
2. Connect to the VM where you want to install the driver.
3. On your VM, download and install the CUDA toolkit. The installation guide for each recommended toolkit is found in the following table. Before you install the toolkit, make sure you complete the pre-installation steps found in the installation guide.

GPU type	Minimum recommended CUDA toolkit version	Installation instructions
• NVIDIA A100	• Linux: CUDA Toolkit 11.1 • Windows: CUDA Toolkit 11.2	• Linux: CUDA 11.1 installation guide • Windows: CUDA 11.2 installation guide
• NVIDIA T4 • NVIDIA V100 • NVIDIA P100 • NVIDIA P4 • NVIDIA K80		

More information can be found here

https://cloud.google.com/compute/docs/gpus/install-drivers-gpu

NOTE : Make sure to turn off your VM when not using it. This will reduce the billing.

If you aren't able to find resources in any regions and zones, you can create a reservation by following the steps in this link :
https://cloud.google.com/compute/docs/instances/reserving-zonal-resources