GCP PCD Bootcamp

▼ Project Ideas

Great idea! Google Cloud Platform (GCP) is a widely used cloud computing platform that offers a variety of services and features for building and deploying applications. Here are a few project ideas you can consider showcasing your skills on your resume:

1. **Build a web application using Google App Engine**: Google App Engine is a Platform-as-a-Service (PaaS) offering from GCP that enables developers to build and deploy scalable web applications. You can create a simple web application using Python, Java, or any other programming language supported by App Engine.
2. **Develop a data processing pipeline using Cloud Dataflow**: Cloud Dataflow is a fully managed service for executing data processing pipelines. You can create a data processing pipeline using Apache Beam, which is an open-source SDK for building data processing pipelines. The pipeline can process data from various sources and perform transformations on it before storing it in a database or sending it to other systems.
3. **Implement a machine learning model using Cloud AI Platform**: Cloud AI Platform is a managed service for building and deploying machine learning models. You can build a model using TensorFlow or any other machine learning framework supported by AI Platform and deploy it as a REST API. You can then use the API to make predictions on new data.
4. **Create a chatbot using Dialogflow**: Dialogflow is a natural language processing (NLP) service that enables developers to create conversational interfaces such as chatbots. You can create a chatbot that can answer questions related to a specific topic or provide customer support.

5. **Build a serverless application using Cloud Functions**: Cloud Functions is a serverless compute service that enables developers to run code in response to events. You can create a simple serverless application that performs a specific task, such as resizing images or processing emails.

These are just a few ideas to get you started. Choose a project that aligns with your interests and skills, and showcase your work on your resume by providing a link to the project or sharing your code on GitHub. Good luck!

▼ Google Compute Engine

▼ Creating an Instance

First Step: Enable Compute Engine API

Second Step: Click on Create new instance and fill details

Boot disk → related to OS.

- Name
- Labels
- Region and Zone
- Machine Config (Machine Class + Series + Machine Type)
- Confidential VM Service
- Container
- Boot disk
- Identity and API access (Service Accounts + Access Scopes)
- Firewall
- Advanced options (Networking, Disks, Security, Management (has Startup Script), Sole tenacy)

▼ Setting up External IP Address

External IP address MIGHT change (ephemeral) when stopped and resumed.

So we need Static External IP Address

In VPC Networking > IP Addresses > Reserve a Static Address,

- Name
- Network Service Tier
- IP Version
- Type (Regional / Global)
- Region (SHOULD BE SAME AS VM INSTANCE)

Hit CHANGE and attach to desired VM. Doing this will remove all the previously assigned External IP Addresses

▼ Simplifying the creation

1. Using SSH into instance and installing Apache Server
2. Using Startup Script → Not ideal for multiple instances

   In Management Section,

   ```
   #!/bin/bash
   apt update
   apt -y install apache2
   echo "Hello world from $(hostname) $(hostname -I)" > /var/www/html/index.html
   ```

3. Using Instance Template
   a. same form as Create Instance, but with NO REGION (can be used Globally)
   b. No cost for Instance Template, ONLY for Instances
   c. While creating instances through this, the same configuration is specified, allowing you to modify if any.
   d. Name of Instance = Name of Instance Template + 1,2,3…

4. Using Custom Image
    a. An image is a replica of a disk that contains the applications and operating system needed to start a VM.
    b. When an Instance is created, a corresponding disk (hard disk) is created around 10 GB by default (OS Software, etc) with same name as instance.
    c. Create an Image from this disk. To create an image, the running instance MUST BE STOPPED. You can check “Keep it running”, but this is NOT RECOMMENDED.
    d. Form:
        i. Name
        ii. Source (Disk/ Snapshot/ Image/ Cloud Storage File/ Virtual Disk)
        iii. Location (Regional/ Multi-Regional)
        iv. Labels
        v. Encryption
    e. You can create Instance and Instance Template from this image by configuring the boot disk (Image + Boot disk type + Size + Advanced Config)
    f. For our new Instance Template (same config as before ones), no need to mention install apache2 in Startup Script, only service apache2 start