Working with GCS from the Command Line

In this section, we'll carry out similar commands for creating and deleting buckets and objects on GCS from the command-line interface.

- Creating a bucket: To create a bucket, execute the command

  ```
  gsutil mb gs://[BUCKET_NAME]
  ```

  As an example, we'll create a bucket titled 'hwosa_09_docs'.

  ```
  gsutil mb gs://hwosa_09_docs

  Creating gs://hwosa_09_docs/...
  ```

  List buckets on GCP project.

  ```
  gsutil ls

  gs://hwosa_09_docs/
  gs://my-first-bucket-ieee-carleton/
  ```

- Uploading objects to cloud bucket: To transfer objects from a local directory to the cloud bucket, execute the command

  ```
  gsutil cp -r [LOCAL_DIR] gs://[DESTINATION BUCKET]
  ```

  Copy an image file from the desktop to a bucket on GCP.

  ```
  gsutil cp -r /Users/ekababisong/Desktop/Howad.jpeg
  gs://hwosa_09_docs/

  Copying file:///Users/ekababisong/Desktop/Howad.jpeg
  [Content-Type=image/jpeg]...
  - [1 files][ 49.8 KiB/ 49.8 KiB]
  Operation completed over 1 objects/49.8 KiB.
  ```

  List objects in bucket.

  ```
  gsutil ls gs://hwosa_09_docs

  gs://hwosa_09_docs/Howad.jpeg
  ```

- Deleting objects from the cloud bucket: To delete a specific file from the bucket, execute

```
gsutil rm -r gs://[SOURCE_BUCKET]/[FILE_NAME]
```

To delete all files from the bucket, execute

```
gsutil rm -a gs://[SOURCE_BUCKET]/**
```

As an example, let's delete the image file in the bucket 'gs://hwosa_09_docs'.

```
gsutil rm -r gs://hwosa_09_docs/Howad.jpeg
```

```
Removing gs://hwosa_09_docs/Howad.jpeg#1537539161893501...
/ [1 objects]
Operation completed over 1 objects.
```

- Deleting a bucket: When a bucket is deleted, all the files within that bucket are also deleted. This action is irreversible. To delete a bucket, execute the command

```
gsutil rm -r gs://[SOURCE_BUCKET]/
```

Delete the bucket 'gs://hwosa_09_docs'

```
gsutil rm -r gs://hwosa_09_docs/
```

```
Removing gs://hwosa_09_docs/...
```

This chapter works through uploading and deleting data from Google Cloud Storage using the Cloud GUI console and command-line tools.

In the next chapter, we will introduce Google Compute Engines, which are virtual machines running on Google's distributed data centers and are connected via state-of-the-art fiber optic network. These machines are provisioned to lower the cost and speed up the processing of computing workloads.

CHAPTER 5

Google Compute Engine (GCE)

Google Compute Engine (GCE) makes available to users virtual machines (VMs) that are running on Google's data centers around the world. These machines take advantage of Google's state-of-the-art fiber optic powered network capabilities to offer fast and high-performance machines that can scale based on usage and automatically deal with issues of load balancing.

GCE provides a variety of pre-defined machine types for use out of the box; also it has the option to create custom machines that are tailored to the specific needs of the user. Another major feature of GCE is the ability to use computing resources that are currently idle on Google infrastructure for a short period of time to enhance or speed up the processing capabilities of batch jobs or fault-tolerant workloads. These machines are called preemptible VMs and come at a huge cost-benefit to the user as they are about 80% cheaper than regular machines.

Again one of the major benefits of GCEs is that the user only pays for the time the machines are actually in operation. Also, when the machines are used for a long uninterrupted period of time, discounts are accrued to the prices.

In this chapter, we will go through a simple example of provisioning and tearing down a Linux machine on the cloud. The examples will cover using the Google Cloud web interface and the command-line interface for creating VMs on GCP.

Provisioning a VM Instance

To deploy a VM instance, click the triple dash in the top-left corner of the web page to pull out the GCP resources drawer. In the group named 'COMPUTE', click the arrow beside 'Compute Engine' and select 'VM instances' as shown in Figure 5-1.