

Perform the following operations using the cloud console, gcloud and gsutil. If an operation does not apply to a particular say so and explain why.

Yellow = gsutil

Green = gcloud

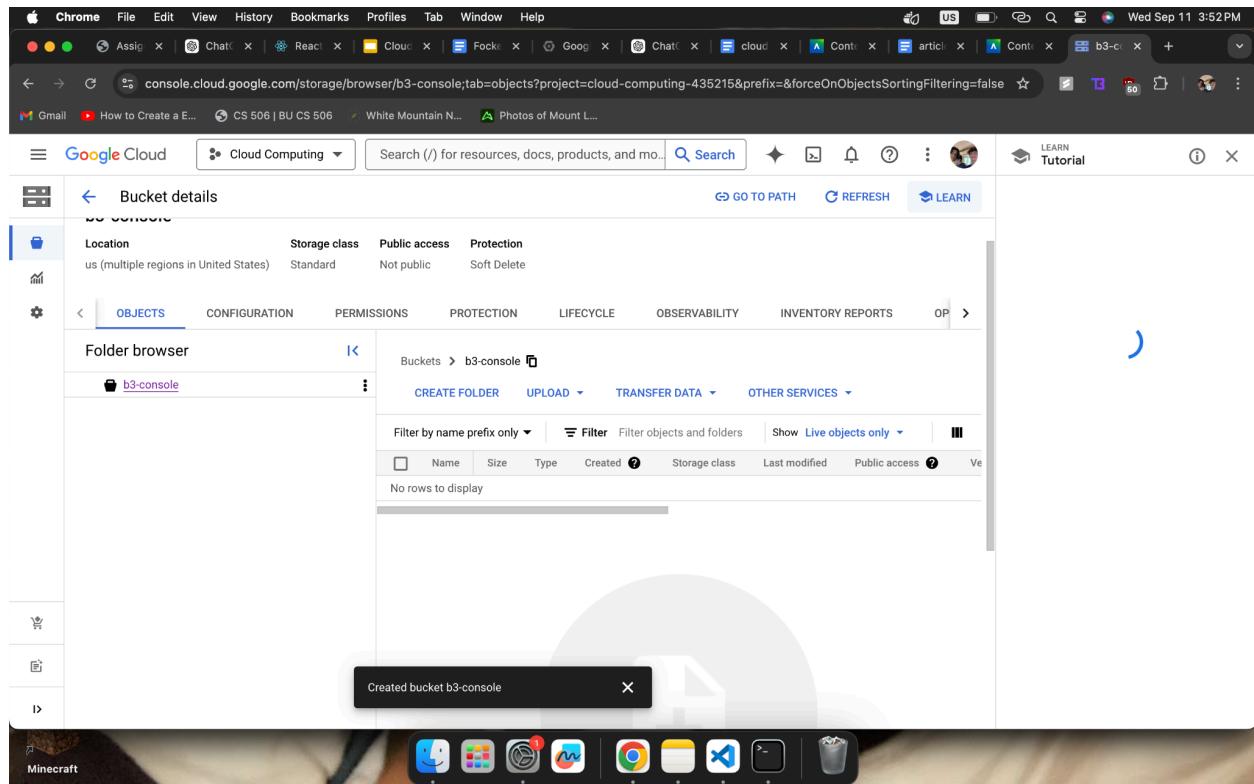
- Make a storage bucket

gsutil mb gs://bu-ds561-afockens-b1

Creating gs://bu-ds561-afockens-b1/...

gcloud storage buckets create gs://bu-ds561-afockens-b2

Creating gs://bu-ds561-afockens-b2/...



- Make a directory inside your bucket

```
gsutil cp /dev/null gs://bu-ds561-afockens-b1/test-directory/
```

Copying file:///dev/null [Content-Type=application/octet-stream]...

/ [1 files][0.0 B/ 0.0 B]

Operation completed over 1 objects.

```
gcloud storage cp /dev/null gs://bu-ds561-afockens-b2/my-directory
```

Copying file:///dev/null to gs://bu-ds561-afockens-b2/my-directory

Completed files 1/1 | 0B

The screenshot shows the Google Cloud Storage console in a Chrome browser. The URL is `console.cloud.google.com/storage/browser/b3-console;tab=objects?project=cloud-computing-43521&prefix=&forceOnObjectsSortingFiltering=false`. The main view displays the 'Bucket details' for 'b3-console'. The 'OBJECTS' tab is selected, showing a table with one item: 'b3-directory/' (Folder). A modal dialog at the bottom left says 'Created bucket b3-console'. The right sidebar contains links to 'Get started with Cloud Storage', 'Uploading objects', 'Downloading objects', 'Use cases for Cloud Storage', and 'Terraform samples'.

- Copy a file into your directory

```
gsutil cp /home/afockens/sample.txt gs://bu-ds561-afockens-b1/test-directory/
```

Copying file:///home/afockens/sample.txt [Content-Type=text/plain]...

/ [1 files][22.0 B/ 22.0 B]

Operation completed over 1 objects/22.0 B.

```
gcloud storage cp /home/afockens/sample.txt gs://bu-ds561-afockens-b2/my-directory
```

Copying file:///home/afockens/sample.txt to gs://bu-ds561-afockens-b2/my-directory

Completed files 1/1 | 22.0B/22.0B

The screenshot shows the Google Cloud Storage console in a web browser. The URL is `console.cloud.google.com/storage/browser/b3-console/b3-directory?project=cloud-computing-43521&pageState={"StorageObjectListTable":{}}`. The left sidebar shows navigation options like Home, Compute Engine, Storage, and more. The main area displays 'Bucket details' for 'b3-console'. Under the 'OBJECTS' tab, there is a table showing one file: 'sample.txt' (22 B, text/plain, created Sep 11, 2024, 3:59:33 PM). A success message at the bottom says '1 file successfully uploaded'. On the right side, there are several cards: 'Get started with Cloud Storage', 'Uploading objects', 'Downloading objects', 'Use cases for Cloud Storage', and 'Terraform samples'.

- Delete the directory (and the file inside it) in a single operation

```
gsutil rm -r gs://bu-ds561-afockens-b1/test-directory/
```

Removing gs://bu-ds561-afockens-b1/test-directory/null#1726082375368451...

Removing gs://bu-ds561-afockens-b1/test-directory/sample.txt#1726082690188751...

/ [2 objects]

Operation completed over 2 objects.

```
gcloud storage rm -r gs://bu-ds561-afockens-b2/my-directory
```

Removing objects:

Removing gs://bu-ds561-afockens-b2/my-directory#1726084736565625...

Completed 1/1

The screenshot shows the Google Cloud Storage console in a web browser. The URL is `console.cloud.google.com/storage/browser/b3-console/b3-directory?project=cloud-computing-43521&pageState={"StorageObjectListTable":{}}`. The left sidebar shows navigation options like Home, Compute Engine, Storage, and more. The main area displays 'Bucket details' for 'b3-console'. Under the 'OBJECTS' tab, it shows a 'Folder browser' for 'b3-console' containing a single file named 'sample.txt'. A modal window at the bottom is titled 'b3-console/b3-directory/ deleted' and says 'Uploads and Cloud Computing operations' with a progress bar showing 'Complete'. The status bar at the bottom indicates the file was uploaded at 29 PM on April 25, 2024. The right side of the screen has a 'LEARN' section with links to 'Getting bucket information', 'Uploading objects', 'Downloading objects', 'Use cases for Cloud Storage', and 'Terraform samples'.

- Make a VM

You can't use gsutil to make a vm, gsutil is more for storage

gcloud compute instances create test-vm

Did you mean zone [us-east1-c] for instance: [test-vm] (Y/n)? y

Created

[https://www.googleapis.com/compute/v1/projects/cloud-computing-435215/zones/us-east1-c/instances/test-vm].

NAME: test-vm

ZONE: us-east1-c

MACHINE_TYPE: n1-standard-1

PREEMPTIBLE:

INTERNAL_IP: 10.142.0.2

EXTERNAL_IP: 34.23.185.182

STATUS: RUNNING

The screenshot shows a Google Chrome browser window with the URL <https://console.cloud.google.com/compute/instances?onCreate=true&project=cloud-computing-435215>. The page displays the 'VM instances' section under the 'Cloud Computing' category. A single instance, 'test-vm', is listed with the following details:

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Connect
Up	test-vm	us-east1-c			10.142.0.2	34.23.185.182	

Below the table, there are several related actions:

- Explore Backup and DR (NEW)
- View billing report
- Monitor VMs
- Explore VM logs
- Set up firewall rules
- Patch management
- Load balance between VMs

To the right of the main content, there is a sidebar titled 'Get started with Compute Engine' containing links to tutorials for creating websites or applications, transferring files, and more. The system tray at the bottom of the screen shows various application icons.

- Pause a VM

You can't use gsutil to make a vm, gsutil is more for storage

```
gcloud compute instances suspend test-vm
```

Did you mean zone [us-east1-c] for instance: [test-vm] (Y/n)? y

Suspending instance(s) test-vm...done.

Updated

[<https://compute.googleapis.com/compute/v1/projects/cloud-computing-435215/zones/us-east1-c/instances/test-vm>].

The screenshot shows the Google Cloud Compute Instances page. A modal dialog at the bottom center says "VM instance suspended" with a close button. The main table lists one instance named "instance-20240911-205706" in the "us-central1-f" zone. The status is "SUSPENDED". Other actions visible include "START / RESUME", "STOP", "RESET", "CREATE A GROUP BASED ON THIS VM", "DELETE", "LABELS", and "PERMISSIONS". Below the table, there's a "Related actions" section with cards for "Explore Backup and DR", "View billing report", "Monitor VMs", "Explore VM logs", "Set up firewall rules", "Patch management", and "Load balance between VMs". The top navigation bar shows the URL "console.cloud.google.com/compute/instances?onCreate=true&project=cloud-computing-435215" and the date "Wed Sep 11 4:59 PM". The bottom of the screen shows the Mac OS Dock with various application icons.

- Delete a VM

You can't use gsutil to make a vm, gsutil is more for storage

gcloud compute instances delete test-vm

Did you mean zone [us-east1-c] for instance: [test-vm] (Y/n)? y

The following instances will be deleted. Any attached disks configured to be auto-deleted will be deleted unless they are attached to any other instances or the `--keep-disks` flag

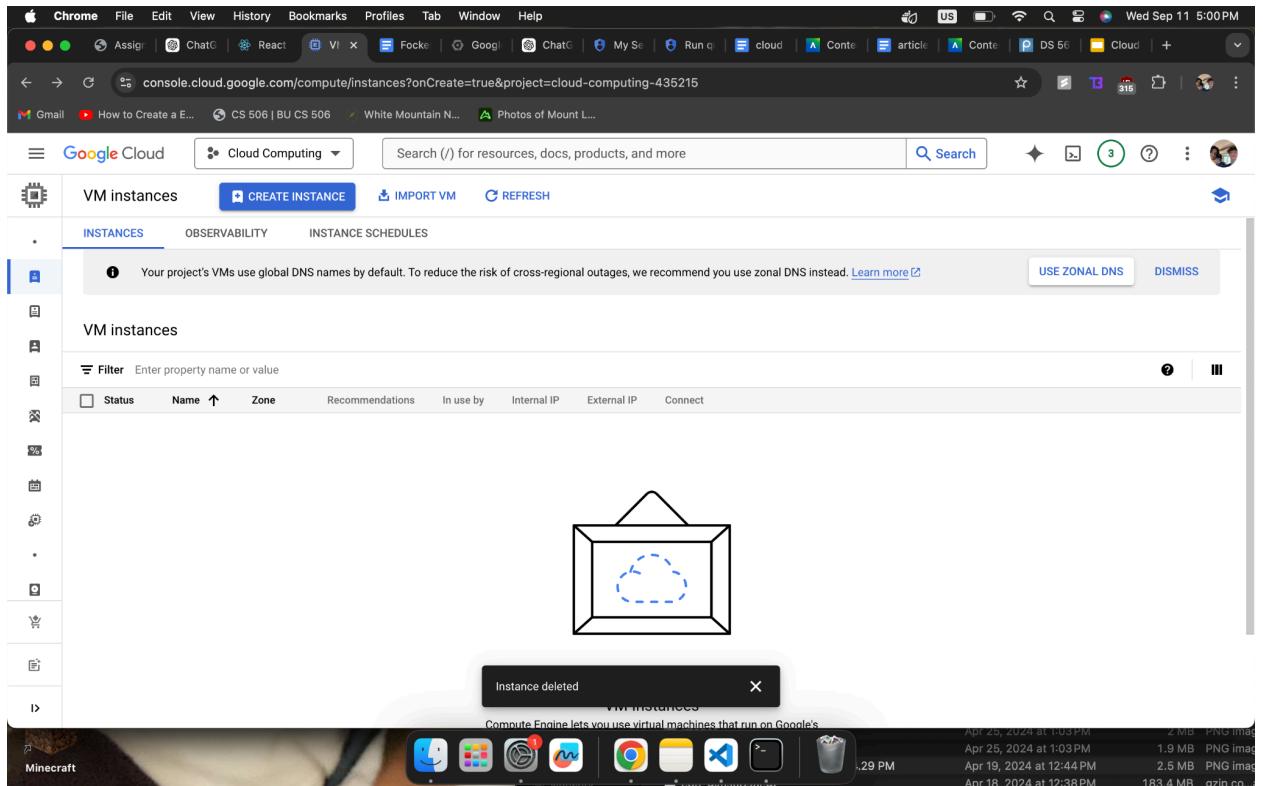
is given and specifies them for keeping. Deleting a disk is irreversible and any data on the disk will be lost.

- [test-vm] in [us-east1-c]

Do you want to continue (Y/n)? y

Deleted

[https://www.googleapis.com/compute/v1/projects/cloud-computing-435215/zones/us-east1-c/instances/test-vm].



- Make a service account and give it permissions to access your storage bucket

Can't be done with gsutil

```
gcloud iam service-accounts create my-service-account \

```

```
--display-name="My Service Account"
```

Created service account [my-service-account].

The screenshot shows the Google Cloud IAM service accounts details page for a service account named "test-console-account". The "DETAILS" tab is selected. The "Service account details" section shows the name "test-console-account", email "test-console-account@cloud-computing-435215.iam.gserviceaccount.com", and unique ID "102424386596186851064". The "Service account status" section shows the account is enabled. A note at the bottom of the status section states: "Disabling your account allows you to preserve your policies without having to delete it." Below the status section is an "Advanced settings" section with a note: "No change - principal already exists on the policy". The browser address bar shows the URL <https://console.cloud.google.com/iam-admin/serviceaccounts/details/102424386596186851064?project=cloud-computing-435215>. The status bar at the bottom of the screen shows the date and time as "Apr 19, 2024 at 12:44 PM" and file sizes "1.9 MB" and "2.5 MB".

- Delete the service account

Can't be done with gsutil

```
gcloud iam service-accounts delete  
my-service-account@cloud-computing-435215.iam.gserviceaccount.com
```

You are about to delete service account
[my-service-account@cloud-computing-435215.iam.gserviceaccount.com]

Do you want to continue (Y/n)? y

deleted service account
[my-service-account@cloud-computing-435215.iam.gserviceaccount.com]

console.cloud.google.com/iam-admin/serviceaccounts?project=cloud-computing-435215

Service accounts

Service accounts for project "Cloud Computing"

A service account represents a Google Cloud service identity, such as code running on Compute Engine VMs, App Engine apps, or systems running outside Google. [Learn more about service accounts.](#)

Organization policies can be used to secure service accounts and block risky service account features, such as automatic IAM Grants, key creation/upload, or the creation of service accounts entirely. [Learn more about service account organization policies.](#)

Email	Status	Name	Description	Key ID	Key creation date	OAuth 2 Client ID	Actions
836717688108-compute@developer.gserviceaccount.com	Enabled	Compute Engine default service account	No keys			114325106687484635281	⋮
my-service-account@cloud-computing-435215.iam.gserviceaccount.com	Enabled	My Service Account	No keys			105083347825025853529	⋮

Account test-console-account has been deleted.

- Delete the storage bucket

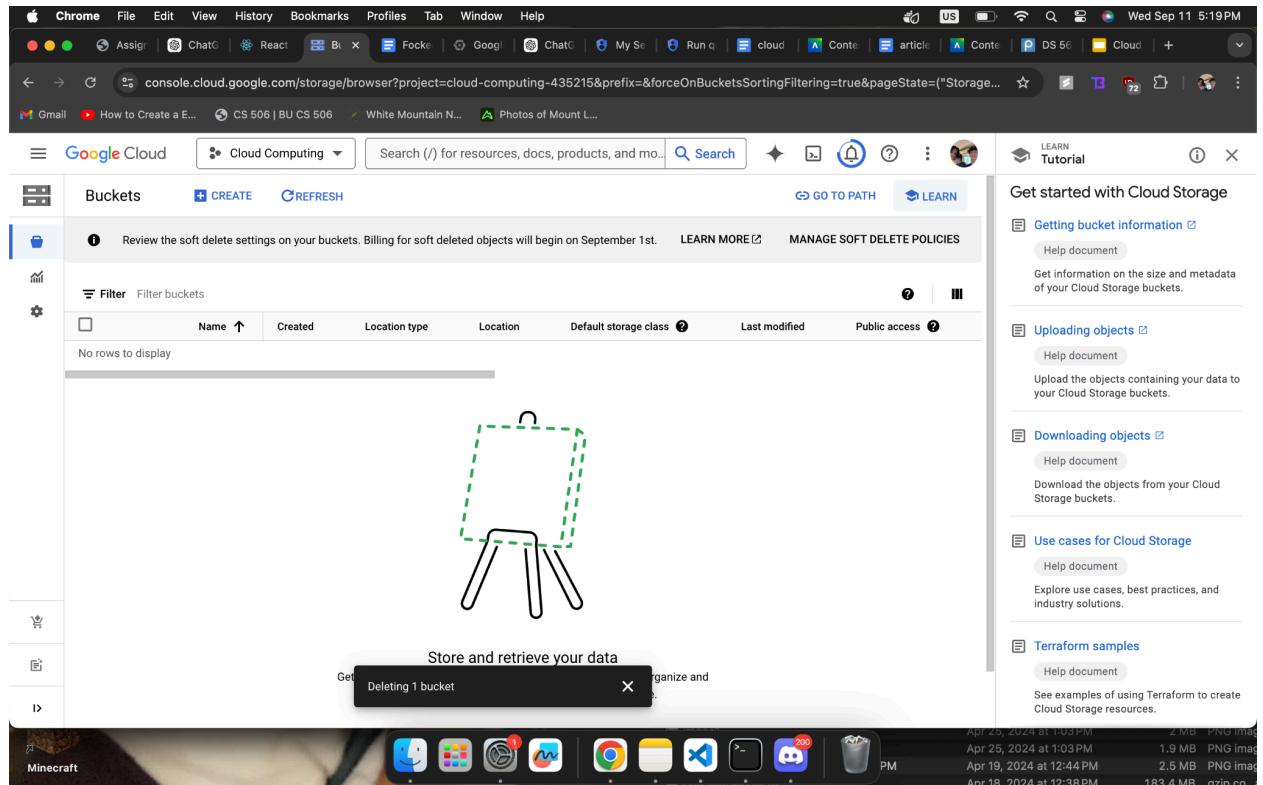
```
gsutil rb gs://bu-ds561-afockens-b1/
```

Removing gs://bu-ds561-afockens-b1/...

```
gcloud storage buckets delete gs://bu-ds561-afockens-b2/
```

Removing gs://bu-ds561-afockens-b2/...

Completed 1/1



Turn in a pdf document with screenshots and/or command lines demonstrating your work.