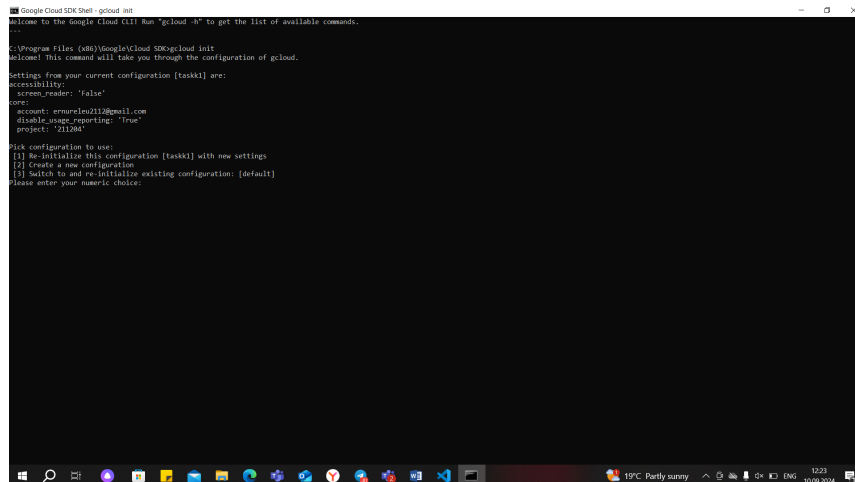


Exercise 1: Setting Up Google Cloud SDK

1. Objective: Install and configure the Google Cloud SDK on your local machine.

2. Steps:

- Visit the Google Cloud SDK installation page.
- Follow the instructions to download and install the SDK for your operating system.
- After installation, run `gcloud init` to initialize the SDK and authenticate with your Google account.



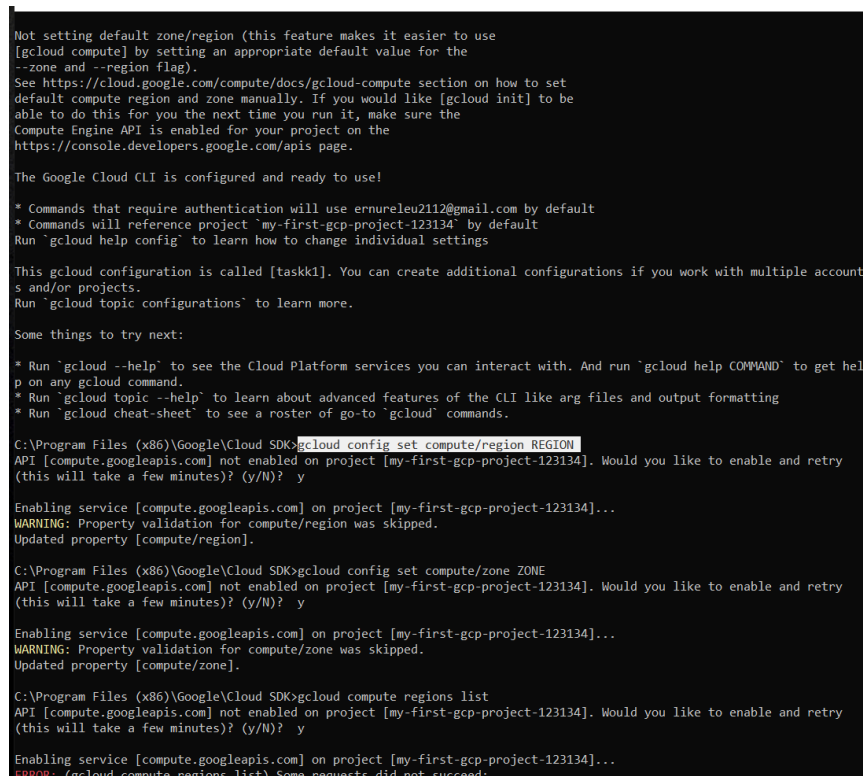
```
Google Cloud SDK Shell - gcloud init
Welcome to the Google Cloud CLI! Run 'gcloud --help' to get the list of available commands.

C:\Program Files (x86)\Google\Cloud SDK>gcloud init
Welcome! This command will take you through the configuration of gcloud.

Settings from your current configuration [taskkl] are:
  accessibility:
  screen_reader: 'false'
  core:
  account: ernureleu2112@gmail.com
  disable_usage_reporting: 'True'
  project: '211204'

Pick configuration to use:
  [1] Re-initialize this configuration [taskkl] with new settings
  [2] Create a new configuration
  [3] Switch to and re-initialize existing configuration: [default]
Please enter your numeric choice:
```

○ Configure the default project and region.



```
Not setting default zone/region (this feature makes it easier to use
[gcloud compute] by setting an appropriate default value for the
--zone and --region flag).
See https://cloud.google.com/compute/docs/gcloud-compute section on how to set
default compute region and zone manually. If you would like [gcloud init] to be
able to do this for you the next time you run it, make sure the
Compute Engine API is enabled for your project on the
https://console.developers.google.com/apis page.

The Google Cloud CLI is configured and ready to use!

* Commands that require authentication will use ernureleu2112@gmail.com by default
* Commands will reference project 'my-first-gcp-project-123134' by default
Run 'gcloud help config' to learn how to change individual settings

This gcloud configuration is called [taskkl]. You can create additional configurations if you work with multiple account
s and/or projects.
Run 'gcloud topic configurations' to learn more.

Some things to try next:

* Run 'gcloud --help' to see the Cloud Platform services you can interact with. And run 'gcloud help COMMAND' to get hel
p on any gcloud command.
* Run 'gcloud topic --help' to learn about advanced features of the CLI like arg files and output formatting
* Run 'gcloud cheat-sheet' to see a roster of go-to 'gcloud' commands.

C:\Program Files (x86)\Google\Cloud SDK>gcloud config set compute/region REGION
API [compute.googleapis.com] not enabled on project [my-first-gcp-project-123134]. Would you like to enable and retry
(this will take a few minutes)? (y/N)? y

Enabling service [compute.googleapis.com] on project [my-first-gcp-project-123134]...
WARNING: Property validation for compute/region was skipped.
Updated property [compute/region].

C:\Program Files (x86)\Google\Cloud SDK>gcloud config set compute/zone ZONE
API [compute.googleapis.com] not enabled on project [my-first-gcp-project-123134]. Would you like to enable and retry
(this will take a few minutes)? (y/N)? y

Enabling service [compute.googleapis.com] on project [my-first-gcp-project-123134]...
WARNING: Property validation for compute/zone was skipped.
Updated property [compute/zone].

C:\Program Files (x86)\Google\Cloud SDK>gcloud compute regions list
API [compute.googleapis.com] not enabled on project [my-first-gcp-project-123134]. Would you like to enable and retry
(this will take a few minutes)? (y/N)? y

Enabling service [compute.googleapis.com] on project [my-first-gcp-project-123134]...
ERROR: (gcloud.compute.regions.list) Some requests did not succeed:
```

○ Verify the installation by running `gcloud version` and `gcloud info`.


```
Выбор Google Cloud SDK Shell
Account: [ernurelu2112@gmail.com]
Project: [my-first-gcp-project-123134]
Universe Domain: [googleapis.com]

Current Properties:
[accessibility]
  screen_reader: [False] (property file)
[compute]
  zone: [ZONE] (property file)
  region: [REGION] (property file)
[core]
  account: [ernurelu2112@gmail.com] (property file)
  disable_usage_reporting: [True] (property file)
  project: [my-first-gcp-project-123134] (property file)

Logs Directory: [C:\Users\ASUS\AppData\Roaming\gcloud\logs]
Last Log File: [C:\Users\ASUS\AppData\Roaming\gcloud\logs\2024.09.10\12.35.23.090371.log]

git: [git version 2.39.1.windows.1]
ssh: [OpenSSH_for_Windows_8.1p1, LibreSSL 3.0.2]

C:\Program Files (x86)\Google\Cloud SDK>gcloud config list
[accessibility]
screen_reader = False
[compute]
region = REGION
zone = ZONE
[core]
account = ernurelu2112@gmail.com
disable_usage_reporting = True
project = my-first-gcp-project-123134

Your active configuration is: [task1]
```

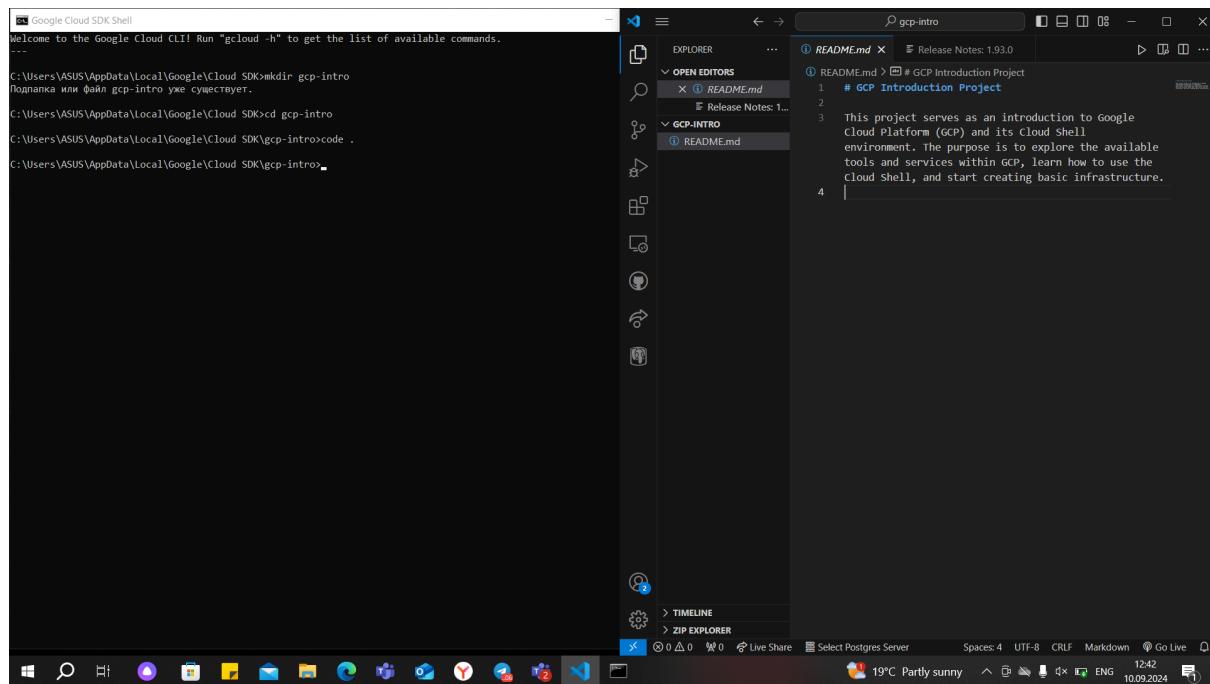
- Create a directory named gcp-intro and navigate into it.

```
Выбор Google Cloud SDK Shell
Welcome to the Google Cloud CLI! Run "gcloud -h" to get the list of available commands.

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>mkdir gcp-intro
Подпапка или файл gcp-intro уже существует.

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>cd gcp-intro
C:\Users\ASUS\AppData\Local\Google\Cloud SDK\gcp-intro>
```

- Use the built-in code editor to create a simple README.md file describing your GCP project.



3. Questions:

- What is the default home directory in Cloud Shell?

- What tools are pre-installed in Cloud Shell?

gcloud (Google Cloud SDK)

kubectl (Kubernetes command-line tool)

git (Version control system)

Python, Node.js, Java, Go

Docker

- How can you open the built-in code editor in Cloud Shell?

Running the command **code** .

Exercise 3: Managing Projects with Google Cloud SDK

1. Objective: Use Google Cloud SDK to manage projects.

2. Steps:

- List all the projects associated with your Google account using **gcloud projects list**.

```

policy-intelligence      entitlements and grants.
policy-troubleshoot       A platform to help better understand, use and
privatca                  manage policies at scale.
publicca                  Troubleshoot Google Cloud Platform policies.
recapthca                 Manage private Certificate Authorities on Google
resource-manager          Cloud.
resource-settings         Manage accounts for Google Trust Services'
                          Certificate Authority.
                          Manage reCAPTCHA Enterprise Keys.
                          Manage Cloud Resources.
                          *(DEPRECATED)* Create and manage Resource

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects list
PROJECT_ID              NAME                PROJECT_NUMBER
core-avenue-408220      My First Project    289065401400
disco-alchemy-408220    My First Project    283493361022
hybrid-snowfall-407813  My Project 84727    362384574124
my-first-gcp-project-123134 My First GCP Project 132733380210
my-gcp-project-0056     My First GCP Project 827069706681
sacred-truck-408220     My First Project    474643326048

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>

```

- Create a new project with the command `gcloud projects create PROJECT_ID --name="My First GCP Project"`.

```

policy-intelligence      A platform to help better understand, use and
policy-troubleshoot       manage policies at scale.
privatca                  Troubleshoot Google Cloud Platform policies.
publicca                  Manage private Certificate Authorities on Google
recapthca                 Cloud.
resource-manager          Manage accounts for Google Trust Services'
resource-settings         Certificate Authority.
                          Manage reCAPTCHA Enterprise Keys.
                          Manage Cloud Resources.
                          *(DEPRECATED)* Create and manage Resource

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects list
PROJECT_ID              NAME                PROJECT_NUMBER
core-avenue-408220      My First Project    289065401400
disco-alchemy-408220    My First Project    283493361022
hybrid-snowfall-407813  My Project 84727    362384574124
my-first-gcp-project-123134 My First GCP Project 132733380210
my-gcp-project-0056     My First GCP Project 827069706681
sacred-truck-408220     My First Project    474643326048

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects create first-assignment-gcp-project-2112 --name="My project00001"
ERROR: (gcloud.projects.create) argument PROJECT_ID: Bad value [first-assignment-gcp-project-2112]: Project IDs are immutable and can be set only during project creation. They must start with a lowercase letter and can have lowercase ASCII letters, digits or hyphens. Project IDs must be between 6 and 30 characters.
Usage: gcloud projects create [PROJECT_ID] [optional flags]
optional flags may be --enable-cloud-api | --folder | --help | --labels |
--name | --organization | --set-as-default | --tags
For detailed information on this command and its flags, run:
gcloud projects create --help

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects create my-first-gcp-project-123 --name="My First GCP Project"
ERROR: (gcloud.projects.create) Project creation failed. The project ID you specified is already in use by another project. Please try an alternative ID.

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects create first-assign-gcp-projects-2112 --name="My First GCP Project"
Create in progress for [https://cloudresourcemanager.googleapis.com/v1/projects/first-assign-gcp-projects-2112].
Waiting for [operations/cp.8596526561937930142] to finish...done.
Enabling service [cloudapis.googleapis.com] on project [first-assign-gcp-projects-2112]...
Operation "operations/acct.p2-180598748441-80582475-rhec-49b2-8c89-9b9c0117ff45" finished successfully.

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>

```

- Set this new project as your default project.

```
BePatty Google Cloud SDK Shell

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects list
PROJECT_ID      NAME      PROJECT_NUMBER
core-avenue-488220  My First Project  289085491490
disco-alchemy-488220  My First Project  283493361822
hybrid-snowfall-407813  My Project  362384574124
my-first-gcp-project-123134  My First GCP Project  132733380210
my-gcp-project-0056  My First GCP Project  827069706681
sacred-truck-408228  My First Project  474643320648

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects create first-assign-gcp-project-2112 --name="My project00001"
ERROR: (gcloud.projects.create) argument PROJECT_ID: Bad value [first-assign-gcp-project-2112]: Project IDs are immutable and can be set only during project creation. They must start with a lowercase letter and can have lowercase ASCII letters, digits or hyphens. Project IDs must be between 6 and 30 characters.
Usage: gcloud projects create [PROJECT_ID] [optional flags]
optional flags may be --enable-cloud-apis | --folder | --help | --labels | --name | --organization | --set-as-default | --tags

For detailed information on this command and its flags, run:
  gcloud projects create --help

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects create my-first-gcp-project-123 --name="My First GCP Project"
ERROR: (gcloud.projects.create) Project creation failed. The project ID you specified is already in use by another project. Please try an alternative ID.

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects create first-assign-gcp-projects-2112 --name="My First GCP Project"
Create in progress for [https://cloudresourcemanager.googleapis.com/v1/projects/first-assign-gcp-projects-2112].
Waiting for [operations/cp.8596526561937930142] to finish...done.
Enabling service [cloudapis.googleapis.com] on project [first-assign-gcp-projects-2112]...
Operation "operations/acat.p2-180598748441-88582475-fbec-49b2-8c89-9b9c0117ff45" finished successfully.

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud config set project first-assign-gcp-projects-2112
Updated property [core/project].

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>
```

○ Explore project metadata using gcloud projects describe PROJECT_ID.

```
BePatty Google Cloud SDK Shell

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects create first-assign-gcp-project-2112 --name="My project00001"
ERROR: (gcloud.projects.create) argument PROJECT_ID: Bad value [first-assign-gcp-project-2112]: Project IDs are immutable and can be set only during project creation. They must start with a lowercase letter and can have lowercase ASCII letters, digits or hyphens. Project IDs must be between 6 and 30 characters.
Usage: gcloud projects create [PROJECT_ID] [optional flags]
optional flags may be --enable-cloud-apis | --folder | --help | --labels | --name | --organization | --set-as-default | --tags

For detailed information on this command and its flags, run:
  gcloud projects create --help

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects create my-first-gcp-project-123 --name="My First GCP Project"
ERROR: (gcloud.projects.create) Project creation failed. The project ID you specified is already in use by another project. Please try an alternative ID.

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects create first-assign-gcp-projects-2112 --name="My First GCP Project"
Create in progress for [https://cloudresourcemanager.googleapis.com/v1/projects/first-assign-gcp-projects-2112].
Waiting for [operations/cp.8596526561937930142] to finish...done.
Enabling service [cloudapis.googleapis.com] on project [first-assign-gcp-projects-2112]...
Operation "operations/acat.p2-180598748441-88582475-fbec-49b2-8c89-9b9c0117ff45" finished successfully.

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud config set project first-assign-gcp-projects-2112
Updated property [core/project].

C:\Users\ASUS\AppData\Local\Google\Cloud SDK> gcloud projects describe first-assign-gcp-projects-2112
createTime: '2024-09-10T08:11:27.655821Z'
lifecycleState: ACTIVE
name: My First GCP Project
projectId: first-assign-gcp-projects-2112
projectNumber: '180598748441'

C:\Users\ASUS\AppData\Local\Google\Cloud SDK> gcloud projects delete my-first-gcp-project-123134
Your project will be deleted.

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

Deleted [https://cloudresourcemanager.googleapis.com/v1/projects/my-first-gcp-project-123134].

You can undo this operation for a limited period by running the command below.
  $ gcloud projects undelete my-first-gcp-project-123134

See https://cloud.google.com/resource-manager/docs/creating-managing-projects for information on shutting down projects.
C:\Users\ASUS\AppData\Local\Google\Cloud SDK>
```

○ Delete the project using gcloud projects delete PROJECT_ID after completing the exercise.

```
Barb@ps Google Cloud SDK Shell
C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects create first-assignment-gcp-project-2112 --name="My project00001"
ERROR: (gcloud.projects.create) argument PROJECT_ID: Bad value [first-assignment-gcp-project-2112]: Project IDs are immutable and can be set only during project creation. They must start with a lowercase letter and can have lowercase ASCII letters, digits or hyphens. Project IDs must be between 6 and 30 characters.
Usage: gcloud projects create [PROJECT_ID] [optional flags]
optional flags may be:
  --enable-cloud-api | --folder | --help | --labels |
  --name | --organization | --set-as-default | --tags

For detailed information on this command and its flags, run:
  gcloud projects create --help

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects create my-first-gcp-project-123 --name="My First GCP Project"
ERROR: (gcloud.projects.create) Project creation failed. The project ID you specified is already in use by another project. Please try an alternative ID.

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects create first-assign-gcp-projects-2112 --name="My First GCP Project"
Create in progress for [https://cloudresourcemanager.googleapis.com/v1/projects/first-assign-gcp-projects-2112].
Waiting for [operations/cp.8596526561937930142] to finish...done.
Enabling service [cloudapis.googleapis.com] on project [first-assign-gcp-projects-2112]...
Operation "operations/acat.pz.188598748441-88582475-fbec-49b2-8c89-9b9c0117ff45" finished successfully.

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud config set project first-assign-gcp-projects-2112
Updated property [core/project].

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects describe first-assign-gcp-projects-2112
createTime: '2024-09-10T08:11:27.655821Z'
lifecycleState: ACTIVE
name: My First GCP Project
projectId: first-assign-gcp-projects-2112
projectNumber: '188598748441'

C:\Users\ASUS\AppData\Local\Google\Cloud SDK>gcloud projects delete my-first-gcp-project-123134
Your project will be deleted.

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

Deleted [https://cloudresourcemanager.googleapis.com/v1/projects/my-first-gcp-project-123134].

You can undo this operation for a limited period by running the command below.
  $ gcloud projects undelete my-first-gcp-project-123134

See https://cloud.google.com/resource-manager/docs/creating-managing-projects for information on shutting down projects.
C:\Users\ASUS\AppData\Local\Google\Cloud SDK>
```

3. Questions:

- How do you list all projects associated with your account?

gcloud projects list

- What command is used to set a default project?

gcloud config set project PROJECT_ID

- How do you describe project metadata?

gcloud projects describe PROJECT_ID

Exercise 4: Using Cloud Shell for Basic Operations

1. Objective: Perform basic file and directory operations in Cloud Shell.

2. Steps:

- In Cloud Shell, create a directory structure that mimics a small project (e.g., myproject/src, myproject/tests, myproject/docs).
- Create a few files in these directories and use commands like touch, nano, cat, and rm to manipulate them.
- Use gsutil to create a new Cloud Storage bucket and upload a file from your Cloud Shell environment.
- Verify the file upload by listing the contents of the bucket.

```
yernur_y@DESKTOP-2PVM7F3:~$ mkdir -p myproject/src myproject/tests myproject/docs
yernur_y@DESKTOP-2PVM7F3:~$ touch myproject/src/main.py
h myproject/tests/test_main.py
touch myproject/docs/readme.md
yernur_y@DESKTOP-2PVM7F3:~$ touch myproject/tests/test_main.py
yernur_y@DESKTOP-2PVM7F3:~$ touch myproject/docs/readme.md
yernur_y@DESKTOP-2PVM7F3:~$ nano myproject/src/main.py
yernur_y@DESKTOP-2PVM7F3:~$ cat myproject/src/main.py
yernur_y@DESKTOP-2PVM7F3:~$ nano myproject/src/main.py
yernur_y@DESKTOP-2PVM7F3:~$ cat myproject/src/main.py
print("Hello, GCPI")
print("Hello, GCPI")

yernur_y@DESKTOP-2PVM7F3:~$ rm myproject/docs/readme.md
yernur_y@DESKTOP-2PVM7F3:~$ gsutil mb gs:first-assign
CommandException: "mb" command does not support "file://" URLs. Did you mean to use a gs:// URL?
yernur_y@DESKTOP-2PVM7F3:~$ gsutil mb gs://my-new-bucket/
Creating gs://my-new-bucket/...
AccessDeniedException: 403 The billing account for the owning project is disabled in state absent
yernur_y@DESKTOP-2PVM7F3:~$ gsutil cp myproject/src/main.py gs://your-bucket-name
Copying file://myproject/src/main.py [Content-type=text/x-python]...
AccessDeniedException: 403 The billing account for the owning project is disabled in state closed
yernur_y@DESKTOP-2PVM7F3:~$ gsutil ls gs://your-bucket-name
AccessDeniedException: 403 emureleu2112@gmail.com does not have storage.objects.list access to the Google Cloud Storage bucket. Permission 'storage.objects.list' denied on resource (or it may not exist).
```

3. Questions:

- What command did you use to create the directory structure?

mkdir -p myproject/src myproject/tests myproject/docs

- How did you upload a file to a Cloud Storage bucket?

gsutil cp myproject/docs/README.md gs://YOUR_BUCKET_NAME

- How can you list the contents of a Cloud Storage bucket?

gsutil ls gs://YOUR_BUCKET_NAME

Exercise 5: Automating Tasks with Shell Scripts in Cloud Shell

1. Objective: Write and execute a basic shell script in Cloud Shell.

2. Steps:

- In Cloud Shell, create a new shell script named `setup.sh` in your `gcp-intro` directory.
- The script should automate the creation of a new directory, a simple text file, and set up a basic Google Cloud configuration (e.g., set a default project).
- Make the script executable using `chmod +x setup.sh`.
- Run the script and verify that it performs the expected tasks.

```
yernur_y@DESKTOP-2PVM7F3:~$ cd gcp-intro
yernur_y@DESKTOP-2PVM7F3:~/gcp-intro$ nano setup.sh
yernur_y@DESKTOP-2PVM7F3:~/gcp-intro$ gcloud config list
[accessibility]
screen_reader = False
[core]
account = ernureleu2112@gmail.com
disable_usage_reporting = True
project = first-my-proj-gcp-2112

Your active configuration is: [default]
yernur_y@DESKTOP-2PVM7F3:~/gcp-intro$ first-my-proj-gcp-211
first-my-proj-gcp-211: command not found
yernur_y@DESKTOP-2PVM7F3:~/gcp-intro$ nano setup.sh
yernur_y@DESKTOP-2PVM7F3:~/gcp-intro$ nano setup.sh
yernur_y@DESKTOP-2PVM7F3:~/gcp-intro$ chmod +x setup.sh
yernur_y@DESKTOP-2PVM7F3:~/gcp-intro$ ./setup.sh
Updated property [core/project].
Скрипт успешно выполнен!
yernur_y@DESKTOP-2PVM7F3:~/gcp-intro$ ls myproject
info.txt
yernur_y@DESKTOP-2PVM7F3:~/gcp-intro$ cat myproject/info.txt
Это простой текстовый файл
yernur_y@DESKTOP-2PVM7F3:~/gcp-intro$ gcloud config list
[accessibility]
screen_reader = False
[core]
account = ernureleu2112@gmail.com
disable_usage_reporting = True
project = first-my-proj-gcp-2112

Your active configuration is: [default]
yernur_y@DESKTOP-2PVM7F3:~/gcp-intro$
```

3. Questions:

- What command did you use to make the script executable?

chmod +x setup.sh

- How did you ensure the script was executed correctly?

By running the script with `./setup.sh`.

Checking the outputs of the created files and directories.

Verifying the Google Cloud configuration with `gcloud config get-value project`.

- What steps did your script automate

Creation of a new directory (`myproject`).

Creation of a simple text file (`sample.txt`) inside the `myproject` directory.

Setting up a basic Google Cloud configuration (setting the default project).