Cloud Application Development. Assignment №1
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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.
   - Configure the default project and region.
   - Verify the installation by running **gcloud version** and gcloud info.
3. **Questions:**
   - What command did you use to authenticate with your Google account?
     Answer: I used the gcloud auth login command.
   - How did you set the default project?
     Answer: I used the gcloud config set project [PROJECT_ID] command to set the default project and the gcloud config set compute/region [REGION] command to set default region.
   - What information does the gcloud info command provide?
     Answer: This command provides info about my OS, python version,location and path, system path, git version. Also about my account, default project and many other info.

Exercise 2: Exploring Cloud Shell

1. **Objective:** Familiarize yourself with the Google Cloud Shell environment.
2. **Steps:**
   - Open the Google Cloud Console and activate Cloud Shell.
   - Explore the environment by listing files and checking the available tools.
   - Run the command gcloud config list to see your current configuration.
   - Create a directory named gcp-intro and navigate into it.
   - 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?
     Answer: /home/[USER_NAME] directory.
   - What tools are pre-installed in Cloud Shell?
     Answer: gcloud CLI and tools; linux shell interpreters - bash, sh; version control tools: git; also - docker, python, java, node.js, etc.
   - How can you open the built-in code editor in Cloud Shell?
     Answer: Just clicked to the Open Editor button. But also we can use cloudshell edit [FILE_PATH].

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.
   - Create a new project with the command gcloud projects create PROJECT_ID --name="My First GCP Project".
   - Set this new project as your default project.
   - Explore project metadata using gcloud projects describe PROJECT_ID.
   - Delete the project using gcloud projects delete PROJECT_ID after completing the exercise.
3. **Questions:**
   - How do you list all projects associated with your account?
     Answer: using gcloud projects list command.
   - What command is used to set a default project?
     Answer: gcloud config set project [PROJECT_ID] command.
   - How do you describe project metadata?

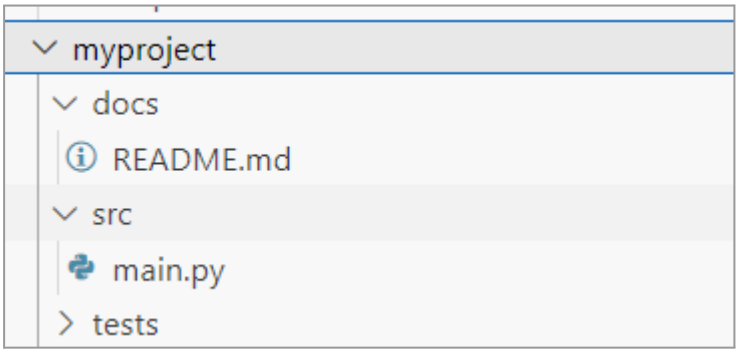
Answer: I used gcloud projects describe [PROJECT_ID] command to view metadata. On this image showed what describes project metadata:

```
C:\Users\azikkw>gcloud projects describe eventy-c5909
createTime: '2024-07-22T11:20:59.320543Z'
labels:
  firebase: enabled
lifecycleState: ACTIVE
name: eventy
projectId: eventy-c5909
projectNumber: '851322724573'
```

metadata consist of *createTime, labels, lifecycleState, name, id and number*.

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.
3. **Questions:**
   - What command did you use to create the directory structure?
     Answer: using mkdir -p myproject/src myproject/tests myproject/docs command.
   - How did you upload a file to a Cloud Storage bucket?
     Answer: using gsutil cp [FILE_PATH] gs://[BUCKET_NAME] command.
   - How can you list the contents of a Cloud Storage bucket?
     Answer: using gsutil ls gs://[BUCKET_NAME] command.

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.


```
azat_amenov@cloudshell:~/gcp-intro (western-avatar-435512-h0)$ ./setup.sh
Creating new directory! Enter directory name:
testing
Creating new file! Enter filanme:
test
Write something in your test.txt file:
First testing of script.sh script!
Now setting default project! Enter PROJECT_ID:
western-avatar-435512-h0
Updated property [core/project].
testing/test.txt created. western-avatar-435512-h0 setted as default project.
azat_amenov@cloudshell:~/gcp-intro (western-avatar-435512-h0)$ gcloud config get-value project
Your active configuration is: [cloudshell-32472]
western-avatar-435512-h0
azat_amenov@cloudshell:~/gcp-intro (western-avatar-435512-h0)$ ls
gcp-intro  README.md  setup.sh  testing
azat_amenov@cloudshell:~/gcp-intro (western-avatar-435512-h0)$ cat testing/test.txt
First testing of script.sh script!
```

3. **Questions:**
   - What command did you use to make the script executable?
     Answer: using chmod +x setup.sh command.
   - How did you ensure the script was executed correctly?
     Answer: by running it using ./setup.sh, checking that created directory, file exist and viewed default project.

- What steps did your script automate?
  Answer: my script creates a directory, file and set default project.