



National University of Sciences and Technology (NUST)
School of Electrical Engineering and Computer Science

Faculty of Computing

SE-315: Cloud Computing

Lab 07: App Dev - Setting up a Development Environment: Python

Date: 30.10.24



Lab 07: App Dev – Setting up a Development Environment: Python

Introduction:

In this lab, you set up a Python development environment on Google Cloud, using Compute Engine to create a virtual machine (VM) and installing software libraries for software development.

Lab Tasks

Go through the following link:

<https://www.cloudskillsboost.google/focuses/1074?parent=catalog>

which will take you to the 'App Dev: Setting up a Development Environment – Python' page. You have to start the lab and perform the tasks given below. Make sure to take screenshots of each task as you will need to add them in the solution section given below.

1. Setup

End Lab 00:48:50

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

Open Google Cloud console

Username
student-02-16c31014c3cd@qwiklabs.net

Password
IvdxTUbYEXgc

Project ID
qwiklabs-gcp-03-6293031

Google Cloud

Welcome student c8b307c4!

Create and manage your Google Cloud instances, disks, networks, and other resources in one place.

S student c8b307c4
student-02-16c31014c3cd@qwiklabs.net

SWITCH ACCOUNT

Country
Pakistan

Terms of Service
☒ I agree to the [Google Cloud Platform Terms of Service](#), and the terms

AGREE AND CONTINUE



2. Create a Compute Engine Virtual Machine instance

VM instances

Filter

?

III

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Connect
	dev-instance-404329	us-west1-a			10.138.0.2 (nic0)	35.197.69.133 (nic0)	SSH

Installing software on the VM instance

```
student-02-16c31014c3cd@dev-instance-404329:~$ curl https://bootstrap.pypa.io/
get-pip.py -o get-pip.py
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
t
100 2222k  100 2222k    0     0  17.3M      0  --:--:-- --:--:-- --:--:-- 17.5M
student-02-16c31014c3cd@dev-instance-404329:~$ sudo python3 get-pip.py --break
-system-packages
Collecting pip
  Downloading pip-24.3.1-py3-none-any.whl.metadata (3.7 kB)
Collecting wheel
  Downloading wheel-0.44.0-py3-none-any.whl.metadata (2.3 kB)
Downloading pip-24.3.1-py3-none-any.whl (1.8 MB)
1.8/1.8 MB 15.5 MB/s eta 0:00:00
Downloading wheel-0.44.0-py3-none-any.whl (67 kB)
Installing collected packages: wheel, pip
Successfully installed pip-24.3.1 wheel-0.44.0
WARNING: Running pip as the 'root' user can result in broken permissions and c
onflicting behaviour with the system package manager, possibly rendering your
system unusable.It is recommended to use a virtual environment instead: https:
//pip.pypa.io/warnings/venv. Use the --root-user-action option if you know wha
t you are doing and want to suppress this warning.
student-02-16c31014c3cd@dev-instance-404329:~$
```



3. Configure the VM to run application software

Verifying Python installation

```
student-02-16c31014c3cd@dev-instance-404329:~$ python3 --version
Python 3.11.2
student-02-16c31014c3cd@dev-instance-404329:~$ pip3 --version
pip 24.3.1 from /usr/local/lib/python3.11/dist-packages/pip (python 3.11)
student-02-16c31014c3cd@dev-instance-404329:~$
```

Clone the class repository:

git clone <https://github.com/GoogleCloudPlatform/training-data-analyst>

```
get-pip.py
student-02-16c31014c3cd@dev-instance-404329:~$ git clone https://github.com/Go
ogleCloudPlatform/training-data-analyst
Cloning into 'training-data-analyst'...
remote: Enumerating objects: 65464, done.
remote: Counting objects: 100% (31/31), done.
remote: Compressing objects: 100% (27/27), done.
remote: Total 65464 (delta 8), reused 14 (delta 3), pack-reused 65433 (from 1)
Receiving objects: 100% (65464/65464), 697.62 MiB | 26.42 MiB/s, done.
Resolving deltas: 100% (41861/41861), done.
Updating files: 100% (12879/12879), done.
```

Change the working directory:

```
student-02-16c31014c3cd@dev-instance-404329:~$ cd ~/training-data-analyst/cour
ses/developingapps/python/devenv/
student-02-16c31014c3cd@dev-instance-404329:~/training-data-analyst/courses/de
velopingapps/python/devenv$
```

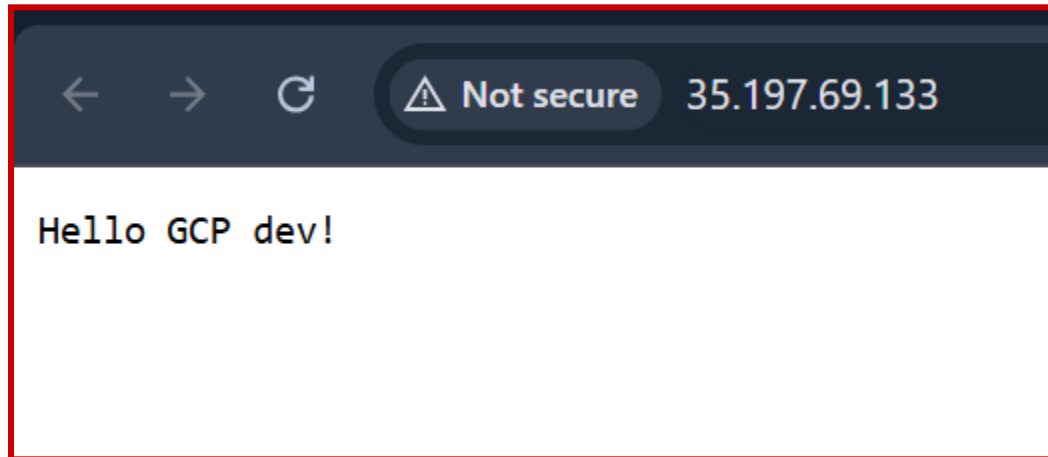
Run a simple web server:

```
student-02-16c31014c3cd@dev-instance-404329:~/training-data-analyst/courses/de
velopingapps/python/devenv$ sudo python3 server.py
Server is starting...
Started. Press Ctrl + C to stop
```



National University of Sciences and Technology (NUST) School of Electrical Engineering and Computer Science

Clicking on the External IP address for the dev-instance.



Install the Python packages needed to enumerate Compute Engine VM instances:

```
student-01-e82b66631620@dev-instance:~/training-data-analyst/courses/developingapps/python/dev$ sudo pip3 install -r requirements.txt --break-system-packages
Collecting google-api-python-client==1.6.4 (from -r requirements.txt (line 1))
  Downloading google_api_python_client-1.6.4-py2.py3-none-any.whl.metadata (1.2 kB)
Collecting google-auth==1.2.1 (from -r requirements.txt (line 2))
  Downloading google_auth-1.2.1-py2.py3-none-any.whl.metadata (3.1 kB)
Collecting google-auth-httpplib2==0.0.3 (from -r requirements.txt (line 3))
  Downloading google_auth_httplib2-0.0.3-py2.py3-none-any.whl.metadata (2.1 kB)
Requirement already satisfied: httplib2<1dev,>=0.9.2 in /usr/lib/python3/dist-packages (from google-api-python-client==1.6.4->-r requirements.txt (line 1)) (0.20.4)
Collecting oauth2client<5.0.0dev,>=1.5.0 (from google-api-python-client==1.6.4->-r requirements.txt (line 1))
  Downloading oauth2client-4.1.3-py2.py3-none-any.whl.metadata (1.2 kB)
Requirement already satisfied: six<2dev,>=1.6.1 in /usr/lib/python3/dist-packages (from google-api-python-client==1.6.4->-r requirements.txt (line 1)) (1.16.0)
Collecting uritemplate<4dev,>=3.0.0 (from google-api-python-client==1.6.4->-r requirements.txt (line 1))
  Downloading uritemplate-3.0.1-py2.py3-none-any.whl.metadata (4.6 kB)
Collecting cachetools>=2.0.0 (from google-auth==1.2.1->-r requirements.txt (line 2))
  Downloading cachetools-5.5.0-py3-none-any.whl.metadata (5.3 kB)
Collecting pyasn1>=0.1.7 (from google-auth==1.2.1->-r requirements.txt (line 2))
```

list your instance in Cloud Shell:

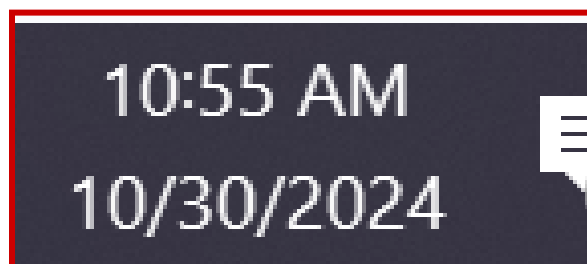
```
student-01-e82b66631620@dev-instance:~/training-data-analyst/courses/developingapps/python/dev$ python3 list-gce-instances.py qwiklabs-gcp-00-4a90e11864e7 --zone=us-east4-a
Instances in project qwiklabs-gcp-00-4a90e11864e7 and zone us-east4-a:
- dev-instance
student-01-e82b66631620@dev-instance:~/training-data-analyst/courses/developingapps/python/dev$
```



Remaining credits:

Credit name	Status	Percent remaining	Remaining value	Original value
	→	→	→	→
SE315: Cloud Computing	✓ Available	99%	\$49.60	\$50.00

time completed:



—the end—