

# Flask

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# Part 1

# Install a compute engine



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# Select VM Instances

The image shows the Google Cloud Platform (GCP) console interface. The top navigation bar is blue and contains the text "Google Cloud Platform" on the left, a search bar with the placeholder "Search products and resources" in the center, and a user profile icon on the right. A left-hand navigation menu is open, listing various services. Under the "COMPUTE" section, "VM instances" is highlighted with a red arrow. Other services listed include Home, Marketplace, Billing, APIs & Services, Support, IAM & Admin, Getting started, Security, and Anthos. The main content area is dimmed, showing a "RECOMMENDATIONS" header and several dashboard widgets: "SQL" with a storage usage graph, "Google Cloud Platform status" (All services normal), "Billing" (Estimated charges USD \$0.00), and "Monitoring" (Set up alerting policies).

Google Cloud Platform CSCI3328-Fall2020 Search products and resources

Home

Marketplace

Billing

APIs & Services

Support

IAM & Admin

Getting started

Security

Anthos

COMPUTE

App Engine

Compute Engine

Kubernetes Engine

Cloud Functions

Cloud Run

VMware Engine

RECOMMENDATIONS

COVID-19. [Learn more](#)

DISMISS

info

SQL

Storage used (bytes)

1230MiB

1229MiB

6:30 6:45 7 AM 7:15

database/disk/bytes\_used: 1.201GiB

Go to the SQL dashboard

Google Cloud Platform status

All services normal

Go to Cloud status dashboard

Billing

Estimated charges USD \$0.00

For the billing period Oct 1 - 19, 2020

View detailed charges



Monitoring

Set up alerting policies

Create uptime checks

View all dashboards

Go to Monitoring

 Compute Engine is getting ready. This may take a minute or more. [Compute Engine documentation](#) 

## Compute Engine VM instances

Compute Engine lets you use virtual machines that run on Google's infrastructure. Create micro-VMs or larger instances running Debian, Windows, or other standard images. Create your first VM instance, import it using a migration service, or try the quickstart to build a sample app.

[Create](#)

or

[Import](#)

or

[Take the quickstart](#)

## Compute Engine VM instances

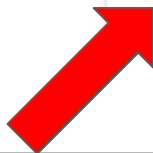
Compute Engine lets you use virtual machines that run on Google's infrastructure. Create micro-VMs or larger instances running Debian, Windows, or other standard images. Create your first VM instance, import it using a migration service, or try the quickstart to build a sample app.

[Create](#)

or

[Import](#)

or

[Take the quickstart](#)

**Name** ?

Name is permanent

myserver

**Labels** ? (Optional)

+ Add label

**Region** ?

Region is permanent

us-central1 (Iowa)

**Zone** ?

Zone is permanent

us-central1-a

**Machine configuration**

**Machine family**

General-purpose

Compute-optimized

Memory-optimized

Machine types for common workloads, optimized for cost and flexibility

**Series**

E2

CPU platform selection based on availability

**Machine type**

e2-micro (2 vCPU, 1 GB memory)



vCPU

1 shared core

Memory

1 GB

GPUs

-

⌵ CPU platform and GPU

**Confidential VM service** <sup>?</sup>

Enable the Confidential Computing service on this VM instance.

**Container** <sup>?</sup>

Deploy a container image to this VM instance. [Learn more](#)

**Boot disk** <sup>?</sup>



New 10 GB standard persistent disk  
Image

🛡️ Ubuntu 20.04 LTS

Change

**Identity and API access** <sup>?</sup>

**Service account** <sup>?</sup>

Compute Engine default service account

**Access scopes** <sup>?</sup>

- Allow default access
- Allow full access to all Cloud APIs
- Set access for each API

**Firewall** <sup>?</sup>

Add tags and firewall rules to allow specific network traffic from the Internet

- Allow HTTP traffic
- Allow HTTPS traffic

⌵ [Management, security, disks, networking, sole tenancy](#)

You will be billed for this instance. [Compute Engine pricing](#) <sup>↗</sup>

Create

Cancel

Equivalent [REST](#) or [command line](#)



# VM instances



SHOW INFO PANEL

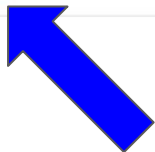
LEARN

Filter VM instances



Columns

<input type="checkbox"/>	Name ^	Zone	Recommendation	In use by	Internal IP	External IP	Connect
<input type="checkbox"/>	<input checked="" type="checkbox"/> myserver	us-central1-a			10.128.0.2 (nic0)	34.123.233.195	SSH



## Related Actions

Dismiss



### View Billing Report

View and manage your Compute Engine billing



### Monitor VMs

View outlier VMs across metrics like CPU and Network



### Explore VM Logs

View, search, analyze, and download VM instance logs



### Setup Firewall Rules

Control traffic to and from a VM instance



### Patch Management

Schedule patch updates and view patch compliance on VM instances



Connecting...

Transferring SSH keys to the VM.

```
:32:BC:6B:1B:63:F8:3E:5C:CE:3C:68:20:8E:EF:ED:B7:67:57
```

```
Welcome to Ubuntu 20.04.1 LTS (GNU/Linux 5.4.0-1028-gcp x86_64)
```

- \* Documentation: <https://help.ubuntu.com>
- \* Management: <https://landscape.canonical.com>
- \* Support: <https://ubuntu.com/advantage>

```
System information as of Mon Oct 19 12:36:06 UTC 2020
```

```
System load:  0.02          Processes:           114
Usage of /:   14.2% of 9.52GB Users logged in:     0
Memory usage: 25%          IPv4 address for ens4: 10.128.0.2
Swap usage:   0%
```

```
1 update can be installed immediately.
0 of these updates are security updates.
To see these additional updates run: apt list --upgradable
```

```
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
```

```
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
```

```
kim_dongchul@myserver:~$
```

```
kim_dongchul@myserver:~$ sudo apt-get update
```



```
stricted amd64 c-n-f Metadata [116 B]
Get:25 http://us-central1.gce.archive.ubuntu.com/ubuntu focal-backports/un
iverse amd64 Packages [4012 B]
Get:26 http://us-central1.gce.archive.ubuntu.com/ubuntu focal-backports/un
iverse Translation-en [1448 B]
Get:27 http://us-central1.gce.archive.ubuntu.com/ubuntu focal-backports/un
iverse amd64 c-n-f Metadata [224 B]
Get:28 http://us-central1.gce.archive.ubuntu.com/ubuntu focal-backports/mu
ltiverse amd64 c-n-f Metadata [116 B]
Get:29 http://security.ubuntu.com/ubuntu focal-security/main amd64 Package
s [338 kB]
Get:30 http://security.ubuntu.com/ubuntu focal-security/main amd64 c-n-f M
etadata [4992 B]
Get:31 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Pac
kages [507 kB]
Get:32 http://security.ubuntu.com/ubuntu focal-security/universe Translati
on-en [63.4 kB]
Get:33 http://security.ubuntu.com/ubuntu focal-security/universe amd64 c-n
-f Metadata [8500 B]
Get:34 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 P
ackages [1256 B]
Get:35 http://security.ubuntu.com/ubuntu focal-security/multiverse Transla
tion-en [540 B]
Get:36 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 c
-n-f Metadata [116 B]
Fetched 17.1 MB in 4s (4341 kB/s)
Reading package lists... Done
kim_dongchul@myserver:~$
```

```
kim_dongchul@myserver:~$ nano hello.py
```



To save,

**Ctrl + O**

Enter Key

To exit,

**Ctrl + X**

```
kim_dongchul@myserver: ~ - Google Chrome
ssh.cloud.google.com/projects/csci3328-fall2020/zones/us-central1-a/instances/myserver?useAdminProxy=true&authuser=0&hl=en...
GNU nano 4.8 hello.py Modified
from flask import Flask
app = Flask(__name__)
@app.route("/")
def hello():
    return ("Hello, Dr. Kim")
if __name__ == '__main__':
    app.run(host='0.0.0.0', port=80)
File Name to Write: hello.py
^G Get Help      M-D DOS Format   M-A Append      M-B Backup File
^C Cancel        M-M Mac Format   M-P Prepend     ^T To Files
```

```
kim_dongchul@myserver:~$ sudo apt-get install python-setuptools python-dev build-essential
```





```
Setting up libasan5:amd64 (9.3.0-17ubuntu1~20.04) ...
Setting up cpp-9 (9.3.0-17ubuntu1~20.04) ...
Setting up libc6-dev:amd64 (2.31-0ubuntu9.1) ...
Setting up python-is-python2 (2.7.17-4) ...
Setting up binutils-x86-64-linux-gnu (2.34-6ubuntu1) ...
Setting up python-pkg-resources (44.0.0-2) ...
Setting up binutils (2.34-6ubuntu1) ...
Setting up dpkg-dev (1.19.7ubuntu3) ...
Setting up libgcc-9-dev:amd64 (9.3.0-17ubuntu1~20.04) ...
Setting up libexpat1-dev:amd64 (2.2.9-1build1) ...
Setting up python-setuptools (44.0.0-2) ...
Setting up cpp (4:9.3.0-1ubuntu2) ...
Setting up gcc-9 (9.3.0-17ubuntu1~20.04) ...
Setting up libpython2.7-dev:amd64 (2.7.18-1~20.04) ...
Setting up libstdc++-9-dev:amd64 (9.3.0-17ubuntu1~20.04) ...
Setting up gcc (4:9.3.0-1ubuntu2) ...
Setting up g++-9 (9.3.0-17ubuntu1~20.04) ...
Setting up g++ (4:9.3.0-1ubuntu2) ...
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mode
Setting up build-essential (12.8ubuntu1) ...
Setting up libpython2-dev:amd64 (2.7.17-2ubuntu4) ...
Setting up python2.7-dev (2.7.18-1~20.04) ...
Setting up python2-dev (2.7.17-2ubuntu4) ...
Setting up python-dev-is-python2 (2.7.17-4) ...
Processing triggers for libc-bin (2.31-0ubuntu9.1) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for mime-support (3.64ubuntu1) ...
kim_dongchul@myserver:~$
```

```
kim_dongchul@myserver:~$ python3
```

```
Python 3.8.5 (default, Jul 28 2020, 12:59:40)
```

```
[GCC 9.3.0] on linux
```

```
Type "help", "copyright", "credits" or "license" for more information.
```

```
>>>
```

```
kim_dongchul@myserver:~$ sudo apt-get install python3-pip
```

```
kim_dongchul@myserver:~$ sudo pip3 install flask
```

```
kim_dongchul@myserver:~$ sudo pip3 install flask
```

```
Collecting flask
```

```
  Downloading Flask-1.1.2-py2.py3-none-any.whl (94 kB)
```

```
    |████████████████████████████████████████| 94 kB 1.8 MB/s
```

```
Requirement already satisfied: click>=5.1 in /usr/lib/python3/dist-packages (from flask) (7.0)
```

```
Requirement already satisfied: Jinja2>=2.10.1 in /usr/lib/python3/dist-packages (from flask) (2.10.1)
```

```
Collecting Werkzeug>=0.15
```

```
  Downloading Werkzeug-1.0.1-py2.py3-none-any.whl (298 kB)
```

```
    |████████████████████████████████████████| 298 kB 9.6 MB/s
```

```
Collecting itsdangerous>=0.24
```

```
  Downloading itsdangerous-1.1.0-py2.py3-none-any.whl (16 kB)
```

```
Installing collected packages: Werkzeug, itsdangerous, flask
```

```
Successfully installed Werkzeug-1.0.1 flask-1.1.2 itsdangerous-1.1.0
```

```
kim_dongchul@myserver:~$ sudo python3 hello.py
```

```
* Serving Flask app "hello" (lazy loading)
```

```
* Environment: production
```

```
  WARNING: This is a development server. Do not use it in a production deployment.
```

```
  Use a production WSGI server instead.
```

```
* Debug mode: off
```

```
* Running on http://0.0.0.0:80/ (Press CTRL+C to quit)
```

# Hello, Dr. Kim

# Lab 24

Set up a compute engine on Google Cloud and deploy a basic Flask application that displays your name on a webpage. Please provide a screenshot of the web browser showing your Flask application's output.

# Standalone WSGI Containers

```
sudo python3 hello.py &
```

is not enough if you think a production. While it is lightweight and easy to use, Flask's built-in server is not suitable for production as it doesn't scale well and by default serves only one request at a time.

There are popular servers written in Python that contain WSGI applications and serve HTTP. These servers stand alone when they run. For example,

```
https://gunicorn.org/
```

# HTTPS

If you expect more secure application, you can use https. Here is a good article for it.

<https://blog.miguelgrinberg.com/post/running-your-flask-application-over-https>