GCP:

1. Using GC I created a virtual machine.
2. I added all the necessary options to have the cheapest VM.
3. Checked off ‘HTTP’ and ‘HTTPS’ to add Firewall rules and allow specific network traffic from the internet.
4. I used NameCheap to create my personal Domain and linked the external IP to the domain.

VSC:

1. I cloned my github repo into VSC and tried running the Flask code set.

SSH:

1. When trying to clone my github repo into this environment I ran into trouble multiple times.
2. I was not running into any errors but the domain would not work after multiple attempts.

GitHub:

1. I decided to check to see if the repo had updated from VSC and realized it had not.
2. I decided to rerun my steps and restart from the beginning.

VSC:

1. In checking my steps in VSC I realized I never implemented a virtual environment to run Flask.
2. Once I did this I repeated my steps.

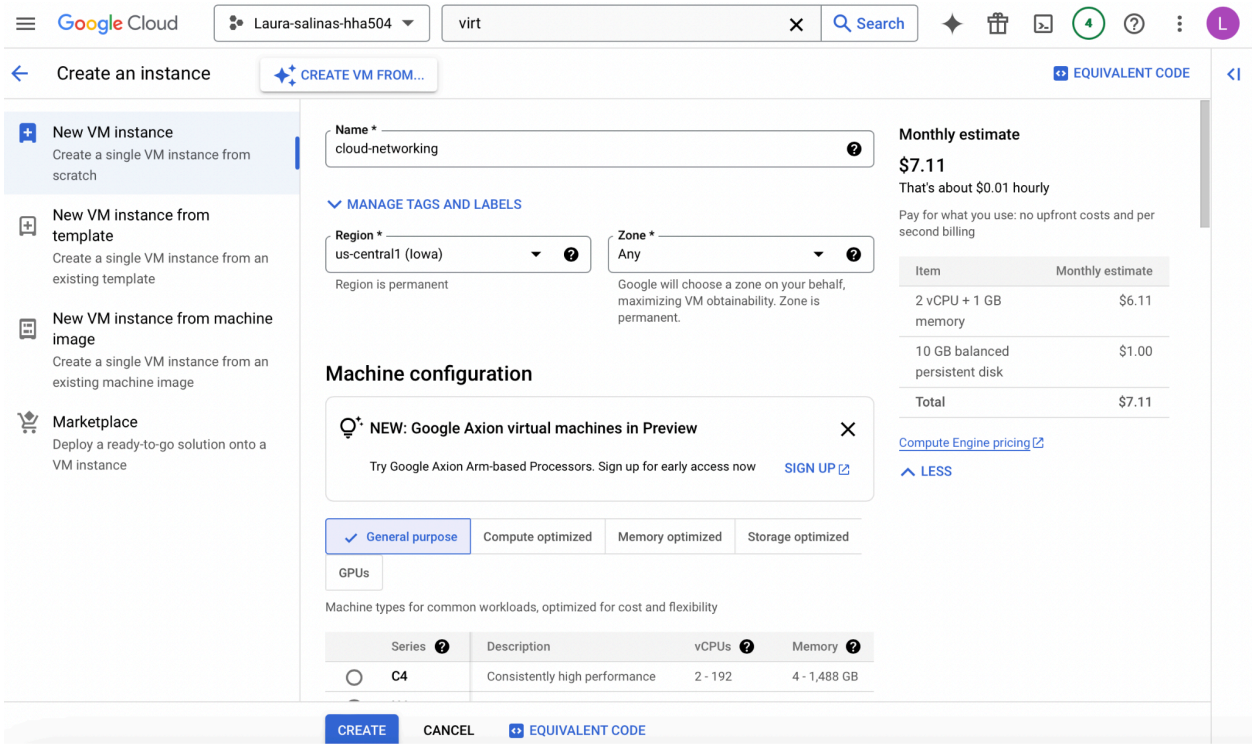
GCP:

1. At this point everything ran smoothly until I realized I had not set up firewall rules for ports 80, and 443.

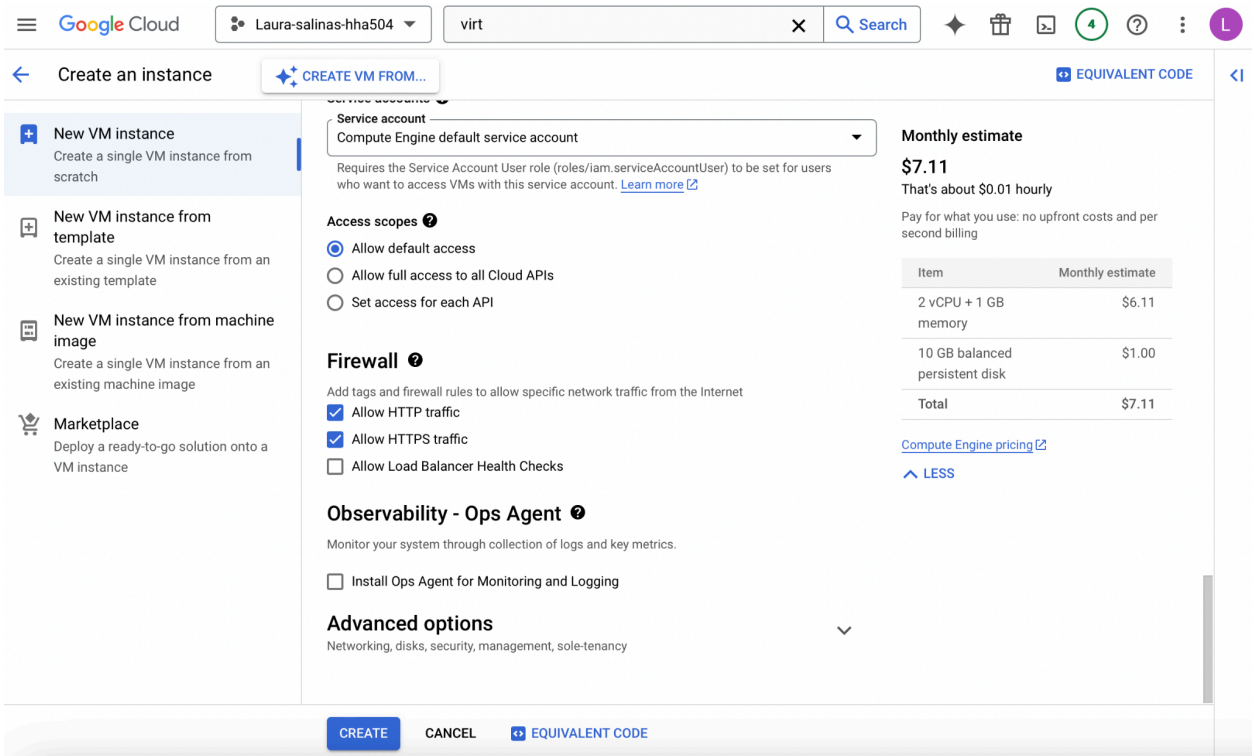
SSH:

1. Once these rules were in place I retested the domain and everything ran smoothly.

1.


Google Cloud
Laura-salinas-hha504
virt
Search
Create an instance
CREATE VM FROM...
EQUIVALENT CODE
New VM instance
Create a single VM instance from scratch
New VM instance from template
Create a single VM instance from an existing template
New VM instance from machine image
Create a single VM instance from an existing machine image
Marketplace
Deploy a ready-to-go solution onto a VM instance
Name *
cloud-networking
MANAGE TAGS AND LABELS
Region *
us-central1 (Iowa)
Region is permanent
Zone *
Any
Google will choose a zone on your behalf, maximizing VM obtainability. Zone is permanent.
Machine configuration
NEW: Google Axion virtual machines in Preview
Try Google Axion Arm-based Processors. Sign up for early access now
SIGN UP
General purpose
Compute optimized
Memory optimized
Storage optimized
GPUs
Machine types for common workloads, optimized for cost and flexibility
Series
Description
vCPUs
Memory
C4
Consistently high performance
2 - 192
4 - 1,488 GB
Monthly estimate
$7.11
That's about $0.01 hourly
Pay for what you use: no upfront costs and per second billing
Item
Monthly estimate
2 vCPU + 1 GB memory
$6.11
10 GB balanced persistent disk
$1.00
Total
$7.11
Compute Engine pricing
LESS
CREATE
CANCEL
EQUIVALENT CODE

2.


Google Cloud
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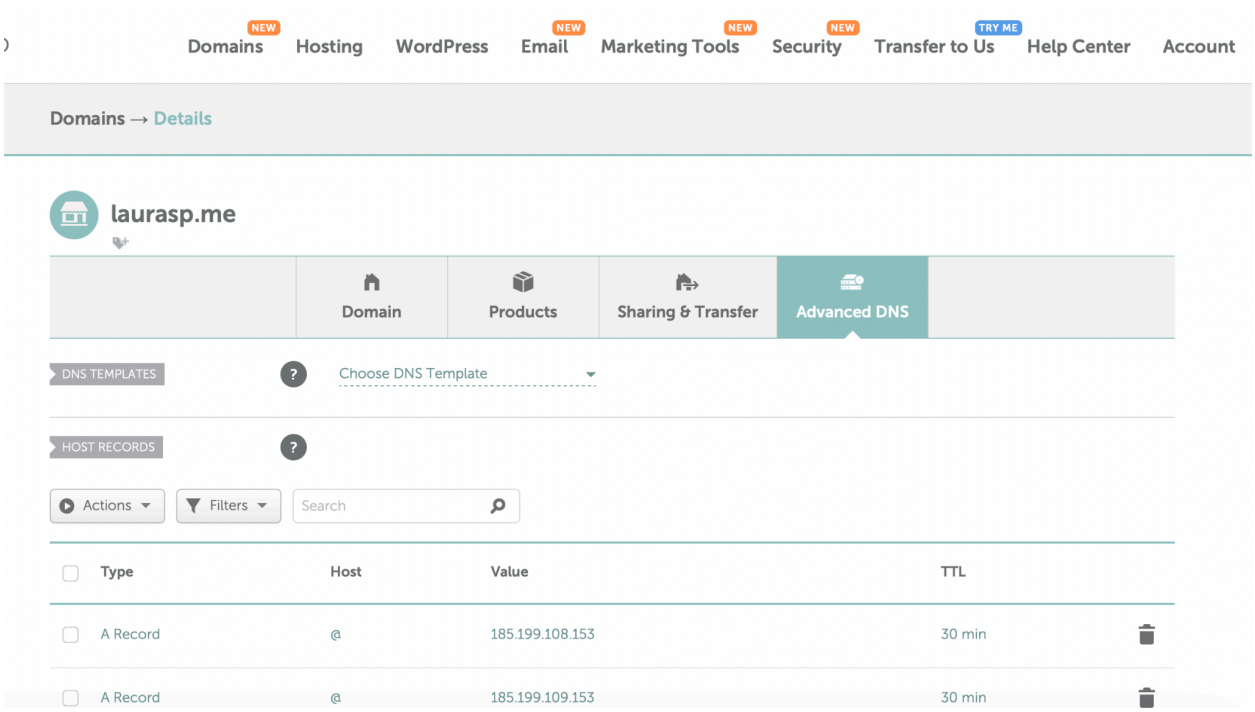
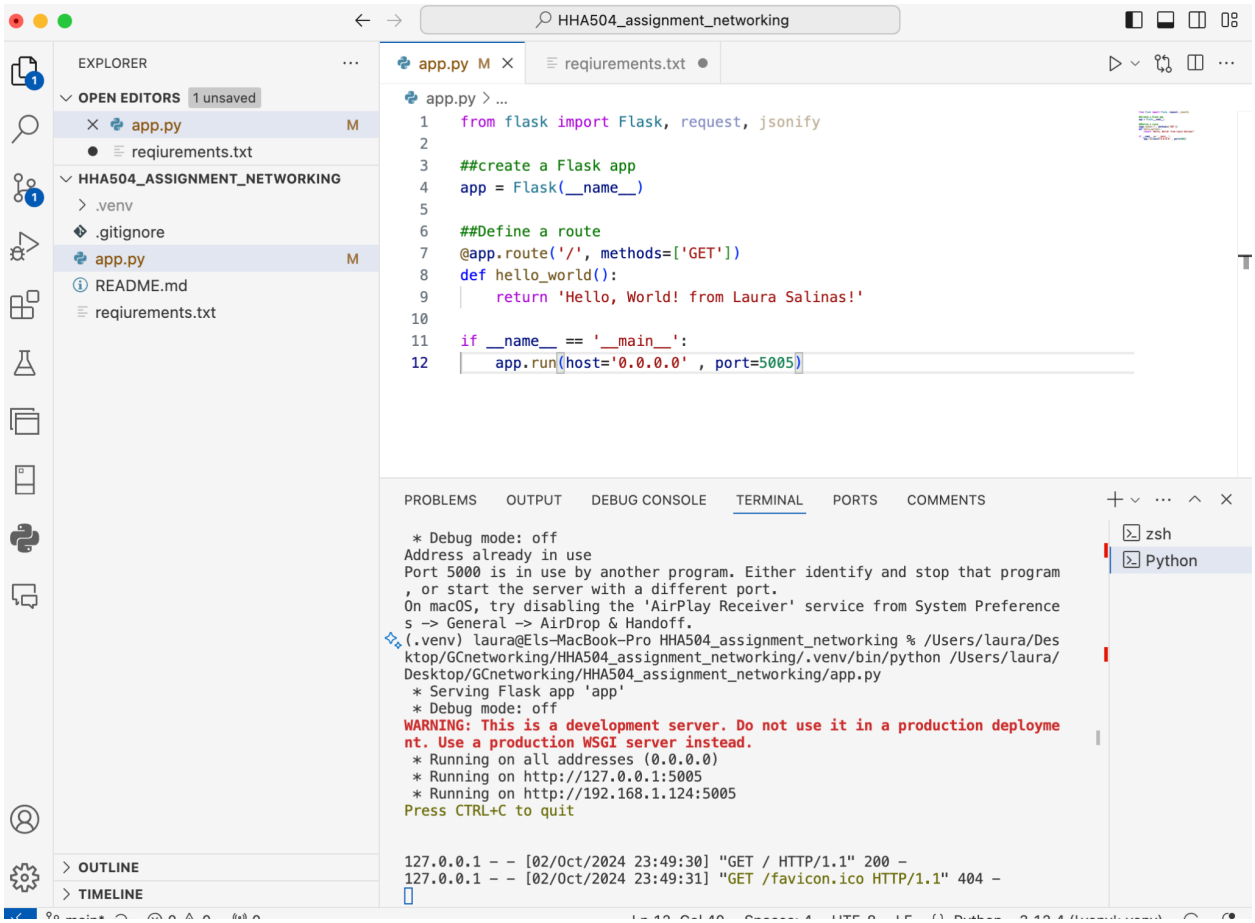
Create a single VM instance from an existing machine image
Marketplace
Deploy a ready-to-go solution onto a VM instance
Service account
Compute Engine default service account
Requires the Service Account User role (roles/iam.serviceAccountUser) to be set for users who want to access VMs with this service account. Learn more
Access scopes
Allow default access
Allow full access to all Cloud APIs
Set access for each API
Firewall
Add tags and firewall rules to allow specific network traffic from the Internet
Allow HTTP traffic
Allow HTTPS traffic
Allow Load Balancer Health Checks
Observability - Ops Agent
Monitor your system through collection of logs and key metrics.
Install Ops Agent for Monitoring and Logging
Advanced options
Networking, disks, security, management, sole-tenancy
Monthly estimate
$7.11
That's about $0.01 hourly
Pay for what you use: no upfront costs and per second billing
Item
Monthly estimate
2 vCPU + 1 GB memory
$6.11
10 GB balanced persistent disk
$1.00
Total
$7.11
Compute Engine pricing
LESS
CREATE
CANCEL
EQUIVALENT CODE

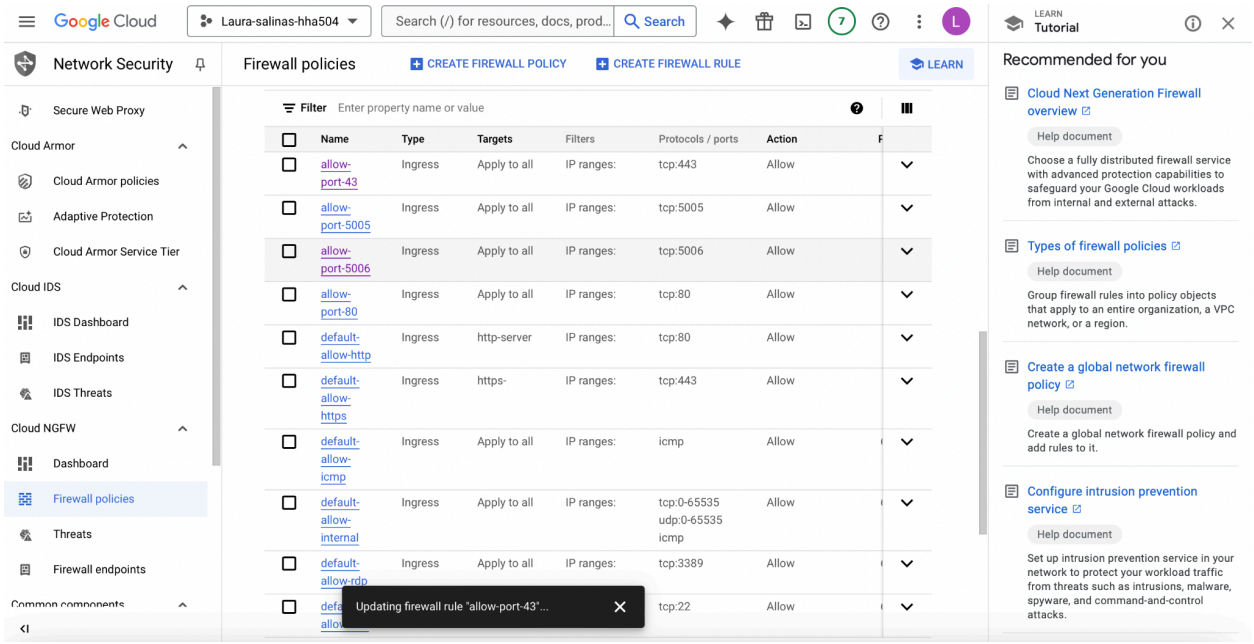
3.


Domains
Hosting
WordPress
Email
Marketing Tools
Security
Transfer to Us
Help Center
Account
Domains → Details
laurasp.me
Domain
Products
Sharing & Transfer
Advanced DNS
DNS TEMPLATES
Choose DNS Template
HOST RECORDS
Actions
Filters
Search
Type
Host
Value
TTL
A Record
@
185.199.108.153
30 min
A Record
@
185.199.109.153
30 min

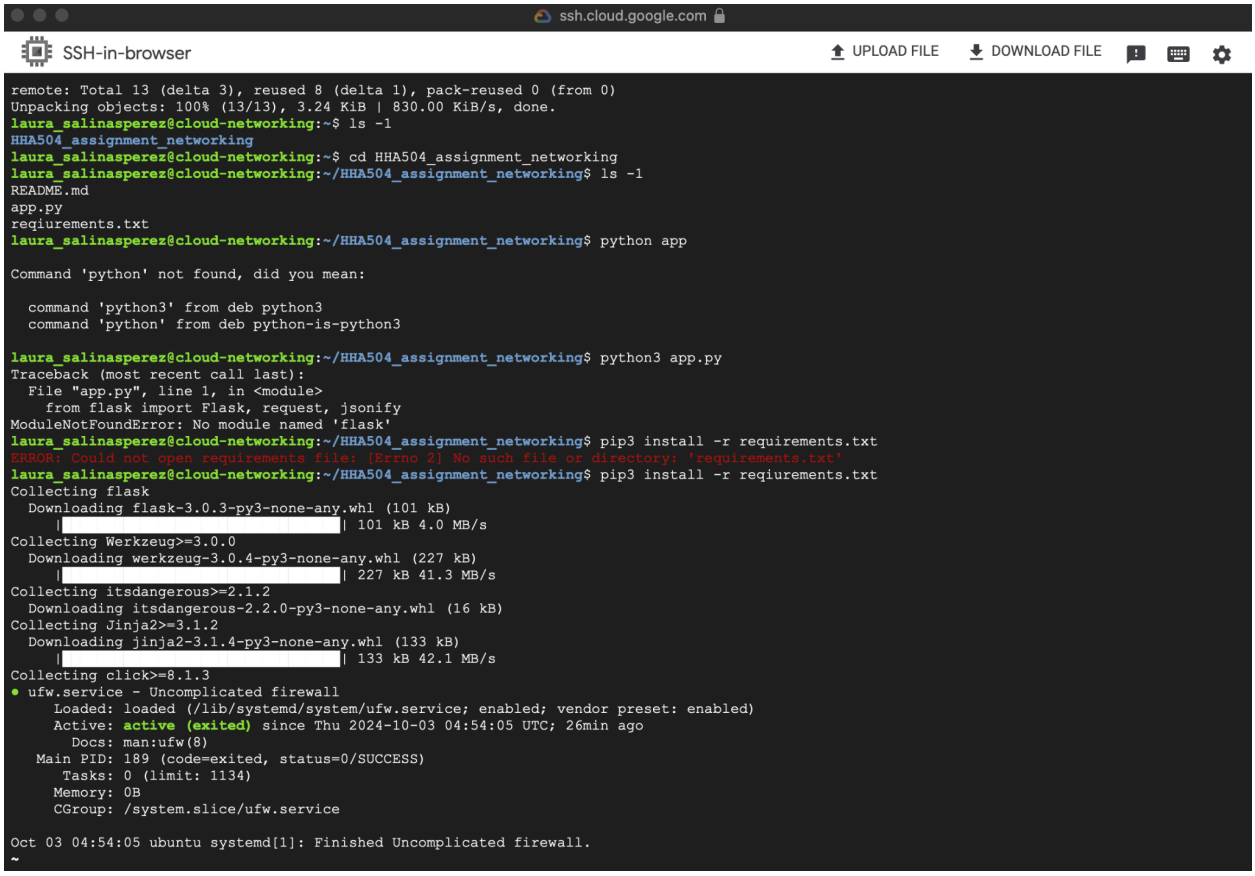
4.

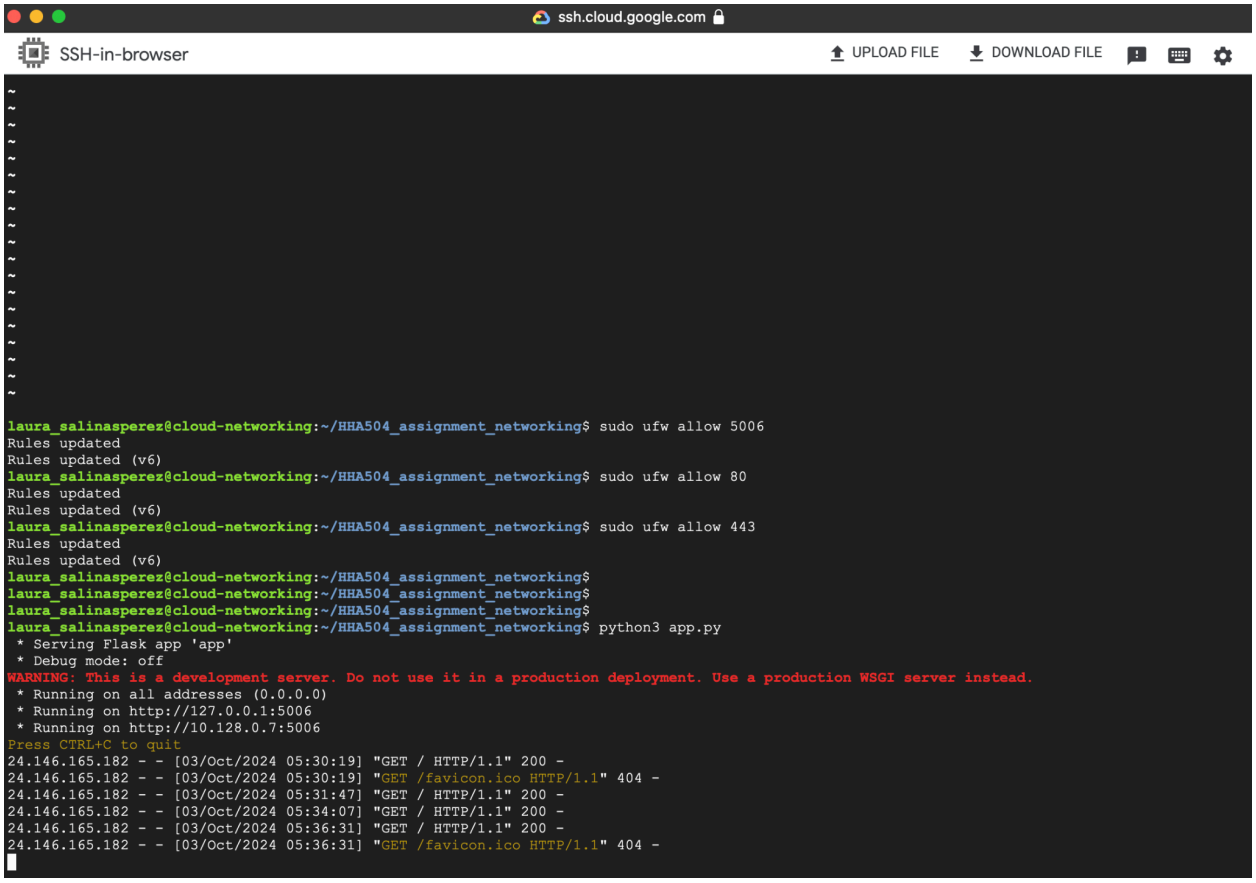

HHA504_assignment_networking
EXPLORER
OPEN EDITORS 1 unsaved
app.py M
reqiurements.txt
HHA504_ASSIGNMENT_NETWORKING
.venv
.gitignore
app.py M
README.md
reqiurements.txt
OUTLINE
TIMELINE
app.py M
reqiurements.txt
app.py > ...
1 from flask import Flask, request, jsonify
2
3 ##create a Flask app
4 app = Flask(__name__)
5
6 ##Define a route
7 @app.route('/', methods=['GET'])
8 def hello_world():
9 return 'Hello, World! from Laura Salinas!'
10
11 if __name__ == '__main__':
12 app.run(host='0.0.0.0' , port=5005)
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
COMMENTS
zsh
Python
* Debug mode: off
Address already in use
Port 5000 is in use by another program. Either identify and stop that program
, or start the server with a different port.
On macOS, try disabling the 'AirPlay Receiver' service from System Preference
s -> General -> AirDrop & Handoff.
(.venv) laura@Els-MacBook-Pro HHA504_assignment_networking % /Users/laura/Des
ktop/GCnetworking/HHA504_assignment_networking/.venv/bin/python /Users/laura/
Desktop/GCnetworking/HHA504_assignment_networking/app.py
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployme
nt. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5005
* Running on http://192.168.1.124:5005
Press CTRL+C to quit
127.0.0.1 - - [02/Oct/2024 23:49:30] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [02/Oct/2024 23:49:31] "GET /favicon.ico HTTP/1.1" 404 -

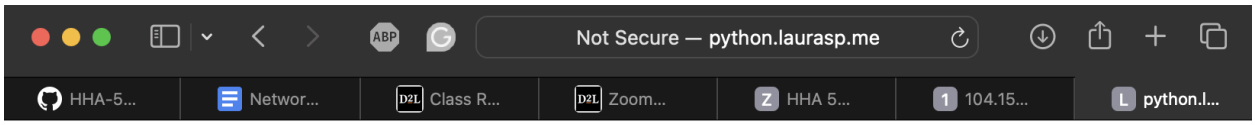
5.


Google Cloud
Laura-salinas-hha504
Search (/) for resources, docs, prod...
Search
Network Security
Firewall policies
CREATE FIREWALL POLICY
CREATE FIREWALL RULE
LEARN
Secure Web Proxy
Cloud Armor
Cloud Armor policies
Adaptive Protection
Cloud Armor Service Tier
Cloud IDS
IDS Dashboard
IDS Endpoints
IDS Threats
Cloud NGFW
Dashboard
Firewall policies
Threats
Firewall endpoints
Filter
Enter property name or value
Name
Type
Targets
Filters
Protocols / ports
Action
allow-port-43
allow-port-5005
allow-port-5006
allow-port-80
default-allow-http
default-allow-https
default-allow-icmp
default-allow-internal
default-allow-rdp
Updating firewall rule "allow-port-43"...
LEARN
Tutorial
Recommended for you
Cloud Next Generation Firewall overview
Help document
Choose a fully distributed firewall service with advanced protection capabilities to safeguard your Google Cloud workloads from internal and external attacks.
Types of firewall policies
Help document
Group firewall rules into policy objects that apply to an entire organization, a VPC network, or a region.
Create a global network firewall policy
Help document
Create a global network firewall policy and add rules to it.
Configure intrusion prevention service
Help document
Set up intrusion prevention service in your network to protect your workload traffic from threats such as intrusions, malware, spyware, and command-and-control attacks.

6.


ssh.cloud.google.com
SSH-in-browser
UPLOAD FILE
DOWNLOAD FILE
remote: Total 13 (delta 3), reused 8 (delta 1), pack-reused 0 (from 0)
Unpacking objects: 100% (13/13), 3.24 KiB | 830.00 KiB/s, done.
laura_salinasperez@cloud-networking:~$ ls -1
HHA504_assignment_networking
laura_salinasperez@cloud-networking:~$ cd HHA504_assignment_networking
laura_salinasperez@cloud-networking:~/HHA504_assignment_networking$ ls -1
README.md
app.py
requirements.txt
laura_salinasperez@cloud-networking:~/HHA504_assignment_networking$ python app
Command 'python' not found, did you mean:
command 'python3' from deb python3
command 'python' from deb python-is-python3
laura_salinasperez@cloud-networking:~/HHA504_assignment_networking$ python3 app.py
Traceback (most recent call last):
File "app.py", line 1, in <module>
from flask import Flask, request, jsonify
ModuleNotFoundError: No module named 'flask'
laura_salinasperez@cloud-networking:~/HHA504_assignment_networking$ pip3 install -r requirements.txt
ERROR: Could not open requirements file: [Errno 2] No such file or directory: 'requirements.txt'
laura_salinasperez@cloud-networking:~/HHA504_assignment_networking$ pip3 install -r requirements.txt
Collecting flask
Downloading flask-3.0.3-py3-none-any.whl (101 kB)
101 kB 4.0 MB/s
Collecting Werkzeug>=3.0.0
Downloading werkzeug-3.0.4-py3-none-any.whl (227 kB)
227 kB 41.3 MB/s
Collecting itsdangerous>=2.1.2
Downloading itsdangerous-2.2.0-py3-none-any.whl (16 kB)
Collecting Jinja2>=3.1.2
Downloading jinja2-3.1.4-py3-none-any.whl (133 kB)
133 kB 42.1 MB/s
Collecting click>=8.1.3
ufw.service - Uncomplicated firewall
Loaded: loaded (/lib/systemd/system/ufw.service; enabled; vendor preset: enabled)
Active: active (exited) since Thu 2024-10-03 04:54:05 UTC; 26min ago
Docs: man:ufw(8)
Main PID: 189 (code=exited, status=0/SUCCESS)
Tasks: 0 (limit: 1134)
Memory: 0B
CGroup: /system.slice/ufw.service
Oct 03 04:54:05 ubuntu systemd[1]: Finished Uncomplicated firewall.
~

7. 
ssh.cloud.google.com
SSH-in-browser
UPLOAD FILE
DOWNLOAD FILE
laura_salinasperez@cloud-networking:~/HHA504_assignment_networking$ sudo ufw allow 5006
Rules updated
Rules updated (v6)
laura_salinasperez@cloud-networking:~/HHA504_assignment_networking$ sudo ufw allow 80
Rules updated
Rules updated (v6)
laura_salinasperez@cloud-networking:~/HHA504_assignment_networking$ sudo ufw allow 443
Rules updated
Rules updated (v6)
laura_salinasperez@cloud-networking:~/HHA504_assignment_networking$
laura_salinasperez@cloud-networking:~/HHA504_assignment_networking$
laura_salinasperez@cloud-networking:~/HHA504_assignment_networking$
laura_salinasperez@cloud-networking:~/HHA504_assignment_networking$ python3 app.py
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5006
* Running on http://10.128.0.7:5006
Press CTRL+C to quit
24.146.165.182 - - [03/Oct/2024 05:30:19] "GET / HTTP/1.1" 200 -
24.146.165.182 - - [03/Oct/2024 05:30:19] "GET /favicon.ico HTTP/1.1" 404 -
24.146.165.182 - - [03/Oct/2024 05:31:47] "GET / HTTP/1.1" 200 -
24.146.165.182 - - [03/Oct/2024 05:34:07] "GET / HTTP/1.1" 200 -
24.146.165.182 - - [03/Oct/2024 05:36:31] "GET / HTTP/1.1" 200 -
24.146.165.182 - - [03/Oct/2024 05:36:31] "GET /favicon.ico HTTP/1.1" 404 -



Hello, World! from Laura Salinas!

8.

AZURE:

I was not able to deploy a VM on Azure due to cost restrictions.