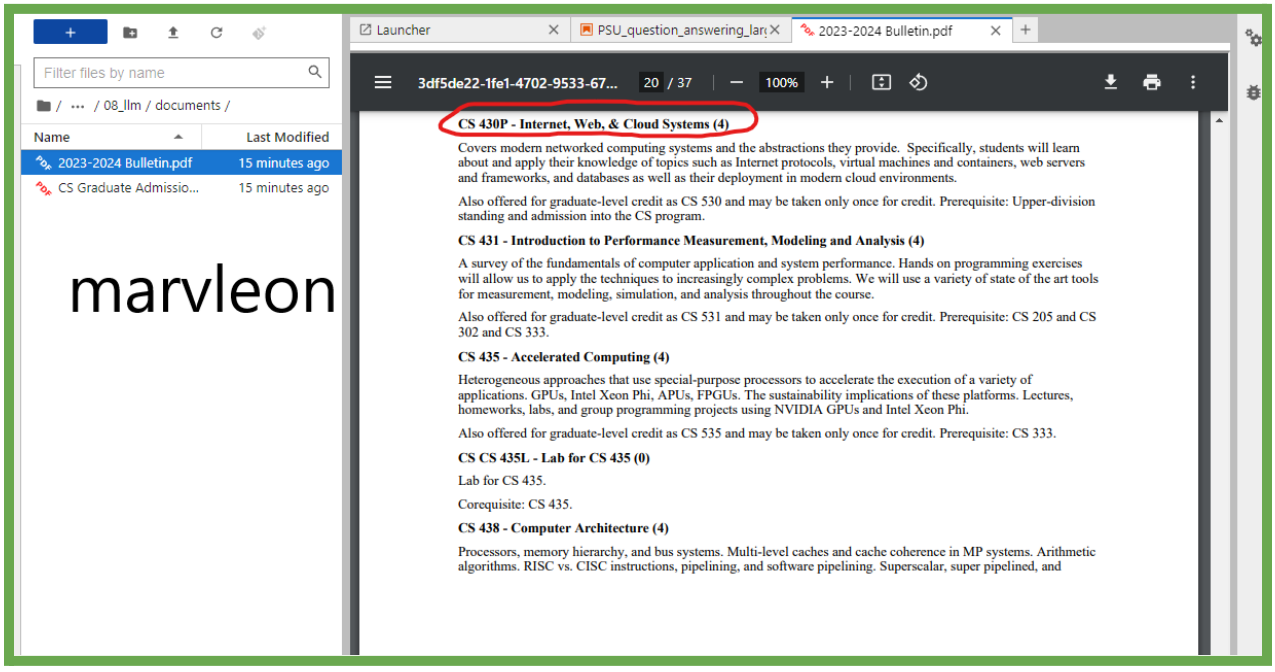
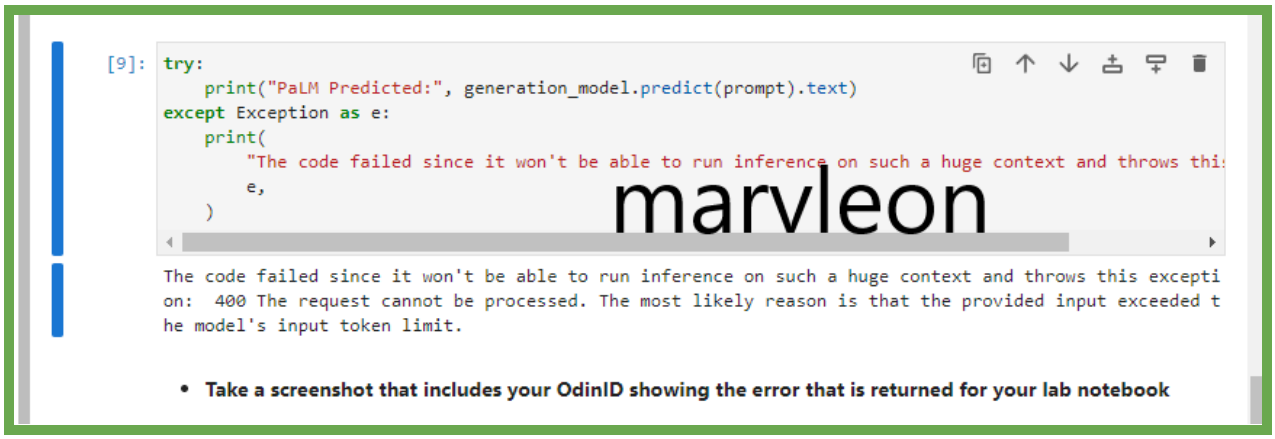
Lab Week 10 — marvleon

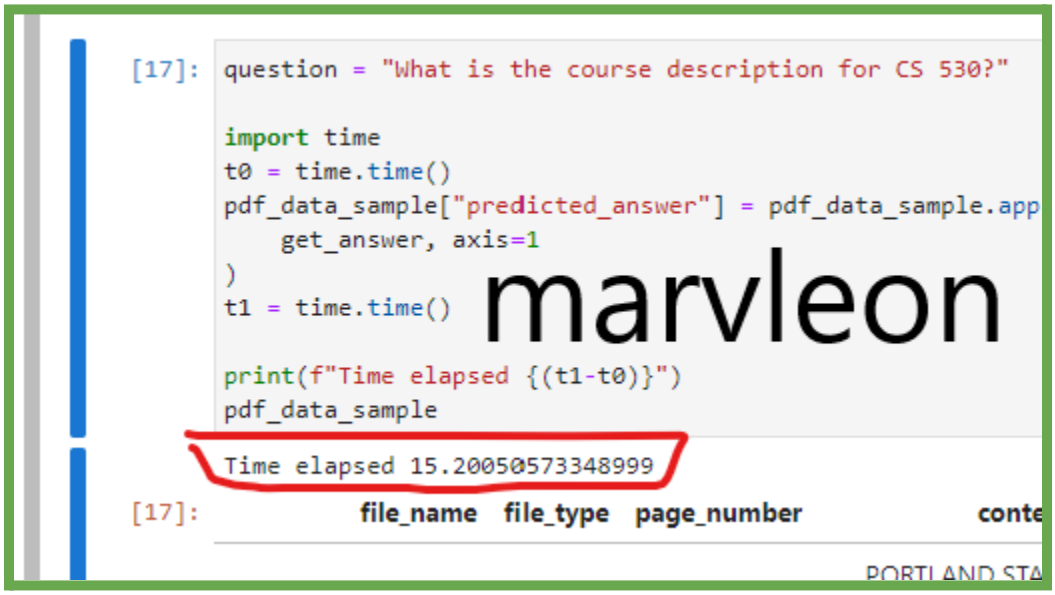
10.1g: LLMs

10.1.4 Walk though notebook





- ***Provide an explanation as to why the description is not returned for your lab notebook***
    - The description is not returned because the answer/result was not within the context.



- ***How many chunks returned predictions?***
    - 5

```
print( "PaLM Predicted: ", generation_model.predict(prompt).text)
```

```
the prompt:  Answer the question as precise as possible using the provided context. If the answer is
             not contained in the context, say "answer not available in context"


           Context:
 ['Internet, Web, Cloud Systems', 'Internet, Web, Cloud Systems', 'Covers modern networked computing s
ystems and the abstractions they provide Specifically, students will learn about and apply their knowl
edge of topics such as Internet protocols, virtual machines and containers, web servers and framework
s, and databases as well as their deployment in modern cloud environments', 'Covers mo dern networked
computing systems and the abstractions they provide Specifically, students will learn about and apply
their knowledge of topics such as Internet protocols, virtual machines and containers, web servers and
frameworks, and databases as well as their deployment in modern cloud environments Also offered for gr
aduate -level credit as CS 430P and may be taken only once for credit Prerequisite: Graduate - standin
g and admission into CS program', 'Advanced software design patterns using Java as the presentation la
nguage Course is suitable to software architects and developers who are already well -versed in this l
anguage In addition, it offers continuous opportunities for learning the most advanced featur es of th
e Java language and understanding some principles behind the design of its fundamental libraries Also
offered as CS 653 and may be taken only once for credit Prerequisite: programming in Java and CS 52
0']?

           Question:
 What is the course description for CS 530?

           Answer:

the number of words in the prompt:  1623
PaLM Predicted: Covers modern networked computing systems and the abstractions they provide Specifical
ly, students will learn about and apply their knowledge of topics such as Internet protocols, virtual
machines and containers, web servers and frameworks, and databases as well as their deployment in mode
rn cloud environments Also offered for graduate -level credit as CS 430P and may be taken only once fo
r credit Prerequisite: Graduate - standing and admission into CS program
```


- **Take a screenshot that includes your OdinID showing the result that is returned for your lab notebook**

There are several pros and cons to this method of performing this task compared to Stuffing:

Then, run the cells below to get responses to common questions we get in Computer Science.

```
[29]: print(answer_my_question("Are international students eligible for grad prep?"))
```

```
Yes, international students are eligible for the postbaccalaureate Grad Prep program and can receive a
n I-20 for the program.
```

```
[30]: uestion("If my undergraduate GPA is below 3.0, will it be possible to be admitted to the MS program?"))
```

```
It is possible for an applicant to be recommended for admission whose undergraduate GPA is slightly be
low 3.0 if their overall application is very strong and the admissions committee determines that the a
pplicant is a good fit for the program. It is recommended that an applicant's low GPA be addressed in
their Statement of Purpose within their application.
```

```
[31]: print(answer_my_question("What are the requirements for the masters cybersecurity certificate?"))
```

```
The cybersecurity certificate program requires admission as a graduate student, similar to admission t
o the Master's program, in the Computer Science department. The program requires 21 total credits of g
raduate classes. There are two core classes for a total of 6 credits. In addition, five elective class
es must be taken for the needed additional 15 credits. In summary, seven total graduate classes must b
e taken two are core and five are electives.
```

```
[32]: print(answer_my_question("What are the requirements for admission to the Computer Science major?"))
```

```
1. Completion of each of the following core CS courses with a C or better: CS 161 Introduction to Prog
ramming and Problem Solving 4

2. Completion of each of the following non-CS courses with a grade of C- or better: MTH 251 Calculus I
MTH 252 Calculus II or MTH 261 Linear Algebra Three Approved Laboratory Science courses

3. Prior to admission, PSU students are expected to complete the Freshman and Sophomore Inquiry serie
s. Similarly, transfer students are expected to complete the Maseeh College lower division general edu
cation requirements. Completing the general
```

```
[33]: print(answer_my_question("What are the requirements for admission to the Computer Science major?"))
```

```
1. Completion of each of the following core CS courses with a C or better: CS 161 Introduction to Prog
ramming and Problem Solving 4

2. Completion of each of the following non-CS courses with a grade of C- or better: MTH 251 Calculus I
MTH 252 Calculus II or MTH 261 Linear Algebra Three Approved Laboratory Science courses

3. Prior to admission, PSU students are expected to complete the Freshman and Sophomore Inquiry serie
s. Similarly, transfer students are expected to complete the Maseeh College lower division general edu
cation requirements. Completing the general
```


- **Take a screenshot including your OdinID that shows the results of the queries**

10.1.5 Final questions

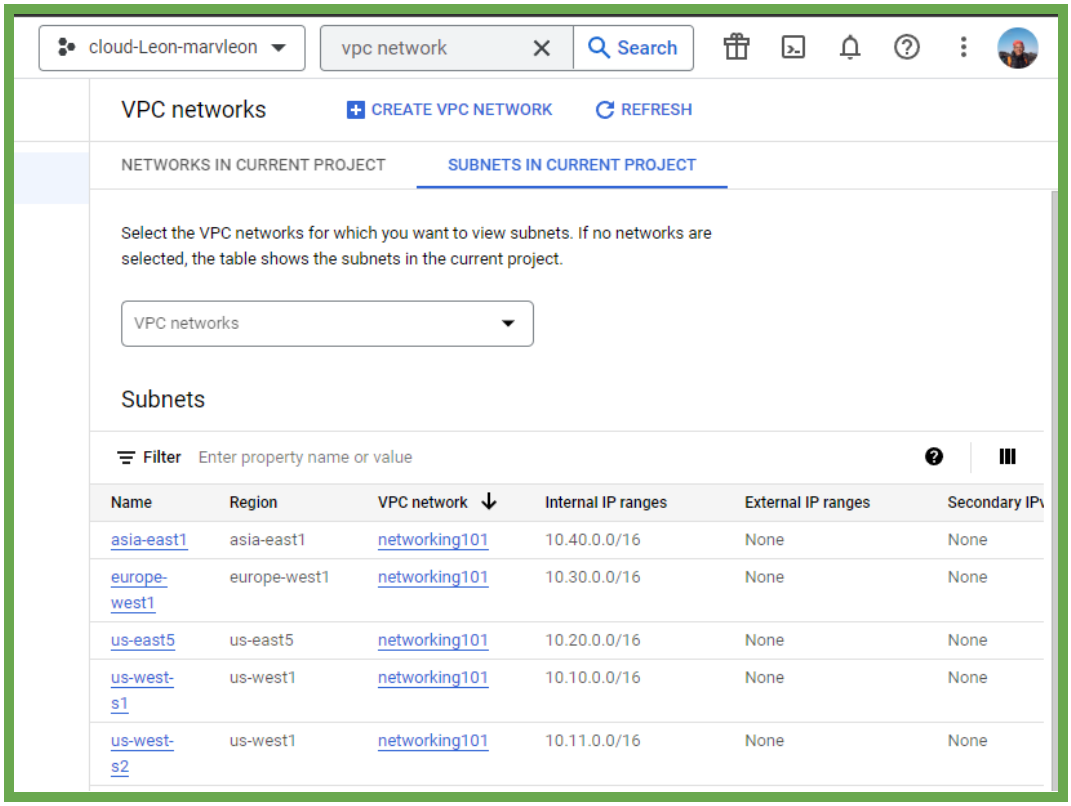
- ***Which of the approaches described would have issues with token limits on LLMs?***
    - Definitely the method of Stuffing!
- ***Which of the approaches would result in the most queries for the LLM to handle? How many LLM requests are performed from a single user query in this approach?***
    - Map reduce would probably result in the most queries.
    - 41 requests
- ***Which of the approaches requires one to search a vector database for an appropriate context that is then sent to the LLM?***
    - Map Reduce Embedding

10.2g CDN

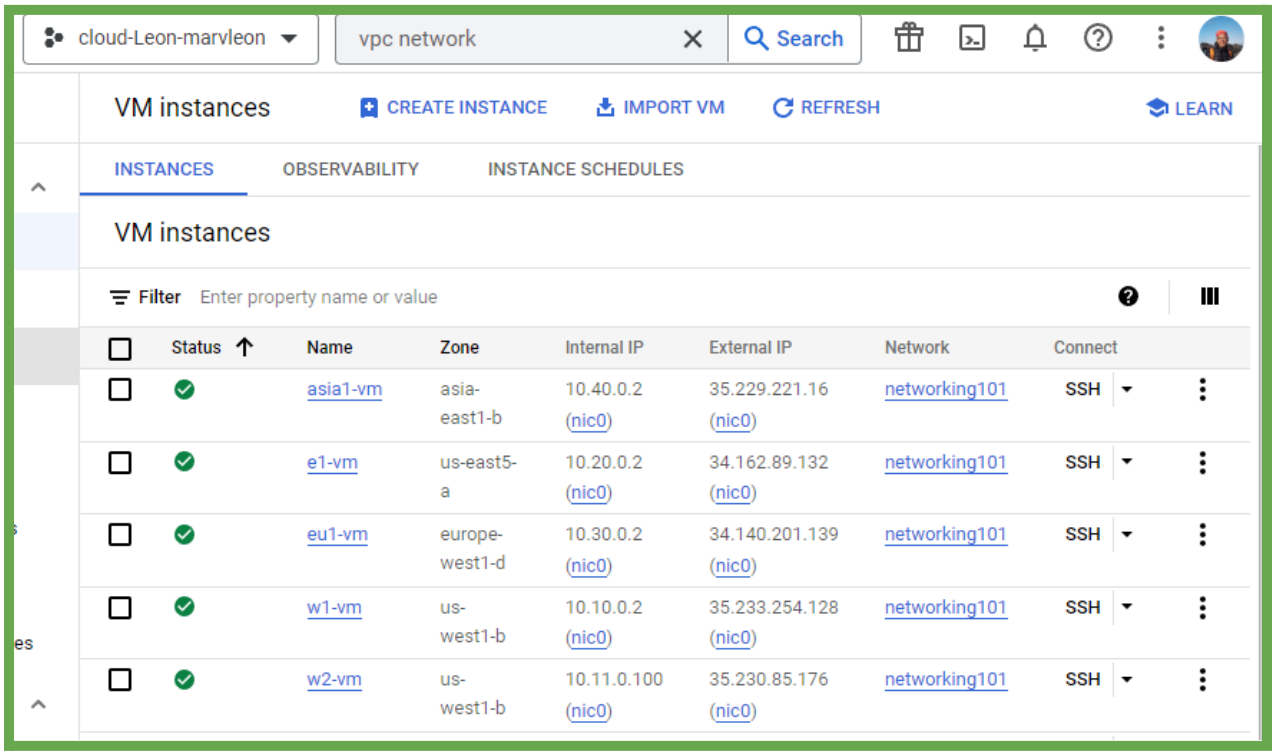
10.2.6 Deployment

```
marvleon@cloudshell:~/code/networking101 (cloud-leon-marvleon)$ gcloud deployment-manager deployments create networking101 --config networking-lab.yaml
The fingerprint of the deployment is b'icFjss0npqvBRVedfSUvxQ=='
Waiting for create [operation-1701727482666-60bb64e1bdc8e-a97e7f14-829d72e3]...done.
Create operation operation-1701727482666-60bb64e1bdc8e-a97e7f14-829d72e3 completed successfully.
NAME: asia-east1
TYPE: compute.v1.subnetwork
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: asia1-vm
TYPE: compute.v1.instance
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: e1-vm
TYPE: compute.v1.instance
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: eu1-vm
TYPE: compute.v1.instance
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: europe-west1
TYPE: compute.v1.subnetwork
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: networking101
TYPE: compute.v1.network
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: us-east5
TYPE: compute.v1.subnetwork
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: us-west-s1
TYPE: compute.v1.subnetwork
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: us-west-s2
TYPE: compute.v1.subnetwork
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: w1-vm
TYPE: compute.v1.instance
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: w2-vm
TYPE: compute.v1.instance
STATE: COMPLETED
ERRORS: []
INTENT:
marvleon@cloudshell:~/code/networking101 (cloud-leon-marvleon)$
```

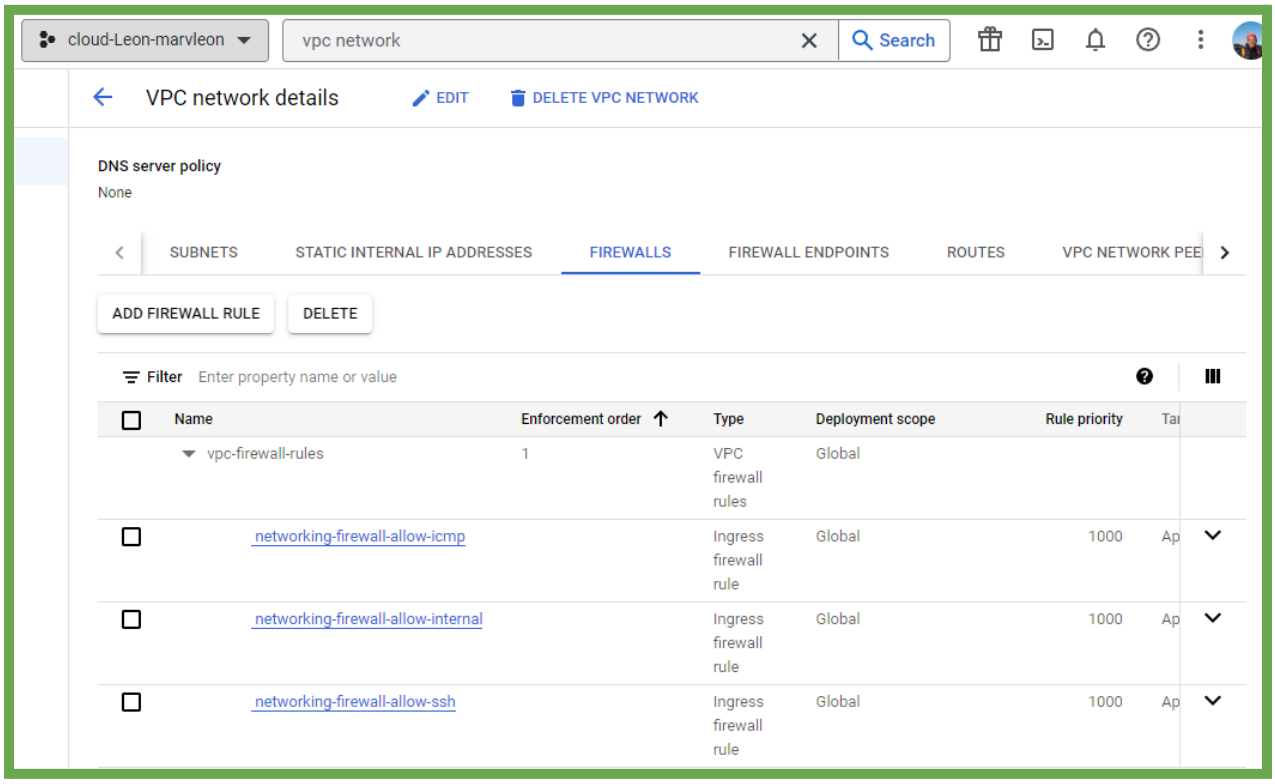
- ***How many networks, subnetworks and VM instances have been created?***
    - 11 (5 subnetworks, 5 instances, 1 network)



- ***Did it succeed?***
    - No, stuck on establishing connection to SSH server…



10.2.9 Latency measurements



10.2.9 Latency measurements

Location pair	ideal latency	measured latency
us-west1 us-east5	~45 ms	49 ms
us-west1 europe-west1	~93 ms	133 ms
us-west1 asia-east1	~114 ms	116 ms
us-east5 europe-west1	~76 ms	88 ms
us-east5 asia-east1	~141 ms	174 ms
europe-west1 asia-east1	~110 ms	249 ms

10.2.16 Test Groups

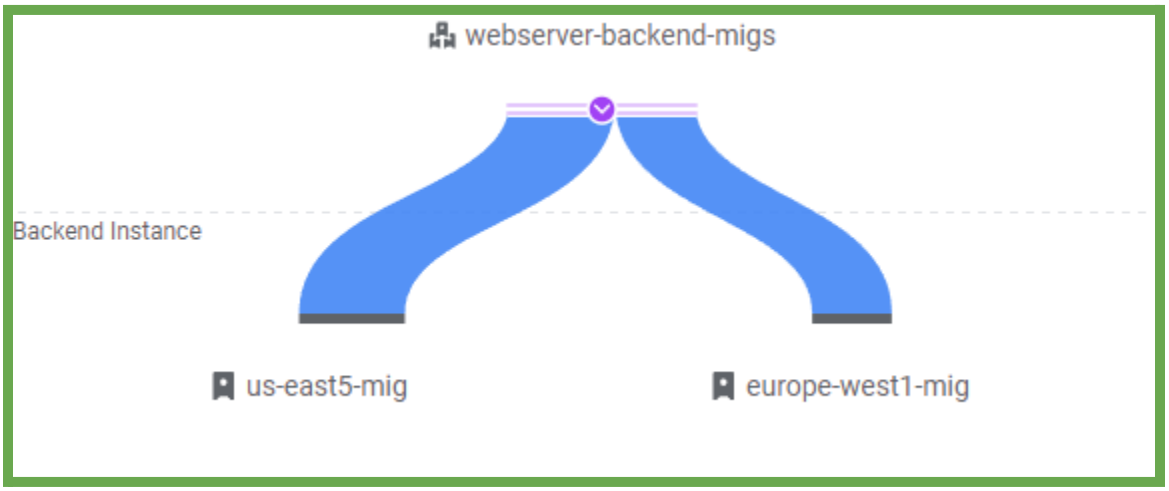
- ***Are the instances in the same availability zone or in different ones?***
    - Different

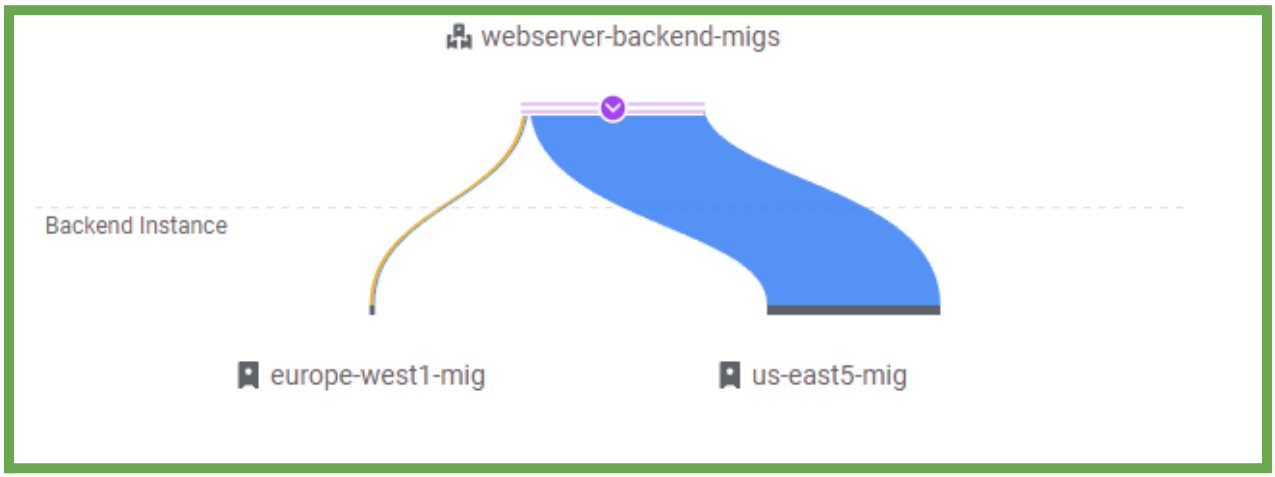
- ***List all availability zones that your servers show up in for your lab notebook.***
    - europe-west1-c
    - europe-west1-d
    - europe-west1-b
    - us-east5-b

10.2.19 Test load balancer

- ***Which availability zone does the server handling your request reside in?***
    - us-east5-b

10.2.20 Siege (Part 1)





10.2.21 Siege! (Part 2)