

1. Cloud Run

- No screenshots or observations

2. Application

- No screenshots or observations

3. templates/proxy.html

```
<input id=url_input></input>
<script>
    var input = document.getElementById("url_input");
    input.addEventListener("keyup", function(event) {
        if (event.keyCode === 13) {
            event.preventDefault();
            url = input.value;
            window.location.href = "/codd-secret-firewall-bypass-proxy?url=" + url;
        }
    });
</script>
~
~
~
~
```

4. app.py

```
from flask import Flask, redirect, request, url_for, render_template
import requests
import os

app = Flask(__name__)

@app.route("/")
def page():
    return "<html><body><h1>Hello World</h1>There is nothing to see here so move along.</body></html>"

@app.route("/codd-secret-firewall-bypass-proxy")
def proxy():
    if 'url' not in request.args:
        return render_template("proxy.html")
    else:
        return requests.get(request.args['url']).text

if __name__ == '__main__':
    PORT = (os.getenv('PORT')) if os.getenv('PORT') else 8080
    app.run(host='0.0.0.0', port=PORT, debug=True)
~
~
~
```

5. requirements.txt

```
flask
requests
gunicorn
```

6. Dockerfile

```
FROM python:3.7-slim
MAINTAINER Branden Codd "codd@cs.cmu.edu"
COPY . /app
WORKDIR /app
RUN pip install -r requirements.txt
CMD gunicorn --bind :$PORT --workers 1 --threads 8 app:app
```

7. Build and test in Cloud Shell

← → ↺ 🔒 8000-cs-730324504483-default-us-west1.cloudshell.dev/?authuser=1

Hello World!

There is nothing to see here so move along.

8. Cloud Build and Container Registry

- When finished, list the container images in the registry.

```
ID              CREATE_TIME      DURATION  SOURCE                                     IMAGES                                     STATUS
7b2e1ef5996-4b2c-45af-8c8cd8cf157  2021-02-15T06:15:34+00:00  27s      gcr.io/cs356-w21-branden-codd/cloud-build/source/161356130.519290-d1c799f21ec04b9e7a8e7b910f964.tgz  gcr.io/cs356-w21-branden-codd/coddb-proxy (11 more)  SUCCESS
coddb@cloudshell:~/cs356-cloud-files/05_gcp_datastore/coddb-proxy (cs356-w21-branden-codd)$ gcloud container images list
NAME
gcr.io/cs356-w21-branden-codd/coddb-proxy
Only listing images in gcr.io/cs356-w21-branden-codd. Use --repository to list images in other repositories.
coddb@cloudshell:~/cs356-cloud-files/05_gcp_datastore/coddb-proxy (cs356-w21-branden-codd)$
```

- Show the size of the container in the UI and take a screenshot of it for your lab notebook:

27a4012170aa

gcr.io / cs356-w21-branden-codd / codd-db-proxy @ sha256:27a4012170aab1d5e41c281c2a147f5b16235a8a3d9eb9119d90551e9aad18c4

Show Pull Command Deploy Delete

General information

Image type	Docker Manifest, Schema 2
Media type	application/vnd.docker.distribution.manifest.v2+json
Virtual size	45.86 MB
Created time	February 15, 2021 at 10:15:55 PM UTC-8
Uploaded time	February 15, 2021 at 10:16:01 PM UTC-8
Build ID	-

Container classification

Digest	sha256:27a4012170aab1d5e41c281c2a147f5b16235a8a3d9eb9119d90551e9aad18c4
Tags	latest
Repository	codd-db-proxy
Project	cs356-w21-branden-codd

Manifest

9. Deploy to Cloud Run

- You should get back a URL that has your container running on it:

```
Done.
Service [codd-db-proxy] revision [codd-db-proxy-00001-goh] has been deployed and is serving 100 percent of traffic.
Service URL: https://codd-db-proxy-owbunxskwq-uw.a.run.app
codd@cloudshell:~/cs356-cloud-files/05_gcp_datastore/codd-db-proxy (cs356-w21-branden-codd)$
```

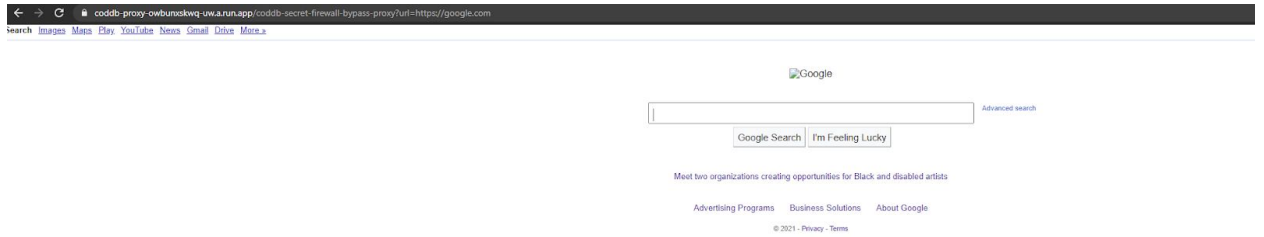
10. Visit the site

- Visit the secret URL that gives you proxy access and take a screenshot of it that includes the URL for your lab notebook.

← → ↻ 🔒 codd-db-proxy-owbunxskwq-uw.a.run.app/codd-db-secret-firewall-bypass-proxy

L to access by proxy:

- Then, screenshot the result that is returned when https://google.com is entered as the URL to access



- Attempt to access the Metadata service associated with the VM that runs your container by entering the following URLs into the proxy `http://169.254.169.254/computeMetadata` and `http://169.254.169.254/computeMetadata/v1`. Read this [article](#) and this [article](#). Identify the vulnerability in your lab notebook that Google has prevented.
 - Google has prevented an SSRF vulnerability