

Data Intake Report

Name: Deploying a Flask Application on EC2

Report date: 05.0.2024

Internship Batch: LISUM30

Version:<1.0>

Data intake by: Olena Panchenko

Data intake reviewer: Data Glacier

Data storage location: https://github.com/helenapanchenko/DS_Internship_Glacier/tree/master/Week5

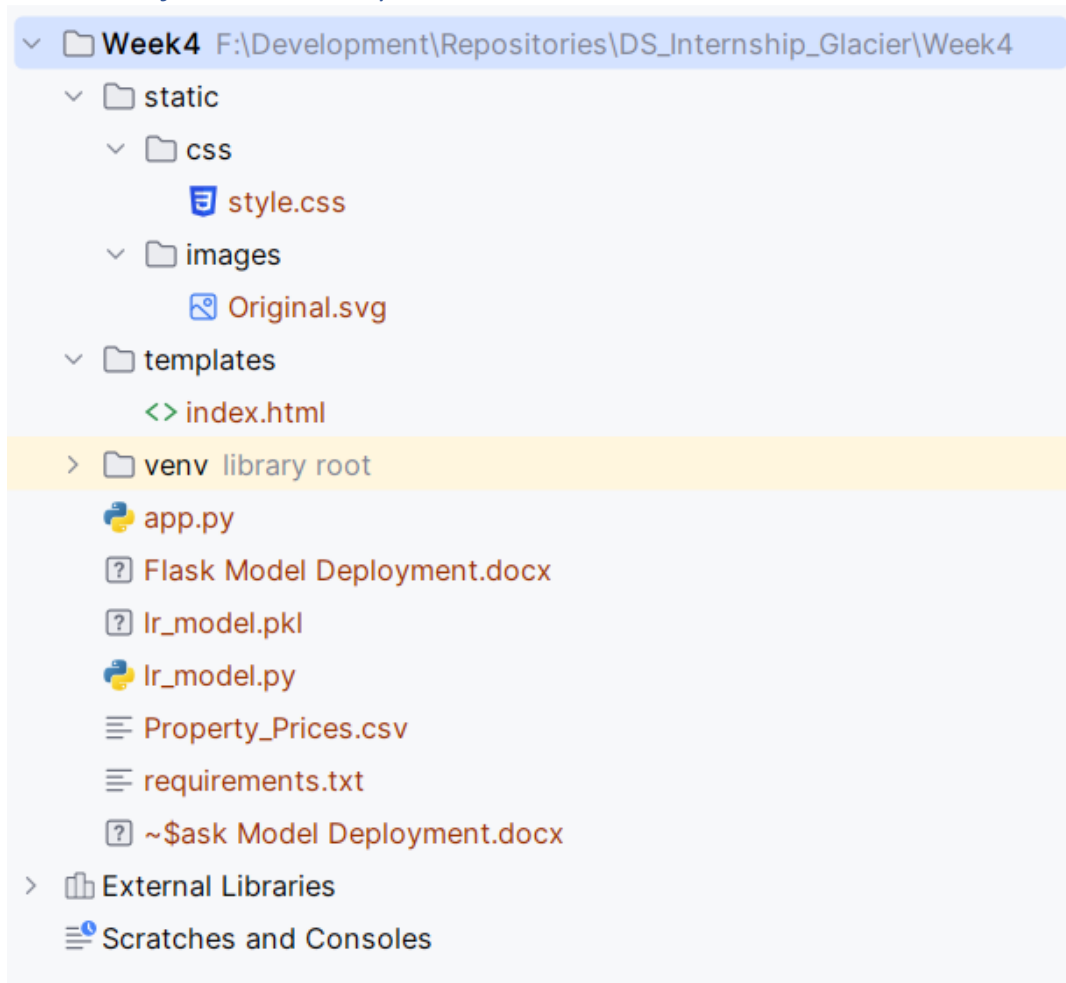
Tabular data details: Property_Prices

Total number of observations	17
Total number of files	1
Total number of features	5
Base format of the file	.csv
Size of the data	1KB

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1. Project Directory Structure



2. A list of dependencies and libraries used in this project

≡ requirements.txt ×

```
1 blinker==1.7.0
2 click==8.1.7
3 colorama==0.4.6
4 Flask==3.0.2
5 itsdangerous==2.1.2
6 Jinja2==3.1.3
7 joblib==1.3.2
8 MarkupSafe==2.1.5
9 numpy==1.26.4
10 pandas==2.2.1
11 python-dateutil==2.8.2
12 pytz==2024.1
13 scikit-learn==1.4.1.post1
14 scipy==1.12.0
15 six==1.16.0
16 threadpoolctl==3.3.0
17 tzdata==2024.1
18 Werkzeug==3.0.1
```

3. Data

Bedrooms	Bathrooms	Floor Area(ft2)	Council Tax Band	Price(£)
3	1	1022	C	350000
5	3	2700	F	1500000
6	5	4300		1350000
7	5		F	1295000
3	1		A	260000
4	4		G	1200000
3	1		C	300000
7	2	4000	E	950000
5	3	3821	F	950000
6	3		F	925000
4	2	1283	F	925000
3	2		E	900000
2	2			325000
1	1			120000
2	1		A	120000
2	1		A	180000
1	1		A	90000

4. Data Preprocessing

lr_model.py ×

```
1 import pandas as pd
2 import pickle
3 from sklearn.linear_model import LinearRegression
4
5 dataset = pd.read_csv('Property_Prices.csv')
6
7 dataset.loc[[13, 16], 'Floor Area(ft2)'] = 400
8 no_missing_area_data = dataset.loc[:, ['Bedrooms', 'Bathrooms', 'Floor Area(ft2)']].dropna(subset=['Floor Area(ft2)'])
9 missing_area_data = dataset.loc[:, ['Bedrooms', 'Bathrooms', 'Floor Area(ft2)']][dataset['Floor Area(ft2)'].isnull()]
10 no_missing_area_predictors = no_missing_area_data.drop(columns=['Floor Area(ft2)'])
11 no_missing_area_targets = no_missing_area_data['Floor Area(ft2)']
12 missing_area_predictors = missing_area_data.drop(columns=['Floor Area(ft2)'])
13
14 mv_model = LinearRegression()
15 mv_model.fit(no_missing_area_predictors, no_missing_area_targets)
16 predicted_areas = mv_model.predict(missing_area_predictors)
17 dataset.loc[dataset['Floor Area(ft2)'].isnull(), ['Floor Area(ft2)']] = predicted_areas
18
19 encoding_dict = {'A': 1, 'B': 2, 'C': 3, 'D': 4, 'E': 5, 'F': 6, 'G': 7, 'H': 8}
20 dataset['Council Tax Band'] = dataset['Council Tax Band'].map(encoding_dict)
21
22 mode_by_bedrooms = dataset.groupby('Bedrooms')['Council Tax Band'].transform(lambda x: x.mode().iloc[0])
23 dataset['Council Tax Band'] = dataset['Council Tax Band'].fillna(mode_by_bedrooms)
```

5. Model Training and Saving

```
25 model_predictors = dataset.iloc[:, :4].values
26 model_targets = dataset.iloc[:, -1]
27 regressor = LinearRegression()
28 regressor.fit(model_predictors, model_targets)
29 pickle.dump(regressor, open('lr_model.pkl', 'wb'))
```

6. HTML Template

```
<> index.html ×
1  <!DOCTYPE html>
2  <html >
3  <head>
4      <meta charset="UTF-8">
5      <title>ML API</title>
6      <link href='https://fonts.googleapis.com/css?family=Pacifico' rel='stylesheet' type='text/css'>
7      <link href='https://fonts.googleapis.com/css?family=Arimo' rel='stylesheet' type='text/css'>
8      <link href='https://fonts.googleapis.com/css?family=Hind:300' rel='stylesheet' type='text/css'>
9      <link href='https://fonts.googleapis.com/css?family=Open+Sans+Condensed:300' rel='stylesheet' type='text/css'>
10     <link rel="stylesheet" href="{{ url_for('static', filename='css/style.css') }}">
11
12 </head>
13
14 <body>
15     <div class="login">
16         <h1>Predict House Price</h1>
17
18         <!-- Main Input For Receiving Query to our ML -->
19         <form action="{{ url_for('predict')}}" method="post">
20             <input type="text" name="Bedrooms" placeholder="Number of Bedrooms" required="required" />
21             <input type="text" name="Bathrooms" placeholder="Number of Bathrooms" required="required" />
22             <input type="text" name="Floor Area(ft2)" placeholder="Floor Area(ft2)" required="required" />
23             <input type="text" name="Council Tax Band" placeholder="Council Tax Band" required="required" />
24
25             <button type="submit" class="btn btn-primary btn-block btn-large">Predict</button>
26         </form>
27
28         <br>
29         <br>
30         {{ prediction_text }}
31
32 </div>
33 
34
35 </body>
36 </html>
```

7. API Deployment

```
app.py x
1 import numpy as np
2 from flask import Flask, request, render_template
3 import pickle
4
5 app = Flask(__name__)
6 model = pickle.load(open('lr_model.pkl', 'rb'))
7
8
9 @app.route('/')
10 def home():
11     return render_template('index.html')
12
13
14 2 usages (2 dynamic)
15 @app.route(rule: '/predict', methods=['POST'])
16 def predict():
17     """
18     For rendering results on HTML GUI
19     """
20     int_features = [int(x) for x in request.form.values()]
21     final_features = [np.array(int_features)]
22     prediction = model.predict(final_features)
23
24     output = round(prediction[0], 2)
25
26     return render_template(template_name_or_list: 'index.html', prediction_text='House price should be £ {}'.format(output))
27
28 if __name__ == "__main__":
29     app.run(debug=True)
```

8. Model Testing

ML API x +

127.0.0.1:5000

Predict House Price


Number of Bedrooms

Number of Bathrooms

Floor Area(ft2)

Council Tax Band

Predict

 **Data Glacier**

Your Deep Learning Partner

5:37 PM 2/28/2024

ML API

127.0.0.1:5000

Predict House Price


3

1

3000

3

Predict

Data Glacier

Your Deep Learning Partner

5:38 PM
2/28/2024

ML API

127.0.0.1:5000/predict

Predict House Price

Number of Bedrooms


Number of Bathrooms

Floor Area(ft2)

Council Tax Band

Predict

House price should be £ 172543.14


Data Glacier

Your Deep Learning Partner

5:38 PM
2/28/2024

9. Cloud Deployment (AWS)

9.1. Launch an EC2 Instance

 Services [Alt+S]

EC2 > Instances > Launch an instance

Launch an instance Info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags Info

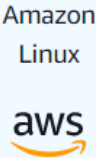
Name

 [Add additional tags](#)


▼ Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below


Quick Start




Amazon Linux




macOS




Ubuntu




Windows



Red Hat



SUSE Linux



[Browse more AMIs](#)

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI ami-09885f3ec1667cbfc (64-bit (x86), uefi-preferred) / ami-0e968c2113deb02b7 (64-bit (Arm), uefi) Virtualization: hvm ENA enabled: true Root device type: ebs	Free tier eligible ▼
--	----------------------

▼ Instance type [Info](#) | [Get advice](#)

Instance type

t2.micro

Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0178 USD per Hour
On-Demand RHEL base pricing: 0.0732 USD per Hour
On-Demand SUSE base pricing: 0.0132 USD per Hour
On-Demand Linux base pricing: 0.0132 USD per Hour

☒ All generations

[Compare instance types](#)

Additional costs apply for AMIs with pre-installed software

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

[Create new key pair](#)

▼ Network settings [Info](#)

VPC - *required* [Info](#)

vpc-0b6cf2e8afdc0f1a2
172.31.0.0/16

(default) ▼



Subnet [Info](#)

No preference ▼



[Create new subnet](#) [↗](#)

Auto-assign public IP [Info](#)

Enable ▼

Firewall (security groups) [Info](#)

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

☒ Create security group

☐ Select existing security group

Security group name - *required*

launch-wizard-1

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and ._-:/()#,@[]+=&:{}!\$*

<input type="text" value="Filter rules"/>						< 1 >
Name	Security group rule ID	Port range	Protocol	Source	Security	
–	sgr-076286ea49b2dbbda	22	TCP	0.0.0.0/0	launch-w	
–	sgr-091b3fa5efc1cd4ca	All	All	0.0.0.0/0	launch-w	

<input type="text" value="Filter rules"/> < 1 >					
Name	Security group rule ID	Port range	Protocol	Destination	Security
–	sgr-02b8a8a18c40fbaef	All	All	0.0.0.0/0	launch-w

1x	8	GiB	gp3	▼	Root volume (Not encrypted)
----	---	-----	-----	---	-----------------------------

Instances (1) [Info](#)

Find Instance by attribute or tag (case-sensitive) Any state ▾

Instance ID = i-0a68606948656b8fc ✕ Clear filters

<input type="checkbox"/>	Name ↗ ▾	Instance ID	Instance state ▾	Instance type ▾	Status check	Alarm status	Availability Zone ▾	Public IP v4
<input type="checkbox"/>	Flask model	i-0a68606948656b8fc	Running 🔍 🔍	t2.micro	⌚ Initializing	View alarms +	eu-west-2c	ec2-18-16

```
PS F:\Development\Keys> ssh -i .\[redacted]_key.pem ec2-user@[18.168.200.151]
```

```
, #  
 , #  
~ \#### Amazon Linux 2023  
~~ \#####\  
~~ \###|  
~~ \#/  
~~ V~' ->  
    ~~~  
    ~~-  
    _/_/_  
    /m/'
```

```
https://aws.amazon.com/linux/amazon-linux-2023
```

9.3. Prepare the Environment and Connect the GitHub repository

```
[ec2-user@ip-172-31-10-84 Development]$ sudo yum install git-all
Last metadata expiration check: 0:22:42 ago on Wed Mar  6 20:41:02 2024.
Dependencies resolved.
```

Package	Architecture	Version	Repository	Size
Installing:				
git-all	noarch	2.40.1-1.amzn2023.0.1	amazonlinux	15 k
Installing dependencies:				
apr	x86_64	1.7.2-2.amzn2023.0.2	amazonlinux	129 k
apr-util	x86_64	1.6.3-1.amzn2023.0.1	amazonlinux	98 k
cairo	x86_64	1.17.6-2.amzn2023.0.1	amazonlinux	684 k
cvs	x86_64	1.11.23-56.amzn2023.0.3	amazonlinux	594 k
cvsp	x86_64	2.2-0.28.b1.amzn2023.0.2	amazonlinux	61 k
fontconfig	x86_64	2.13.94-2.amzn2023.0.2	amazonlinux	273 k
fonts-filesystem	noarch	1:2.0.5-12.amzn2023.0.2	amazonlinux	9.5 k
freetype	x86_64	2.13.0-2.amzn2023.0.1	amazonlinux	422 k
generic-logos-httpd	noarch	18.0.0-12.amzn2023.0.3	amazonlinux	19 k
git	x86_64	2.40.1-1.amzn2023.0.1	amazonlinux	57 k
git-core	x86_64	2.40.1-1.amzn2023.0.1	amazonlinux	4.3 M
git-core-doc	noarch	2.40.1-1.amzn2023.0.1	amazonlinux	2.6 M
git-credential-libsecret	x86_64	2.40.1-1.amzn2023.0.1	amazonlinux	22 k
git-cvs	noarch	2.40.1-1.amzn2023.0.1	amazonlinux	98 k
git-daemon	x86_64	2.40.1-1.amzn2023.0.1	amazonlinux	325 k
git-email	noarch	2.40.1-1.amzn2023.0.1	amazonlinux	58 k
git-gui	noarch	2.40.1-1.amzn2023.0.1	amazonlinux	247 k
git-instaweb	noarch	2.40.1-1.amzn2023.0.1	amazonlinux	30 k
git-p4	noarch	2.40.1-1.amzn2023.0.1	amazonlinux	81 k
git-subtree	noarch	2.40.1-1.amzn2023.0.1	amazonlinux	39 k
git-svn	noarch	2.40.1-1.amzn2023.0.1	amazonlinux	75 k
gitk	noarch	2.40.1-1.amzn2023.0.1	amazonlinux	162 k
gitweb	noarch	2.40.1-1.amzn2023.0.1	amazonlinux	149 k
google-noto-fonts-common	noarch	20201206-2.amzn2023.0.2	amazonlinux	15 k
google-noto-sans-vf-fonts	noarch	20201206-2.amzn2023.0.2	amazonlinux	492 k
graphite2	x86_64	1.3.14-7.amzn2023.0.2	amazonlinux	97 k
harfbuzz	x86_64	7.0.0-2.amzn2023.0.1	amazonlinux	868 k
httpd	x86_64	2.4.58-1.amzn2023	amazonlinux	47 k
httpd-core	x86_64	2.4.58-1.amzn2023	amazonlinux	1.4 M
httpd-filesystem	noarch	2.4.58-1.amzn2023	amazonlinux	14 k
httpd-tools	x86_64	2.4.58-1.amzn2023	amazonlinux	81 k
langpacks-core-font-en	noarch	3.0-21.amzn2023.0.4	amazonlinux	10 k
libX11	x86_64	1.7.2-3.amzn2023.0.4	amazonlinux	657 k
libX11-common	noarch	1.7.2-3.amzn2023.0.4	amazonlinux	152 k
libXau	x86_64	1.0.9-6.amzn2023.0.2	amazonlinux	31 k
libXext	x86_64	1.3.4-6.amzn2023.0.2	amazonlinux	41 k
libXft	x86_64	2.3.3-6.amzn2023.0.2	amazonlinux	64 k
libXrender	x86_64	0.9.10-14.amzn2023.0.2	amazonlinux	28 k

```
[ec2-user@ip-172-31-10-84 Development]$ mkdir PropertyPrice
[ec2-user@ip-172-31-10-84 Development]$ git clone https://github.com/helenapanchenko/DS_Internship_Glacier.git
Cloning into 'DS_Internship_Glacier'...
remote: Enumerating objects: 54, done.
remote: Counting objects: 100% (54/54), done.
remote: Compressing objects: 100% (41/41), done.
remote: Total 54 (delta 11), reused 50 (delta 7), pack-reused 0
Receiving objects: 100% (54/54), 9.38 MiB | 15.74 MiB/s, done.
Resolving deltas: 100% (11/11), done.
```

```

[ec2-user@ip-172-31-10-84 Week4]$ source venv/bin/activate
(venv) [ec2-user@ip-172-31-10-84 Week4]$ pip install flask
Collecting flask
  Downloading flask-3.0.2-py3-none-any.whl (101 kB)
    |████████████████████| 101 kB 4.5 MB/s
Collecting Werkzeug>=3.0.0
  Downloading werkzeug-3.0.1-py3-none-any.whl (226 kB)
    |████████████████████| 226 kB 25.8 MB/s
Collecting itsdangerous>=2.1.2
  Downloading itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Collecting click>=8.1.3
  Downloading click-8.1.7-py3-none-any.whl (97 kB)
    |████████████████████| 97 kB 13.1 MB/s
Collecting Jinja2>=3.1.2
  Downloading Jinja2-3.1.3-py3-none-any.whl (133 kB)
    |████████████████████| 133 kB 51.7 MB/s
Collecting importlib-metadata>=3.6.0
  Downloading importlib_metadata-7.0.1-py3-none-any.whl (23 kB)
Collecting blinker>=1.6.2
  Downloading blinker-1.7.0-py3-none-any.whl (13 kB)
Collecting zipp>=0.5
  Downloading zipp-3.17.0-py3-none-any.whl (7.4 kB)
Collecting MarkupSafe>=2.0
  Downloading MarkupSafe-2.1.5-cp39-cp39-manylinux_2_17_x86_64_manylinux2014_x86_64.whl (25 kB)
Installing collected packages: zipp, MarkupSafe, Werkzeug, Jinja2, itsdangerous, importlib-metadata, click, blinker, flask
Successfully installed Jinja2-3.1.3 MarkupSafe-2.1.5 Werkzeug-3.0.1 blinker-1.7.0 click-8.1.7 flask-3.0.2 importlib-metadata-7.0.1 itsdangerous-2.1.2 zipp-3.17.0
WARNING: You are using pip version 21.3.1; however, version 24.0 is available.
You should consider upgrading via the '/home/ec2-user/Development/DS_Internship_Glacier/Week4/venv/bin/python3 -m pip install --upgrade pip' command.
(venv) [ec2-user@ip-172-31-10-84 Week4]$ python -m pip install pip-tools
Collecting pip-tools
  Downloading pip_tools-7.4.1-py3-none-any.whl (61 kB)
    |████████████████████| 61 kB 3.6 MB/s
Collecting pyproject-hooks
  Downloading pyproject_hooks-1.0.0-py3-none-any.whl (9.3 kB)
Collecting wheel
  Downloading wheel-0.42.0-py3-none-any.whl (65 kB)
    |████████████████████| 65 kB 6.3 MB/s
Collecting build>=1.0.0
  Downloading build-1.1.1-py3-none-any.whl (19 kB)
Collecting pip>=22.2
  Downloading pip-24.0-py3-none-any.whl (2.1 MB)
    |████████████████████| 2.1 MB 34.4 MB/s
Requirement already satisfied: setuptools in ./venv/lib/python3.9/site-packages (from pip-tools) (59.6.0)
Requirement already satisfied: click>=8 in ./venv/lib/python3.9/site-packages (from pip-tools) (8.1.7)
Collecting tomli
  Downloading tomli-2.0.1-py3-none-any.whl (12 kB)
Collecting packaging>=19.0
  Downloading packaging-23.2-py3-none-any.whl (53 kB)
    |████████████████████| 53 kB 3.3 MB/s
Requirement already satisfied: importlib-metadata>=4.6 in ./venv/lib/python3.9/site-packages (from build>=1.0.0->pip-tools) (7.0.1)
Requirement already satisfied: zipp>=0.5 in ./venv/lib/python3.9/site-packages (from importlib-metadata>=4.6->build>=1.0.0->pip-tools) (3.17.0)
Installing collected packages: tomli, pyproject-hooks, packaging, wheel, pip, build, pip-tools
  Attempting uninstall: pip
    Found existing installation: pip 21.3.1
    Uninstalling pip-21.3.1:
      Successfully uninstalled pip-21.3.1
Successfully installed build-1.1.1 packaging-23.2 pip-24.0 pip-tools-7.4.1 pyproject-hooks-1.0.0 tomli-2.0.1 wheel-0.42.0

```

```

(venv) [ec2-user@ip-172-31-10-84 Week4]$ pip-sync requirements.txt
Collecting colorama==0.4.6 (from -r /tmp/tmpjkw8fgz9 (line 1))
  Downloading colorama-0.4.6-py2.py3-none-any.whl.metadata (17 kB)
Collecting joblib==1.3.2 (from -r /tmp/tmpjkw8fgz9 (line 2))
  Downloading joblib-1.3.2-py3-none-any.whl.metadata (5.4 kB)
Collecting pandas==2.2.1 (from -r /tmp/tmpjkw8fgz9 (line 3))
  Downloading pandas-2.2.1-cp39-cp39-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (19 kB)
Collecting python-dateutil==2.8.2 (from -r /tmp/tmpjkw8fgz9 (line 4))
  Downloading python_dateutil-2.8.2-py2.py3-none-any.whl.metadata (8.2 kB)
Collecting pytz==2024.1 (from -r /tmp/tmpjkw8fgz9 (line 5))
  Downloading pytz-2024.1-py2.py3-none-any.whl.metadata (22 kB)
Collecting scikit-learn==1.4.1.post1 (from -r /tmp/tmpjkw8fgz9 (line 6))
  Downloading scikit_learn-1.4.1.post1-cp39-cp39-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (11 kB)
Collecting scipy==1.12.0 (from -r /tmp/tmpjkw8fgz9 (line 7))
  Downloading scipy-1.12.0-cp39-cp39-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (60 kB)
     60.4/60.4 kB 9.9 MB/s eta 0:00:00
Collecting six==1.16.0 (from -r /tmp/tmpjkw8fgz9 (line 8))
  Downloading six-1.16.0-py2.py3-none-any.whl.metadata (1.8 kB)
Collecting threadpoolctl==3.3.0 (from -r /tmp/tmpjkw8fgz9 (line 9))
  Downloading threadpoolctl-3.3.0-py3-none-any.whl.metadata (13 kB)
Collecting tzdata==2024.1 (from -r /tmp/tmpjkw8fgz9 (line 10))
  Downloading tzdata-2024.1-py2.py3-none-any.whl.metadata (1.4 kB)
Requirement already satisfied: numpy<2,>=1.22.4 in ./venv/lib/python3.9/site-packages (from pandas==2.2.1->-r /tmp/tmpjkw8fgz9 (line 3)) (1.26.4)
Downloading colorama-0.4.6-py2.py3-none-any.whl (25 kB)
Downloading joblib-1.3.2-py3-none-any.whl (302 kB)
     302.2/302.2 kB 31.7 MB/s eta 0:00:00
Downloading pandas-2.2.1-cp39-cp39-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (13.0 MB)
     13.0/13.0 MB 66.0 MB/s eta 0:00:00
Downloading python_dateutil-2.8.2-py2.py3-none-any.whl (247 kB)
     247.7/247.7 kB 30.5 MB/s eta 0:00:00
Downloading pytz-2024.1-py2.py3-none-any.whl (505 kB)
     505.5/505.5 kB 50.5 MB/s eta 0:00:00
Downloading scikit_learn-1.4.1.post1-cp39-cp39-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (12.2 MB)
     12.2/12.2 MB 31.3 MB/s eta 0:00:00
Downloading scipy-1.12.0-cp39-cp39-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (38.5 MB)
     38.5/38.5 MB 32.5 MB/s eta 0:00:00
Downloading six-1.16.0-py2.py3-none-any.whl (11 kB)
Downloading threadpoolctl-3.3.0-py3-none-any.whl (17 kB)
Downloading tzdata-2024.1-py2.py3-none-any.whl (345 kB)
     345.4/345.4 kB 39.6 MB/s eta 0:00:00
Installing collected packages: pytz, tzdata, threadpoolctl, six, scipy, joblib, colorama, scikit-learn, python-dateutil, pandas
Successfully installed colorama-0.4.6 joblib-1.3.2 pandas-2.2.1 python-dateutil-2.8.2 pytz-2024.1 scikit-learn-1.4.1.post1 scipy-1.12.0 six-1.16.0 threadpoolctl-3.3.0 tzdata-2024.1

```


9.4. Set up Gunicorn

```
(venv) [ec2-user@ip-172-31-10-84 Week4]$ pip install gunicorn
WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at 0x7f9555035490>: Failed to establish a new connection: [Errno 101] Network is unreachable')': /simple/gunicorn/
Collecting gunicorn
  Downloading gunicorn-21.2.0-py3-none-any.whl.metadata (4.1 kB)
Requirement already satisfied: packaging in ./venv/lib/python3.9/site-packages (from gunicorn) (23.2)
Downloading gunicorn-21.2.0-py3-none-any.whl (80 kB)
80.2/80.2 kB 4.2 MB/s eta 0:00:00
Installing collected packages: gunicorn
Successfully installed gunicorn-21.2.0
(venv) [ec2-user@ip-172-31-10-84 Week4]$ python app.py
* Serving Flask app 'app'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 153-860-855
^C(venv) [ec2-user@ip-172-31-10-84 Week4]$ gunicorn -b 0.0.0.0:8000 app:app
[2024-03-06 21:53:29 +0000] [29844] [INFO] Starting gunicorn 21.2.0
[2024-03-06 21:53:29 +0000] [29844] [INFO] Listening at: http://0.0.0.0:8000 (29844)
[2024-03-06 21:53:29 +0000] [29844] [INFO] Using worker: sync
[2024-03-06 21:53:29 +0000] [29845] [INFO] Booting worker with pid: 29845
^C[2024-03-06 21:54:28 +0000] [29844] [INFO] Handling signal: int
[2024-03-06 21:54:28 +0000] [29845] [INFO] Worker exiting (pid: 29845)
[2024-03-06 21:54:28 +0000] [29844] [INFO] Shutting down: Master
```

9.5. Configure Nginx as a Reverse Proxy

```
[ec2-user@ip-172-31-10-84 Week4]$ sudo yum install nginx
Last metadata expiration check: 1:14:18 ago on Wed Mar  6 20:41:02 2024.
Dependencies resolved.
=====
Package                                Architecture      Version                                Repository          Size
=====
Installing:
  nginx                                x86_64            1:1.24.0-1.amzn2023.0.2              amazonlinux          32 k
Installing dependencies:
  gperftools-libs                      x86_64            2.9.1-1.amzn2023.0.3                amazonlinux          308 k
  libunwind                            x86_64            1.4.0-5.amzn2023.0.2                amazonlinux          66 k
  nginx-core                           x86_64            1:1.24.0-1.amzn2023.0.2              amazonlinux          586 k
  nginxfilesystem                      noarch            1:1.24.0-1.amzn2023.0.2              amazonlinux          9.1 k
  nginx-mimetypes                      noarch            2.1.49-3.amzn2023.0.3                amazonlinux          21 k
=====

[ec2-user@ip-172-31-10-84 Week4]$ sudo systemctl start nginx
[ec2-user@ip-172-31-10-84 Week4]$ sudo systemctl enable nginx
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /usr/lib/systemd/system/nginx.service.
[ec2-user@ip-172-31-10-84 Week4]$ sudo nano /etc/nginx/sites-available/default
[ec2-user@ip-172-31-10-84 Week4]$ sudo nano /etc/nginx/sites-available/default
[ec2-user@ip-172-31-10-84 Week4]$ sudo nano /etc/nginx/sites-available/default
[ec2-user@ip-172-31-10-84 Week4]$ source venv/bin/activate
(venv) [ec2-user@ip-172-31-10-84 Week4]$ gunicorn --bind 0.0.0.0:5000 app:app
[2024-03-06 22:25:21 +0000] [30944] [INFO] Starting gunicorn 21.2.0
[2024-03-06 22:25:21 +0000] [30944] [INFO] Listening at: http://0.0.0.0:5000 (30944)
[2024-03-06 22:25:21 +0000] [30944] [INFO] Using worker: sync
[2024-03-06 22:25:21 +0000] [30945] [INFO] Booting worker with pid: 30945
^[[A^[[A^C[2024-03-06 22:26:48 +0000] [30944] [INFO] Handling signal: int
[2024-03-06 22:26:48 +0000] [30945] [INFO] Worker exiting (pid: 30945)
[2024-03-06 22:26:48 +0000] [30944] [INFO] Shutting down: Master
```

9.6. Testing using Public IPv4 address

