

Milestone 5 - Building and Deploying A Web Application

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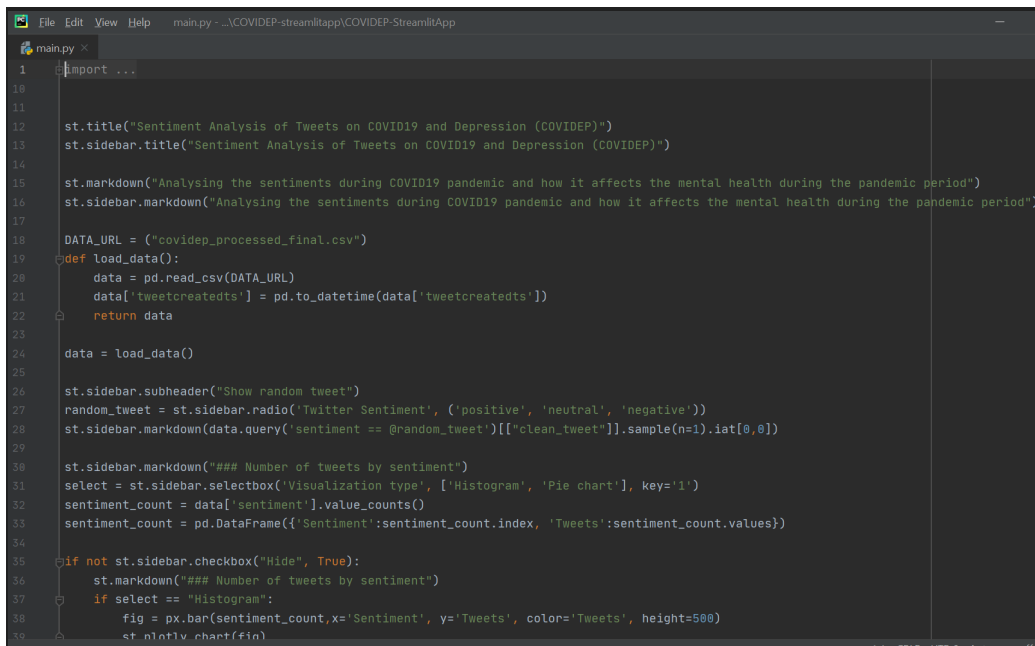
Link: <https://github.com/aimihassin/COVIDEP-StreamlitApp>

1.0 Objective

In this milestone, the aim is to deploy a web application. I have used Streamlit as a platform to create the web application and deployed it by using Heroku.

2.0 Creating Streamlit web application

1. Make sure to install an IDE python such as PyCharm.
2. Install all the required libraries needed in creating the web app.
 - a. `conda create -y -n streamlit python=3.7`
 - b. `conda activate streamlit`
 - c. `pip install streamlit`
3. Load the libraries in a python file.
 - a. `import streamlit`
 - b. `streamlit.__version__`
4. Test your Streamlit to make sure it works well.
 - a. `streamlit hello`
5. Now, after testing the demo at hello streamlit, we can start to write the codes for our app.
6. I have created a python file named 'main.py' for my streamlit web app.



```
1 import ...
10
11
12 st.title("Sentiment Analysis of Tweets on COVID19 and Depression (COVIDEP)")
13 st.sidebar.title("Sentiment Analysis of Tweets on COVID19 and Depression (COVIDEP)")
14
15 st.markdown("Analysing the sentiments during COVID19 pandemic and how it affects the mental health during the pandemic period")
16 st.sidebar.markdown("Analysing the sentiments during COVID19 pandemic and how it affects the mental health during the pandemic period")
17
18 DATA_URL = ("covidep_processed_final.csv")
19 def load_data():
20     data = pd.read_csv(DATA_URL)
21     data['tweetcreatedts'] = pd.to_datetime(data['tweetcreatedts'])
22     return data
23
24 data = load_data()
25
26 st.sidebar.subheader("Show random tweet")
27 random_tweet = st.sidebar.radio('Twitter Sentiment', ('positive', 'neutral', 'negative'))
28 st.sidebar.markdown(data.query('sentiment == @random_tweet')[['clean_tweet']].sample(n=1).iat[0,0])
29
30 st.sidebar.markdown("### Number of tweets by sentiment")
31 select = st.sidebar.selectbox('Visualization type', ['Histogram', 'Pie chart'], key='1')
32 sentiment_count = data['sentiment'].value_counts()
33 sentiment_count = pd.DataFrame({'Sentiment':sentiment_count.index, 'Tweets':sentiment_count.values})
34
35 if not st.sidebar.checkbox("Hide", True):
36     st.markdown("### Number of tweets by sentiment")
37     if select == "Histogram":
38         fig = px.bar(sentiment_count,x='Sentiment', y='Tweets', color='Tweets', height=500)
39         st.plotly_chart(fig)
```

3.0 Web application deployment through Heroku

1. Sign up for a free Heroku account at <https://signup.heroku.com/login>.
2. Install Git in your local system at <https://git-scm.com/downloads>.
3. Create a new repository at Github. I have created a repository named 'COVIDEP-StreamlitApp' on my github.
4. Create a folder in your local file system. I have created mine and named it as 'COVIDEP-streamlitapp'. Note that this folder is important as we will clone the github repository into this local folder.
5. After that, open Command Prompt.
6. Change the directory to the created local folder named 'COVIDEP-streamlitapp'.
7. Clone the 'COVIDEP-StreamlitApp' repository.
8. Then, change the directory to the cloned repository folder.

```
Microsoft Windows [Version 10.0.18363.900]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\ASUS>cd COVIDEP-streamlitapp

C:\Users\ASUS\COVIDEP-streamlitapp>git clone https://github.com/aimihassin/COVIDEP-StreamlitApp.git
Cloning into 'COVIDEP-StreamlitApp'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 718 bytes | 39.00 KiB/s, done.

C:\Users\ASUS\COVIDEP-streamlitapp>cd COVIDEP-StreamlitApp
```

9. Copy your python file- 'main.py' into this folder.
10. Next, make sure to create all of these required files in this folder too:
 - a. requirements.txt

- store all your python libraries here

```
requirements - Notepad
File Edit Format View Help
streamlit
numpy
pandas
plotly.express
WordCloud
matplotlib
TextBlob
spacy
text-summarizer
gensim
```

- b. setup.sh

- write the following text and save as 'setup.sh'

```
mkdir -p ~/.streamlit/

echo "\
[server]\n\
headless = true\n\
port = $PORT\n\
enableCORS=false\n\
\n\
" > ~/.streamlit/config.toml
```

c. Procfile

- Write this in the text and save as 'Procfile' with *all-files format.

```
web: sh setup.sh && streamlit run main.py
```

11. Login to heroku. Insert your registered email if required.

12. Create heroku app. I have created and named my web app as 'coviddep-streamlitapp'.

Use all lower capitals in creating the app's name.

```
C:\Users\ASUS\COVIDEP-streamlitapp\COVIDEP-StreamlitApp>heroku login
heroku: Press any key to open up the browser to login or q to exit:
Opening browser to https://cli-auth.heroku.com/auth/cli/browser/134da628-0090-4b08-9d87-6da38047b142
Logging in... done
Logged in as aimihassin@gmail.com

C:\Users\ASUS\COVIDEP-streamlitapp\COVIDEP-StreamlitApp>heroku create "coviddep-streamlitapp"
Creating ☐ coviddep-streamlitapp... done
https://coviddep-streamlitapp.herokuapp.com/ | https://git.heroku.com/coviddep-streamlitapp.git
```

13. Follow the following screenshot:

- git config --global user.email "your@email.com"
- git add .
- git commit -m "first commit"
- git push heroku master
- git push

```
C:\Users\ASUS\COVIDEP-streamlitapp\COVIDEP-StreamlitApp>git config --global user.email "aimihassin@gmail.com"
C:\Users\ASUS\COVIDEP-streamlitapp\COVIDEP-StreamlitApp>git add .
C:\Users\ASUS\COVIDEP-streamlitapp\COVIDEP-StreamlitApp>git commit -m "first commit"
[master dc86088] first commit
5 files changed, 2621 insertions(+)
create mode 100644 Procfile
create mode 100644 coviddep_processed_final.csv
create mode 100644 main.py
create mode 100644 requirements.txt
create mode 100644 setup.sh
C:\Users\ASUS\COVIDEP-streamlitapp\COVIDEP-StreamlitApp>git push heroku master
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Delta compression using up to 8 threads
Compressing objects: 100% (8/8), done.
Writing objects: 100% (10/10), 173.93 KiB | 3.16 MiB/s, done.
Total 10 (delta 0), reused 0 (delta 0), pack-reused 0
remote: Compressing source files... done.
remote: Building source:
```

```

remote: -----> Downloading NLTK corpora...
remote: ! 'nltk.txt' not found, not downloading any corpora
remote: ! Learn more: https://devcenter.heroku.com/articles/python-nltk
remote: -----> Discovering process types
remote: Procfile declares types -> web
remote:
remote: -----> Compressing...
remote: Done: 236.8M
remote: -----> Launching...
remote: Released v3
remote: https://covidep-streamlitapp.herokuapp.com/ deployed to Heroku
remote:
remote: Verifying deploy... done.
To https://git.heroku.com/covidep-streamlitapp.git
* [new branch] master -> master

C:\Users\ASUS\COVIDEP-streamlitapp\COVIDEP-StreamlitApp>git push
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 8 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (7/7), 173.24 KiB | 3.33 MiB/s, done.
Total 7 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/aimihassin/COVIDEP-StreamlitApp.git
554d72c..dc86088 master -> master

C:\Users\ASUS\COVIDEP-streamlitapp\COVIDEP-StreamlitApp>

```

```

remote: -----> Downloading NLTK corpora...
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C:\Users\ASUS\COVIDEP-streamlitapp\COVIDEP-StreamlitApp>git push
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 8 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (7/7), 173.24 KiB | 3.33 MiB/s, done.
Total 7 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/aimihassin/COVIDEP-StreamlitApp.git
554d72c..dc86088 master -> master

C:\Users\ASUS\COVIDEP-streamlitapp\COVIDEP-StreamlitApp>

```

14. You will notice a message stating that your app has been deployed like above.

4.0 Testing the web application

- Go to the web app link to test - <https://covidep-streamlitapp.herokuapp.com/>.

Sentiment Analysis of Tweets on COVID19 and Depression (COVIDEP)

Analysing the sentiments during COVID19 pandemic and how it affects the mental health during the pandemic period

Show random tweet

Twitter Sentiment

- ☐ positive
☐ neutral
☒ negative

@bdomech All pictures taken today, May 24th, Canal Houston Streets NYC. Retail stores NYC going extinct. #nyc #broadway #soho #coronavirus

Sentiment Analysis of Tweets on COVID19 and Depression (COVIDEP)

Analysing the sentiments during COVID19 pandemic and how it affects the mental health during the pandemic period

Analyse Your Tweet!

Enter Text

I hate being at home during lockdown because it makes me more stressful!

Analyse

Sentiment(polarity=-0.08750000000000002, subjectivity=0.7)

<https://t.co/EJ46QTJ38i>

Number of tweets by sentiment

Visualization type

Histogram

☐ Hide

Word Cloud

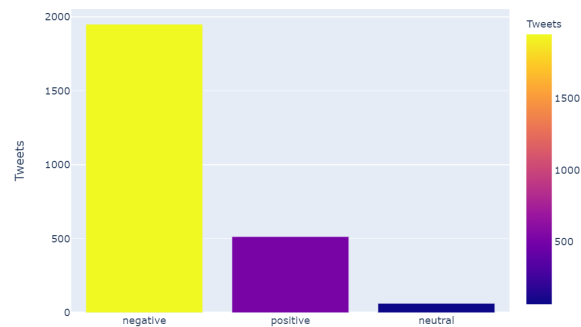
Display word cloud for what sentiment?

- ☒ positive
☐ neutral
☐ negative

☒ Close

the pandemic period

Number of tweets by sentiment



Word cloud for negative sentiment

