**Title : Documentation of Church Mapping UI**

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**I.IMPLEMENTATION OF CODE:**

**Step 1: Setup flask virtual environment as in the link below:**

<https://timmyreilly.azurewebsites.net/python-flask-windows-development-environment-setup/>

**Step2: In the virtual environment folder place the main.py**

**Step3: In command prompt go to the virtual environment folder and run main.py using the command:**

Python main.py

**Step 4: You will see the following lines:**

\*Serving Flask app "main" (lazy loading)

\* Environment: production

WARNING: This is a development server. Do not use it in a production deployment.

Use a production WSGI server instead.

\* Debug mode: on

\* Restarting with stat

\* Debugger is active!

\* Debugger PIN: 607-560-442

\* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)

**Step 5: Now if you have configured the virtual environment correctly, you will see the webpage running at the local host:**

<http://127.0.0.1:5000/>

or

localhost:5000

**II.OUTPUT:**

**Step 1: Go to the URL**

**Step 2:Select the data csv file with latitude longitude using the Choose File button**

![A screenshot of a cell phone

Description automatically generated]()

**Step 3: Enter the query in the query box to input a combination of feature values.**

The query value sequence is indicated in the page.

![A screenshot of a cell phone

Description automatically generated]()

**Step 4: Click the ‘Upload the file’ to get the map**

![A screenshot of a social media post

Description automatically generated]()

**Step 5: Wait for 5 seconds and once the map is generated right click on the filter control on the right corner of the map**

![A screenshot of a cell phone

Description automatically generated]()

**Step 6: Click on reload the frame option(This is essential to ensure no cache value is being used )**

![A screenshot of a cell phone

Description automatically generated]()

**Step 7: You are seeing the updated map and now uncheck and check the boxes in layer controls**

![A screenshot of a cell phone

Description automatically generated]()

**Step 8: Take a look at the legend for descriptions on how to interpret the plots**

![A screenshot of a cell phone

Description automatically generated]()

Step 9: Use the time controller to look at the animation of the plots over time(Century)



**III.Difficulties faced:**

1.Trajectories using folium requires can be done using the following:

->Use pandas to create the dataframe.json

->give the Json file to the python to create markers of each json

But this helps to create only folium markers. Since we need heat map we need to use folium HeatMapWithTime thus need to compromise one of the two features.

2.Display each plot as a symbol of church.

-> This is again possible using folium.marker with custom icon

Using this will also contradict in creating heatmaps which use different methodology to generate the plots.

3.Launch the dynamic webpage using Heroku.

-> This task was difficult however requires more time to learn the platform

-> can be implemented by someone who is well versed in web programming/Heroku