Week 6 and 7

Work Objectives of this diary

1.To outline the current progress of my work/research and project status

2.To outline changes that have been made to accommodate covid-19 restrictions

Methodology

Beginning the semester I was to create an interface that displayed love data from a device that measured water quality parameters, however due to covid-19 restrictions I do not have access to this device and as such being able to complete that requirement is no longer possible.

To move forward with the project Dr Francois Malherbe gave me several tasks. 1. Produce a graph from an excel file 2. Produce a graph that live steams data 3. Create an interface and live steam data from a small weather station

Dr Francois Malherbe has given me access to his home weather station data so that I might access the data and create a web interface that live steams the data. The parameters I am to measure are temperature and CO2 in the air.

I am using GitHub to record my progress and share my work, will provide html links to my work and the associate coding. I decided to use HTML and JavaScript for this project, as I am some what familiar with them.

I am using atom v 1.51.0 ia32 as my editing software and creating a local web sever for debugging use Node.js and Mozilla Firefox.

Outcome and Results

My results are as follows of the 3 tasks that Dr Malherbe set for me I have completed 2 and am currently working on number 3.

Producing a graph from an excel file can be seen here and the code for this web page can be found here.

For this graph I used a csv file from NASA, GISS Surface Temperature Analysis that has the land and water surface temperatures from 1880 to 2019(Team 2020).

Producing a graph that live streams data can be seen here. The code for this page can be found here. Currently this graph is live updating using randomly generated data on the y-axis and time on the x-axis.

It may been seen that I have used different JavaScript chart libraries between the two links.

I was experimenting to see which I prefer and which would be better moving forward. I found that chartjs

was easier to use, had more functionality and also more help than plotly.js so for step 3 and future work I will be using chartjs.

Discussion and Conclusion

Aside from deciding which chart library's to use there has been few things that at current I need to discuss and I have no definitive conclusions as I am still debugging for my third step.

HTML and JavaScript will be adequate for creating a web-based user interface.

Acheivements and Problems

As seen in the results and outcomes sections the code and graphs I have created are my achievements to date. I have some previous basic experience with HTML and JavaScript but have not used chart libraries before.

The problems I am currently working on include, how to load the data from the weather station into my web interface using the proprietary application programming interface from the maker of the weather station, which is possible but debugging the authentication coding is taking sometime. Once I have this working and the data is importing correctly the rest of my work will be cosmetic and making the interface easy to use and read.

My other problem is deciding how to write a report that is supposed to be a scientific report for a project that has turned into an IT project.

Reflections

Using Github to host and record my progress has been very useful, I would like to learn more about the availible features as it does a good job of keeping track of the changes I make in my code.

I have attempted to use overleaf for this diary, to date I am not sure why anyone would use it compared to word but am willing to continue using it.

References

GISTEMP Team, 2020: GISS Surface Temperature Analysis (GISTEMP), version 4. NASA Goddard Institute for Space Studies. Dataset accessed 2020-09-14 at https://data.giss.nasa.gov/gistemp/. Lenssen, N., G. Schmidt, J. Hansen, M. Menne, A. Persin, R. Ruedy, and D. Zyss, 2019: Improvements in the GISTEMP uncertainty model. J. Geophys. Res. Atmos., 124, no. 12, 6307-6326, doi:10.1029/2018JD029522.