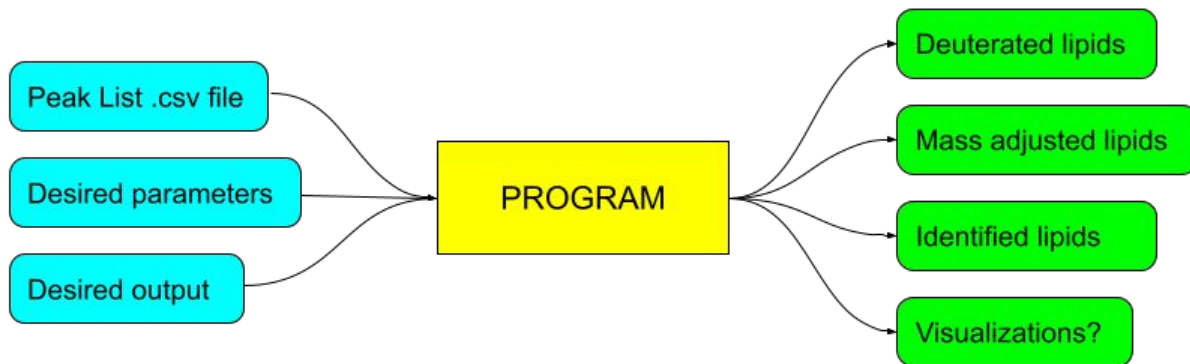


Technology Review

D-Tracer

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Background: D-Tracer



Our tool takes mass spectrometry lipidomic data in the form of a peak list and returns a list of deuterated lipids or other output files.

- Intended user has no coding experience
- Need a user-friendly interface

What technologies you considered?

Various web app tools to display content and create a user interface

- Streamlit
 - Straightforward and user friendly
- Plotly
 - Flexible and mature plotting tool
- Kivy
 - Cross-platform versatility for use in a wide variety of applications including mobile apps



Choice: Streamlit

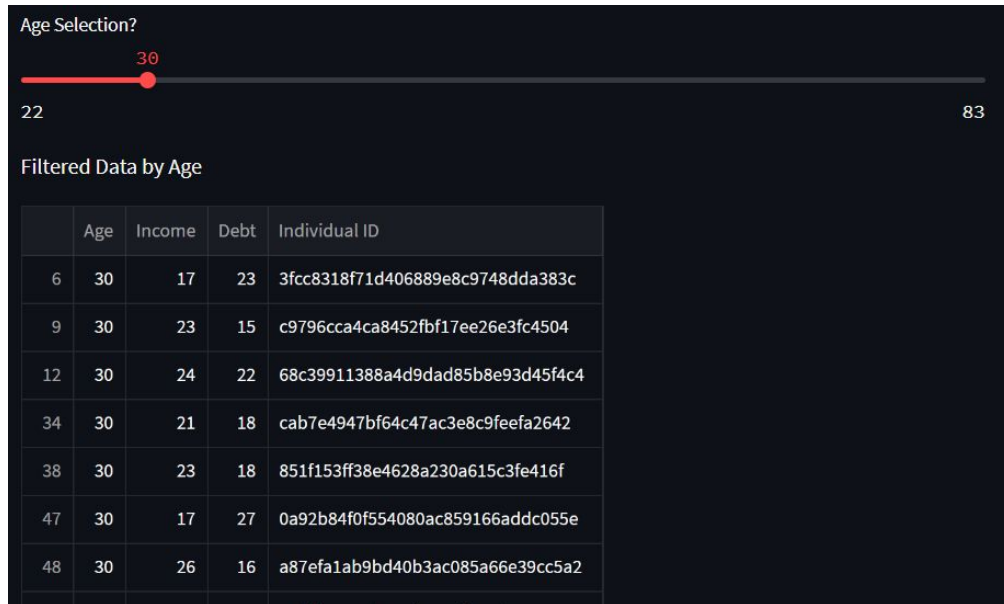
- Summary

- Import streamlit library
- Use simple commands in python
 - `st.line_graph`, `st.slider`, etc.
- Run the code straight from the terminal
 - `streamlit run file.py`
- Produces URL where the web app can be accessed
- Live options with widgets to alter parameters
 - dropdowns, file uploaders, etc.
- Can deploy app with unique URL

```
import streamlit as st
import pandas as pd

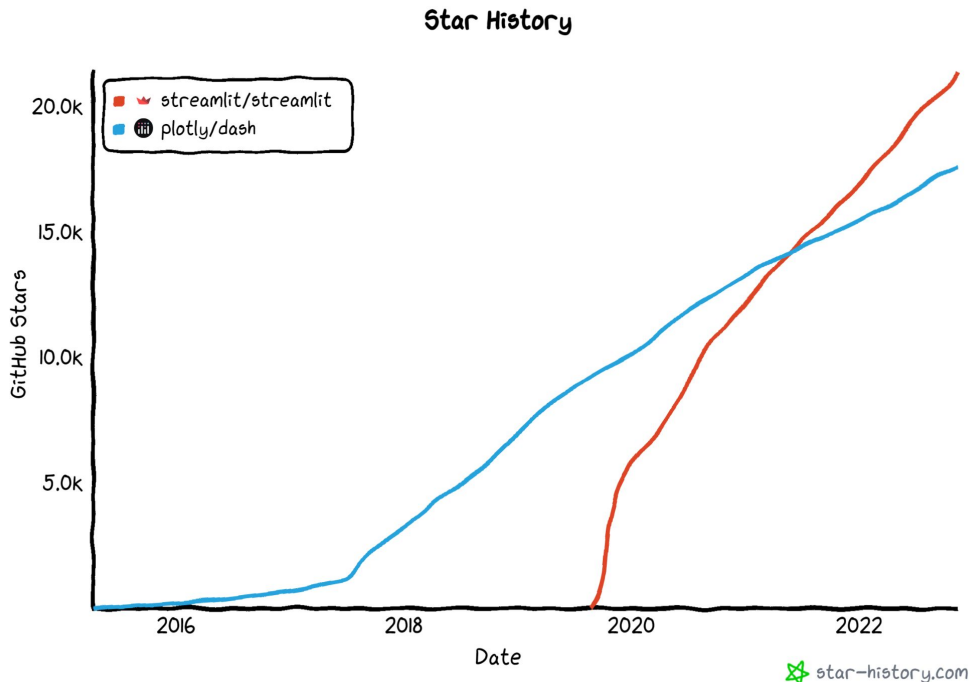
df = pd.read_csv("https://raw.githubusercontent.com/ThuwarakeshM/Practic
age = st.slider('Age Selection?', df['Age'].min(), df['Age'].max(), 30)

st.write("Filtered Data by Age")
st.write(df[df['Age']==age])
```



Appeal of Choice

- Low learning curve
 - Simplicity
 - Short coding script with linear flow
 - Minimal prerequisite skills required
- Compatible with major libraries & framework
 - Altair, Bokeh, Seaborn, Pandas, etc.
- Well-documented
- Default stylesheet



Argh. Drawbacks of Choice

This app has gone over its [resource limits](#). Common causes for this are memory leaks in the app logic, using caching without a TTL, or leaving large datasets in memory even after they are no longer needed. Please update and reboot this app to try again.

- Only support Python programming language
- Speed issues
 - The entire script has to be re-run when an input is changed
- Crash problems with large dataset
 - Dataframe size greater than 200MB
- Does not support Jupyter notebook
 - Works directly with Python script files