Ashok Singh

Expert in Data Analysis

Ashok Singh

Using data analytics, AI/ML, cloud, 5G and IOT to monetize data, generate new revenue streams and gain business efficiency

Profile: https://ashok-k-singh.github.io

LinkedIn: https://www.linkedin.com/in/ashok-singh-2020

Github: https://github.com/ashok-k-singh

Experience

- Over 20 years of leadership experience in leading Sales Engineering teams, Alliance and Channels teams, Product Management teams, Project Management and Software Development teams. Experience in working with worldwide customers and leading worldwide teams.
- Experience in driving results in multiple successful startup companies, taking ideas from incubation to product launch to wide scale deployment. Experience in driving results in multiple big companies
- Experience in leading business strategy, defining product strategy, bringing new solutions to market.
- Experience in cloud, developing and deploying applications for the cloud
- Experience in the product development life cycle, including agile methodologies
- Hands-on technical skills in VBA, Python, C++, Java, Web APIs, HTML, JavaScript, SQL Databases, Big Data and Machine Learning
- Experience in 5G, IoT, Security, LTE, PON/DSL/Cable/IMS, SD-WAN and IP routers

Education

- **Data Analytics Boot Camp**, UNC Chapel Hill

  A+ average score

- **MBA**, UNC Chapel Hill

  Selected for Beta Gamma Sigma honor society

- **Bachelor in Computer Engineering**, National Institute of Technology, India

  Graduated with Distinction

Using Pandas for Data Analysis

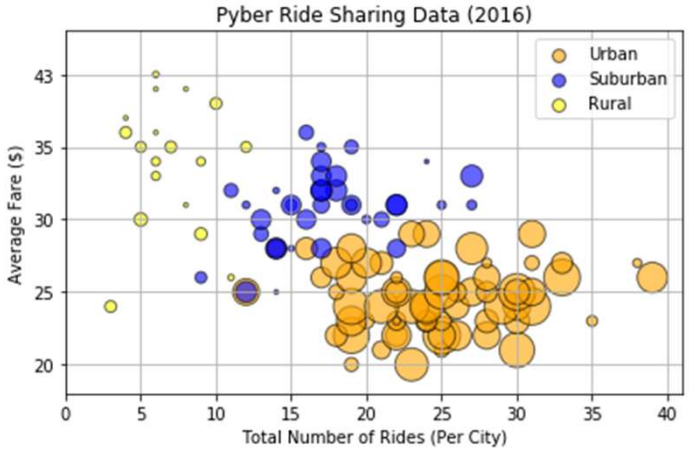
- Analyze the district-wide standardized test results and find obvious trends in school performances to help the school board strategic decisions regarding future school budgets and priorities
- CSV file was provided for Student Data and School Data
- Used Pandas data frame to clean and analyze the data
- Made use of Pandas merge, formatting, sorting, groupby, loc/iloc, cut/binning methods

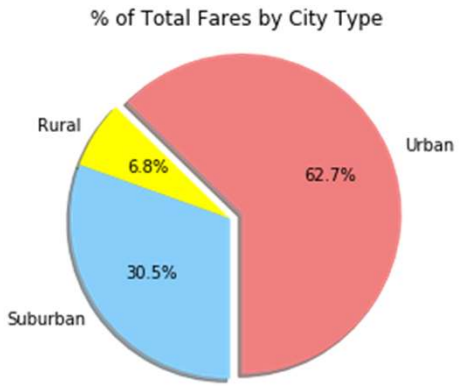
Analysis

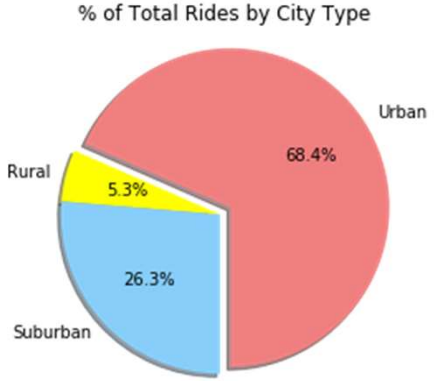
- Schools with higher budgets, did not yield better test results
- Smaller and medium sized schools out-performed large sized schools
- Charter schools out-performed the public district schools across all metrics
- Students across schools did better in reading compared to math

Using Matplotlib for Visualization

- Got access to the ride sharing data for active drivers including details like city, driver count, fares, city type. Goal is to visually show Average Fare ($) Per City, Total Number of Rides Per City, Total Number of Drivers Per City, City Type (Urban, Suburban, Rural)
- Use Pandas to prepare the data and Matplotlib to visualize

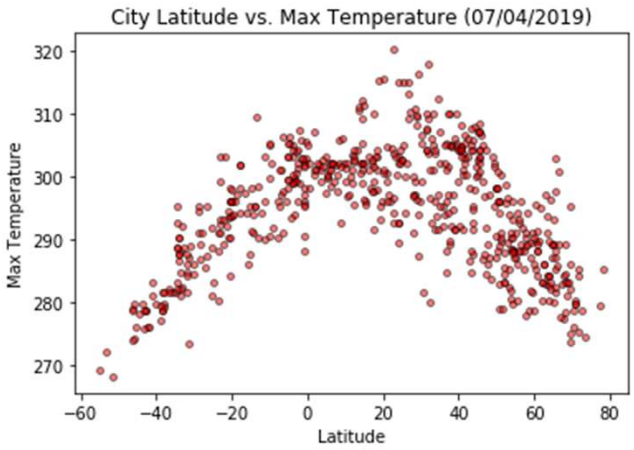


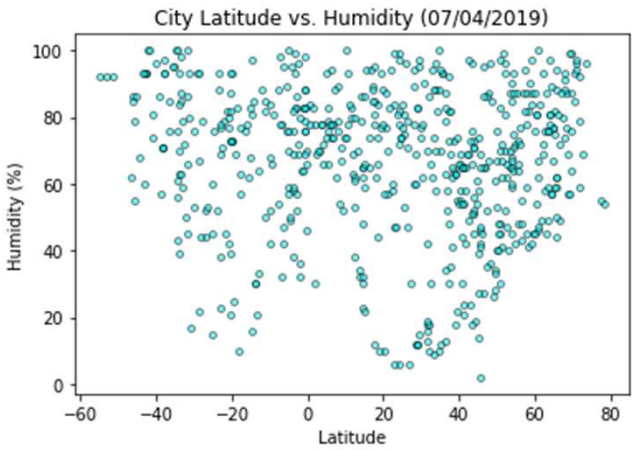


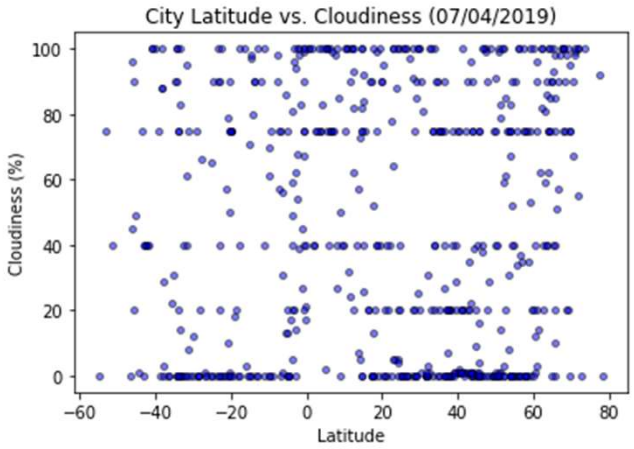


Using Web API to get Weather Data

- Use Web API to get the weather data of 500+ cities across the world of varying distance from the equator and visualize the data
- Used OpenWeatherMap API to access the weather data, Pandas to prepare the data and Matplotlib to visualize

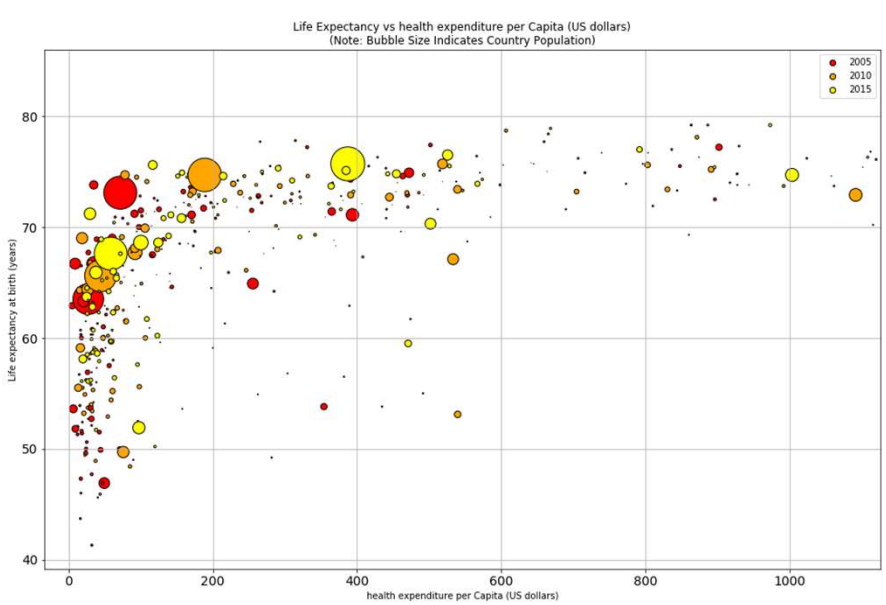


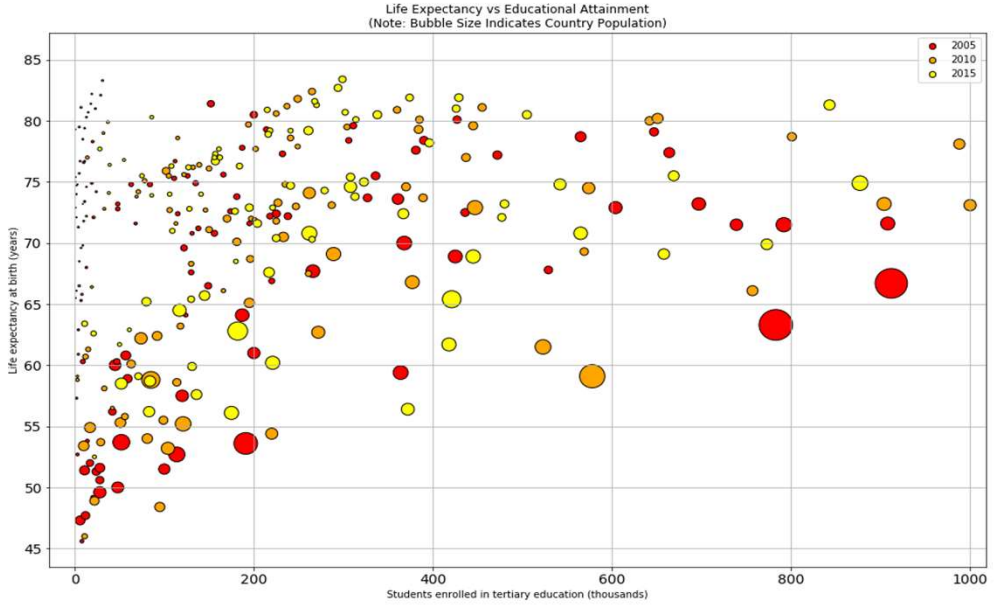




Analysis of Economic and Social Factors on Life Expectancy

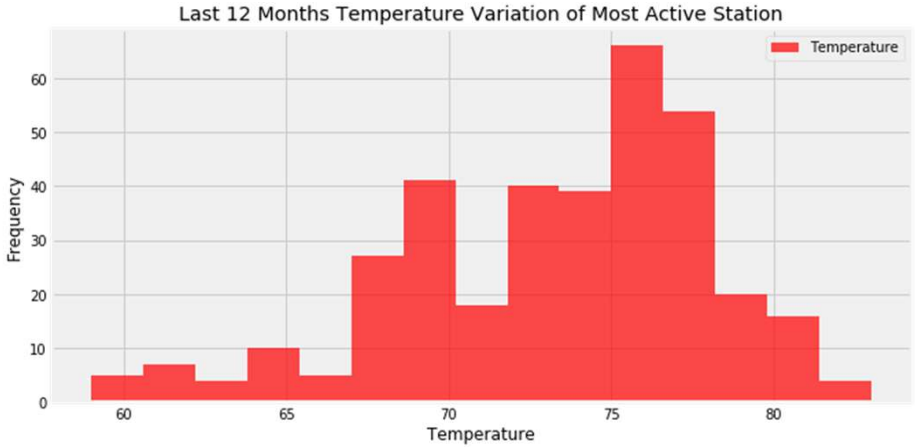
- Understand which economic and social factors that affect life expectancy around the world
- Used United Nation Data, i.e. GDP per capita, healthcare spending, Education data, Crime Data
- Used Pandas to clean the data and Matplotlib to visualize

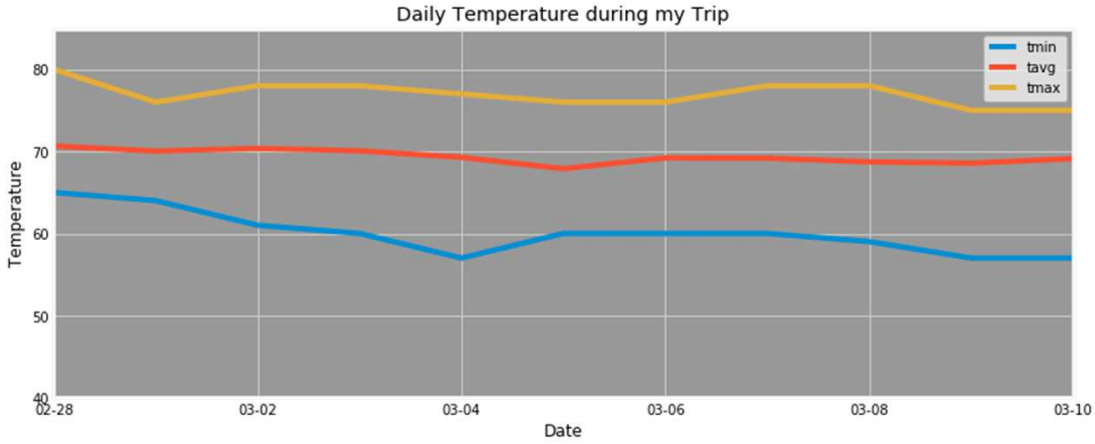




SQLAlchemy and Python to do Climate Analysis

- Use SQLAlchemy `create_engine` to connect to sqlite database and `automap_base()` to reflect the tables
- Design a query to retrieve the last 12 months data, loaded the query results into a Pandas DataFrame and plotted the results using the Pandas `plot` method

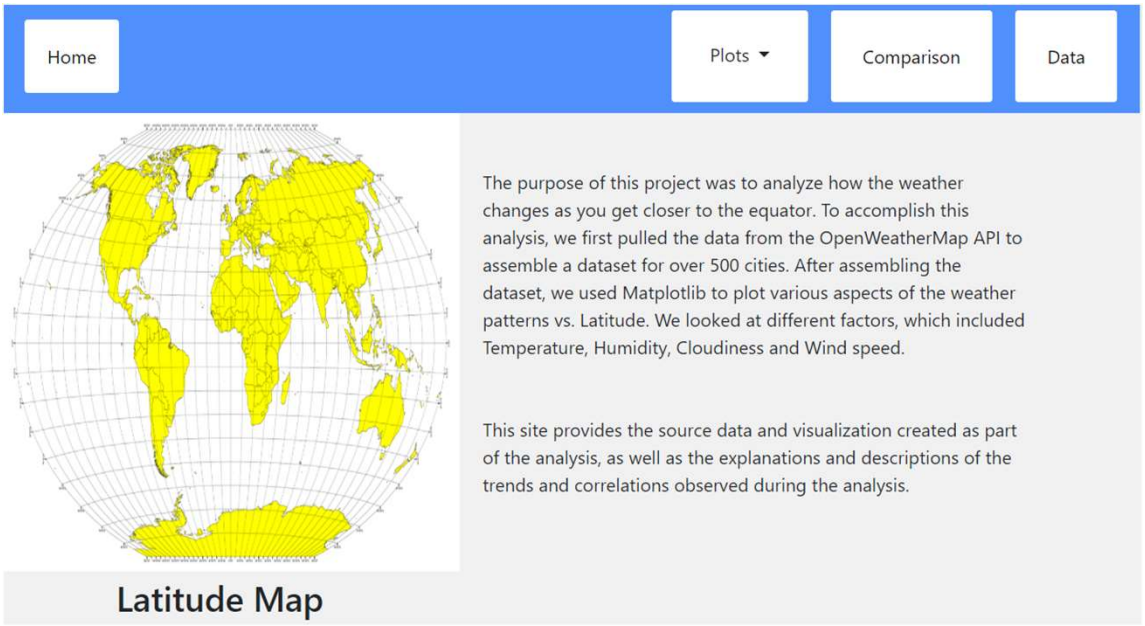




Using HTML and Web Page to Visualize Data

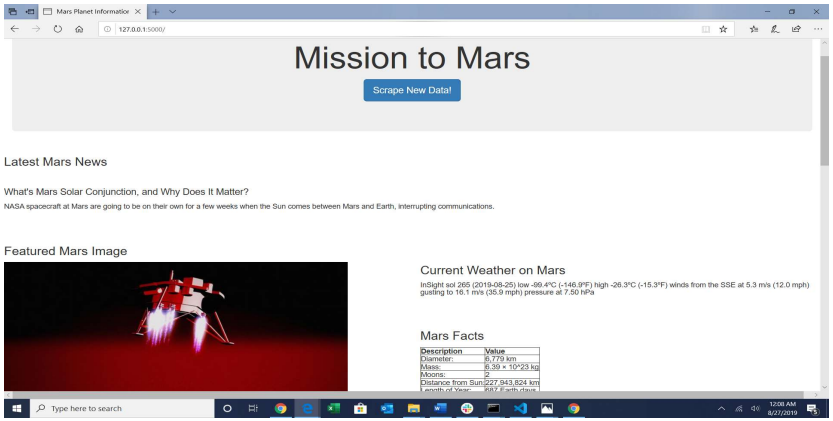
Analyze how the weather changes as one get closer to the equator. Used OpenWeatherMap API to assemble a dataset for over 500 cities. Used Matplotlib to plot various aspects of the weather patterns vs. Latitude. Analyzed different factors, i.e. Temperature, Humidity, Cloudiness and Wind speed.

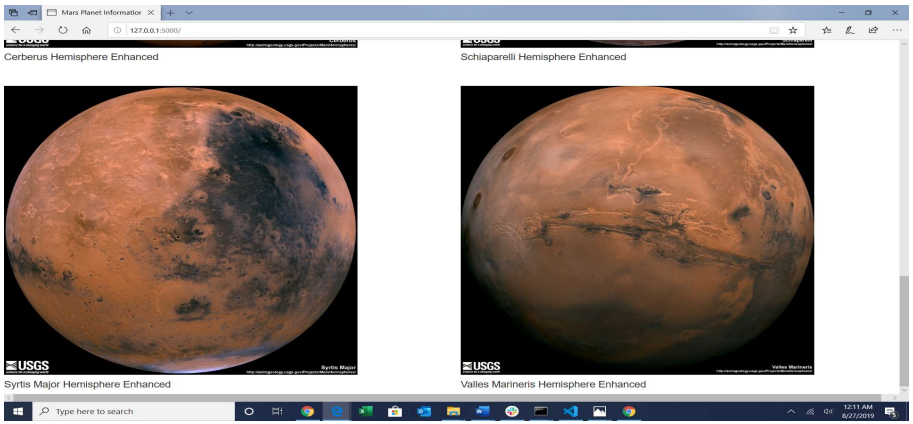
https://ashok-k-singh.github.io/Webhome



Using Mongo DB, Flask, BeautifulSoup, Splinter to build Web App

- Build a web application that scrapes various websites for data related to the Mission to Mars and displays the information in a single HTML page
- Do Web scraping using Jupyter Notebook, BeautifulSoup, Pandas, and Requests/Splinter
  - Scrape the NASA Mars News Site (https://mars.nasa.gov/news/) to collect the latest News related to Mars
  - Use splinter to navigate the site and find the Featured Mars Image
  - Visit the Mars Weather twitter account (https://twitter.com/marswxreport?lang=en) and scrape the latest Mars weather tweet from this page
  - Visit the Mars Facts webpage (https://space-facts.com/mars/) and use Pandas to scrape the data containing facts about the planet including Diameter, Mass
  - Visit the USGS Astrogeology site (https://astrogeology.usgs.gov/search/results?q=hemisphere+enhanced&k1=target&v1=Mars) to obtain high resolution images for each of Mar's hemispheres
- Use MongoDB with Flask template to create a new HTML page that displays all the information that was scraped from the URLs above



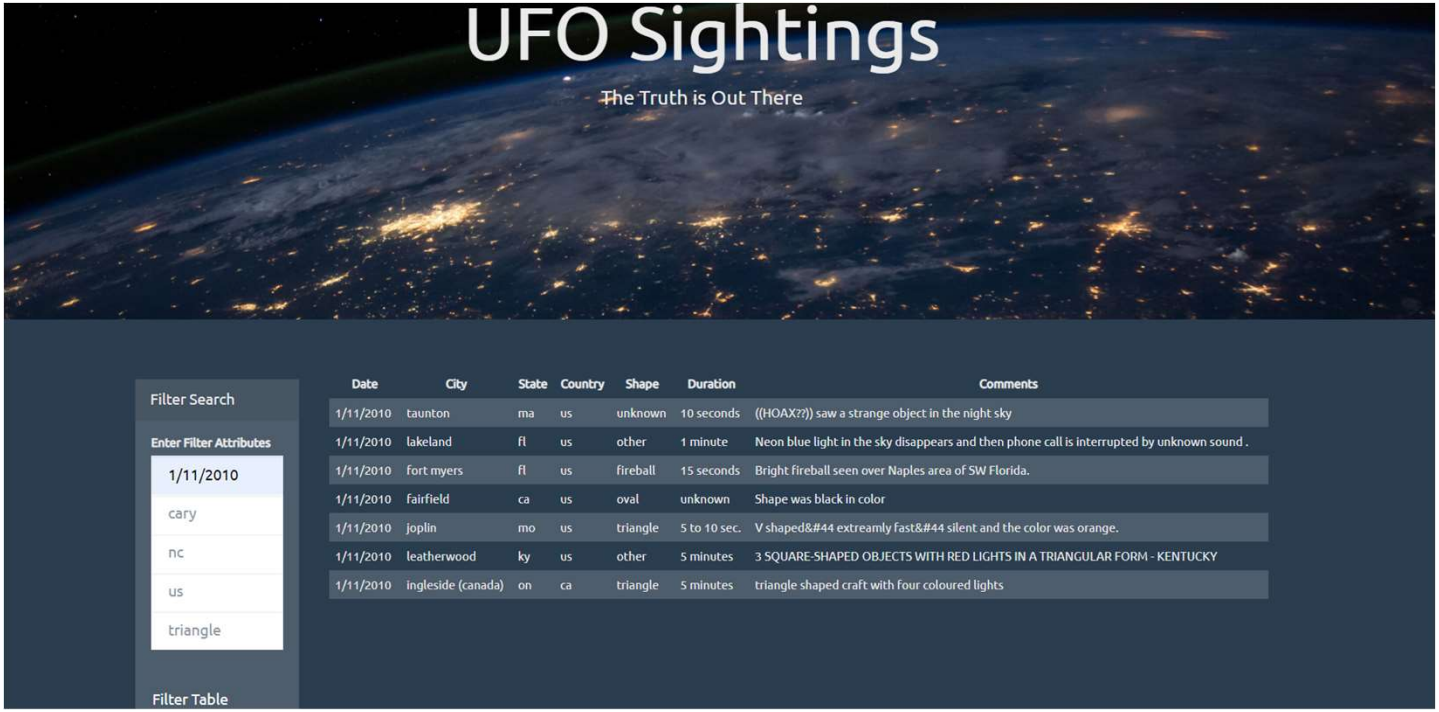


ETL to analyze consumer complaints

- Analyze the major factors which may affect the consumer financial complaints
- Used following data sources
  - Consumer Complaint data from the Consumer Financial Protection Bureau Database
  - Microeconomic Data from Federal Reserve Bank of New York
  - Unemployment Data from the Bureau of Labor Statistics
  - GDP per Capita data from Wikipedia database
  - Two Letter State Abbreviations from USPS database
- After assembling the raw dataset, used Python/Pandas libraries to transform the database
- Loaded the database into Postgres SQL database using SQLalchemy connection

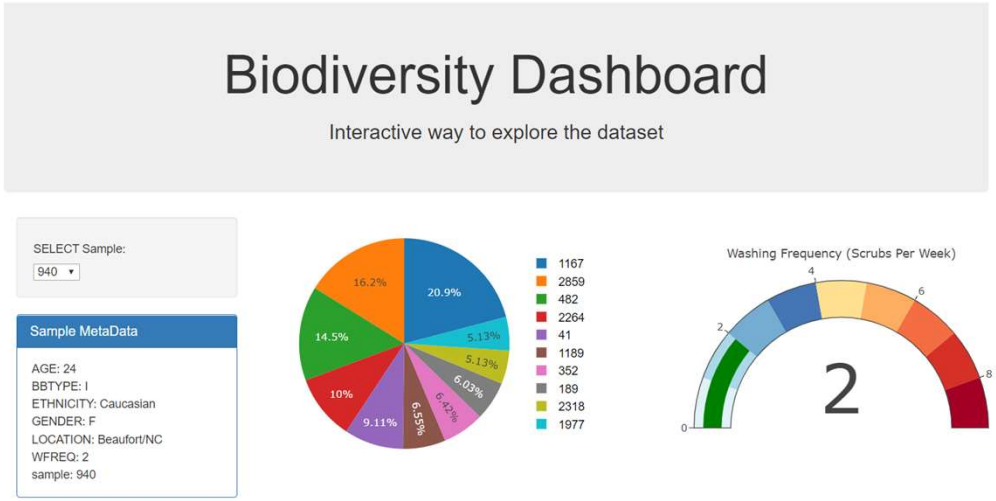
Using Java Script to show dynamic UFO Sighting

- Using the UFO dataset, wrote JavaScript code that adds new rows of data for each UFO sighting
- Used HTML web programming, CSS styling and Java Script to show the dynamic aspect of the data



Deploying Application on Heroku

- Built an interactive dashboard to explore the Biodiversity Dataset
- Use Plotly to build interactive charts for the dashboard
- Used HTML for web page and Java script to handle dynamic aspect of the data
- Wrote the flask application and created the appropriate routes for the data and visualization
- Deployed the application on Heroku
- https://ashok-biodiv.herokuapp.com



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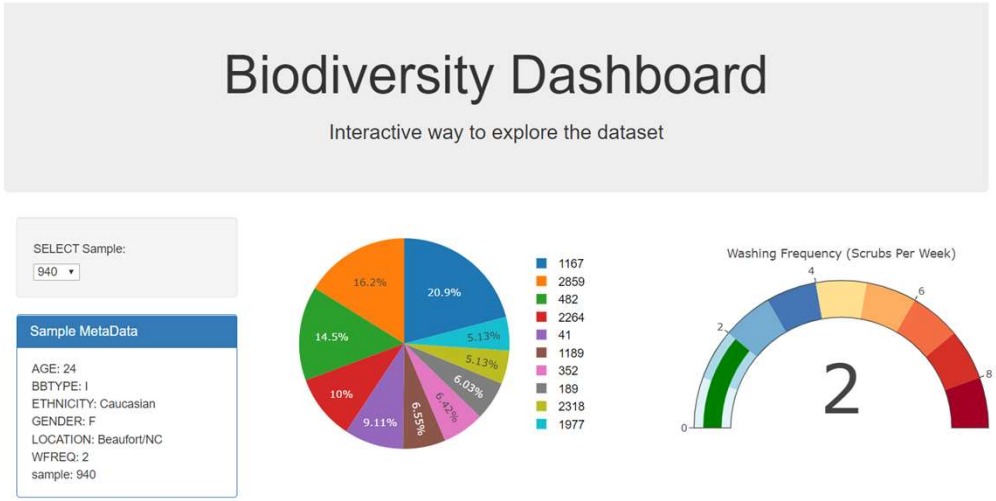
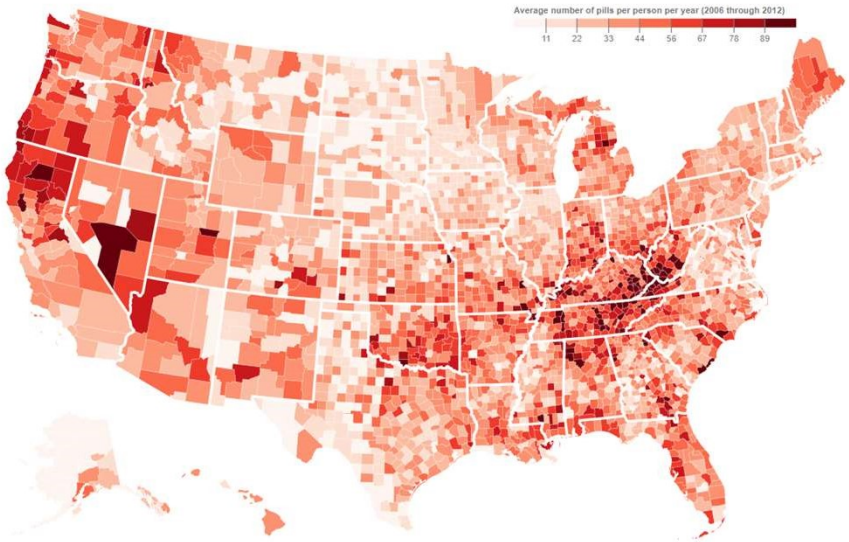


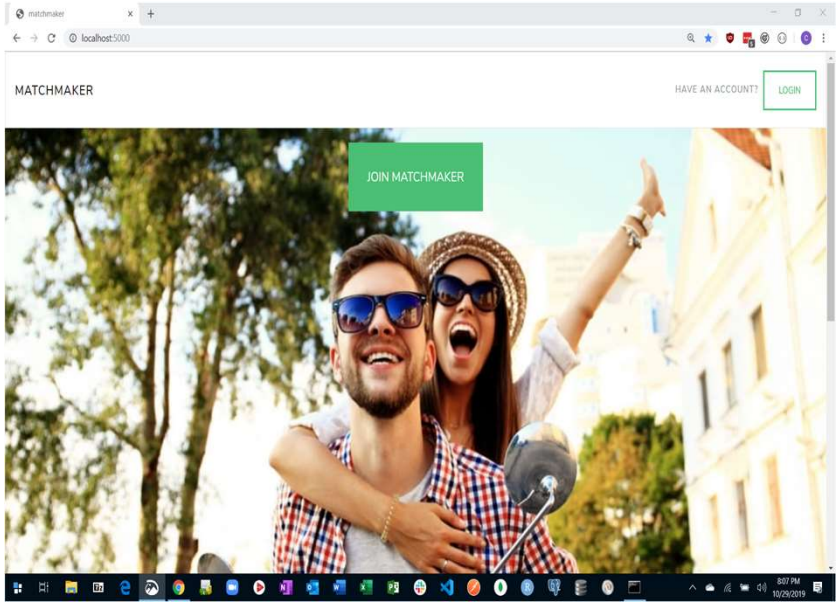
The Opioid Project



- Used Drug Enforcement Administration (DEA) Opioid drugs database, which was provided by Washington Post to tracks the path of Opioid drugs sold in the United States, by manufacturers and distributors to pharmacies in every county
- Used D3 JS to show manufacturer's analysis
- Used Sankey diagram to show Distribution Analysis
- Used Heat Map, Cluster Map and Marker Map to show pharmacy analysis
- Used Python, Pandas, Java script, HTML, Flask, Postgres database
- Following were the observations
  - Per capita pill distribution was very high in some of the counties. Higher pill distribution per capita should have flagged potentiation misuse of the Opioid drugs.
  - Handful of companies manufactured, distributed and benefitted from high usage of the Opioid drugs.
- Deployed the application to Heroku

https://data-vis-proj2-el-chapo.herokuapp.com

The Matchmaker Project



- Used the speed dating experimental data collected by Columbia Business School at different times
  - Self demographics information e.g. Race, Gender, Age
  - Partner demographics information e.g. Race, Gender, Age
  - Self-assessment e.g. Attractiveness, Sincerity, Intelligence, Fun, Ambition
  - Partner Preference e.g. Attractiveness, Sincerity, Intelligence, Fun, Ambition
- Used Python Pandas to clean and transform the data
- Use machine learning algorithms to find the best match for a given profile
- Used AWS Postgres SQL database
- Deployed the application to Heroku

https://unc-datavis-matchmaker.herokuapp.com/