NYC Restaurant Inspection

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Data Engineering Project

Introduction

- CDC estimates 48 million individuals get sick from foodborne related illnesses each year
- In a survey, it estimates around 56% Americans eat out 2-3 times a week

Objective

- To bring awareness on potential risks when eating at restaurants with a history of violations
- Foodborne illness outbreaks occur not only from manufactured products, but also from restaurants

FOOD AND DRINKS · Published April 21, 2020 5:13pm EDT

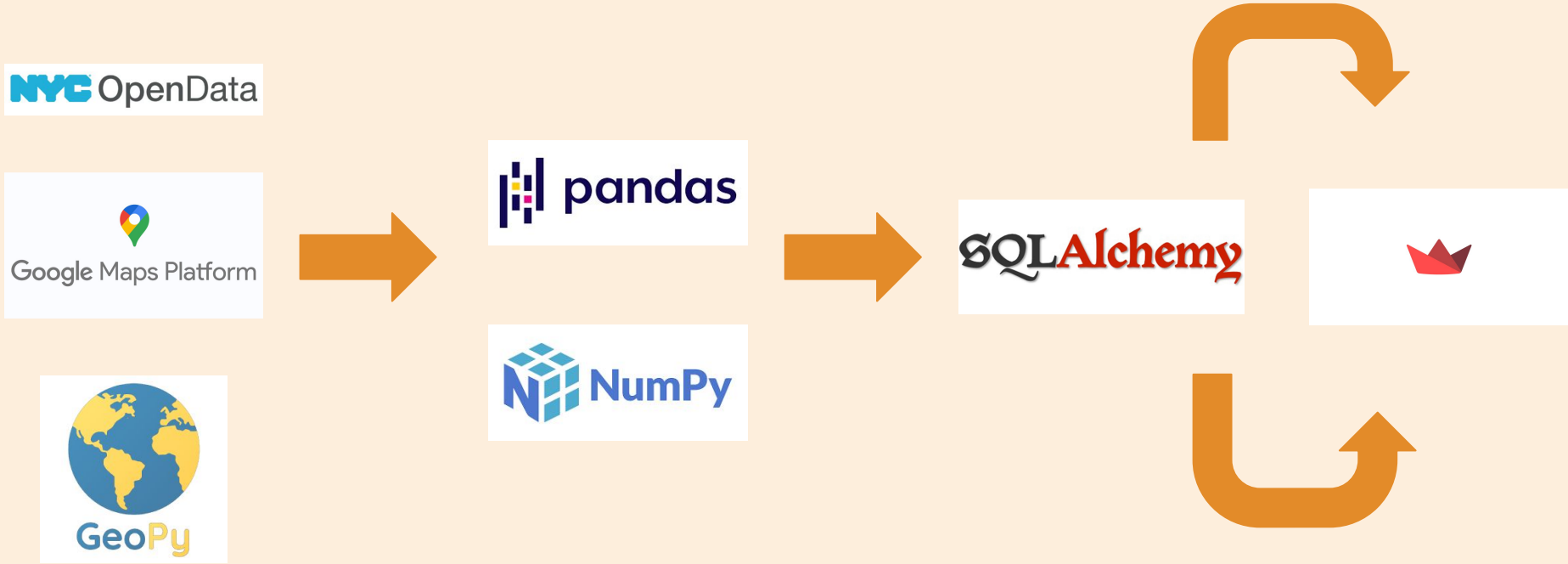
Chipotle to pay record $25M fine over foodborne illness outbreaks

Outbreaks at Chipotle restaurants sickened more than 1,100 people from 2015 to 2018

By Thomas Barrabi | FOXBusiness |

Chipotle Mexican Grill will pay a $25 million fine to settle criminal charges related to its role in outbreaks of foodborne illnesses at its restaurants beginning in 2015, the U.S. Department of Justice said Tuesday.

Workflow Overview



Data Pipeline

Data Ingestion	Pre-Processing	Processing	Processing	Deployment
- API requests from SODAPY, Google Map Platform, Geopy	- Using pandas cleaned data	- Store into relational database using SQLAlchemy	- Load SQL database - Read data into pandas - Queries for analysis - Save into csv files	- Streamlit web application - Interactive

1. Data Ingestion

DOHMH New York City Restaurant Inspection Results data from NYC Open Data Source

- Obtained with SODAPY API
  - 248,020 restaurant violations
  - 26 features
  - 2015-2022
- Used Google Map Platform API + Geopy
  - (latitude, longitude) to map in web app

2. Pre-Processing Stage

- pandas and numpy to data clean
- Removed data where Inspection date : 1/1/1900-
  - indicates establishments that have not been inspected yet
  - Drop duplicates

- 66174 rows of data (reduced 70% of data)

3. Processing Stage

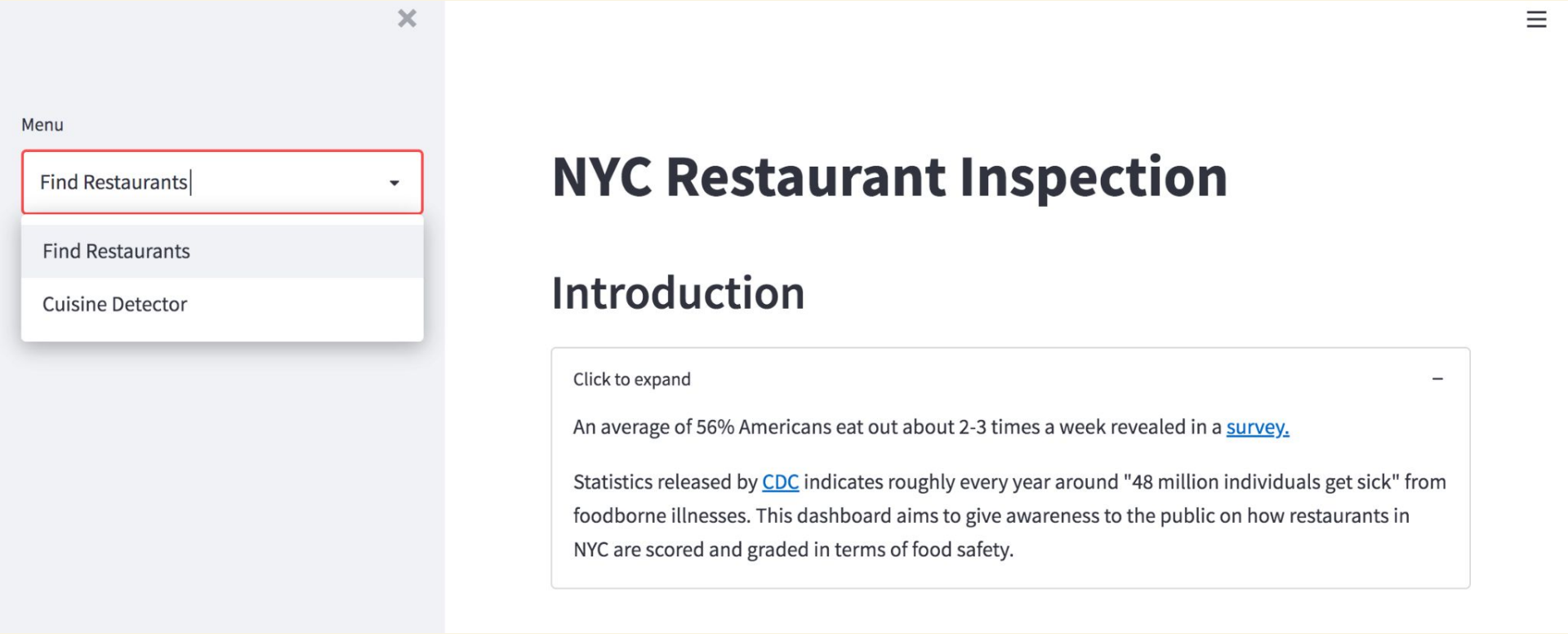
- Store data into SQL database
- Load by reading into pandas
- SQL queries for data analysis
- Save as CSV file

- From 2015- 2022: American cuisine had the most cumulative scores
- From 2020-2021: Number of inspections low due to the pandemic + Covid

4. Deployment

- Web application using Streamlit
- Folium for mapping
- Features:
  - Grade level color coded
  - Popup marker lists: name, cuisine, address, grade, score
  - Number of loaded results indicated

4. Deployment



4. Deployment

Click to expand

Menu

Find Restaurants

Restaurant Viewer

Inspection Year: 2018

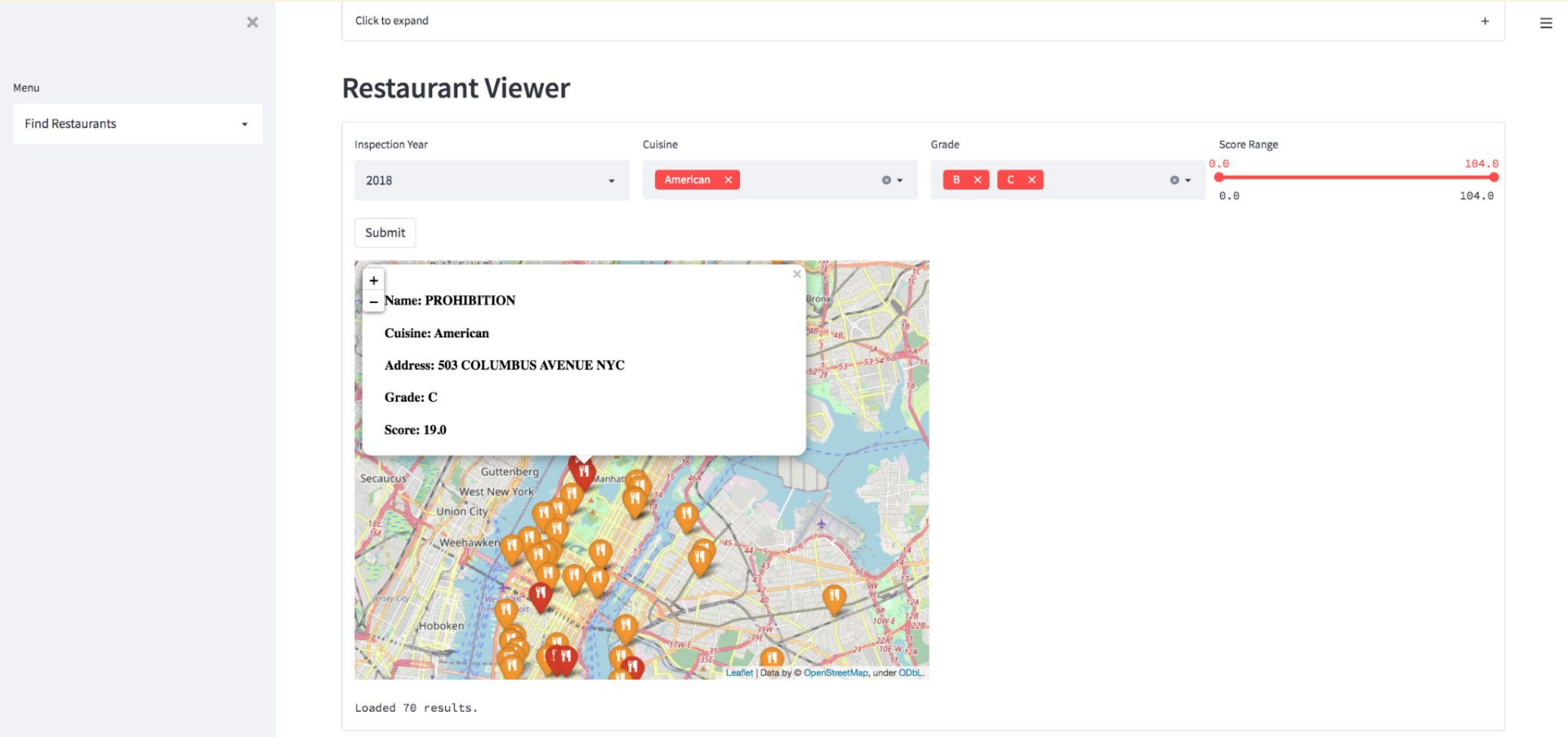
Cuisine: American

Grade: B, C

Score Range: 0.0 – 104.0

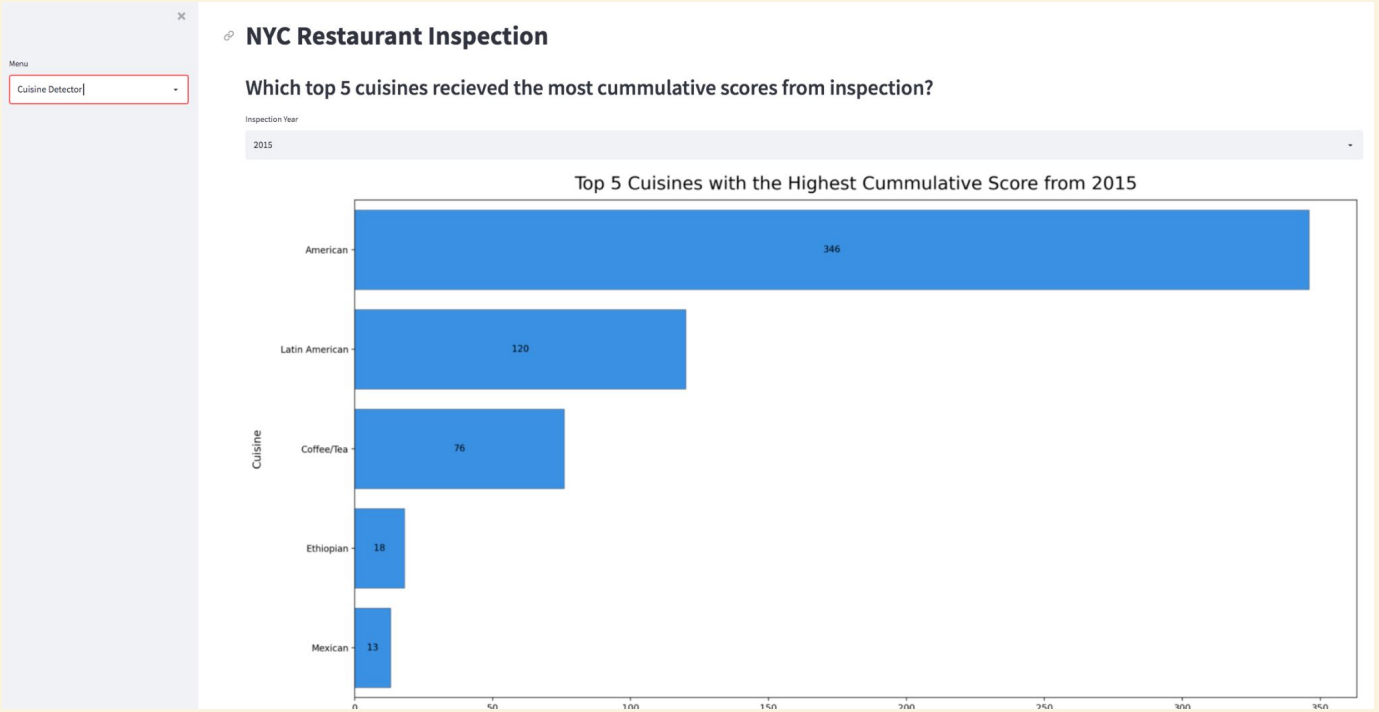
Submit

4. Deployment



4. Deployment

- Seaborn + Matplotlib for barchart visualization
- User selects year to update barchart with the top 5 cuisines with highest cumulative scores



Future Work

- Automate API that updates the data on a daily basis
- Create search bar engine where user can input restaurant name
- Implement nearby location search where top 5 results of nearby restaurants will appear on web application
- Deploy app either on Heroku or Github