FRAME

(Food Recommendations For All Methodical Eaters)

Zachary Bowyer, Arjun Sharma, Raman S V, Adithyaa Vassen

Background

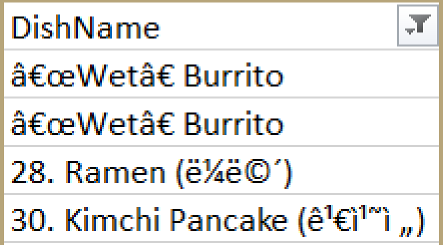
- The current popular methods of ordering foods (Uber Eats, Doordash) have a few issues
  - “Analysis Paralysis”
  - “Doom Scrolling”
- We propose a simple filter-based recommender with two key aspects
  - Recommend a small number of dishes
  - Focus more on dishes instead of restaurants
- In essence, this project is a ‘tool’ that helps us analyze our food choices from pre-existing data sources and acts as a customized food recommendation system

Data used

- UberEats
  - Kaggle dataset collected via web scraping using python libraries
  - Limitations:
    - Not currently up to date (7 months old)
    - Might not include every Seattle restaurant
- King County Food Inspection
  - Seattle/King County public health department updates database with inspections as they occur; We downloaded most recent dataset
  - Limitations:
    - Since it seems data is manually updated, it is possible data could be missing, and it would be difficult to know
- ‘Uszipcode’ data
  - Dataset collected from crawling/scraping data.census.gov
  - Limitations:
    - Not perfectly up to date, but doesn’t really affect our use case
- ‘Googlemaps’ database
  - Data obtained by Google through employing many different expensive methods to construct highly accurate maps
  - Limitations: Needs api key to access data, limited rates

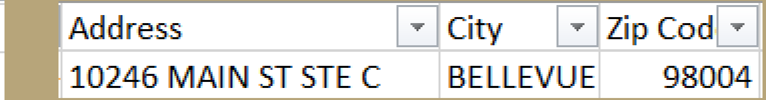
Data Cleaning

Noise



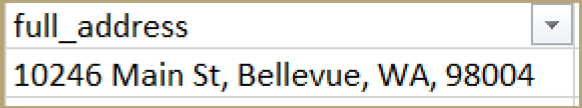
DishName
â€œWetâ€ Burrito
â€œWetâ€ Burrito
28. Ramen (ë¼ë©´)
30. Kimchi Pancake (ê¹€ì¹˜ì „)

Merging Addresses



Address	City	Zip Cod
10246 MAIN ST STE C	BELLEVUE	98004

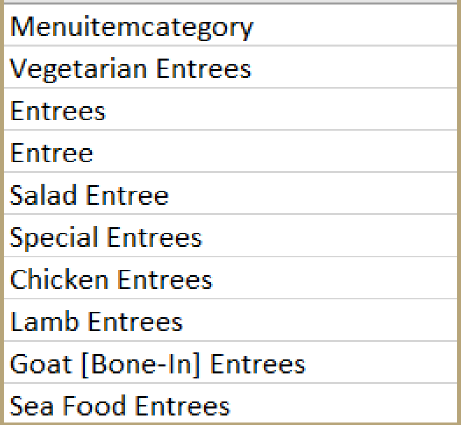
Inspection data



full_address
10246 Main St, Bellevue, WA, 98004

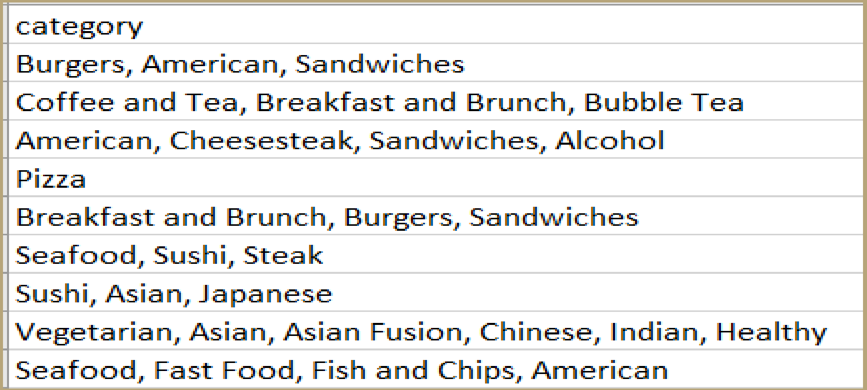
Restaurant data

Menu Category Fix



Menuitemcategory
Vegetarian Entrees
Entrees
Entree
Salad Entree
Special Entrees
Chicken Entrees
Lamb Entrees
Goat [Bone-In] Entrees
Sea Food Entrees

Restaurant Category Fix

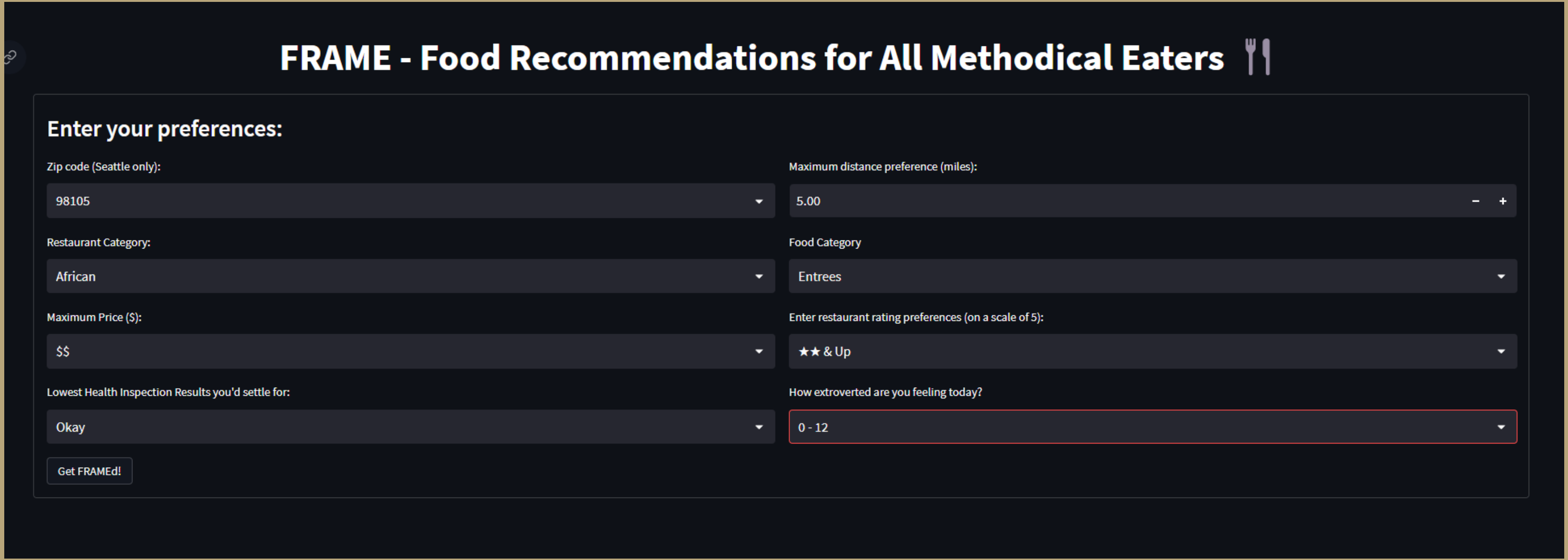


category
Burgers, American, Sandwiches
Coffee and Tea, Breakfast and Brunch, Bubble Tea
American, Cheesesteak, Sandwiches, Alcohol
Pizza
Breakfast and Brunch, Burgers, Sandwiches
Seafood, Sushi, Steak
Sushi, Asian, Japanese
Vegetarian, Asian, Asian Fusion, Chinese, Indian, Healthy
Seafood, Fast Food, Fish and Chips, American

Use cases

- At a high level, the app provides users with 5 dish recommendations on what they would want to eat based on their filters. The app has the below filters -
  - Seattle area Zip Code: the user has to select the Zip code of the area they want results for
  - Maximum distance (miles): the maximum distance the user would want a restaurant to be in
  - Restaurant Category: one of 25 categories such as African, Asian, American etc.
  - Food category: categories such as Appetizers, Entrees etc.
  - Maximum Price ($): price preference, on a scale of $ to $$$$ (similar to the Google Maps display)
  - Restaurant rating: rating preference on a scale of 5 stars
  - Health Inspection Results: where available, provide the latest health inspection results details
  - Extrovert level: a filter for the user’s current mood, ranging from takeaway to a giant seating capacity of 250+
- The user can select a combination of their choices from above and the app will display a set of 5 results

Use cases - Filters



FRAME - Food Recommendations for All Methodical Eaters 🍴

Enter your preferences:

Zip code (Seattle only): 98105

Maximum distance preference (miles): 5.00

Restaurant Category: African

Food Category: Entrees

Maximum Price ($): $$

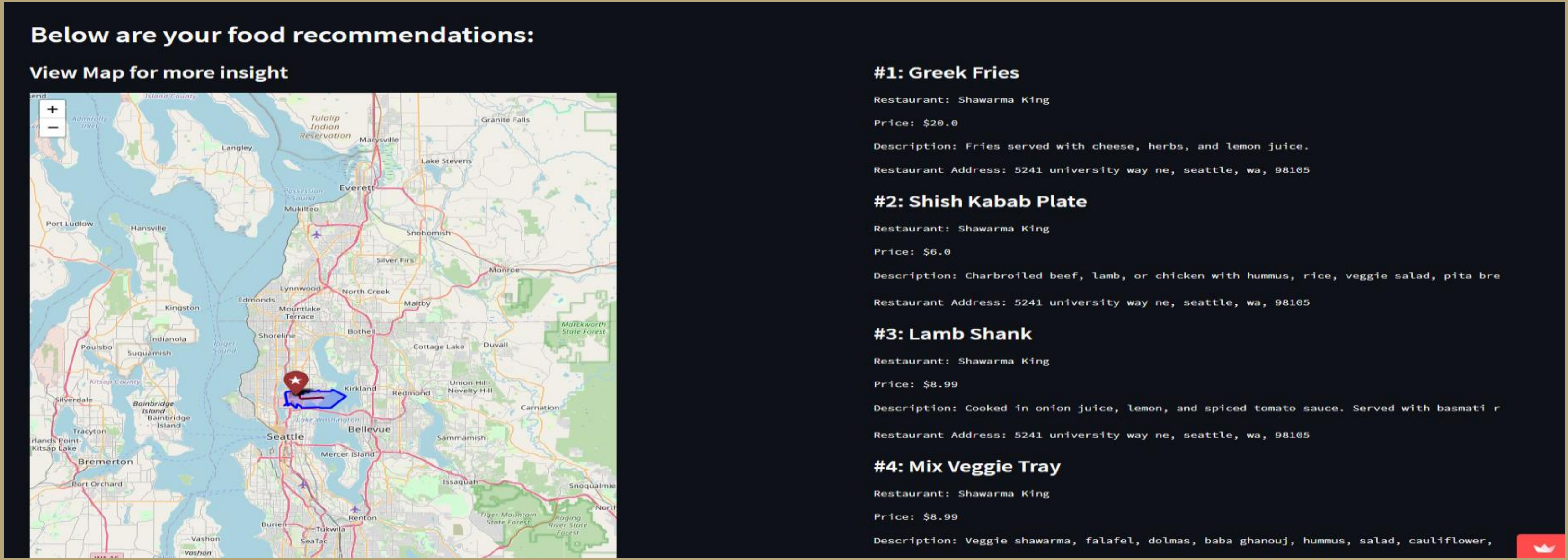
Enter restaurant rating preferences (on a scale of 5): ★★ & Up

Lowest Health Inspection Results you'd settle for: Okay

How extroverted are you feeling today? 0 - 12

Example screenshot of the options a user has selected

Use cases - Results



Below are your food recommendations:

View Map for more insight

#1: Greek Fries

Restaurant: Shawarma King

Price: $20.0

Description: Fries served with cheese, herbs, and lemon juice.

Restaurant Address: 5241 university way ne, seattle, wa, 98105

#2: Shish Kabab Plate

Restaurant: Shawarma King

Price: $6.0

Description: Charbroiled beef, lamb, or chicken with hummus, rice, veggie salad, pita bre

Restaurant Address: 5241 university way ne, seattle, wa, 98105

#3: Lamb Shank

Restaurant: Shawarma King

Price: $8.99

Description: Cooked in onion juice, lemon, and spiced tomato sauce. Served with basmati r

Restaurant Address: 5241 university way ne, seattle, wa, 98105

#4: Mix Veggie Tray

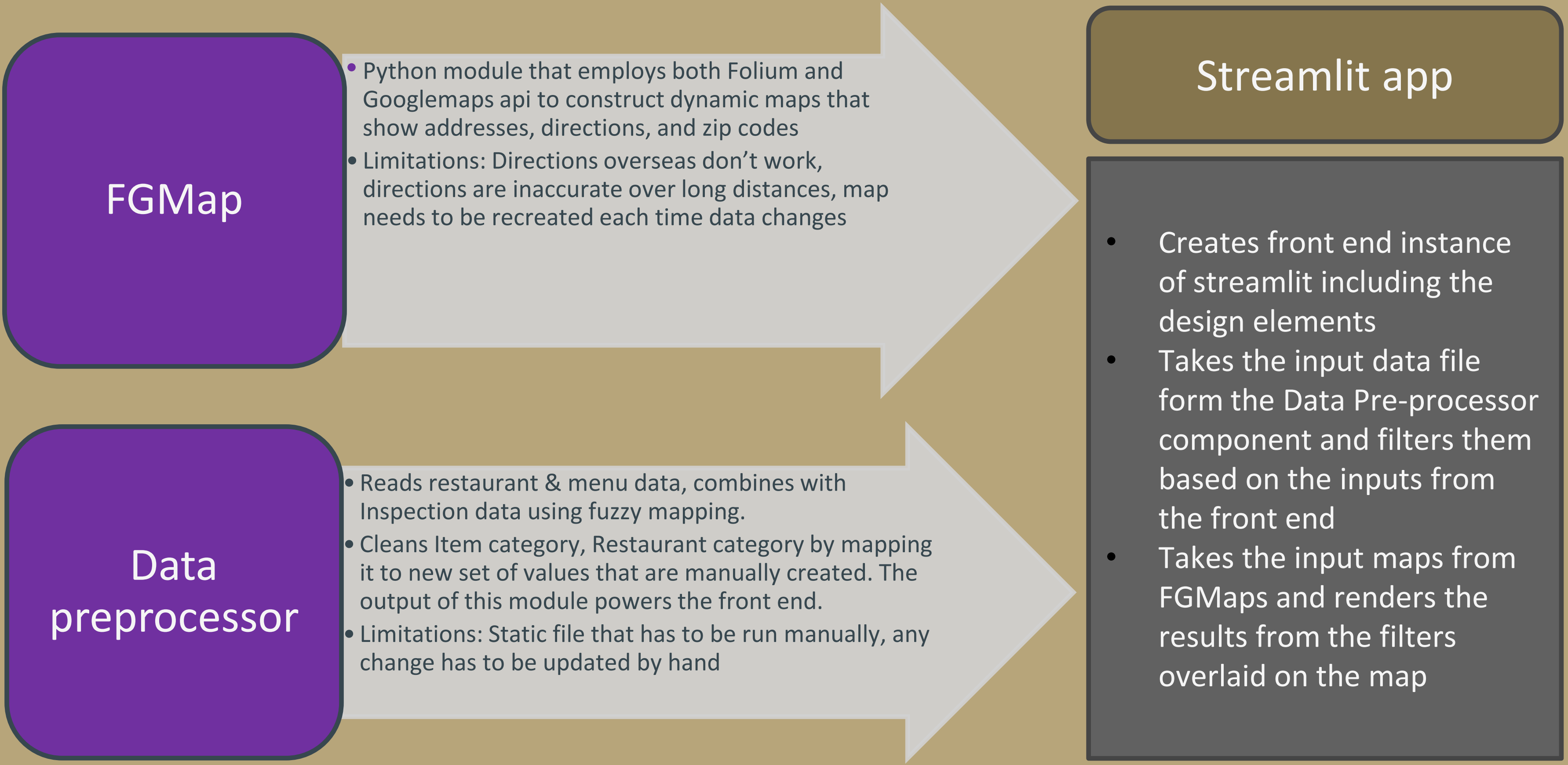
Restaurant: Shawarma King

Price: $8.99

Description: Veggie shawarma, falafel, dolmas, baba ghanouj, hummus, salad, cauliflower,

Example screenshot of the results based on the filters from the previous slide

Design and Components



FGMap

- Python module that employs both Folium and Googlemaps api to construct dynamic maps that show addresses, directions, and zip codes
- Limitations: Directions overseas don't work, directions are inaccurate over long distances, map needs to be recreated each time data changes

Data preprocessor

- Reads restaurant & menu data, combines with Inspection data using fuzzy mapping.
- Cleans Item category, Restaurant category by mapping it to new set of values that are manually created. The output of this module powers the front end.
- Limitations: Static file that has to be run manually, any change has to be updated by hand

Streamlit app

- Creates front end instance of streamlit including the design elements
- Takes the input data file form the Data Pre-processor component and filters them based on the inputs from the front end
- Takes the input maps from FGMaps and renders the results from the filters overlaid on the map

Demo

Video Link - Team FRAME Front End Demo

Demo link: Team FRAME Live Front End link

Lessons learned

- Conda environments can be complicated across platforms
  - sqlalchemy (>=1.4.1<2.0.0) vs sqlalchemy (>=1.4.1,<2.0.0) for building environments
  - Pip install vs conda install, some packages didn’t exist on conda
  - Getting environments to work for Mac, Linux, and Windows
  - Making sure used packages are compatible with various platforms
- Conda environments, setup.py, and shell scripting can be combined to make it very easy for people to quickly run your code including the data needed to provision this
- Continuous integration is a powerful tool for ensuring code quality and consistency
- Enforcing timelines and schedules in a college environment is very different from a professional setting.
  - Need to strictly enforce deadlines and follow up on a regular cadence
  - Freezing branches and code for important events such as demos so that code isn’t broken by last minute changes
  - Strict Version control and release of software
- Streamlit
  - Dealing with free/freemium add-ons such as GoogleMaps , need to keep a track of what is allowed and when it expires
  - Hosting and caching , needing to understand how server architecture works

Scope for Future work

- From the original pitch we had presented -
  - Viewing and searching for specific restaurants
  - Filtering entire menu items from a subset of restaurants
- Automate the data cleansing and loading on a weekly cadence
- Extending the range to beyond the Seattle area
- Including a recommendation system that leverages past user data and ML algorithms

THANK YOU!

Eat Healthy, Spend Wisely