Project Report, Visualization For Data Science
"Data Bites"

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1 Project Contributors

This project is being made by two members. Their uNID and email addresses are listed below.
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2 Background & Motivation

The motivation for this project was very simple. Everyone loves food, and most people use food delivery apps. However, sometimes we find it rather difficult to find a good restaurant serving the kind of food we want to eat. It takes some time tinkering around with the search filters, and even when we do get a list of restaurants in the app, we struggle to make a decision. With "Data-Bites", we intend to present data from around 100K restaurants in India, and make it easy for users to find out what restaurant they fancy. Our intention is to make it easier for people to make food related decisions. The users will be able to filter results based on various factors, such as:

1. The location of the restaurant
2. The type of cuisine
3. The ratings the restaurant received, and
4. The cost of eating at that restaurant

3 Project Objectives

Our objectives with this project are as follows:

- **Cuisine Diversity Visualization**: We want to enable the users to see the types of cuisines offered in their neighbourhood, and give them many more options to choose from that they otherwise would have had. They might even discover some cuisine they hadn't heard of.
- **Popular Locations Identification**: Based on user given parameters, we will show them what the best restaurant is within those constraints.
- **Interactive User Interface**: Our goal is to have a simple and easy to use web interface, but conveying useful information at the same time. Our philosophy is simple: less is more.
- **Navigate**: We plan to provide a button using which the user is taken to Google Maps. From here, they can directly navigate to their chosen restaurant.

- **Menus**: We would like to show the restaurants menu right from our website, making it an all encompassing user experience.

4 Data

We obtained our dataset from Kaggle. It contains information about restaurants on the Swiggy food delivery app, which is a popular app in India. This dataset contains over 100K unique data points, and we think it should be good for this project. The link to the dataset can be found here.
This data has the following fields:

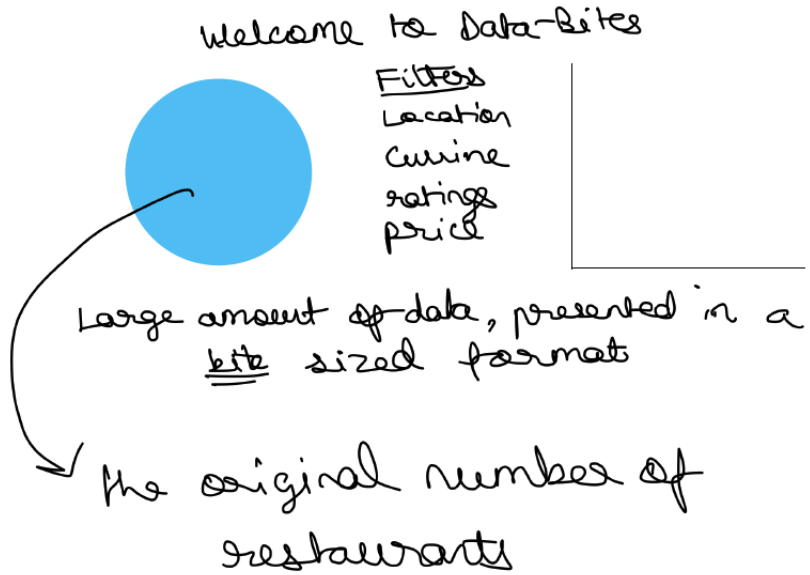
1. The restaurant ID
2. The restaurant name
3. City
4. Rating
5. Number of ratings
6. Cost
7. Cuisine
8. Link to the restaurants menu, and
9. Location

5 Data Processing

We do not expect to do much data processing as from our initial analysis, this data has been collected well. However, we need to dive much deeper into it before we come to a conclusion. Therefore, we have allocated a week for this activity as a buffer.

6 Visualization Designs

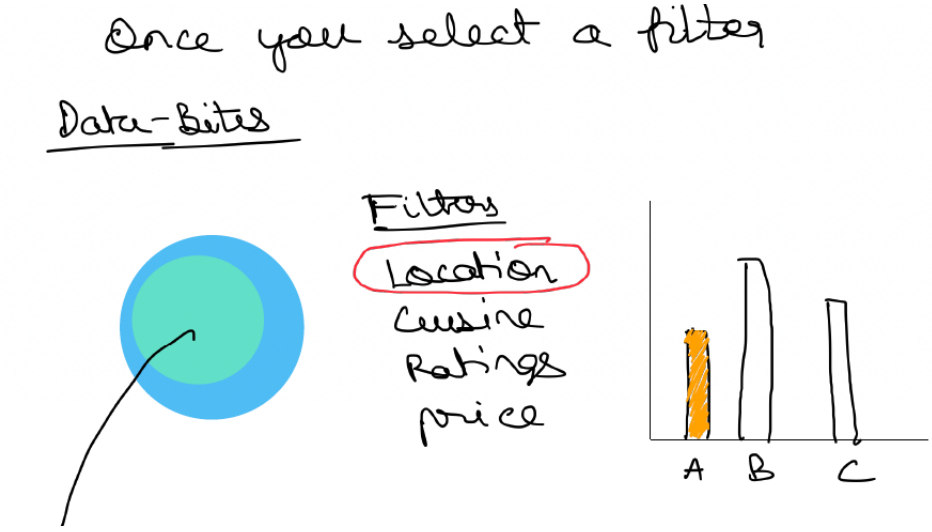
Our philosophy is: **less is more**. We don't want to overwhelm the user with options, which might make it difficult to use our tool to it's best capability. We plan to have one page only, and the contents in that page change depending on user input.
When the user first visits our website, we will prompt them for our location. We want this because it will help us cater the experience in a way which feels bespoke for that user. After all, we care about restaurants near us more than anything else. If the user decides not to grant us the information, they shall see this:



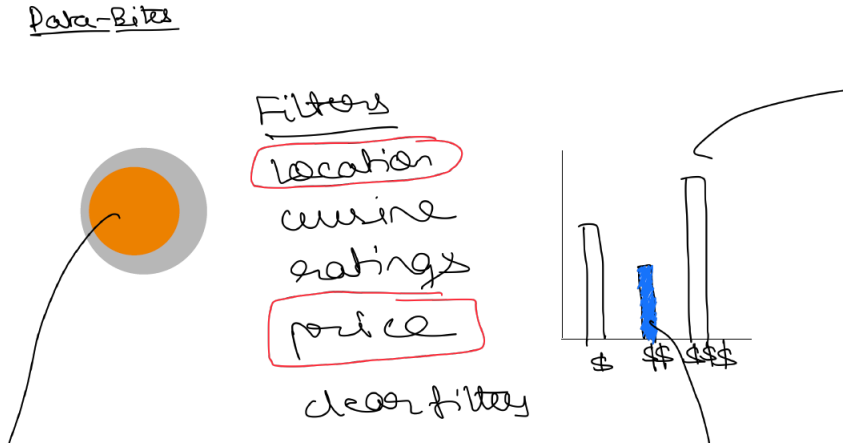
Kindly ignore the hand written messages, as this is a sketch. The bubble on the left represents the total number of restaurants. If we have location information, this will be the total number of restaurants in the user's locality. Otherwise, we plan for it to depict all restaurants in our dataset. The graph on the right is where we display data based on the user's input filters. The filter options we are thinking of providing include:

1. Location
2. Cuisine
3. Ratings
4. Price

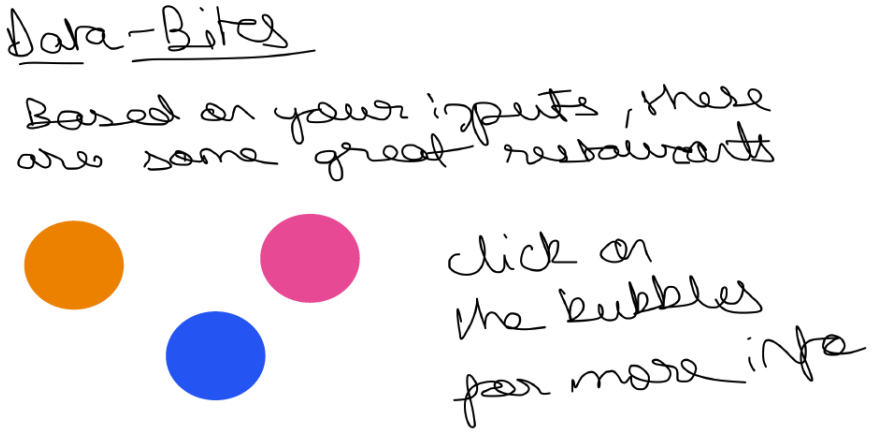
We might remove the graph from the initial screen to make the website more aesthetically pleasing, but we are keeping it in our prototypes.
Let us go through what a user might experience. Assuming they haven't given us their location (even if they do, they can follow these steps): Let's say they select the first filter as location. They can provide one or multiple locations. In this image, the user has selected 3 locations, namely A, B and C.



Notice how the bubble on the right shrinks into a bubble of a different color. This is to depict that since the user has put filters on, the total number of restaurants has come down. The bar chart on the right depicts the number of restaurants per chosen location. Now, the user decides they want to dine at some restaurant in location A. They simply click on the bar representing that, which causes it to change color to orange (as shown in the figure). Next, they can apply more filters.



When they do that, as a way of acknowledging their input, the old bubble greys out and is replaced by a bubble the same color as that of location A (we plan to animate these effects). The user selects price as a filter, which lists out the data on the plot. Here, they can continue the same process mentioned above. Eventually, when they narrow their search down to, let's say 3 restaurants, we plan to show them something like this.



Here, the user can click on the individual bubbles (each representing one restaurant. The number of bubbles depends on the results of the filter the user chooses) and get some more information, such as a link to google maps, some contact information, and link to the menus.

7 Must Have Features

- A simple yet useful web interface to help people make tough decisions, like choosing where to eat (really tough in our opinion). The UI should be accessible to color blind people as well.
- Filtering based on the aforementioned parameters and creating meaningful visualizations which are easy to interact with and understand.
- Providing users seamless access to restaurant information upon making selections, without them having to google the restaurant again and perhaps get confused by some other one having the same name.

8 Optional Features

Below are some features we feel will add value, but might be out of scope because of the timelines. However, we will try our best to accommodate these as well.

- We want a login functionality, perhaps integrate a login with google button, so when the user does decide for directions, maybe we can send it directly to their phone?
- If we have user profiles (i.e, login), we can store the list of their previous searches, in case they need to go back to it.
- Maybe have a feature which randomly recommends a restaurant, in case the user is daring. (Or if they just input the filters and we make a random suggestion.)

9 Project Timeline

Our project schedule is as follows:

- Week 1-2: Data collection and initial cleaning
- Week 3-4: Design and prototype development
- Week 5-8: Development of the web application
- Week 9-10: Testing and debugging
- Week 11-12: Final touches and documentation

Please note that in each stage, we will be updating our process books as well.