Process Book, Data Bites

Aaditya Ranga Rajan, Sam Blesswin Stephen Rajan

November 2023

1 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

2 Related Work

Throughout our research, we were unable to find a visualization which attempts to do what we are doing. There was a lack of restaurant related visualizations, and this can be due to the lack of good datasets, and lack of datasets which can be used to answer insightful questions. For instance, if a dataset has the location of a restaurant, it only has the city name and not the full address. This becomes an issue if we want to give the exact location to the user. We believe because of such a scarcity of usable datasets, this idea hasn't been picked up before. We have found ourselves a reasonably good dataset which still has some of the above mentioned limitations, but we believe we can build a meaningful visualization out of it. Our dataset can be found here.

3 Exploratory Data Analysis

Our data was available as a CSV file, and after initial analysis we found that several rows had missing data. After removing such rows, we reduced approximately 50% of rows from our dataset.

4 Questions To Be Answered

Our visualizations aims to answer questions such as:

- How many restaurants of such cuisine are present?
- What is the breakdown of restaurants by price, ratings, etc.
- How does price vary by cuisine?

and so on.

5 Design Evolution

Our first drawing of our visualization looked like this: In this figure, we wanted

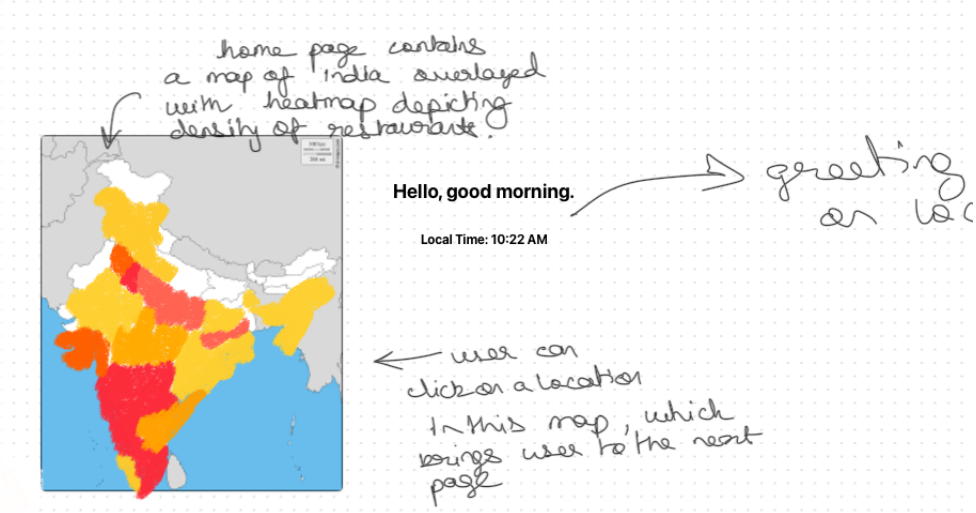

Figure 1: Sketch 1

to describe the user's initial view of the website.

Then, we wanted to describe the interactions that the user would have in a chronological manner. The next few sketches show that. We then sketched out some possible visualization ideas. They look as follows.

Next, our initial implementation of the home page looked like this.

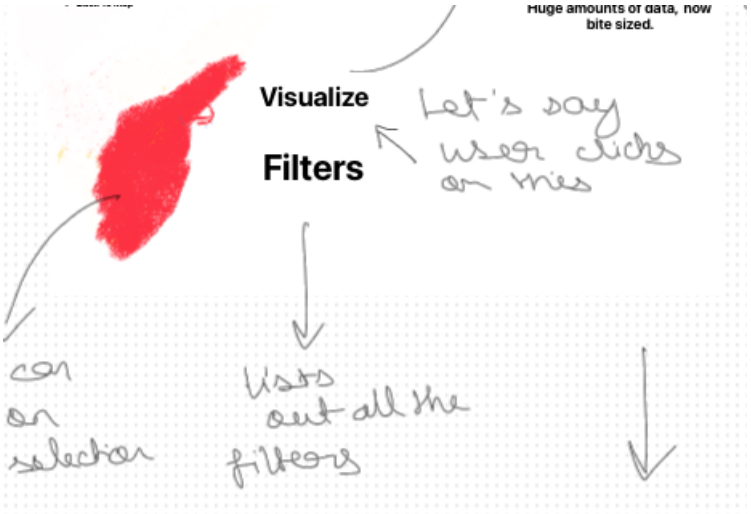

Figure 2: Interactions

We used an SVG for our map and made it interactive as well.
We spend some time changing the CSS, and improved drastically.
We also changed the landing page design.
We also added two more visualizations.

6 Implementation

6.1 Heatmap

The heatmap was implemented to showcase the number of restaurants in each state of india. We also made it interactive. When a user selects any state, the pie chart, bubble chart and cuisine cloud also change.

6.2 Bubble Chart

This is essentially a scatterplot where the points are also interactive. Hovering over them will reveal a lot of information not shown by the graph, such as number of restaurants and the state. We have also built in some animations into this graph.

6.3 Pie Chart And Cuisine Cloud

These visualizations showcase the diversity of food in a state which was selected from the heatmap.

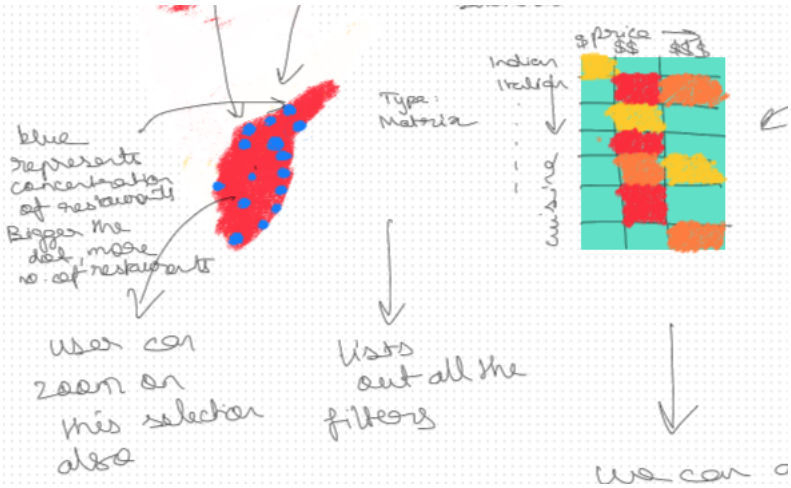

Figure 3: Sketch 3

6.4 Bar Chart

This chart showcases the total number of restaurants in each state of India by default. When you choose a cuisine from the drop down, it shows the number of restaurants of that cuisine in each state.

6.5 Matrix

The matrix shows the ratings of each cuisine in all states of India.

7 Evaluation

We believe we succeeded in answering all questions we posed in our project proposal. Our visualizations are simple and easy to interact with, and convey the necessary information. We have also added animations to make the page feel more responsive overall. In a country like India, which is a melting pot of culture, it is very difficult to understand what kind of food options are available, and how good those options are. Such questions can be seamlessly answered using our visualization.

8 Links

- Project home page: Data Bites
- Youtube Video: Youtube

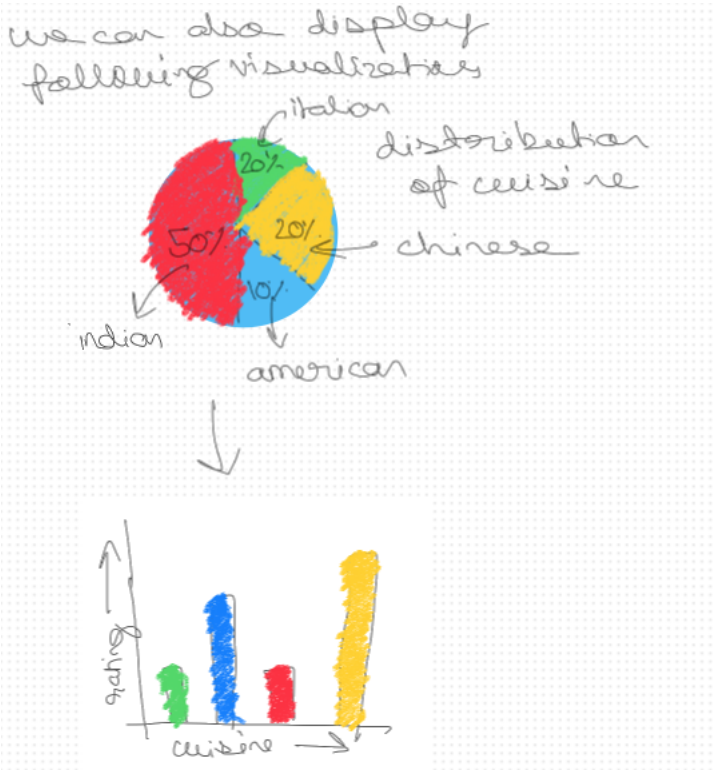

Figure 4: Sketch 4

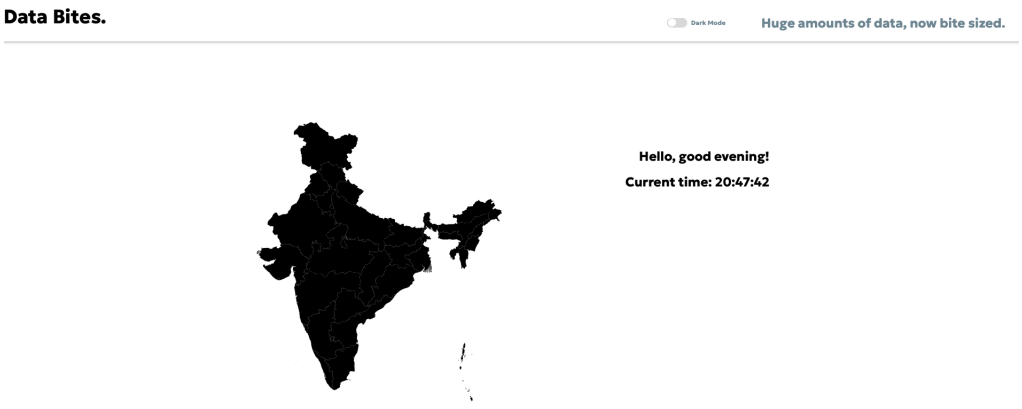

Figure 5: Implementation Of Home Page

Figure 6: Dark Mode

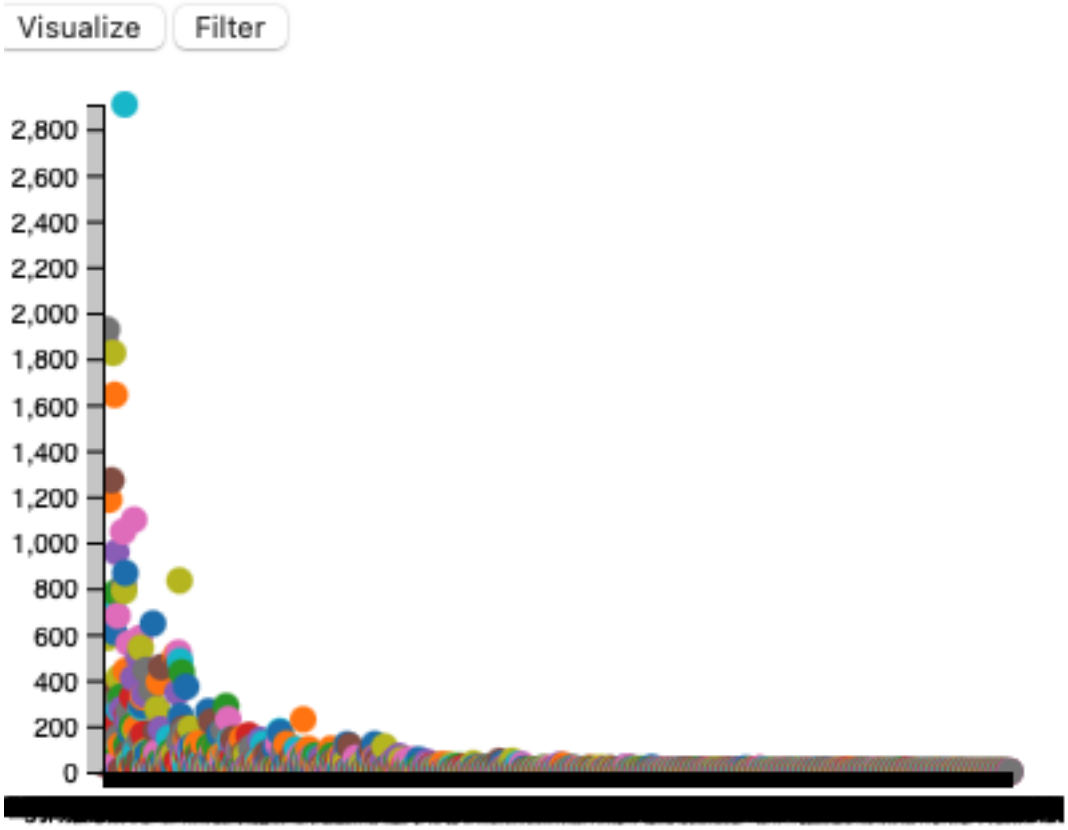

Figure 7: Initial visualizations, not very good!

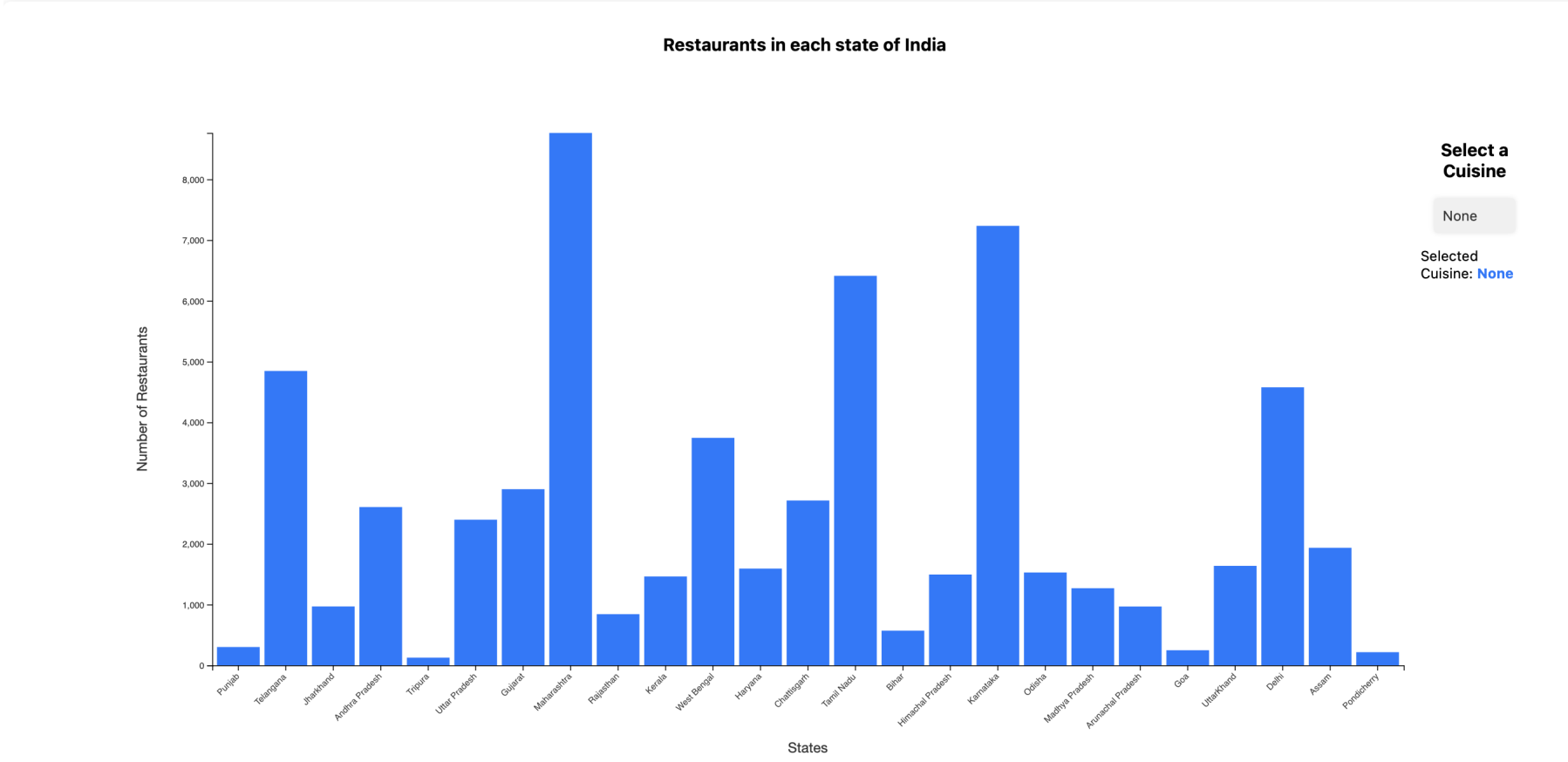

Figure 8: A Bar Graph

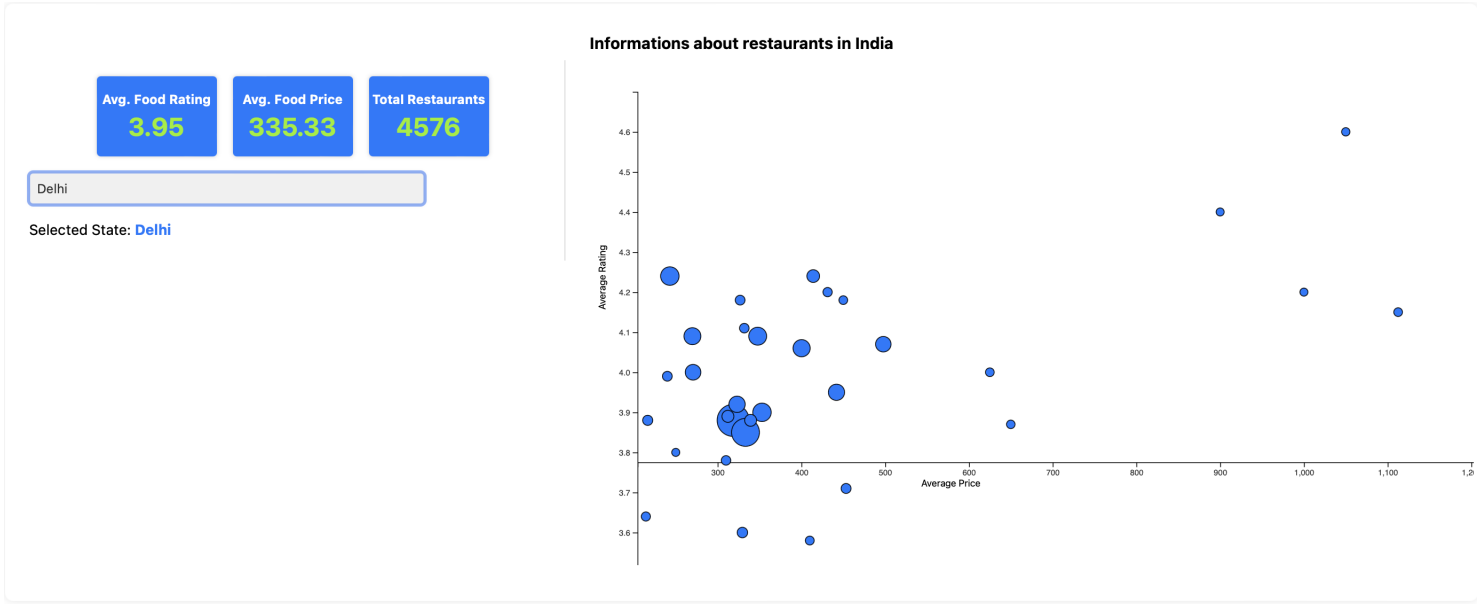

Figure 9: Scatterplot

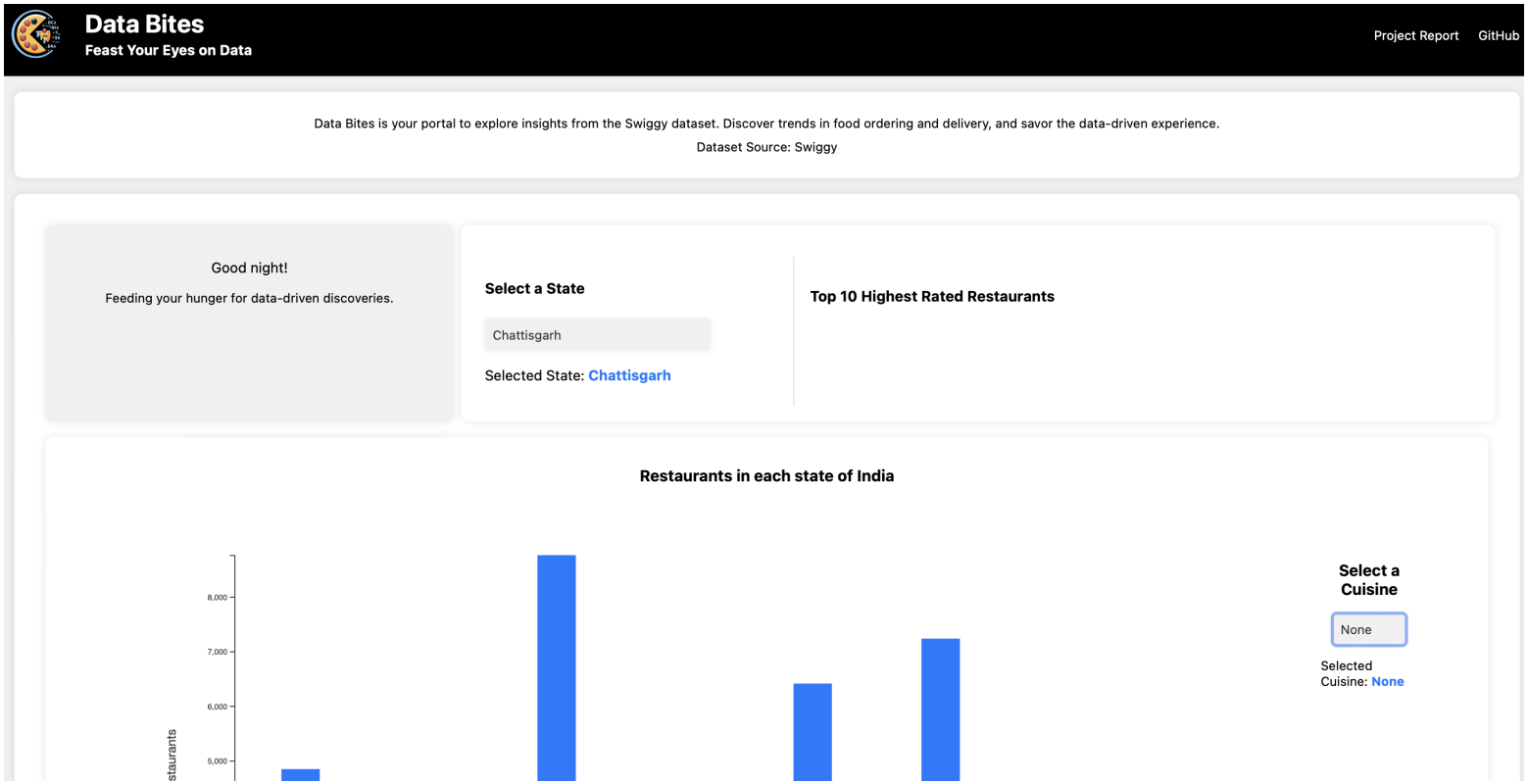

Figure 10: Landing View

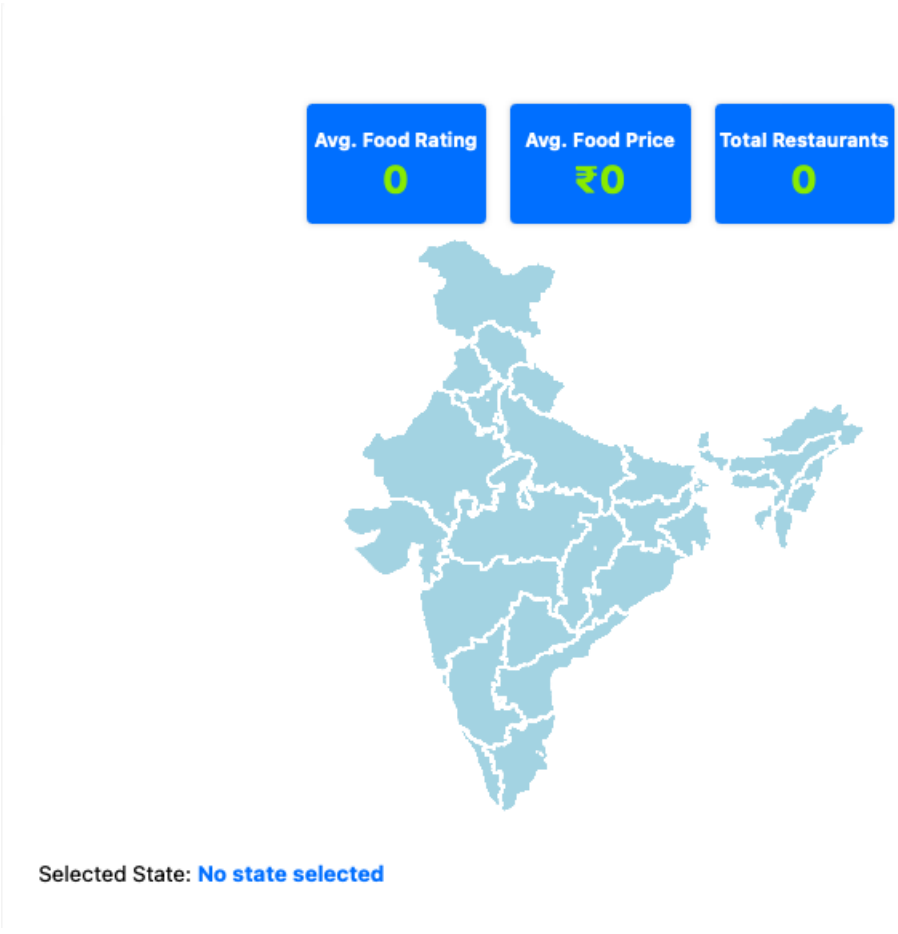

Figure 11: India's Map

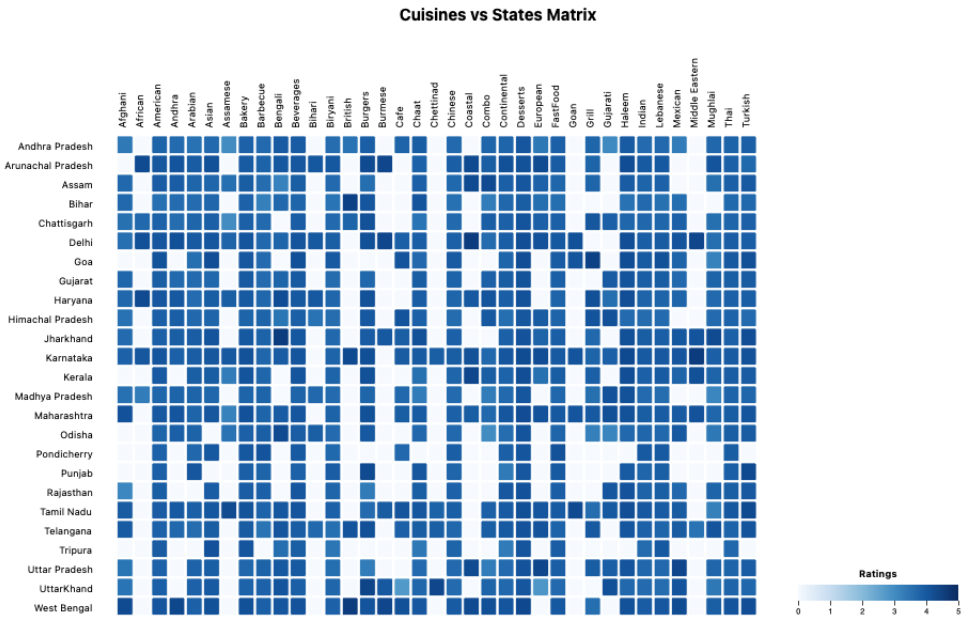

Figure 12: Matrix Chart

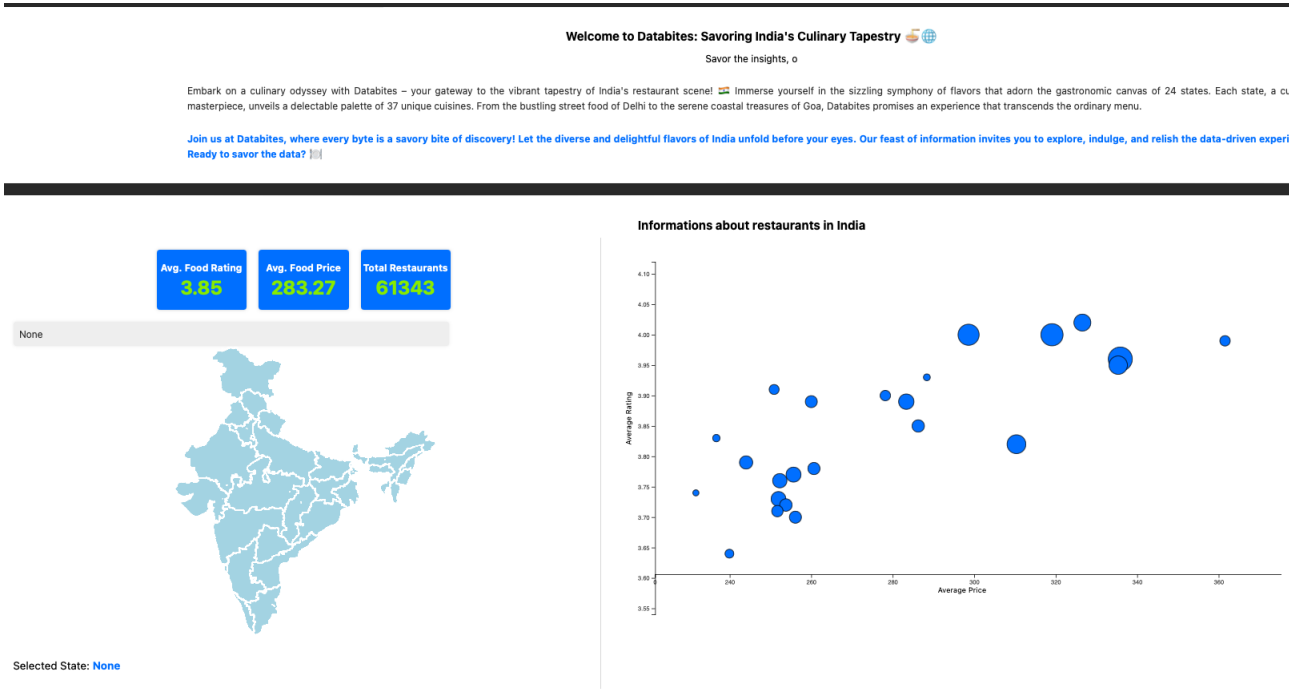

Figure 13: An evolved landing page

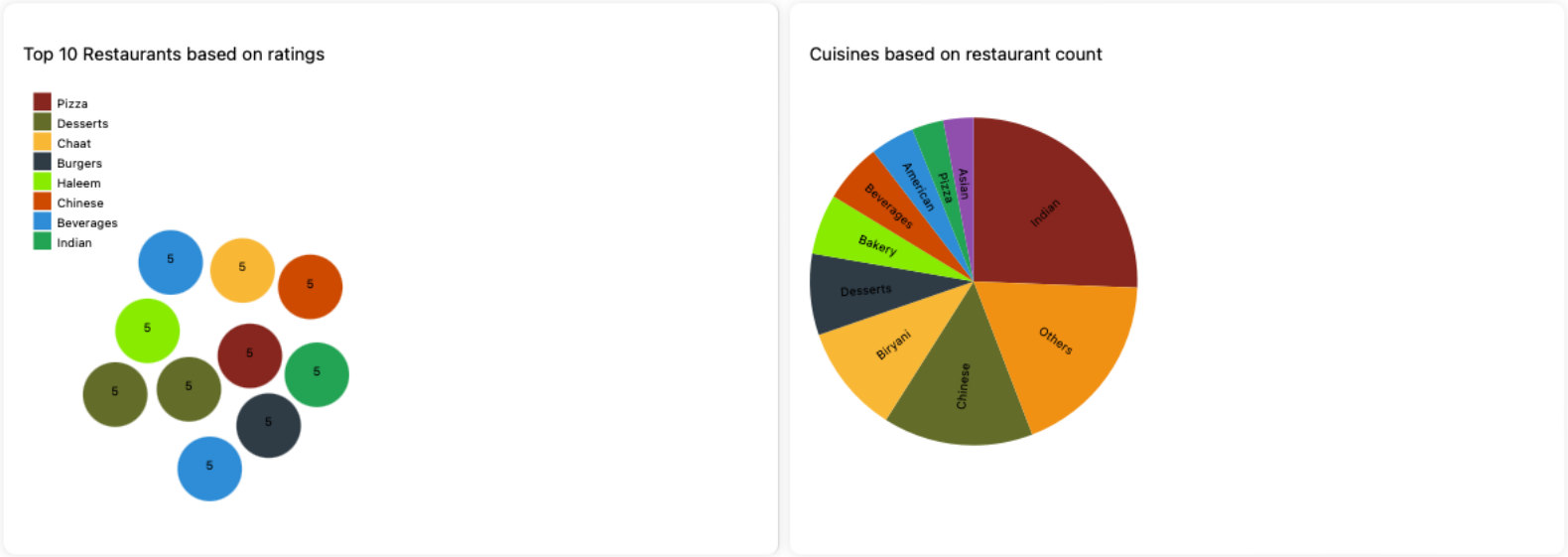

Figure 14: Pie chart and cuisine cloud

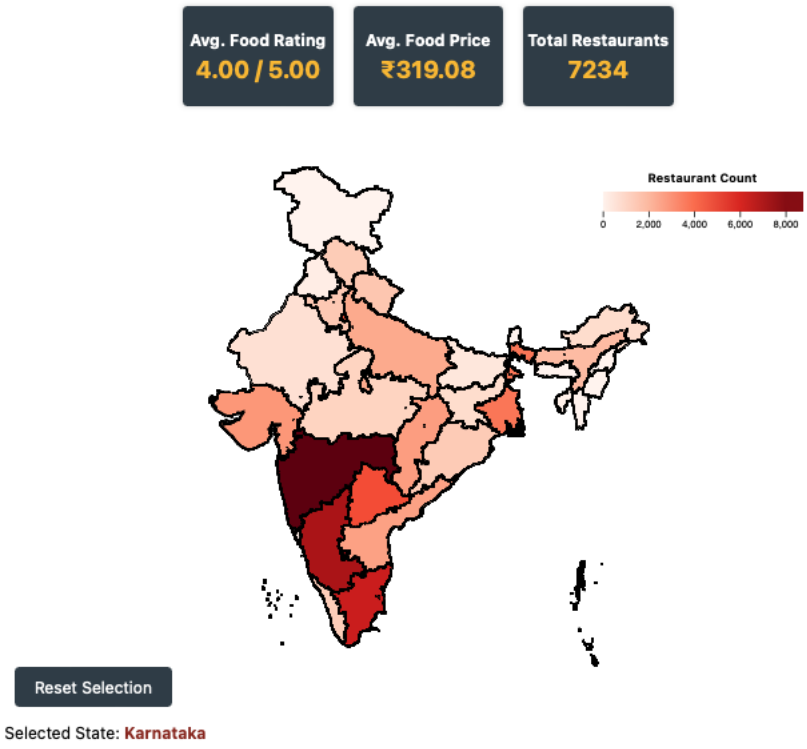

Figure 15: India Map

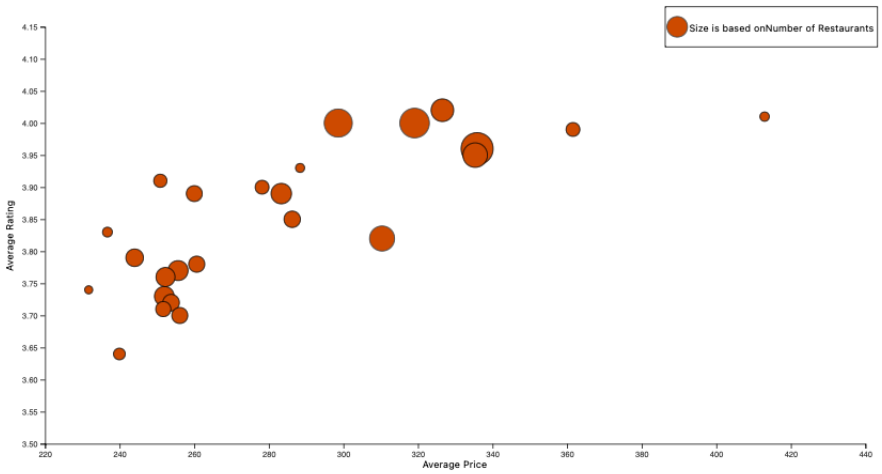

Figure 16: Bubble Chart

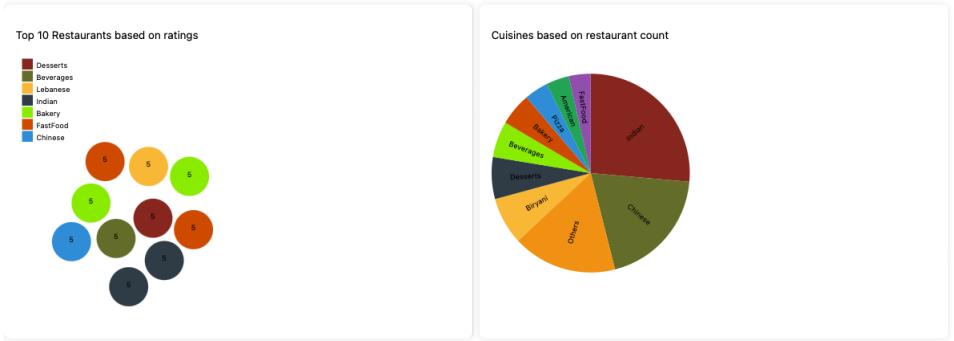

Figure 17: Pie chart and cuisine cloud

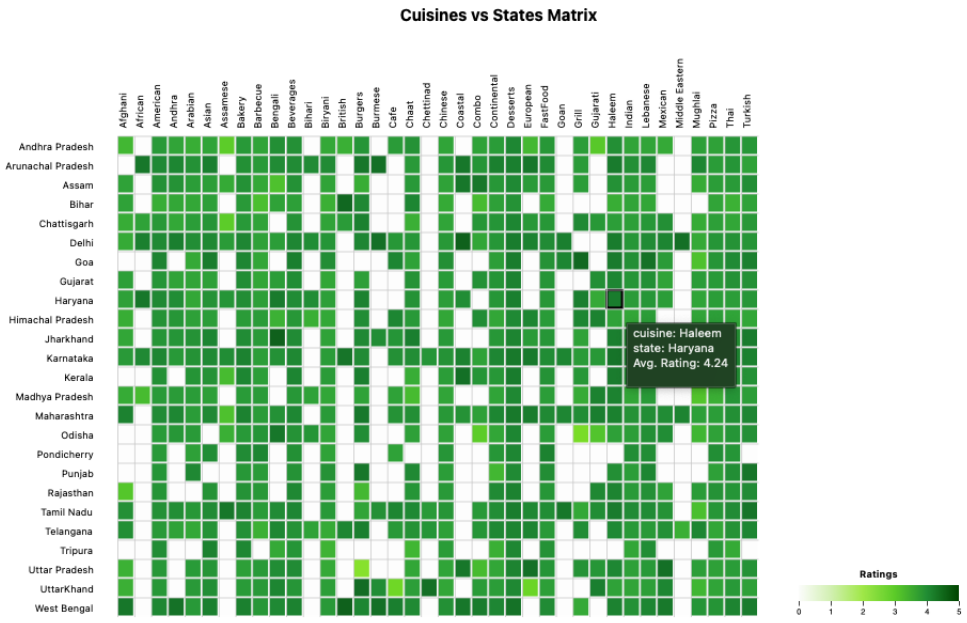

Figure 18: Matrix