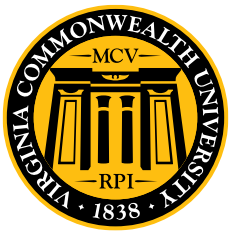

VIRGINIA COMMONWEALTH UNIVERSITY

Statistical analysis and modelling (SCMA 632)

A5: Visualization - Perceptual Mapping for Business

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CONTENTS

Introduction

The analysis focuses on understanding the consumption patterns across different districts in Gujarat using the NSSO68 dataset. This dataset provides valuable insights into household consumption and meal patterns, which can be instrumental in shaping policy decisions, resource allocation, and developmental strategies. The aim is to visualize the total consumption and the number of meals per day across districts, leveraging geographic mapping to present a clear and actionable overview of regional consumption behaviors.

Objective

- **Distribution Analysis**: To plot a histogram that showcases the distribution of total consumption (frequency).
- **District-wise Visualization**: To create a bar plot visualizing total consumption per district, providing a straightforward comparison of consumption levels among different regions.
- **Geo-Mapping**: To visualize the ‘number of meals per day’ on a geographical map of Gujarat. This geographic representation will facilitate an understanding of spatial patterns in meal consumption, highlighting regions that may require more attention or resources.

Business Significance

- **Data-Driven Decision Making**: By understanding consumption patterns through visualizations, policymakers and organizations can make informed decisions regarding food distribution, resource allocation, and targeted interventions in specific districts.
- **Resource Allocation**: The insights gained from this analysis can help in identifying districts that require more support or resources, allowing for strategic planning to enhance food security and improve nutritional outcomes.
- **Public Policy Formulation**: The findings can inform public health initiatives, community programs, and governmental policies aimed at reducing consumption disparities and promoting healthier eating habits among different socio-economic groups.
- **Geo-Mapping Utility**: The geographic mapping of meal consumption provides a compelling visual narrative that can highlight regional disparities and assist stakeholders in prioritizing areas for intervention. This spatial representation is critical for effective planning and implementation of programs aimed at improving dietary habits.

Results & Interpretations- R

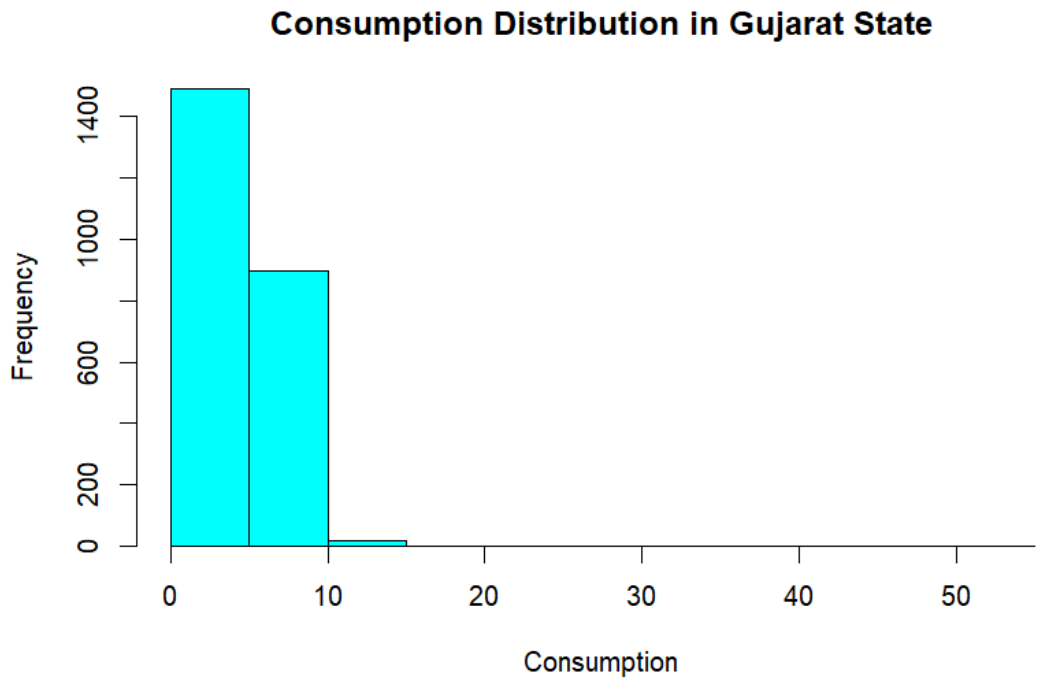
PART-A

District-wise total consumption

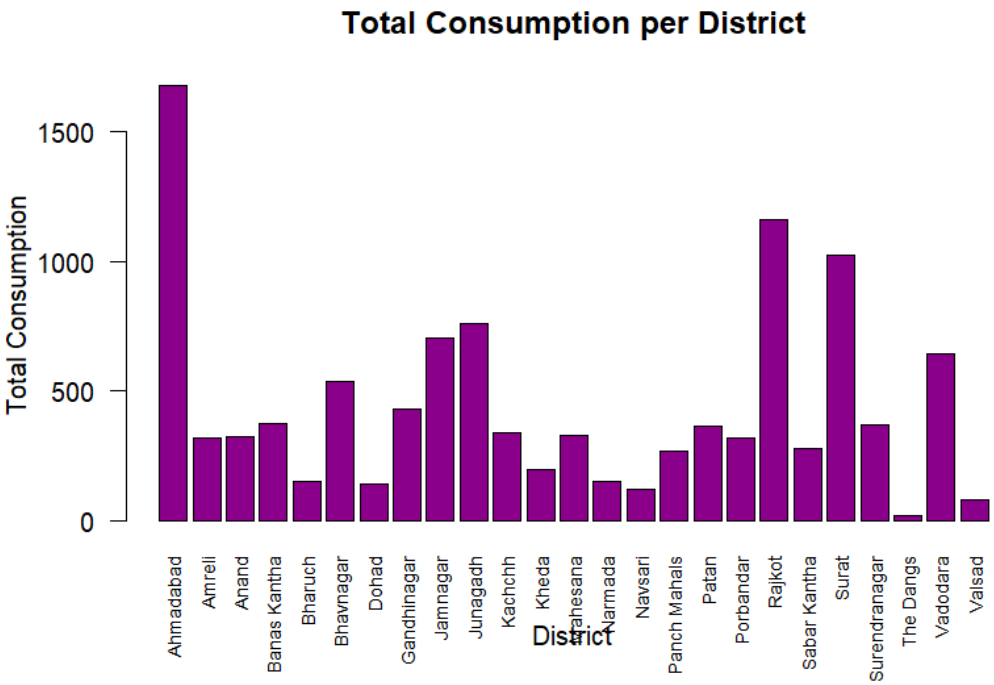
	District	total_consumption
1	Ahmadabad	1678.82606
2	Amreli	320.84631
3	Anand	324.75913
4	Banas Kantha	376.67532
5	Bharuch	151.35617
6	Bhavnagar	539.21196
7	Dohad	142.67201
8	Gandhinagar	430.01039
9	Jamnagar	702.56145
10	Junagadh	760.98772
11	Kachchh	339.64762
12	Kheda	194.87857
13	Mahesana	330.76766
14	Narmada	152.69325
15	Navsari	122.98568
16	Panch Mahals	268.43056
17	Patan	366.31067
18	Porbandar	316.12110
19	Rajkot	1161.75643

	District	total_consumption
20	Sabar Kantha	276.91151
21	Surat	1021.33722
22	Surendranagar	371.53947
23	The Dangs	18.83333
24	Vadodara	643.78066
25	Valsad	80.86667

HISTOGRAM



BARPLOT



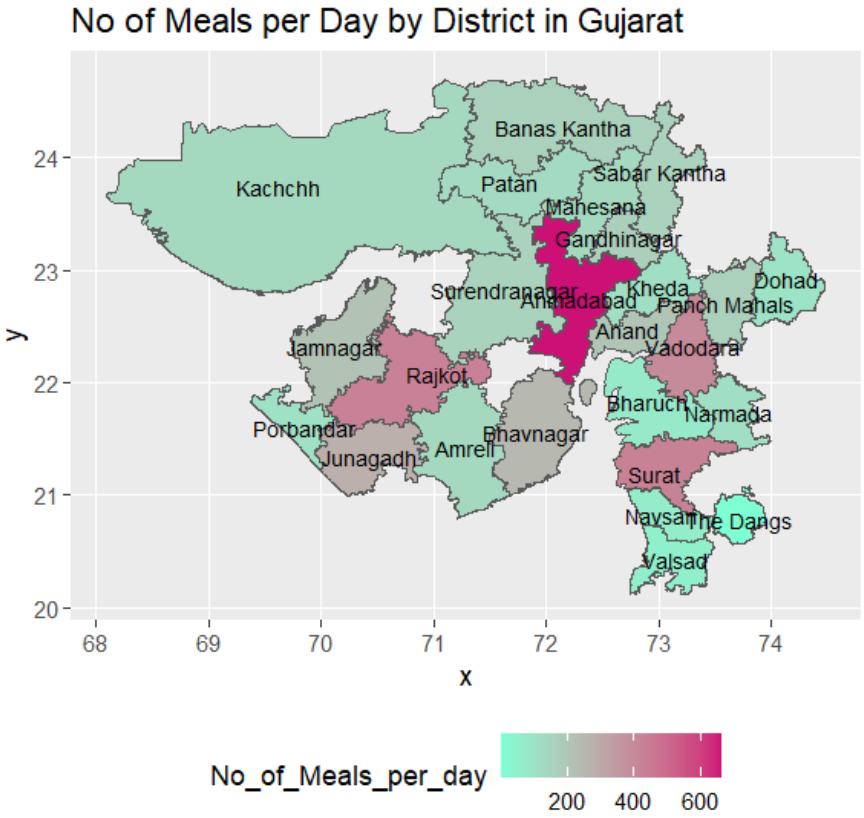
PART-B

District-wise No. of meals per day

	District	No_of_Meals_per_day
1	Ahmadabad	662
2	Amreli	138
3	Anand	208
4	Banas Kantha	167
5	Bharuch	80
6	Bhavnagar	252
7	Dohad	104

	District	No_of_Meals_per_day
8	Gandhinagar	171
9	Jamnagar	216
10	Junagadh	277
11	Kachchh	138
12	Kheda	116
13	Mahesana	138
14	Narmada	117
15	Navsari	74
16	Panch Mahals	170
17	Patan	136
18	Porbandar	110
19	Rajkot	431
20	Sabar Kantha	164
21	Surat	428
22	Surendranagar	160
23	The Dangs	6
24	Vadodara	399
25	Valsad	60

GEO MAP

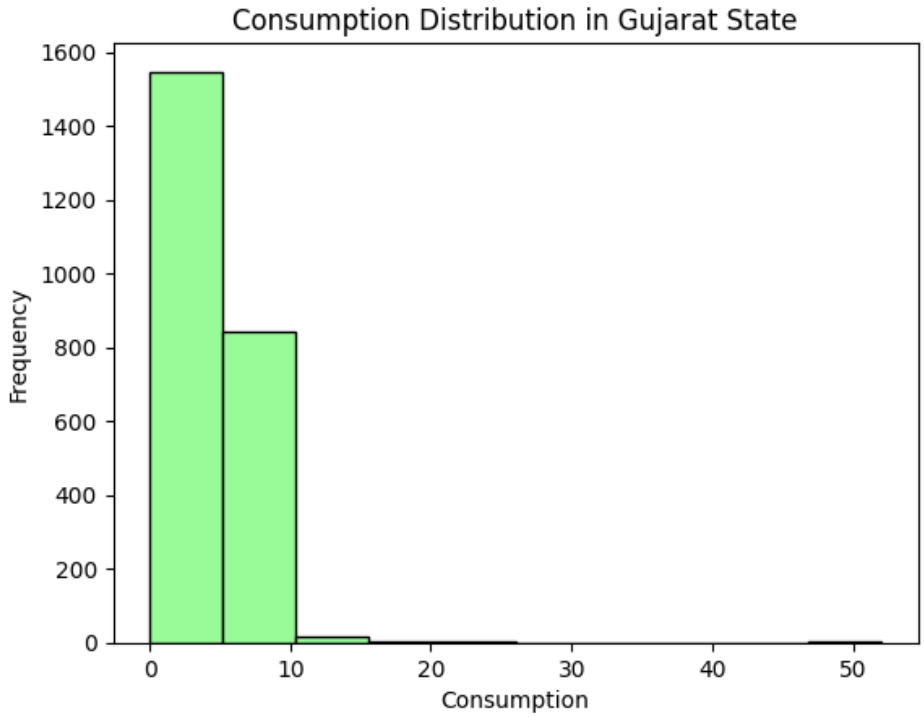

No of Meals per Day by District in Gujarat
Banas Kantha
Kachchh
Patan
Sabar Kantha
Mahesana
Gandhinagar
Surendranagar
Ahmadabad
Kheda
Dohad
Panch Mahals
Anand
Vadodara
Jamnagar
Rajkot
Bharuch
Narmada
Porbandar
Junagadh
Amreli
Bhavnagar
Surat
Navsari
The Dangs
Valsad
24
23
22
21
20
y
68
69
70
71
72
73
74
x
No_of_Meals_per_day
200
400
600

Results & Interpretations- Python

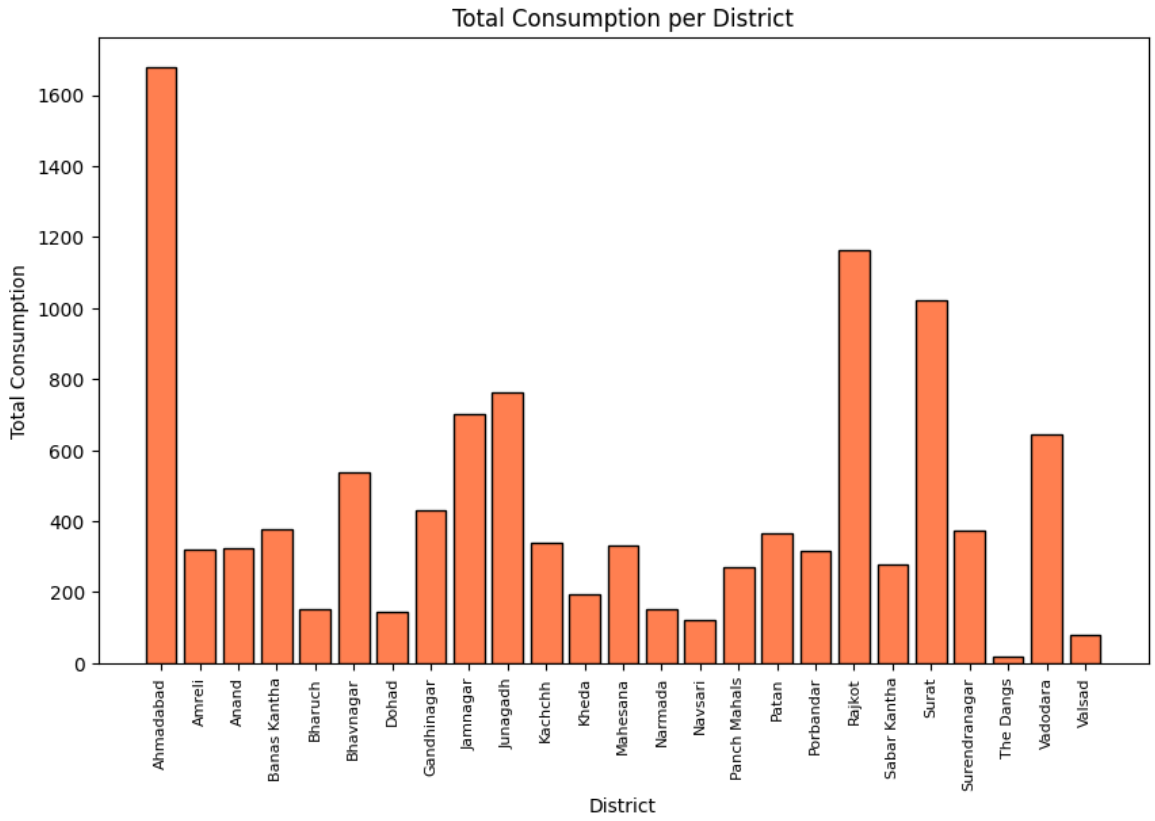
PART-A

District-wise total consumption

HISTOGRAM



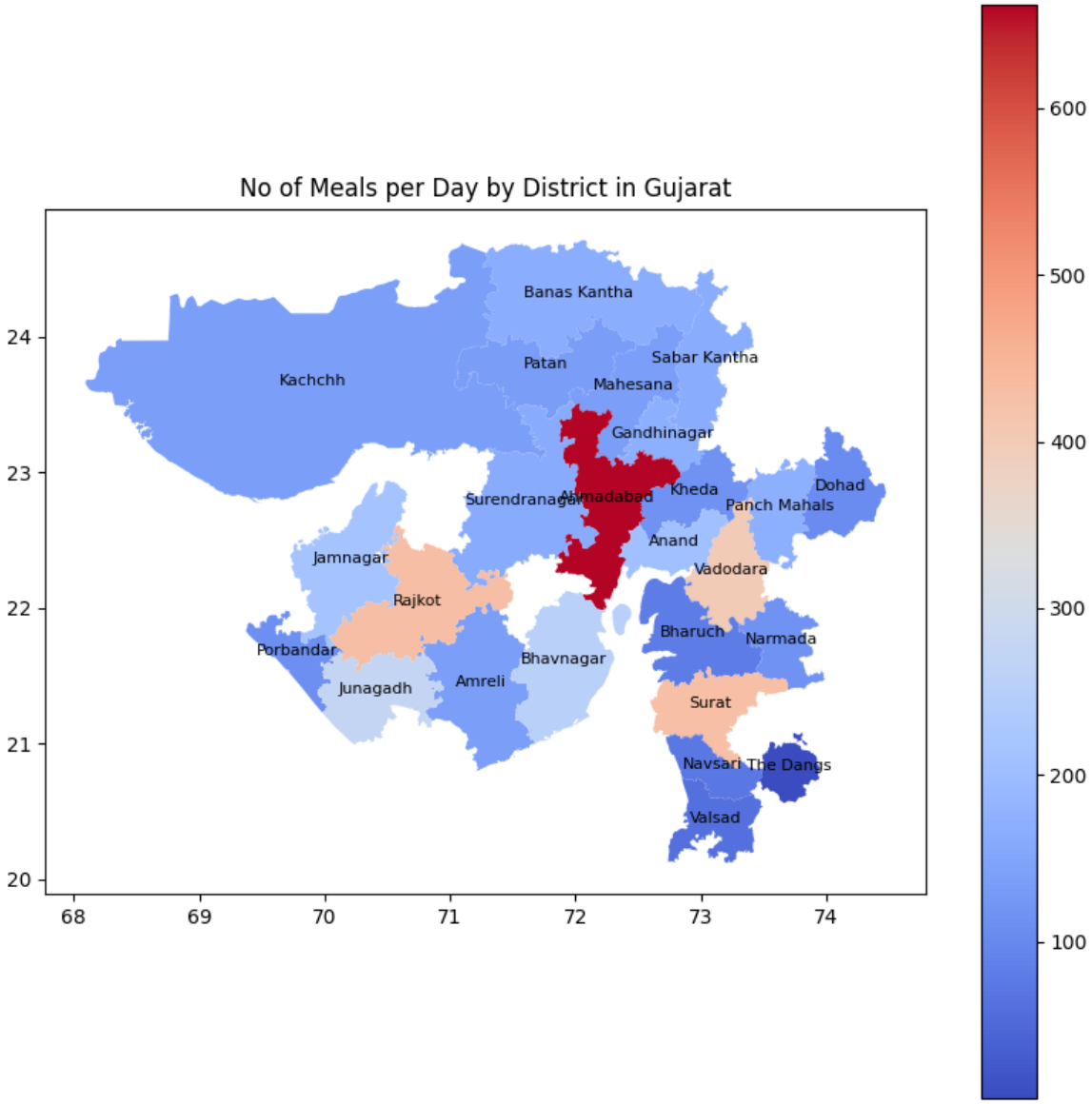
BARPLOT



PART-B

District-wise No. of meals per day

GEO MAP


No of Meals per Day by District in Gujarat
Banas Kantha
Patan
Sabar Kantha
Kachchh
Mahesana
Gandhinagar
Surendranagar
Ahmadabad
Kheda
Dohad
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Amreli
Surat
Navsari
The Dangs
Valsad
24
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71
72
73
74
600
500
400
300
200
100

Recommendations

During the analysis of the NSSO68 dataset for visualizing consumption patterns across Gujarat, it was observed that the dataset contains data for only 25 districts, while the GeoJSON file includes 33 districts.

This discrepancy leads to gaps in the final geographic map, affecting the completeness and accuracy of the visual representation.

Additionally, inconsistencies in district naming conventions (e.g., "Ahmedabad" vs. "Ahmadabad") further complicate the merging of data.

Addressing the mismatch between the NSSO68 dataset and the GeoJSON file is crucial for accurate and reliable geographic mapping.

By supplementing missing data, filtering and aligning geospatial data, and transparently documenting discrepancies, the analysis can provide more meaningful insights and visualizations.