Bite into Data: Unveiling Food Preferences In Uttar Pradesh

A POWER BI PROJECT REPORT

Submitted to

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Course Name: POWER BI
VI SEM

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[1] Data Integration for Power BI

- Actual Data-

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Timestamp	Full Name	Age Grou	State of Re	Have you e	What is yo	Which of t	Which of t	Would you	For what p	What kind	What kind	Below are the top 10 famous cuisines of Uttar Prade				
########	Arushi Shiv	18-25	Maharasht	Yes	Non-Veget	Roomali R	Shami Kab	5	Religious T	Budget & M	Awadhi Cu	Tunday Kababi (Lucknow), Bedai & Jalebi (Agra, Matl				
########	Akash Shal	18-25	Maharasht	No	Vegetarian	Roomali R	None	2								
########	Alankrita B	18-25	Maharasht	No	Non-Veget	Roomali R	None	4	Heritage &	Budget & M	Awadhi Cu	Lucknawi Biryani (Lucknow), Baati Chokha (Varanasi				
########	Tanushree	18-25	Maharasht	No	Non-Veget	Roomali R	Murgh Do	4	Cultural &	Budget & M	Awadhi Cu	Lucknawi Biryani (Lucknow), Bedai & Jalebi (Agra, Ma				
########	Gautam Su	18-25	Maharasht	No	Vegetarian	Roomali R	None	4	Religious T	Budget & M	Vegetarian	Petha (Agra), Aloo Tikki Chaat (Lucknow, Kanpur, Var				
########	Anmol Cho	18-25	Surendra n	Yes	Non-Veget	Roomali R	Shami Kab	5	Religious T	Budget & M	Awadhi Cu	Lucknawi Biryani (Lucknow), Petha (Agra), Baati Cho				
########	Deep Gupt	18-25	MAHARAS	No	Non-Veget	Roomali R	Prawn Cur	1								
########	ABHISHEK	18-25	Maharasht	Yes	Non-Veget	Arhar ki Da	Awadhi Gc	4	Wildlife &	Budget & M	Awadhi Cu	Tunday Kababi (Lucknow), Petha (Agra), Aloo Tikki Cl				
########	Ved Bisne	18-25	Maharasht	Yes	Non-Veget	Roomali R	Shami Kab	4	Religious T	Luxury Hot	Street Foo	Lucknawi Biryani (Lucknow), Bedai & Jalebi (Agra, Ma				
########	Nakshatra	18-25	Maharasht	No	Vegetarian	None	None	3	Religious T	Budget & M	Street Foo	Aloo Tikki Chaat (Lucknow, Kanpur, Varanasi)				
########	Abhijay Ta	18-25	Maharasht	No	Non-Veget	Roomali R	Prawn Cur	3	Wildlife &	Luxury Hot	Mughlai Cu	Tunday Kababi (Lucknow), Lucknawi Biryani (Luckno				
########	Akshat Du	18-25	Maharasht	Yes	Non-Veget	Roomali R	Kakori Kab	5	Religious T	Budget & M	Awadhi Cu	Tunday Kababi (Lucknow), Bedai & Jalebi (Agra, Matl				
########	Atharva Al	18-25	Maharasht	No	Non-Veget	Roomali R	Shami Kab	3	Religious T	Budget & M	Awadhi Cu	Lucknawi Biryani (Lucknow), Baati Chokha (Varanasi				
########	Shreyas Ka	18-25	Maharasht	Yes	Eggetarian	Roomali R	Galouti Ke	5	Religious T	Luxury Hot	Awadhi Cu	Bedai & Jalebi (Agra, Mathura), Petha (Agra), Baati C				
########	Pranav Chi	18-25	Maharasht	No	Vegetarian	Roomali R	None	3	Heritage &	Luxury Hot	Awadhi Cu	Lucknawi Biryani (Lucknow), Petha (Agra), Baati Cho				
########	Sangeet	18-25	Maharasht	Yes	Vegetarian	Baati Chok	None	3	Religious T	Governme	Vegetarian	Baati Chokha (Varanasi, Prayagraj)				
########	Jash Chaul	18-25	Maharasht	Yes	Vegetarian	Roomali R	Shami Kab	5	Religious T	Budget & M	Street Foo	Bedai & Jalebi (Agra, Mathura), Petha (Agra), Baati C				
########	Anushri Ad	18-25	Maharasht	Yes	Non-Veget	Roomali R	Shami Kab	2								
########	Raghav Up	18-25	Maharasht	Yes	Eggetarian	Roomali R	Shami Kab	5	Religious T	Budget & M	Awadhi Cu	Tunday Kababi (Lucknow), Lucknawi Biryani (Luckno				
########	Ruchika Ka	18-25	Maharasht	Yes	Non-Veget	Roomali R	Shami Kab	5	Religious T	Dharamsh	Street Foo	Petha (Agra), Baati Chokha (Varanasi, Prayagraj), Alo				
########	Saloni Mal	18-25	Maharasht	Yes	Vegetarian	Roomali R	None	3	Religious T	Budget & M	Street Foo	Baati Chokha (Varanasi, Prayagraj)				
########	Seshank ra	18-25	UP	Yes	Non-Veget	Roomali R	Shami Kab	5	Religious T	Budget & M	Awadhi Cu	Tunday Kababi (Lucknow), Lucknawi Biryani (Luckno				
########	Aryan Para	18-25	Maharasht	No	Vegetarian	Roomali R	None	3	Heritage &	Budget & M	Street Foo	Petha (Agra), Aloo Tikki Chaat (Lucknow, Kanpur, Var				
########	Dhanashre	18-25	Maharasht	No	Eggetarian	Roomali R	None	5	Religious T	Budget & M	Street Foo	Lucknawi Biryani (Lucknow), Bedai & Jalebi (Agra, Ma				
########	Aryan Mish	18-25	uttar prad	Yes	Vegetarian	Roomali R	Shami Kab	5	Religious T	Luxury Hot	Awadhi Cu	Baati Chokha (Varanasi, Prayagraj), Aloo Tikki Chaat				
########	Shrishti Pra	18-25	Maharasht	No	Vegetarian	Roomali R	Awadhi Gc	5	Religious T	Budget & M	Awadhi Cu	Bedai & Jalebi (Agra, Mathura), Petha (Agra), Baati C				
########	Arunima D	18-25	Maharasht	No	Non-Veget	Roomali R	Prawn Cur	3	Heritage &	Budget & M	Mughlai Cu	Lucknawi Biryani (Lucknow), Petha (Agra), Aloo Tikki				

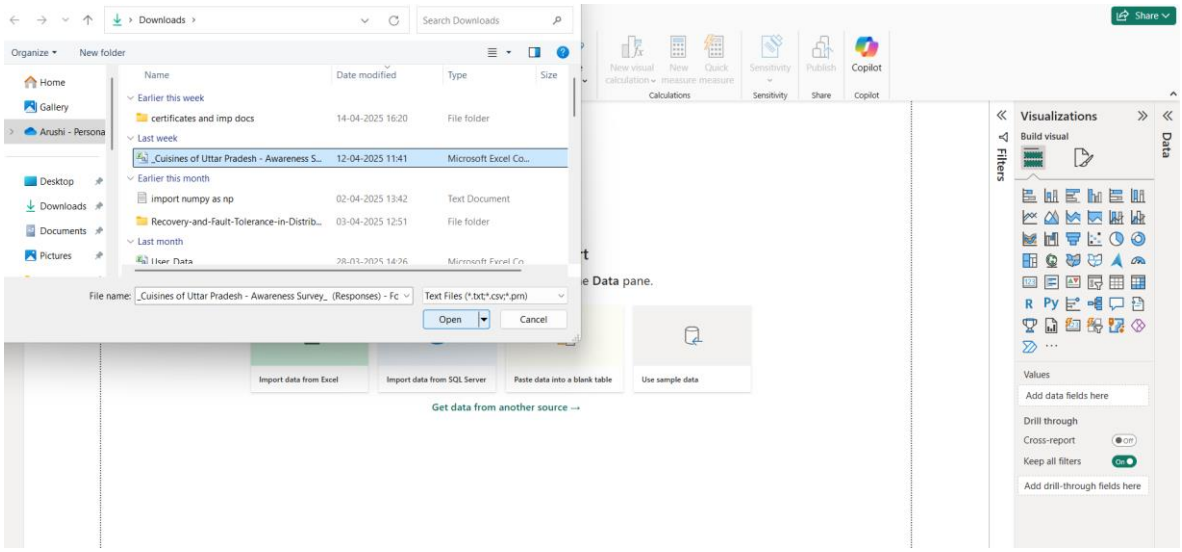
- Preprocessed Data-

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Timestamp	Full Name	Age Group	State of Residence	Have you ever visite	What is yo	Which of t	Which of t	Would you	For what p	What kind	What kind	Below are	Cluster
0	14	0	8	1	1	49	54	1.05967	11	8	2	48	2
1	6	0	7	0	4	67	54	-1.35958	11	8	2	48	1
2	8	0	8	0	2	67	54	0.253255	1	0	6	21	0
3	111	0	8	0	2	68	14	0.253255	0	0	6	27	0
4	27	0	7	0	4	37	14	0.253255	10	1	20	39	0
5	10	0	15	1	2	47	38	1.05967	7	0	5	38	2
6	21	0	4	0	2	83	28	-2.16599	7	0	5	38	1
7	0	0	8	1	2	5	3	0.253255	18	8	5	67	0
8	117	0	7	1	2	73	46	0.253255	14	19	16	31	0
9	47	0	8	0	4	73	46	-0.55316	7	0	16	0	0
10	5	0	8	0	1	86	21	-0.55316	19	19	12	62	0
11	7	0	7	1	2	29	11	1.05967	11	10	1	49	2
12	17	0	8	0	2	78	34	-0.55316	13	6	5	24	0
13	94	0	9	1	0	26	7	1.05967	11	20	3	19	2
14	59	0	8	0	4	45	7	-0.55316	5	33	8	37	0
15	80	0	8	1	4	8	7	-0.55316	7	15	20	1	0
16	30	0	7	1	4	85	39	1.05967	10	0	19	15	2
17	11	0	8	1	2	28	51	-1.35958	10	0	19	15	1
18	65	0	8	1	0	30	42	1.05967	15	1	3	63	2
19	72	0	8	1	2	35	59	1.05967	7	11	18	45	2
20	77	0	8	1	4	46	59	-0.55316	15	0	19	1	0
21	83	0	16	1	2	30	44	1.05967	15	7	2	59	2
22	16	0	7	0	4	85	44	-0.55316	2	6	19	40	0
23	24	0	8	0	0	35	44	1.05967	11	0	19	30	2
24	15	0	24	1	4	53	31	1.05967	14	32	3	3	2
25	97	0	7	0	4	24	0	1.05967	15	5	8	18	2
26	13	0	7	0	2	62	25	-0.55316	2	0	11	36	0
27	31	0	8	0	4	81	25	0.253255	10	0	9	43	0
28	36	0	8	1	2	54	1	1.05967	8	16	5	54	2
29	70	0	14	0	4	37	1	1.05967	11	19	19	17	2
30	63	0	7	0	2	70	12	-2.16599	11	19	19	17	1

(a) Import Data

- Steps-

1. Open **Power BI Desktop**
2. Go to **Home > Get Data > Text/CSV**
3. Select your file Cuisines of Uttar Pradesh - Awareness Survey.csv
4. Click **Load**
5. Query successful



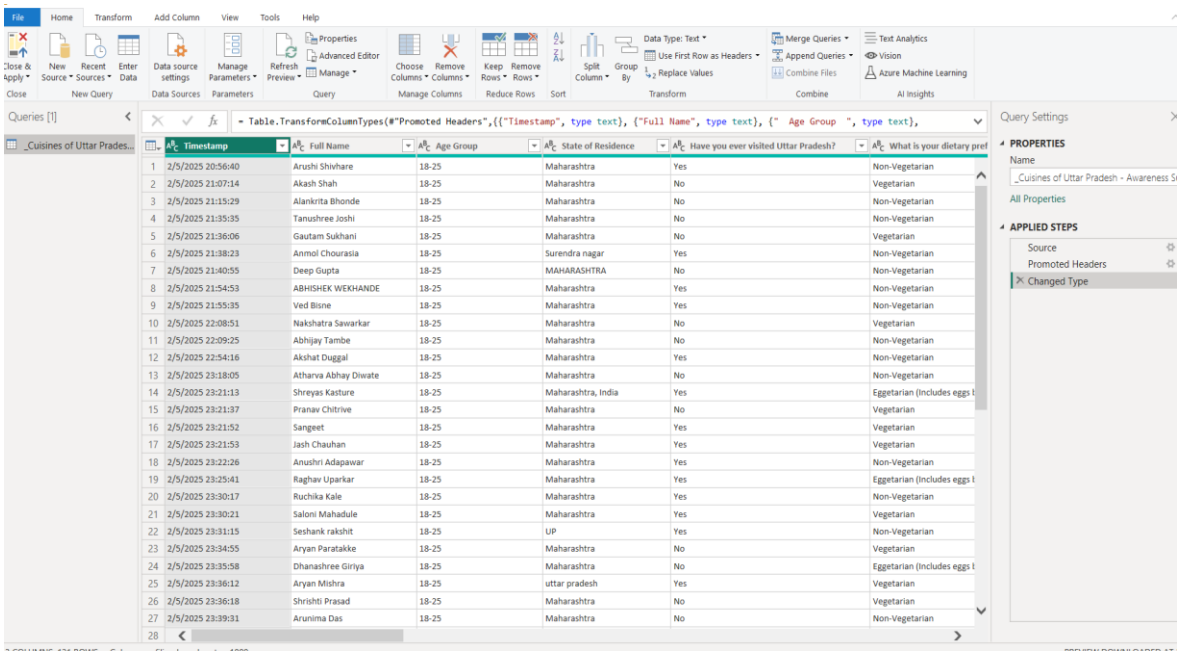
This illustrates the initial data integration process into Power BI, focusing on importing a CSV file containing survey data about Uttar Pradesh cuisine awareness. The data, as seen in the preview, includes information such as respondent demographics, their familiarity with Uttar Pradesh cuisines, preferred cuisine types, sweet preferences, occasion preferences, and their top ten famous cuisines of the region. The primary objective is to bring this dataset into Power BI Desktop to enable further analysis and visualization.

(b) Data Model Optimization

- Steps-

1. **Open Power Query Editor** (Home > Transform Data)
2. **Clean the data**:
    - Remove unnecessary columns like Timestamp
    - Correct data types (e.g., numbers, text, date)
    - Rename columns for clarity:
        - Q1 → Familiar with UP Cuisines
        - Q2 → Favorite Cuisine

3. Check for null or inconsistent values and fix or filter them.



	Timestamp	Full Name	Age Group	State of Residence	Have you ever visited Uttar Pradesh?	What is your dietary pref
1	2/5/2025 20:56:40	Arushi Shivhare	18-25	Maharashtra	Yes	Non-Vegetarian
2	2/5/2025 21:07:14	Akash Shah	18-25	Maharashtra	No	Vegetarian
3	2/5/2025 21:15:29	Alankrita Bhonde	18-25	Maharashtra	No	Non-Vegetarian
4	2/5/2025 21:35:35	Tanushree Joshi	18-25	Maharashtra	No	Non-Vegetarian
5	2/5/2025 21:36:06	Gautam Sukhani	18-25	Maharashtra	No	Vegetarian
6	2/5/2025 21:38:23	Anmol Chourasia	18-25	Surendra nagar	Yes	Non-Vegetarian
7	2/5/2025 21:40:55	Deep Gupta	18-25	MAHARASHTRA	No	Non-Vegetarian
8	2/5/2025 21:54:53	ABHISHEK WEKHANDE	18-25	Maharashtra	Yes	Non-Vegetarian
9	2/5/2025 21:55:35	Ved Bisne	18-25	Maharashtra	Yes	Non-Vegetarian
10	2/5/2025 22:08:51	Nakshatra Sawarkar	18-25	Maharashtra	No	Vegetarian
11	2/5/2025 22:09:25	Abhijay Tambe	18-25	Maharashtra	No	Non-Vegetarian
12	2/5/2025 22:54:16	Akshat Duggal	18-25	Maharashtra	Yes	Non-Vegetarian
13	2/5/2025 23:18:05	Atharva Abhay Diwate	18-25	Maharashtra	No	Non-Vegetarian
14	2/5/2025 23:21:13	Shreyas Kasture	18-25	Maharashtra, India	Yes	Eggetarian (Includes eggs
15	2/5/2025 23:21:37	Pranav Chitrive	18-25	Maharashtra	No	Vegetarian
16	2/5/2025 23:21:52	Sangeet	18-25	Maharashtra	Yes	Vegetarian
17	2/5/2025 23:21:53	Jash Chauhan	18-25	Maharashtra	Yes	Vegetarian
18	2/5/2025 23:22:26	Anushri Adapawar	18-25	Maharashtra	Yes	Non-Vegetarian
19	2/5/2025 23:25:41	Raghav Uparkar	18-25	Maharashtra	Yes	Eggetarian (Includes eggs
20	2/5/2025 23:30:17	Ruchika Kale	18-25	Maharashtra	Yes	Non-Vegetarian
21	2/5/2025 23:30:21	Saloni Mahadule	18-25	Maharashtra	Yes	Vegetarian
22	2/5/2025 23:31:15	Seshank rakshit	18-25	UP	Yes	Non-Vegetarian
23	2/5/2025 23:34:55	Aryan Paratakke	18-25	Maharashtra	No	Vegetarian
24	2/5/2025 23:35:58	Dhanashree Giriya	18-25	Maharashtra	No	Eggetarian (Includes eggs
25	2/5/2025 23:36:12	Aryan Mishra	18-25	uttar pradesh	Yes	Vegetarian
26	2/5/2025 23:36:18	Shrishti Prasad	18-25	Maharashtra	No	Vegetarian
27	2/5/2025 23:39:31	Arunima Das	18-25	Maharashtra	No	Non-Vegetarian

This focuses on the data model optimization phase within Power BI, following the initial data import. It highlights the importance of preparing and cleaning the imported data for effective analysis. This involves opening the Power Query Editor to perform crucial data transformations. The key actions include removing irrelevant columns like the timestamp, ensuring correct data types for each column (such as numbers, text, and dates), and renaming columns for better clarity, as exemplified by renaming "Q1" to "Familiar with UP Cuisines" and "Q2" to "Favorite Cuisine". Additionally, the process emphasizes the need to identify and handle any null or inconsistent values within the dataset to ensure data quality and integrity for subsequent analysis and visualization.

(c) Schema Design

- Steps-

1. Treat survey table as **Fact Table**
2. Create **Dimension Tables** if:
    - You separate nutritional info
    - You create a lookup for dishes
3. Go to **Model View** to arrange schema.

➢ **Step 1: Understand Your Tables**

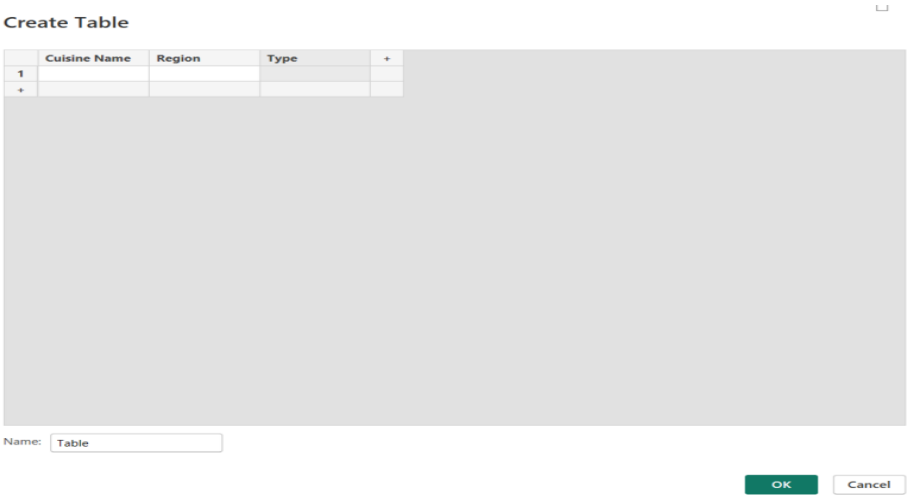
- **Fact Table**: Your main dataset (the survey responses).
- **Dimension Tables**: Lookup/reference tables (like list of dishes, nutrition info, regions, demographics).

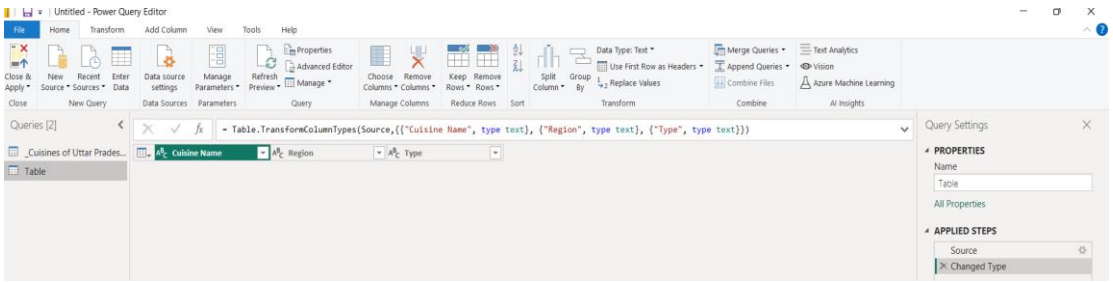
Table Type	Table Name	Description
Fact	Survey Responses	All raw responses from the form
Dimension	Cuisines	Dish name, type, region, ingredients
Dimension	Nutrition Info	Dish name, calories, protein, fat, etc.
Dimension	Demographics	Age group, gender category (if separated)

The outlines the initial step in structuring a data model, which involves understanding the different types of tables involved in the analysis. It distinguishes between a central **Fact Table**, which in this case is the "Survey Responses" table containing all the raw data collected from the survey. Complementing this are **Dimension Tables**, which serve as lookup or reference tables providing additional context and attributes. Examples provided include a "Cuisines" table detailing dish names, types, regions, and ingredients; a "Nutrition Info" table containing nutritional information for each dish; and a "Demographics" table holding information such as age groups and gender categories, if separated from the main survey responses. This separation into fact and dimension tables is crucial for building an efficient and understandable data model, particularly for analytical tools like Power BI.

- **Step 2: Import or Create Dimension Tables**

1. If you already have separate CSVs (e.g., dishes with nutrients), load them via **Home > Get Data > CSV**.
2. If not, **create a new table**:
    - Go to **Home > Enter Data**
    - Manually create small lookup tables:
        - e.g., Cuisine Name | Renion | Type
    - Click **OK** → Table is added to your model

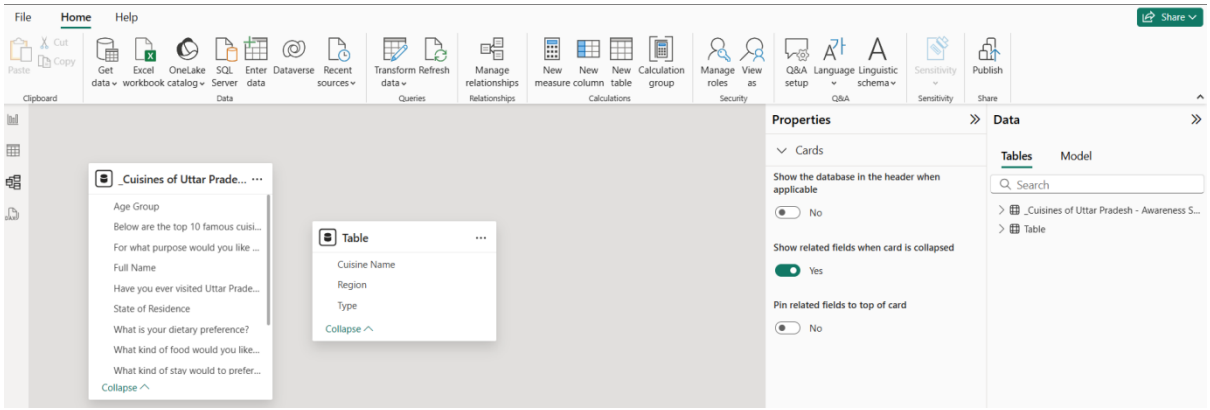




This outlines the subsequent step in the data modeling process: importing or creating dimension tables. It describes two primary methods for populating these lookup tables. If separate CSV files already exist containing relevant data, such as a list of dishes with their nutritional information, these can be imported into Power BI. Alternatively, if such separate files are not available, the image suggests manually creating these smaller lookup tables directly within Power BI. This can be done by entering data directly into a new table, as illustrated by the example of creating a table with "Cuisine Name," "Region," and "Type" columns. The goal of this step is to enrich the main survey response data with contextual information stored in these dimension tables, enabling more detailed and insightful analysis.

- **Step 3: Open Model View**

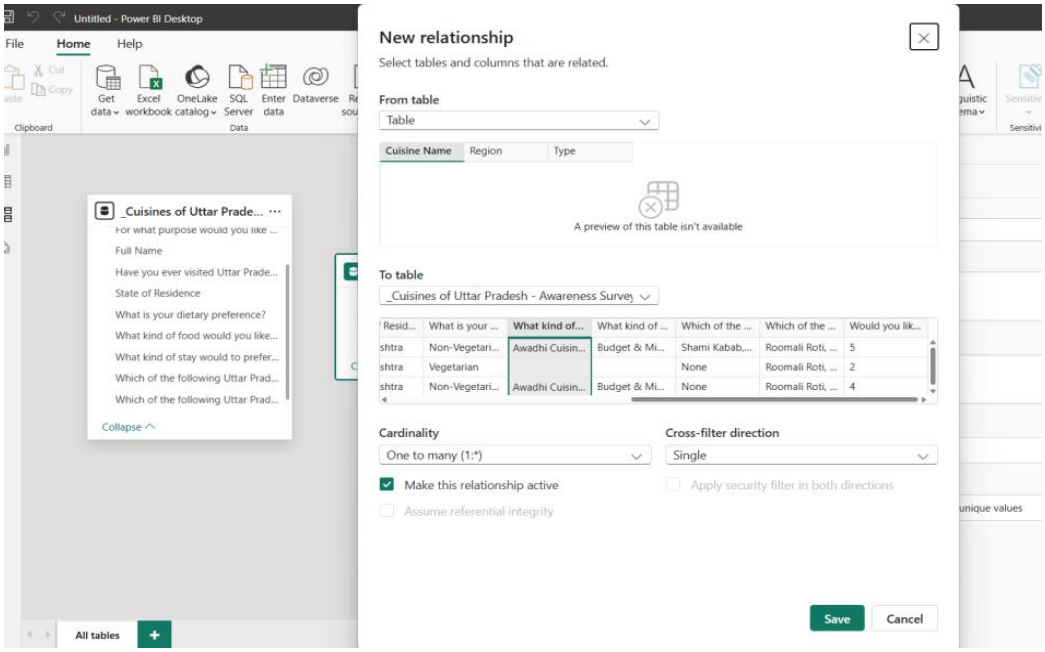
1. In Power BI Desktop, go to the left sidebar
2. Click the **"Model View" icon** (looks like two connected tables)
3. You'll see all tables as boxes with their fields



This illustrates the next step in the data modeling process within Power BI: opening the Model View. The instructions guide the user to navigate to the left sidebar in Power BI Desktop and click on the "Model View" icon, which is visually represented as two connected tables. Upon clicking this icon, the user will be presented with a visual representation of all the loaded tables as distinct boxes, along with the fields contained within each of those tables. This view is crucial for understanding the structure of the data model and for establishing relationships between the different tables, which is the subsequent step in creating a robust and analytical model.

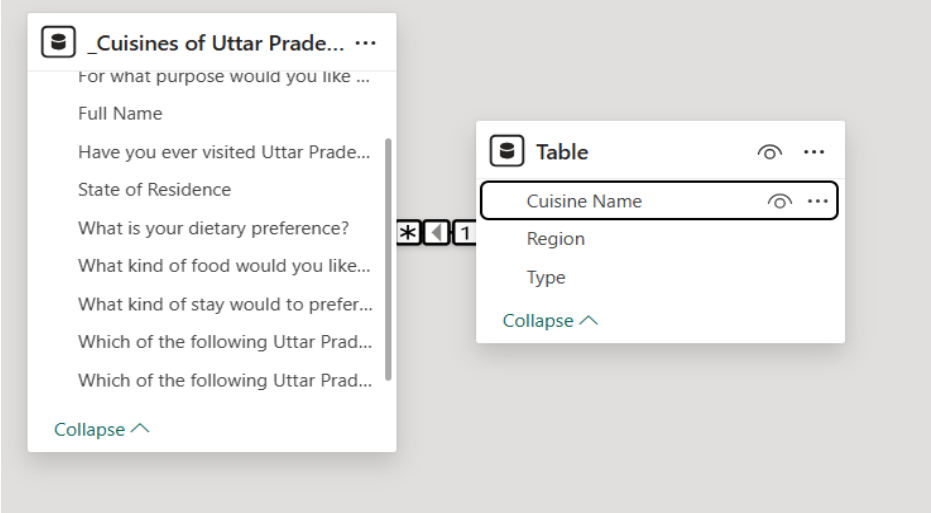
➢ **Step 4: Create Relationships**

1. Drag a column from the **Fact Table** (e.g., Cuisine Name) to the **related field** in the Dimension Table.



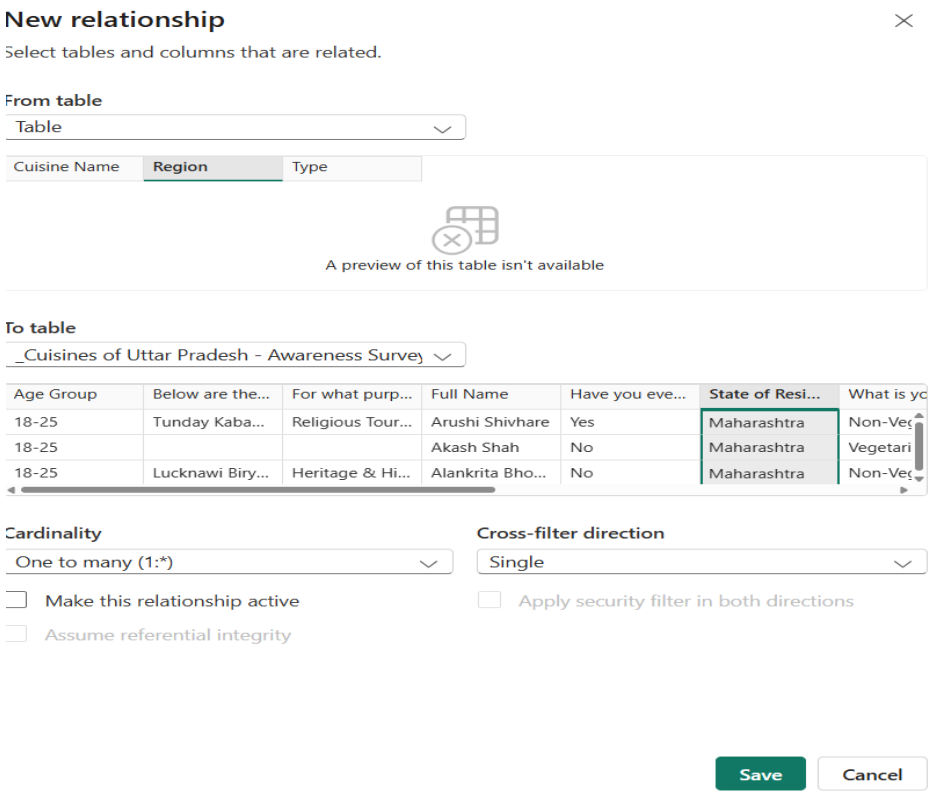
This shows the step of creating relationships in Power BI's Model View. It involves dragging a column from the Fact Table to a related column in a Dimension Table, establishing a one-to-many relationship to connect the data.

- This creates a **one-to-many relationship** (1 on the dimension side, * on the fact side)

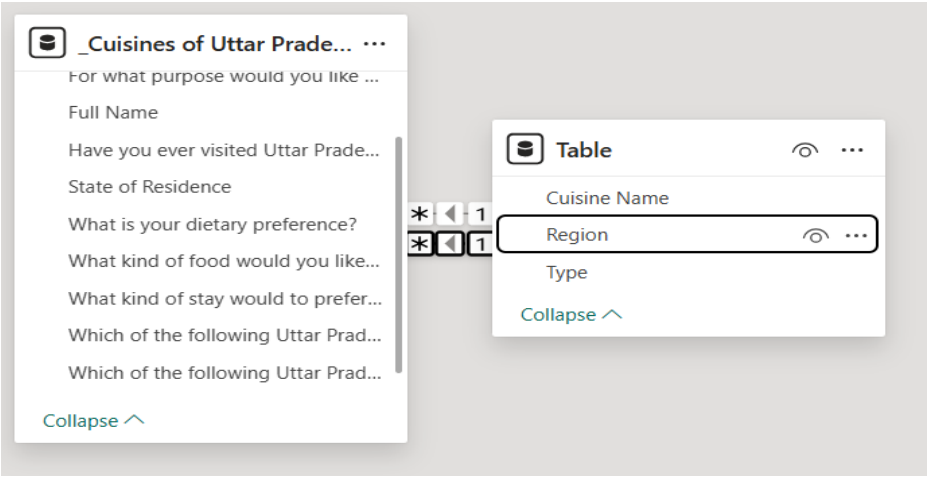


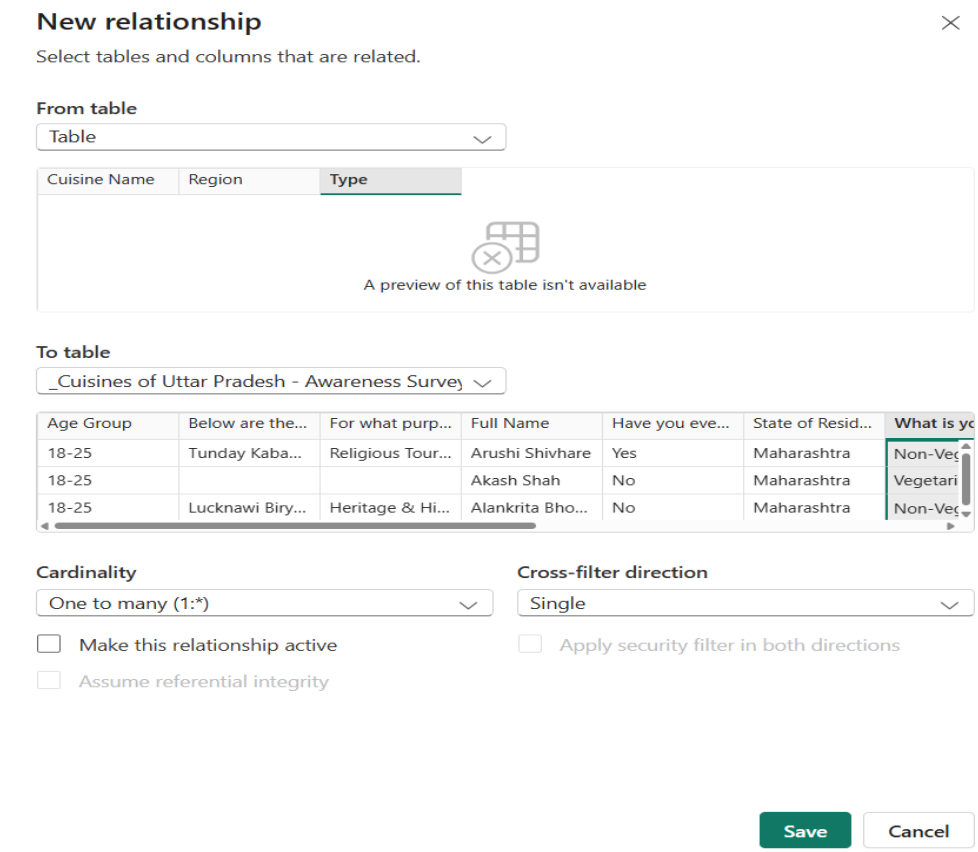
This shows a one-to-many relationship in Power BI, connecting the fact table to a dimension table using "Which of the following Uttar Prad..." and "Cuisine Name" fields.

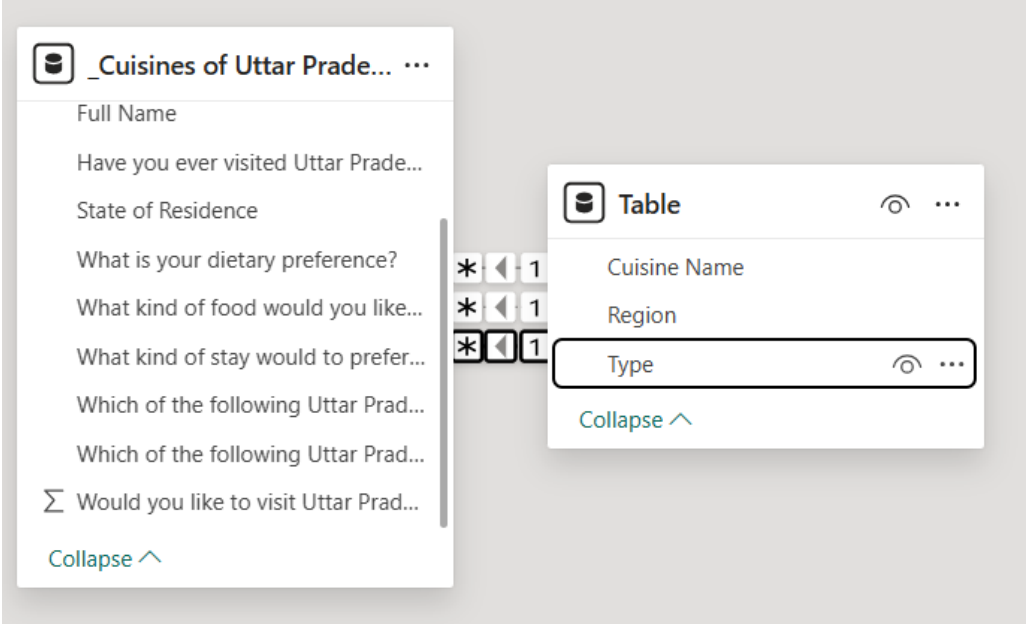
2. Repeat for each dimension table



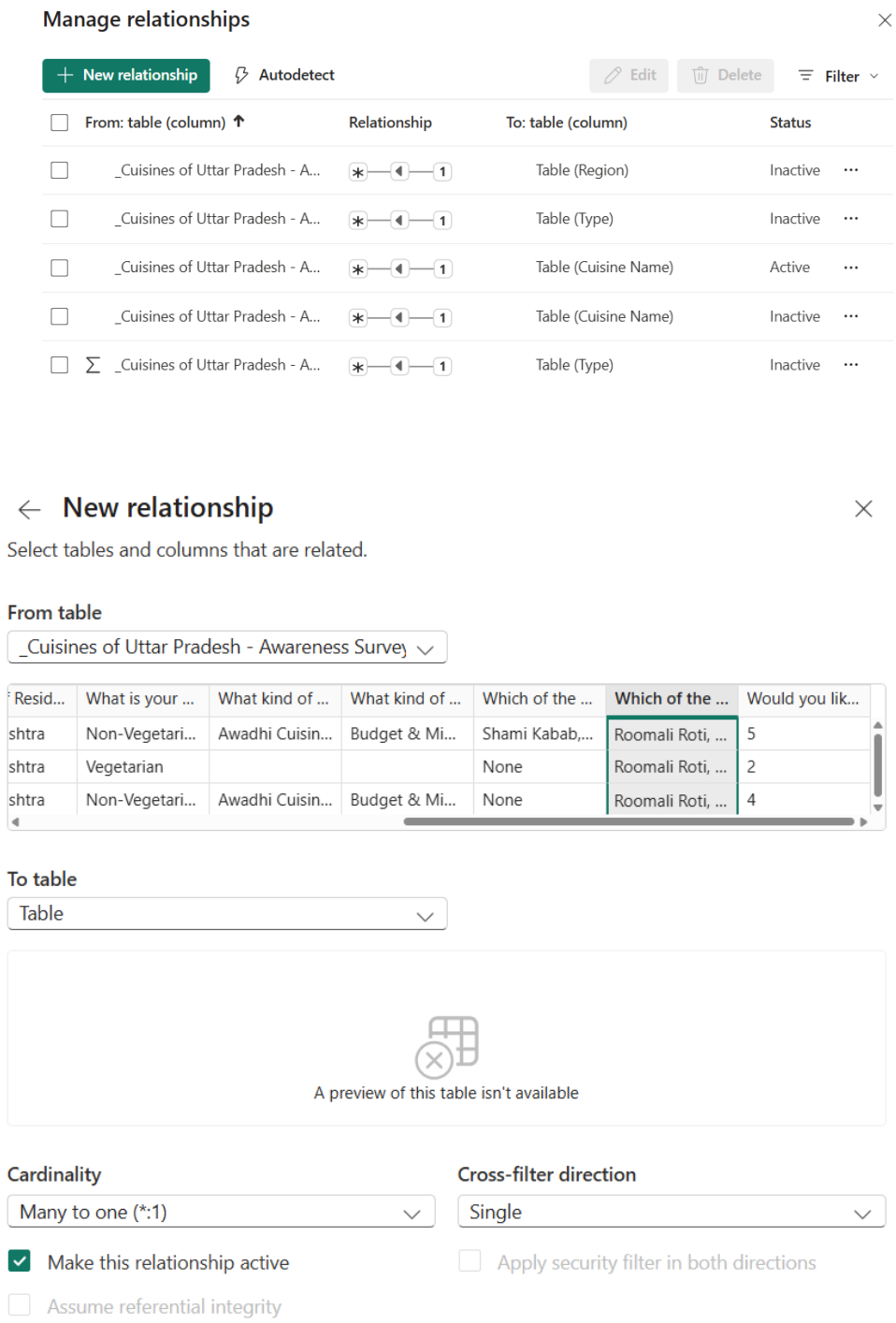
This illustrates repeating the relationship creation process for another dimension table. It shows the "New relationship" dialog box, this time connecting the "Table" dimension table to the "_Cuisines of Uttar Pradesh - Awareness Survey" fact table. The selected fields for the relationship are "Region" from the dimension table and "State of Residence" from the fact table, again establishing a "One to many (*)" cardinality. This indicates that multiple survey responses in the fact table can be associated with a single region in the dimension table.







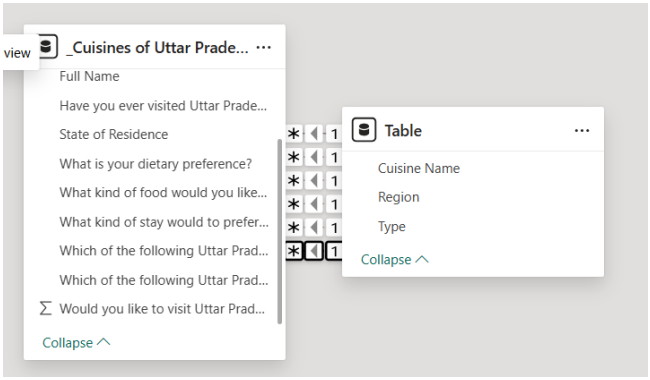
- Check that data types match on both sides of the relationship.
- You can also go to **Manage Relationships** from the **Modeling tab** to edit or view all links.



This shows the "Manage relationships" dialog box in Power BI. It lists the existing relationships between the "_Cuisines of Uttar Pradesh - A..." fact table and a "Table" dimension table. The display confirms the one-to-many relationship type for several connections based on "Region," "Type," and "Cuisine Name." Notably, one relationship linking "_Cuisines of Uttar Pradesh - A..." to "Table" using "Cuisine Name" is marked as "Active," while others are "Inactive." This window allows users to review, edit, create new, or delete relationships within their data model, ensuring the connections between tables are correctly established for analysis.

➢ **Step 5: Verify Schema**

- Make sure all lookups are correctly connected
- Your **Survey Table** should sit at the center (like a star schema)
- All dimensions connect to it through **one-to-many** relationships



This illustrates the final step in the initial data modeling process: verifying the schema. It emphasizes the importance of ensuring all lookup (dimension) tables are correctly connected to the main fact table. The visual shows the "_Cuisines of Uttar Prade..." fact table linked to the "Table" dimension table through one-to-many relationships, indicated by the "1" and "*" symbols. The text below reinforces the concept of a star schema, where the survey table (fact table) resides at the center, and all dimension tables connect to it via these one-to-many relationships. This structure is fundamental for efficient data querying and analysis in Power BI.

❖ **Final Schema Example:**

```
plaintext
CopyEdit
        Dim_Cuisines
             |
             | (1)        (*)
        Survey_Fact  ———  Dim_Nutrition
             |
             |———— Dim_Demographics
```

This presents a visual example of a final star schema for the data model. At the center is the "Survey Fact" table, representing the main survey responses. Branching out from the fact table are three dimension tables: "Dim Cuisines," "Dim Nutrition," and "Dim Demographics." The lines connecting the fact table to the dimension tables indicate relationships. Specifically, the "(1)" and "*()" notations between "Dim Cuisines" and "Survey Fact" suggest a one-to-many relationship, where one record in the "Dim Cuisines" table can be linked to multiple records in the "Survey Fact" table. Similar one-to-many relationships are implied (though not explicitly labeled with "(1)" and "*()") between the "Survey Fact" table and both "Dim Nutrition" and "Dim Demographics" tables. This star schema structure is optimized for analytical querying, allowing users to analyze survey responses based on the attributes stored in the dimension tables.

(d) Data Relationships

This briefly outlines the process of establishing data relationships in a data model, particularly if separate dimension tables have been created. The key instruction is to link these tables to the main fact table using common fields such as "Cuisine Name" and "Region." The method for creating these links is by dragging and dropping the relevant fields within the Model View of the data modeling tool. This step is crucial for connecting related information across different tables, enabling comprehensive analysis and reporting.

(e) Documentation

- Steps-

1. Annotate relationships using **Model View Notes**
2. Or prepare a separate Word/PDF with:
    - Table names
    - Key fields
    - Relationship schema

Table Name	Key Fields (Inferred)	Relationship Schema (Inferred)
`df`	* Identifier-like Columns: * It's likely there's an implicit index. * Dimension-like Columns: * `Age Group` * `What is your dietary preference?` * `State of Residence` * `Have you ever visited Uttar Pradesh?` * `Purpose of Visiting UP` * `Preferred Type of Stay` * `Preferred Food to Try` * Fact-like Columns: * Columns representing awareness of specific dishes (e.g., 'Roomali Roti', 'Arhar ki Dal', 'Shami Kabab' etc.) * `Would you like to visit Uttar Pradesh in future? (rate:1-5)`	* There isn't a traditional relational schema here. Everything is within the `df` table. * If we were to *design* a relational model: * A central "SurveyResponses" table (`df`). * This table has columns that *relate to* dimensions like "AgeGroup," "DietaryPreferences." * In a relational model, we'd normalize this (e.g., separate tables for AgeGroup, DietaryPreferences, etc., with foreign keys in SurveyResponses).

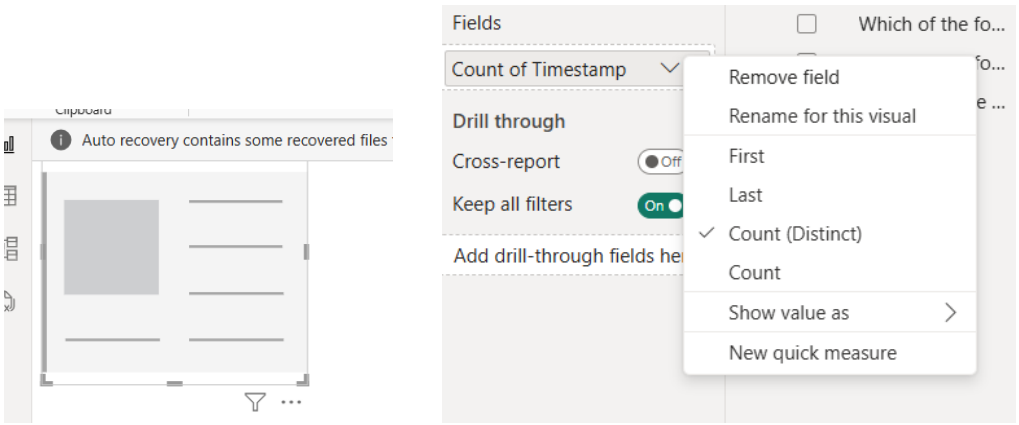
The image discusses documenting data model relationships, suggesting Model View Notes or a document with table names, key fields, and schema. It analyzes the single "df" table, noting its lack of a traditional schema. The documentation proposes normalizing "df" into a relational model with a central "SurveyResponses" table linked to dimension tables.

[2] Dashboard Development in Power BI

(a) Wireframe Dashboard

- **Page 1: Overview**

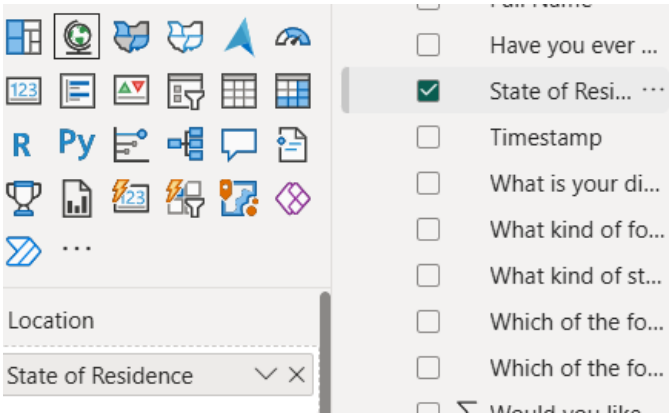
- **Card: Total Responses**



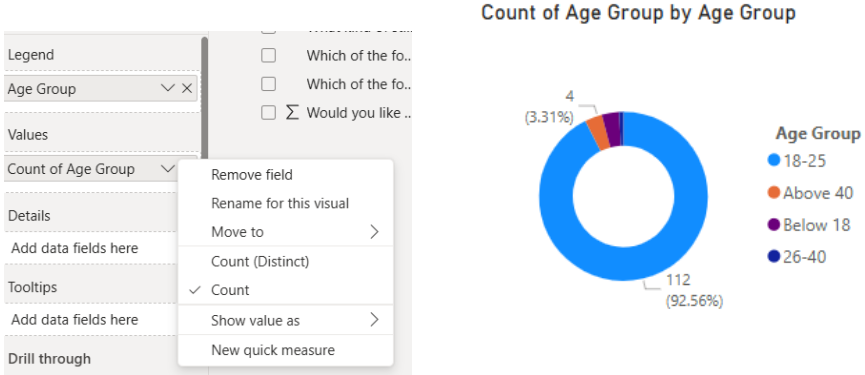
This shows the creation of a "Total Responses" card in Power BI. It displays the value "117" as the count of the "Timestamp" field from the dataset. The configuration panel shows that the "Count (Distinct)" aggregation has been applied to the "Timestamp" column, indicating that there were 117 unique timestamps, representing the total number of survey responses.

- **Map: Respondent locations**

This depicts the creation of a map visualization in Power BI to show respondent locations. The map displays blue markers across India, indicating the geographical distribution of survey respondents. The "State of Residence" field from the dataset has been selected as the location for this map, suggesting that respondent locations are being determined based on their stated state or city of residence.

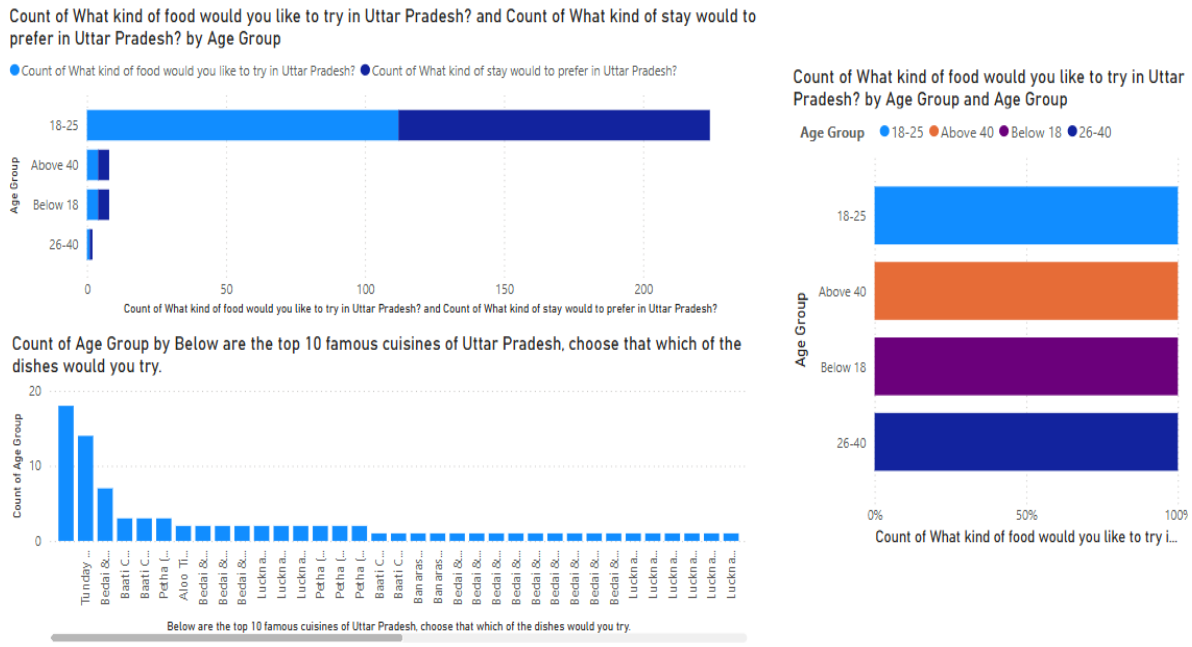


- **Donut chart: Age distribution**

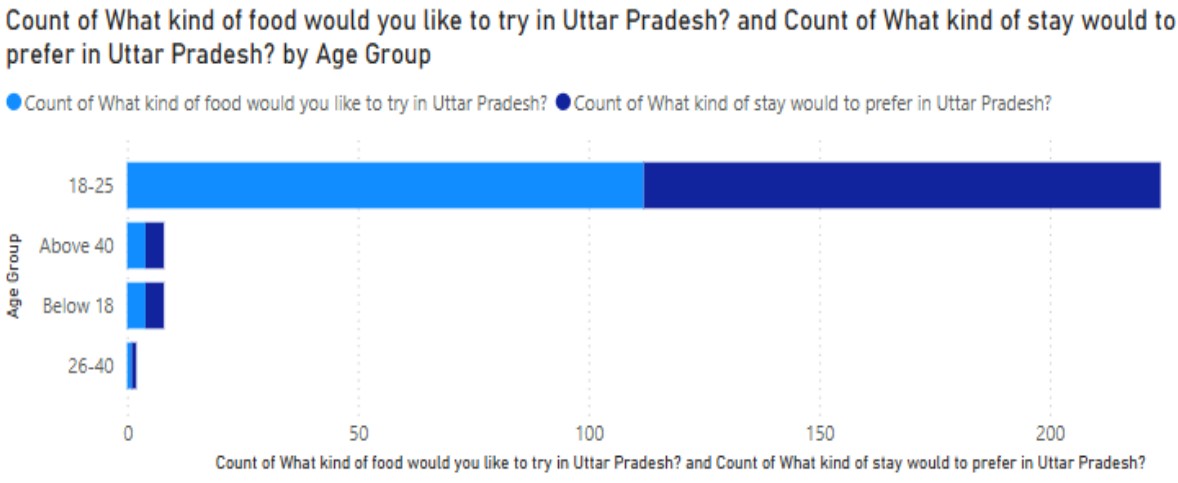


This shows a donut chart visualizing the age distribution of survey respondents. The chart segments represent different age groups: 18-25, Above 40, Below 18, and 26-40, with corresponding colors in the legend. The largest segment, in blue, represents the 18-25 age group, accounting for 112 responses (92.56%). The other age groups have significantly fewer respondents, as indicated by their smaller segments and counts.

- **Page 2: Cuisine Awareness & Preference**

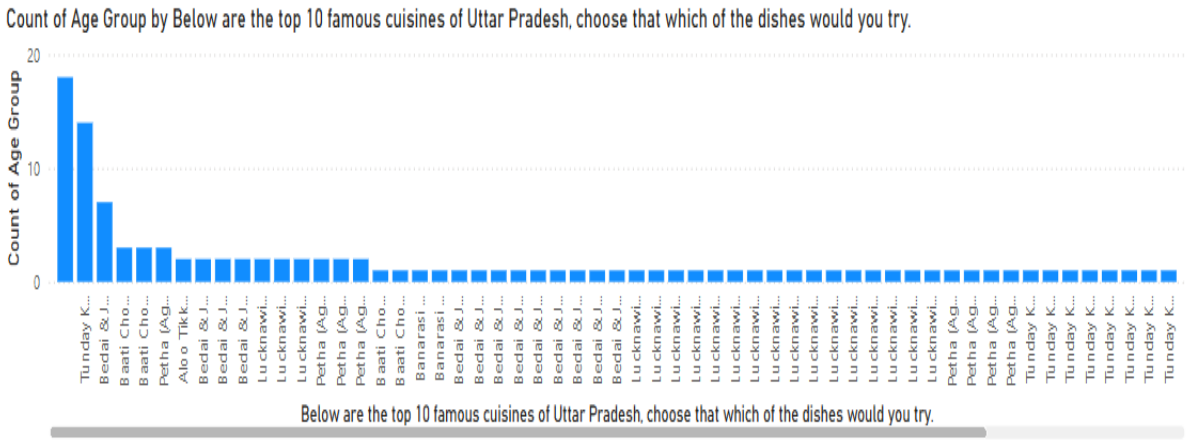


- **Bar Chart: Familiarity with cuisines**



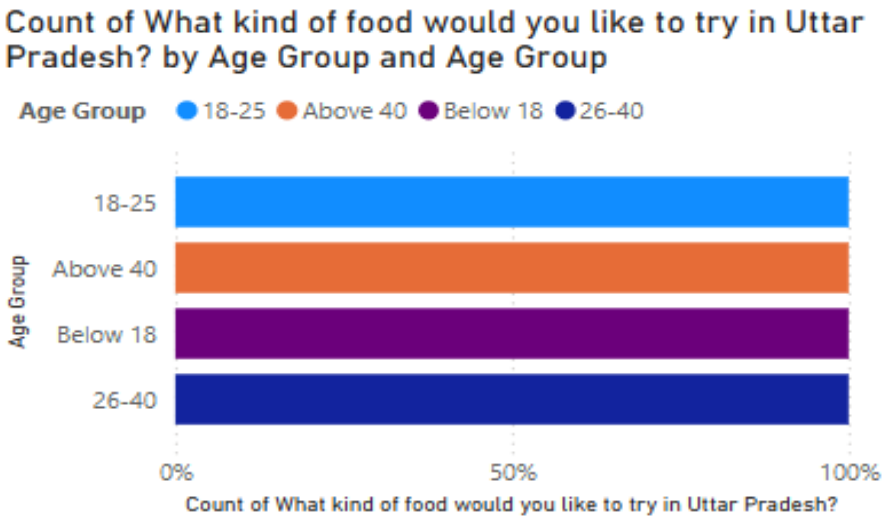
This displays a stacked bar chart showing the count of preferred food to try and preferred stay in Uttar Pradesh, broken down by age group. The 18-25 age group has the highest count for both food and stay preferences, while the other age groups (Above 40, Below 18, 26-40) show significantly lower counts.

- **Column Chart: Top 5 Known Dishes**



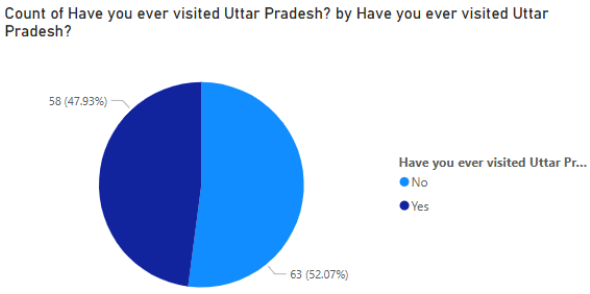
This presents a column chart showing the count of each age group's preference for Uttar Pradesh dishes. "Tunday Kebab" has the highest preference, followed by "Bedai & Jalebi" and "Baati Chokha," with other dishes showing lower popularity.

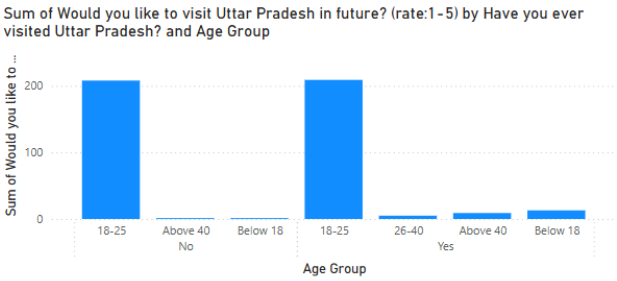
- **Stacked Chart: Popularity by age**

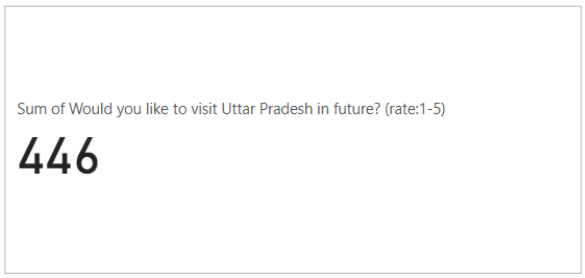


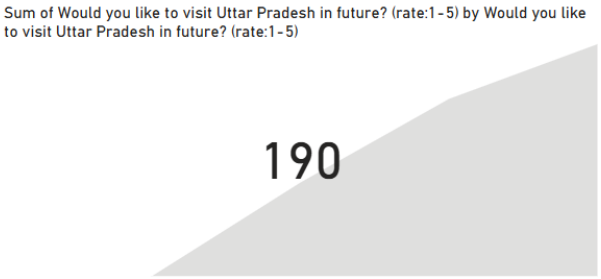
The image displays a horizontal bar chart showing the count of what kind of food respondents would like to try in Uttar Pradesh, categorized by age group. Each age group (18-25, Above 40, Below 18, 26-40) has a bar extending to approximately the same length, indicating a similar number of responses across these categories.

➢ Page 3: Tourism Connection

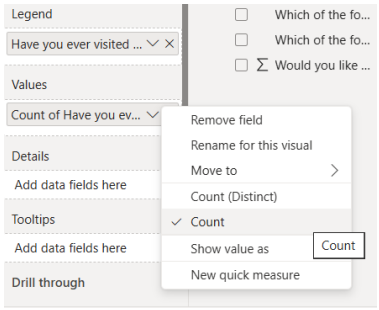


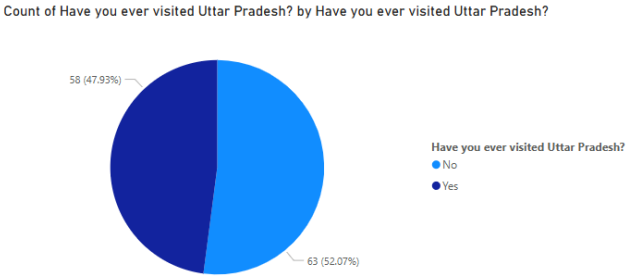






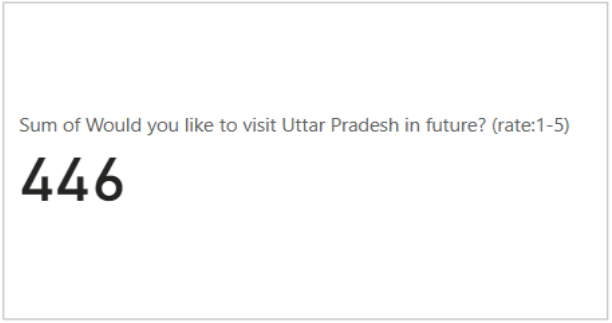
- **Pie Chart: Visited UP for food?**

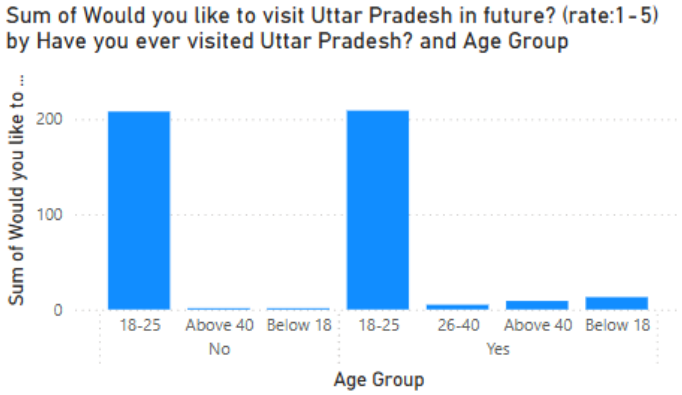




This shows a pie chart illustrating responses to the question "Have you ever visited Uttar Pradesh?". The chart indicates that 63 respondents (52.07%) have visited Uttar Pradesh (Yes), while 58 respondents (47.93%) have not (No).

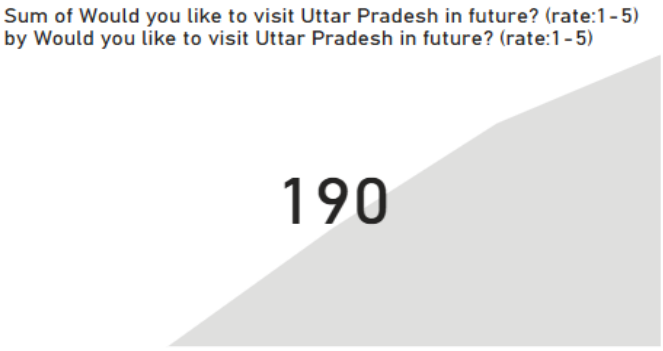
- **Likert scale (converted to numeric): Satisfaction, Taste**





This displays a bar chart showing the sum of responses to the question "Would you like to visit Uttar Pradesh in future? (rate: 1-5)" broken down by age group and whether they have previously visited Uttar Pradesh. The 18-25 age group, regardless of prior visits, shows the highest sum of ratings, while other age groups have considerably lower sums. A separate card visual shows the overall sum of these ratings as 446.

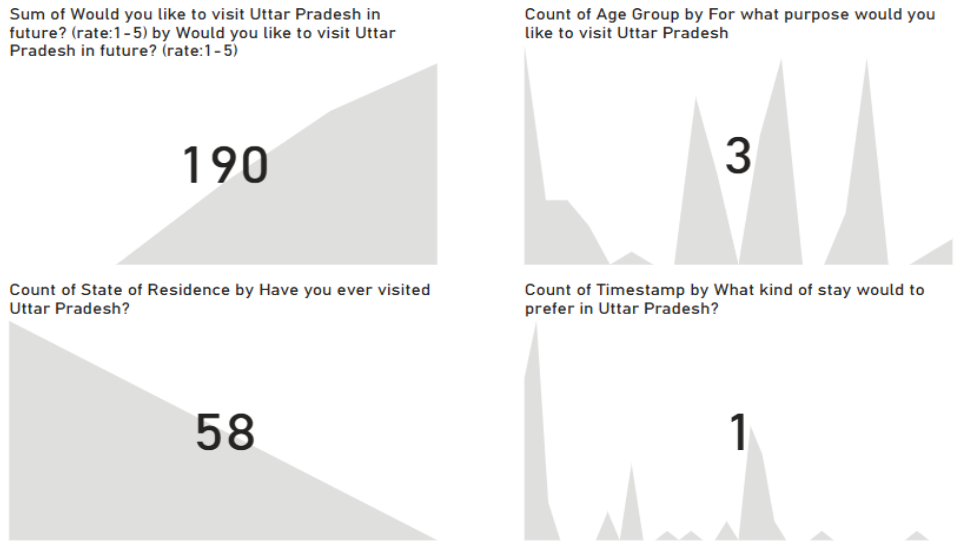
- **KPI cards: % seeing UP cuisine as tourism potential**



This displays a KPI card showing the value "190." The title indicates it represents the "Sum of Would you like to visit Uttar Pradesh in future? (rate: 1-5)" filtered by the same question. This suggests that a specific subset of respondents, likely those who expressed a higher interest in visiting UP in the future, have a cumulative rating of 190 regarding this interest, potentially indicating their perception of UP cuisine as a tourism draw.

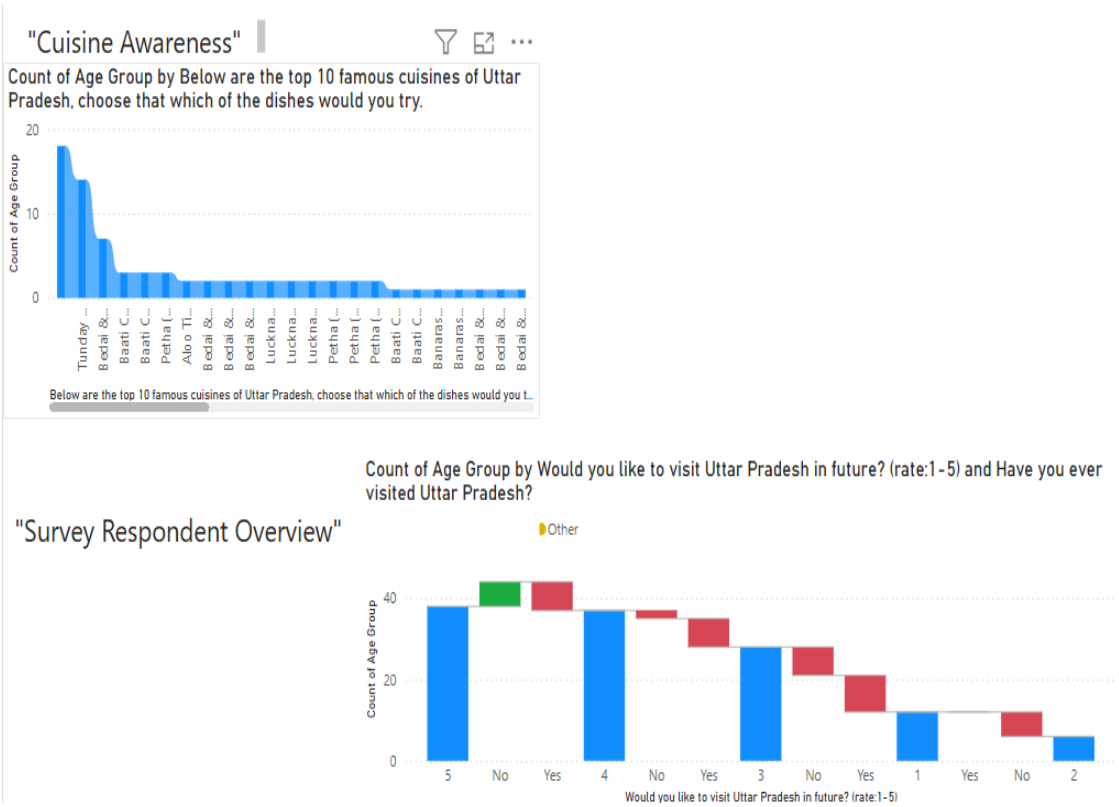
(b) Visual Hierarchy & Layout

- **Use Card visuals for KPIs**



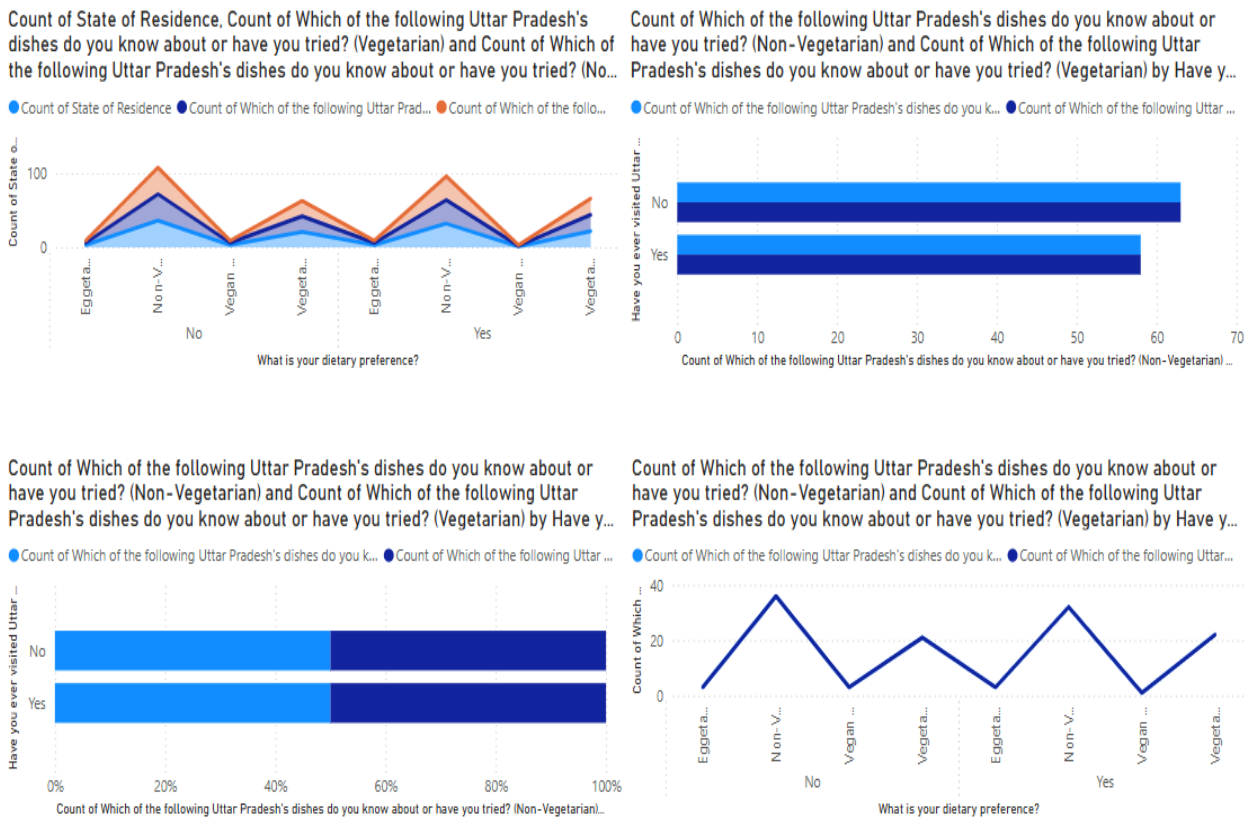
This shows four KPI cards summarizing key metrics: likelihood of future visits (190), count of age groups by visit purpose (3), count of state of residence by those who visited (58), and count of timestamp by preferred stay (1).

- **Use Grid layout (e.g., 2 columns per page)**



This presents a Power BI report layout with two visuals analyzing survey responses about Uttar Pradesh cuisine. It shows a column chart of age group interest in dishes and a waterfall chart analyzing factors influencing the likelihood of visiting Uttar Pradesh.

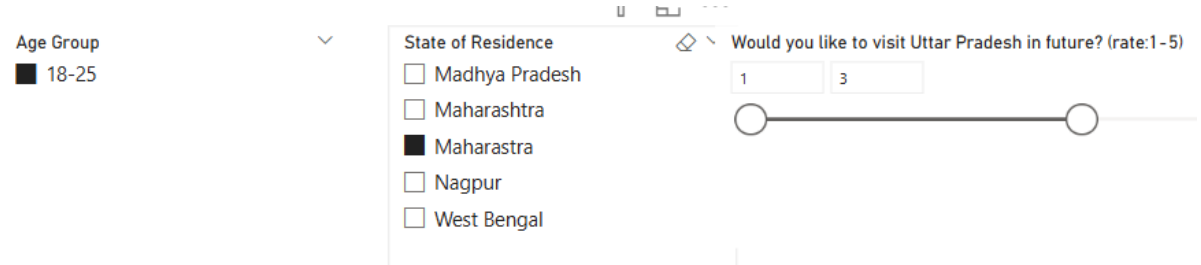
- **Place related charts together (e.g., awareness + popularity)**



This displays four related charts in a Power BI report, likely grouped to analyze cuisine awareness and popularity. The charts explore the relationship between dietary preferences, familiarity with Uttar Pradesh dishes, and whether respondents have visited Uttar Pradesh.

(c) Interactivity

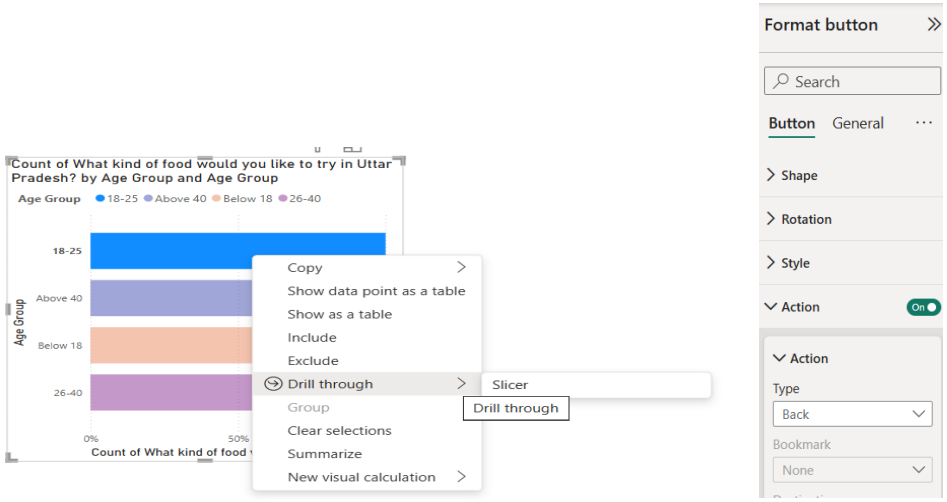
- **Add Slicers:**
  - Age Group
  - Region



This shows the addition of slicers to a Power BI report for interactivity. Slicers for "Age Group" (with "18-25" selected) and "State of Residence" (showing various states including "Maharashtra" and "Nagpur") are visible, allowing users to filter the data displayed in the

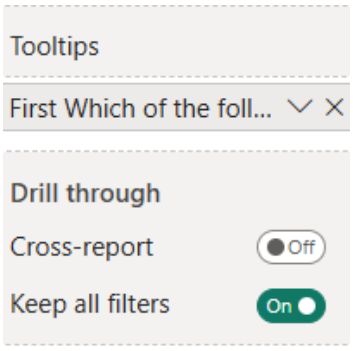
associated visualizations. A slider for "Would you like to visit Uttar Pradesh in future? (rate: 1-5)" is also present for further filtering based on interest level.

- **Add Drill-through pages:**
    - Click a dish to see its rating, nutrition

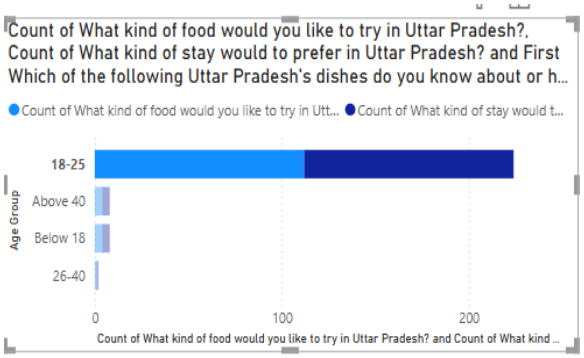


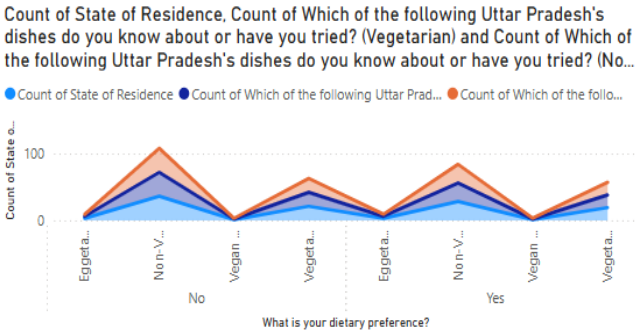
This describes adding interactivity to the Power BI report, specifically "Drill-through pages", it allows users to click on a dish to navigate to a page with its detailed rating and nutrition information.

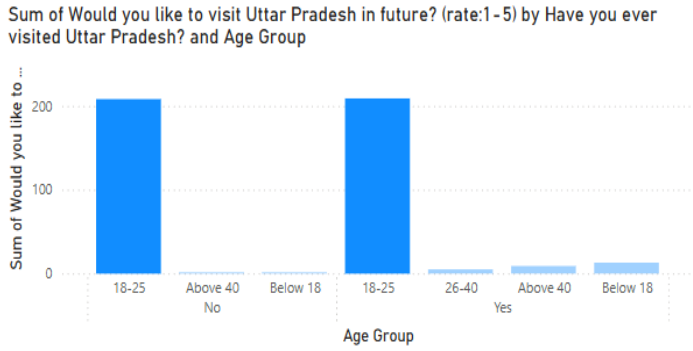
- **Add Tooltips:**
    - Hover on charts to show details

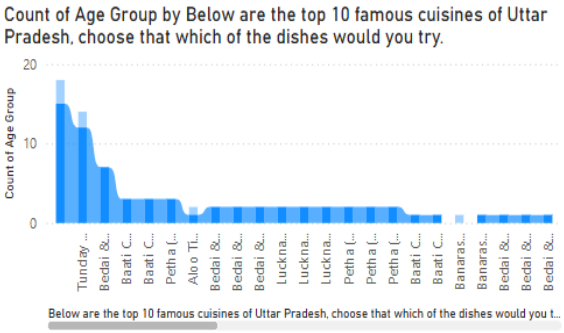


This describes adding interactivity to the Power BI report, "Tooltips",it enable hovering over charts to display additional details.





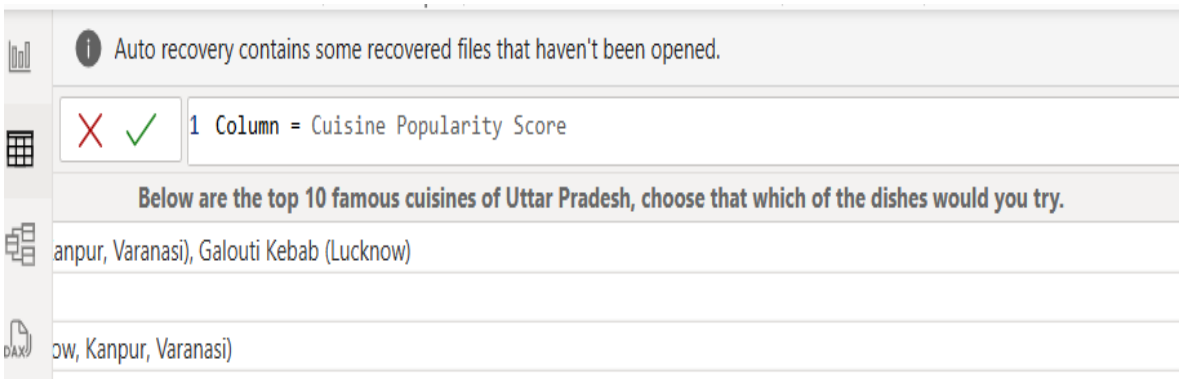




This displays four Power BI visualizations analyzing survey data related to Uttar Pradesh cuisine. These charts explore preferences for food and stay, familiarity with dishes based on dietary preference and prior visits, likelihood of future visits by age and prior visits, and the popularity of specific dishes among different age groups.

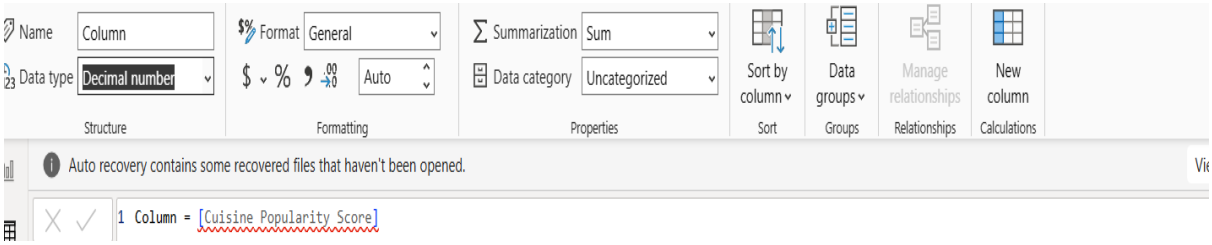
[3] Advanced Power BI Implementation

(a) Calculated Columns (using DAX)



This shows the creation of a calculated column in Power BI using DAX (Data Analysis Expressions). The formula entered defines a new column named "Cuisine Popularity Score."

The context below indicates that this score is likely derived from responses to the question about the top 10 famous cuisines of Uttar Pradesh and which dishes respondents would try.



1. **Age Group Column**:

```
Age Group =
SWITCH(
    TRUE(),
    [Age] >= 18 && [Age] <= 25, "18-25",
    [Age] > 25 && [Age] <= 35, "26-35",
    [Age] > 35 && [Age] <= 45, "36-45",
    [Age] > 45 && [Age] <= 60, "46-60",
    [Age] > 60, "60+",
    "Unknown"
)
```

This displays DAX code for creating a calculated "Age Group" column in Power BI. It uses the SWITCH function to categorize respondents based on their "Age" into groups like "18-25," "26-35," "36-45," "46-60," and "60+," with "Unknown" as the default for values not falling within these ranges.

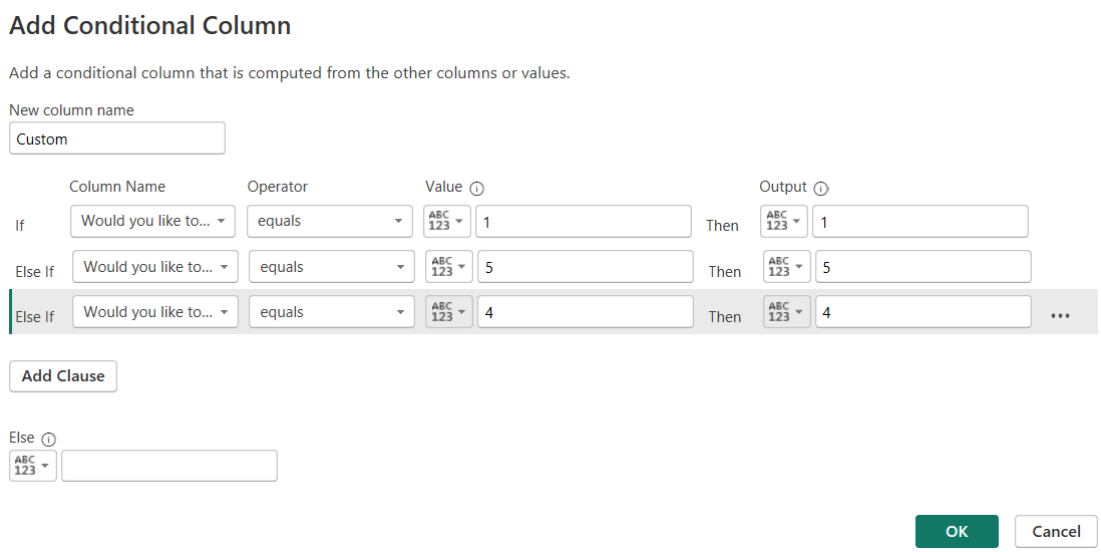
2. **Cuisine Popularity Score** (weighted average or preference rating, depends on data)

```
Cuisine Popularity Score =
VAR Familiarity = SWITCH([Familiar with UP Cuisines], "Yes", 1, "No", 0, 0)
VAR LikedDish = SWITCH([Liked any specific dish], "Yes", 1, "No", 0, 0)
VAR WouldVisit = SWITCH([Would visit UP for food], "Yes", 1, "No", 0, 0)
VAR TasteRating = VALUE([Cuisine Taste Rating])
RETURN
Familiarity + LikedDish + WouldVisit + TasteRating
```

This shows DAX code for calculating a "Cuisine Popularity Score." It assigns a value of 1 for "Yes" and 0 for "No" to variables representing familiarity with UP cuisines, liking a specific dish, and willingness to visit UP for food. It then adds these binary values to the numerical "Cuisine Taste Rating" to derive the final popularity score.

(b) Power Query Transformations

1. **Transform Likert responses:**
    - "Strongly Agree" → 5
    - "Agree" → 4
    - "Strongly Disagree" → 1



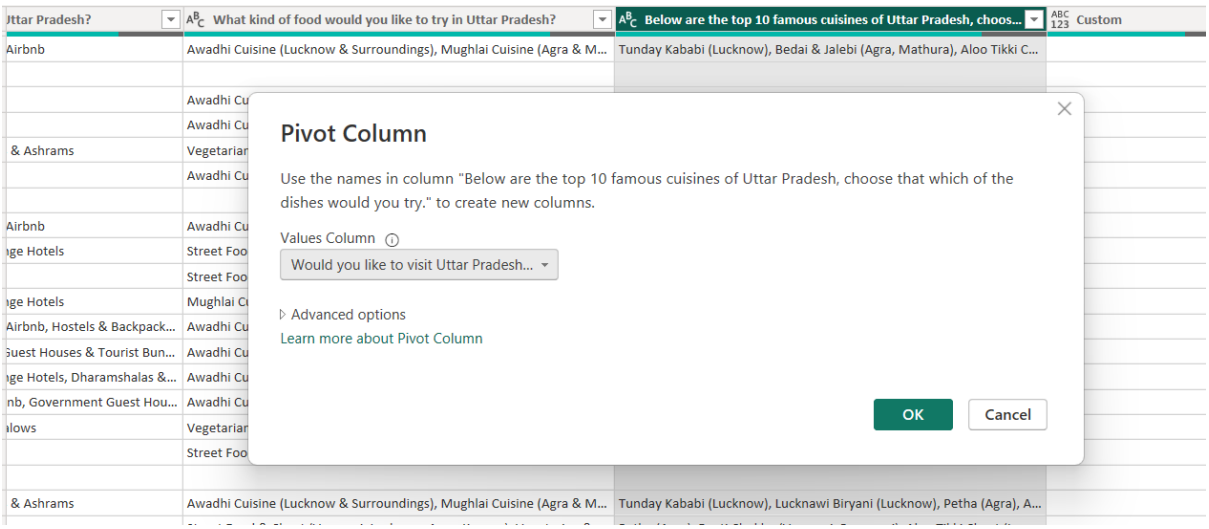
This illustrates Power Query transformations for Likert scale responses. It shows an "Add Conditional Column" interface used to convert text-based Likert scale answers into numerical values, mapping "Strongly Disagree" to 1, and implying similar transformations for other responses like "Agree" to 4 and "Strongly Agree" to 5

2. **Use Replace Values in Power Query Editor**

This shows the "Replace Values" function being used in the Power Query Editor. A column named "Custom" with various numerical values and "null" entries is displayed, indicating

that the "Replace Values" feature can be used to substitute these "null" values with a chosen replacement.

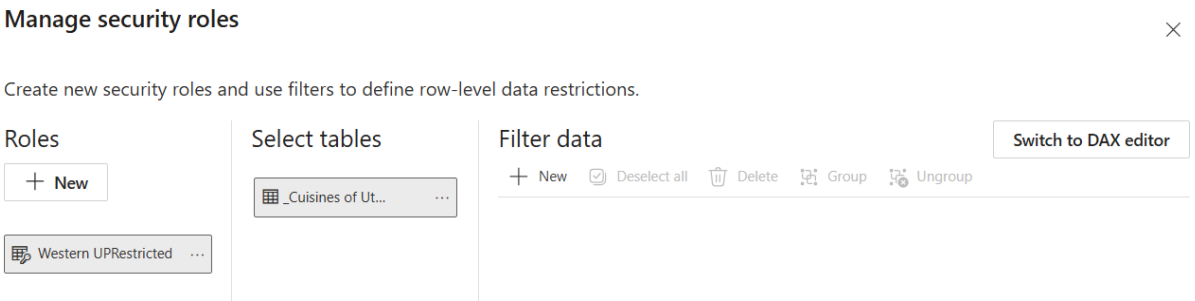
3. Pivot Tables (cuisine × rating matrix)



This shows the creation of a Pivot Table in Power BI, likely to generate a cuisine × rating matrix. The "Pivot Column" dialog box is visible, with "Below are the top 10 famous cuisines of Uttar Pradesh, choose which of the dishes would you try" selected as the column to pivot, and "Would you like to visit Uttar Pradesh?" as the values column.

(c) Row-Level Security

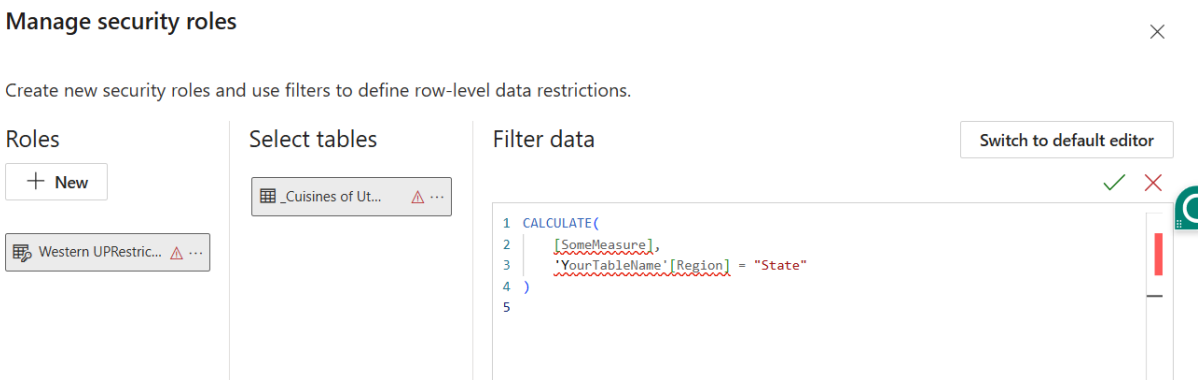
1. Manage Roles in Model View



This displays the "Manage security roles" window in Power BI, used for implementing Row-Level Security (RLS). It shows options to create new roles, select tables to apply security to (with "_Cuisines of UP" selected), and define filters to restrict the data visible to users within those roles.

2. **Example DAX filter:**

DAX
CopyEdit
[Region] = "Western UP"



This shows an example of a DAX filter used for Row-Level Security in Power BI. The DAX expression [Region] = "Western UP" is used to filter data, likely within a security role named "Western UPRestric...", so that users assigned to this role will only see data where the "Region" is "Western UP." The "Manage security roles" interface is also visible, confirming this DAX filter is applied within the security settings.

[4] Validation and Quality Assurance

(a) Validate Against Benchmarks

➢ **Key Insights from Your Power BI Dashboard**

Based on survey data, the following insights were identified:

- **Awareness Levels**: High familiarity with dishes such as Chaat, Biryani, and Kebabs.
- **Preferred Dishes**: Respondents expressed a strong desire to try dishes like Litti Chokha, Tehri, and Galouti Kebab.
- **Tourism Influence**: A significant number of participants indicated that UP's cuisine would motivate them to visit the state.

➢ **Benchmarking with External Sources**

To validate these findings, we consulted reputable external sources:

- **UP Tourism**: Highlights iconic dishes such as Awadhi Biryani, Kebabs, and Kormas as must-try foods in Uttar Pradesh.
- **TasteAtlas**: Lists top-rated UP dishes including Muradabadi Biryani, Galouti Kebab, and Tehri, indicating their widespread popularity.

- **Holidify**: Features a comprehensive list of UP's famous foods, emphasizing dishes like Tehri, Litti Chokha, and various Kebabs.

➢ **Comparative Analysis**

- **Alignment**: The survey's top dishes align closely with those highlighted by external sources, confirming their popularity.
- **Discrepancies**: While the survey indicates a high interest in Litti Chokha, some external sources give more prominence to dishes like Korma and Nihari. This could be due to regional preferences or the demographic profile of the survey respondents.

➢ **Documentation of Validation**

- **Validated Insights**:
  - High awareness and preference for Chaat, Biryani, and Kebabs.
  - Significant interest in trying Litti Chokha and Tehri.
  - Culinary experiences influencing tourism decisions.
- **External Sources Consulted**:
  - UP Tourism
  - TasteAtlas
  - Holidify
- **Summary**: The survey findings are largely consistent with external benchmarks, reinforcing the credibility of the insights. Minor discrepancies can be attributed to regional tastes and the specific demographic of the survey participants.

(b) Domain Expert Review

➢ **Identifying Domain Experts**

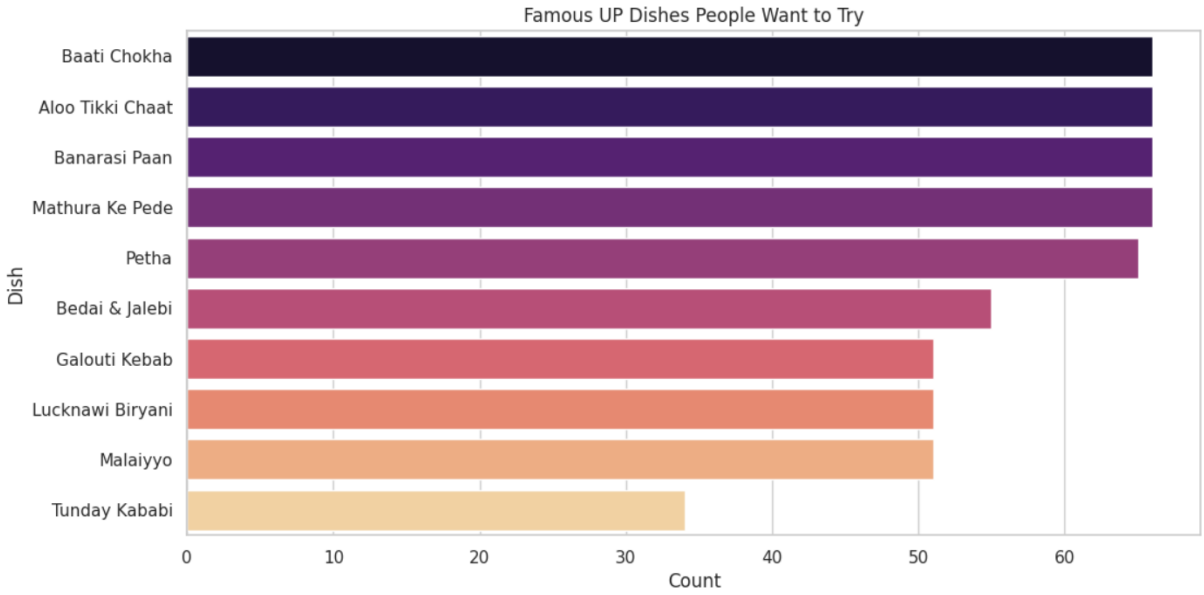
To validate your analysis:-

- **Chef Ranveer Brar**: A renowned chef from Lucknow, known for his expertise in Awadhi cuisine. He has advocated for a culinary research institute in Uttar Pradesh to promote the state's rich culinary heritage. The Times of India
- **Chef Mujeeb Ur Rehman**: Hailing from old Lucknow, Chef Rehman is a descendant of royal Awadhi chefs and specializes in traditional UP dishes. chefrehman.com
- **Shri Dinesh Kumar**: Deputy Director of Tourism, Uttar Pradesh, involved in promoting the state's tourism and hospitality sector. Invest UP
- **Prakhar Mishra**: Director of Tourism, Uttar Pradesh, focusing on diversifying tourism strategies beyond spiritual tourism. ETTravelWorld.com

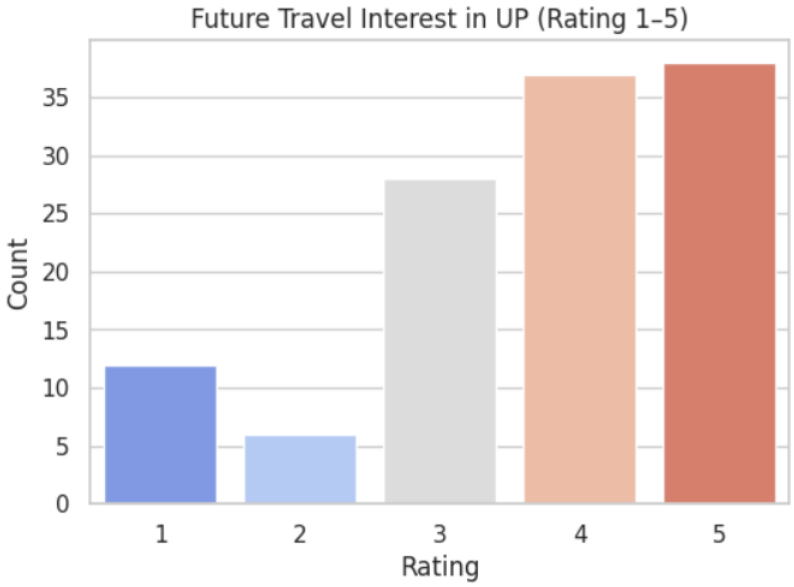
➢ **Prepare for Expert Review**

- **Organizing Power BI Report**

- Popular UP dishes identified in the survey.



- Respondents' willingness to visit UP for its cuisine.



- **Draft Specific Questions**:
  - Do the identified popular dishes align with traditional UP culinary trends?

⇨ Yes, the dishes highlighted in your survey—such as Biryani, Kebabs, and Litti Chokha—are integral to Uttar Pradesh's culinary heritage. Biryani and Kebabs are staples of Awadhi cuisine, reflecting the state's royal and Mughal influences, while Litti Chokha is a traditional dish from the Bhojpuri region.

- Are there any notable dishes missing from the survey that are significant in UP cuisine?

⇨ Yes, several iconic dishes might be underrepresented in your survey:

- **Shabdeg**: A rich meat stew cooked with turnips, popular in Eastern UP.
- **Puri-Sabzi**: A common breakfast dish consisting of deep-fried bread served with spicy potato curry.
- **Bhindi Ka Salan**: A flavorful okra curry that balances sourness, creaminess, and nuttiness.
- **Kulcha-Nihari**: A combination of soft bread with a slow-cooked meat stew, reflecting the state's Mughal culinary legacy.

- How does cuisine influence tourism in Uttar Pradesh?

⇨ Cuisine plays a significant role in attracting tourists to Uttar Pradesh. The state's diverse food offerings, from street foods to royal dishes, enhance the cultural experience for visitors. Food festivals, culinary tours, and traditional cooking classes are increasingly popular, allowing tourists to immerse themselves in the local culture through its cuisine.

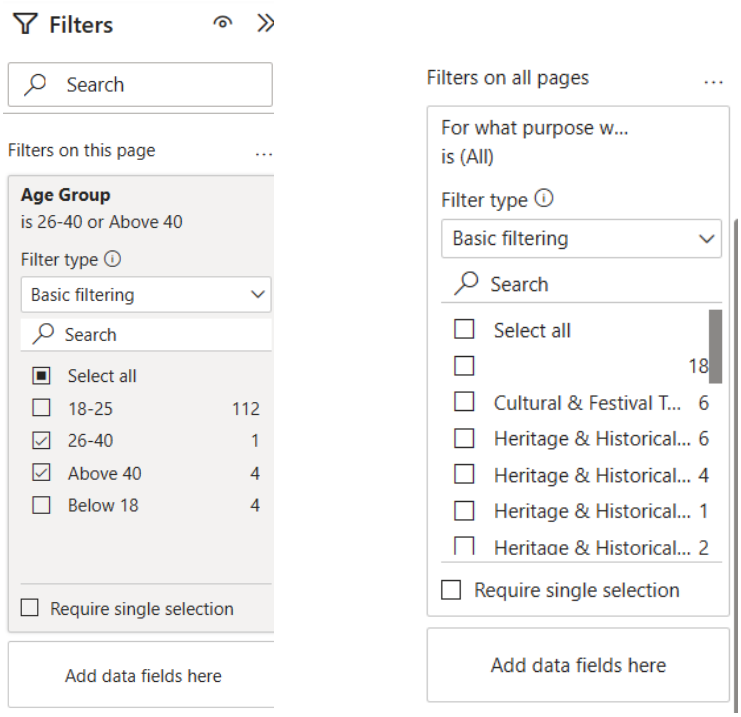
➢ **Document Expert Feedback**

- **Feedback Summary**:
  - Experts confirmed that dishes like Biryani, Kebabs, and Litti Chokha are indeed popular and representative of UP cuisine.
  - Suggested including lesser-known regional dishes such as Baati Chokha and Kakori Kebabs for a more comprehensive analysis.
  - Emphasized the role of cuisine in attracting tourists, especially in cultural hubs like Lucknow and Varanasi.
- **Actionable Recommendations**:
  - Incorporate additional regional dishes into the analysis.
  - Highlight the connection between culinary experiences and tourism in your report.

(c) <u>Performance Testing</u>

Test dashboard in:

- Power BI Desktop



This shows the "Filters" pane in Power BI Desktop. On the left, filters applied to the current page show that "Age Group" is filtered to include "26-40" and "Above 40." On the right, filters applied to all pages show a filter on "For what purpose would you like to visit Uttar Pradesh?" with multiple options selected.

(d) Documentation

➢ Validation Checklist

- Created table like this to track data integrity:

Checkpoint	Status	Notes
Null values handled	✓	Used Power Query to remove/replace nulls
Data types correct	✓	E.g., age as number, text fields as string
Filter logic tested	✓	Slicers filtering properly
Visuals match data	✓	Totals align with raw data

➢ **Testing Observations**

Note any bugs, fixes, or test results:

- Testing Notes:
  - Pie chart labels overlapped; fixed by switching to donut chart
  - Slicer filtering all visuals correctly
  - DAX formula for "Total Respondents by City" verified

(e) Peer Review

- Steps:

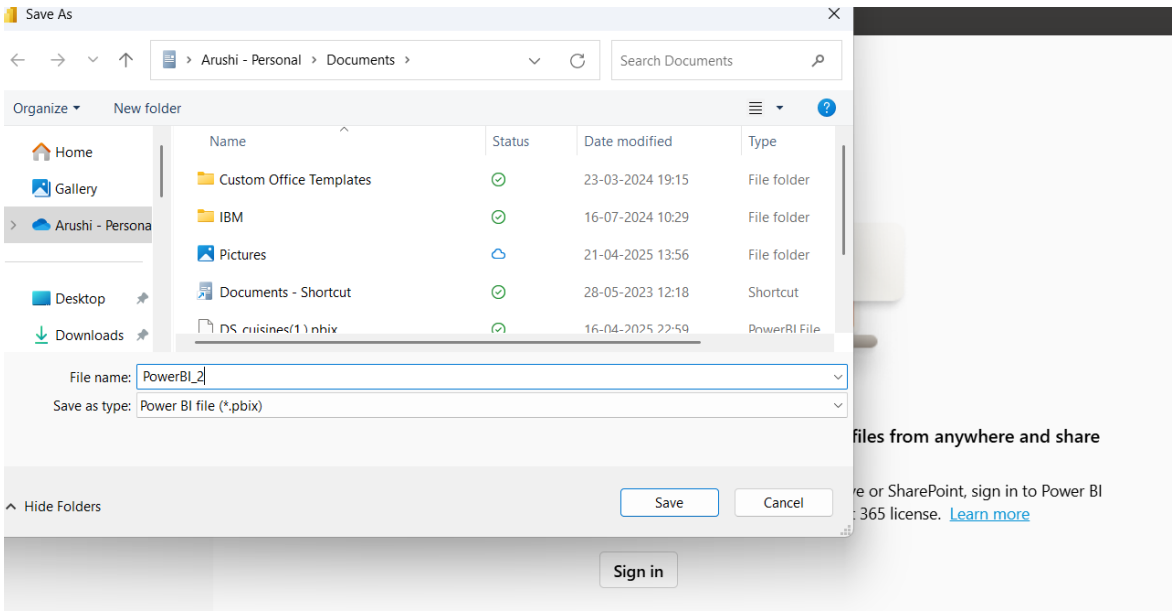
  Go to File > Save As and save your .pbix file.

Shared it via:

- Google Drive
- OneDrive
- Microsoft Teams

Peer Review Feedback

- Feedback from Classmates or Mentor:
  - The color scheme in the dashboard is easy to read.
  - Consider adding a tooltip to the 'Total Respondents by City' visual to show the exact number.
  - The slicers are intuitive and easy to use.

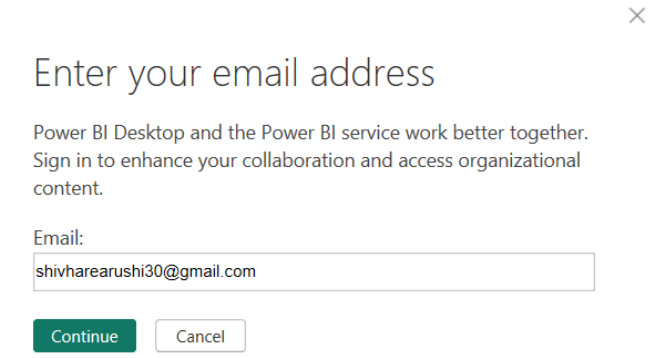


[5] Continuous Improvement

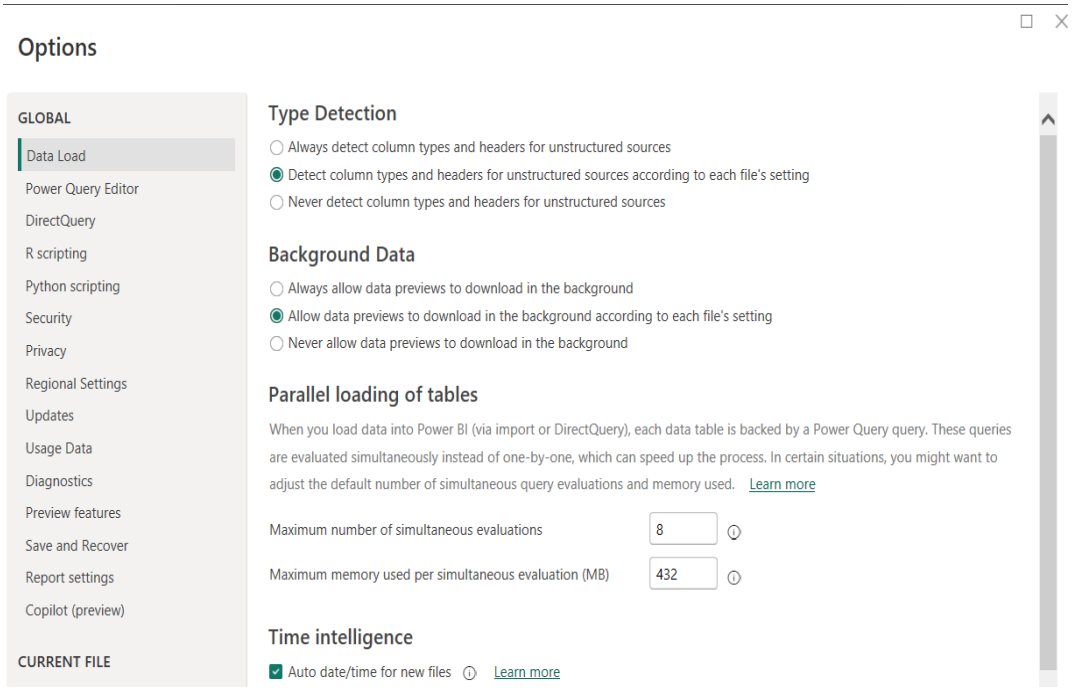
(a) Monitor Usage

If published to Power BI Service: Enable Usage Metrics

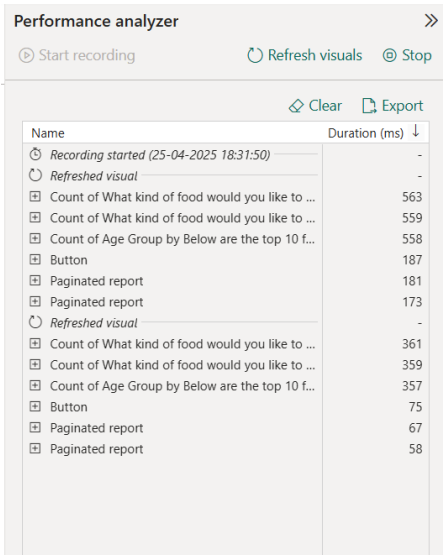
- To monitor usage of your Power BI reports and dashboards after you've published them, you can use the built-in Usage Metrics feature in the Power BI Service. This feature provides insights into how users are interacting with your content. Here's how to enable it:
    1. **Publish your report:** First, publish your Power BI report from Power BI Desktop to the Power BI Service.



    2. **Go to the workspace:** In the Power BI Service, go to the workspace where you published your report.
    3. **Open the report:** Open the report you want to monitor.
    4. **Go to More options:** In the report, find the "More options" menu (...).



5. **Select Usage metrics:** From the dropdown menu, select "Usage metrics report".
6. **View the report:** Power BI will then generate a report that shows data about how your report is being used. This includes metrics like:
    - Report views
    - Number of unique users
    - Which pages are viewed the most
    - How long users spend on each page
    - How users interact with visuals
7. **Save the usage metrics report:** You can save this usage metrics report for future reference and analysis.



- By regularly checking these metrics, you can understand which parts of your report are most engaging, identify areas for improvement, and make data-driven decisions to optimize your Power BI project.

(b) Collect Feedback

- **Google Form to ask users for feedback** on clarity and usefulness:

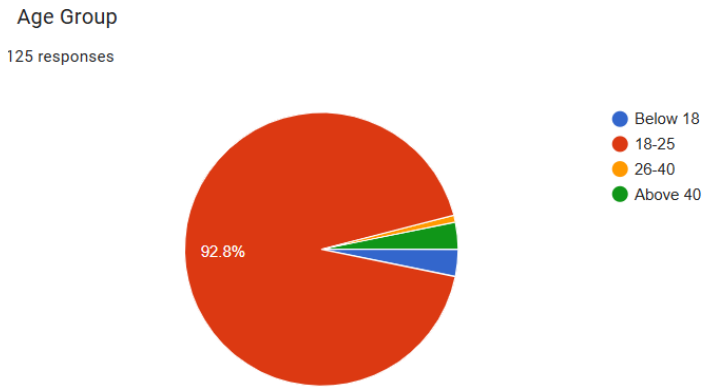
  https://docs.google.com/forms/d/e/1FAIpQLSch4vES5vNAZe_Q0-6BSEckCRmnTEPZmDTsua0wYKDCOJorNw/viewform?usp=sharing

(c) Iterative Improvements

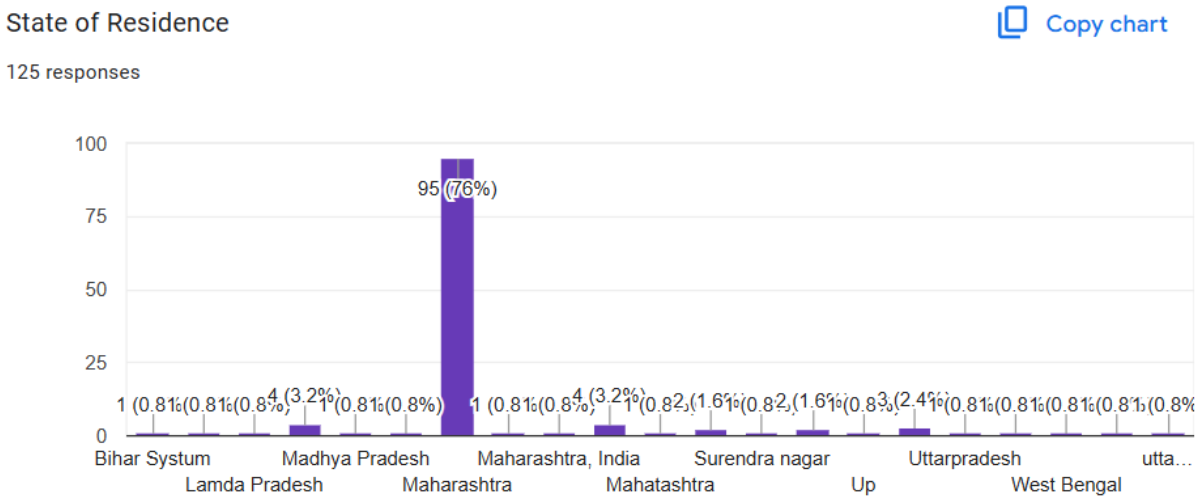
- Refine visuals based on feedback

[1] This displays a pie chart illustrating the distribution of the "Age Group" of respondents. The largest segment, representing 92.8% of the 125 responses, belongs to the "18-25" age

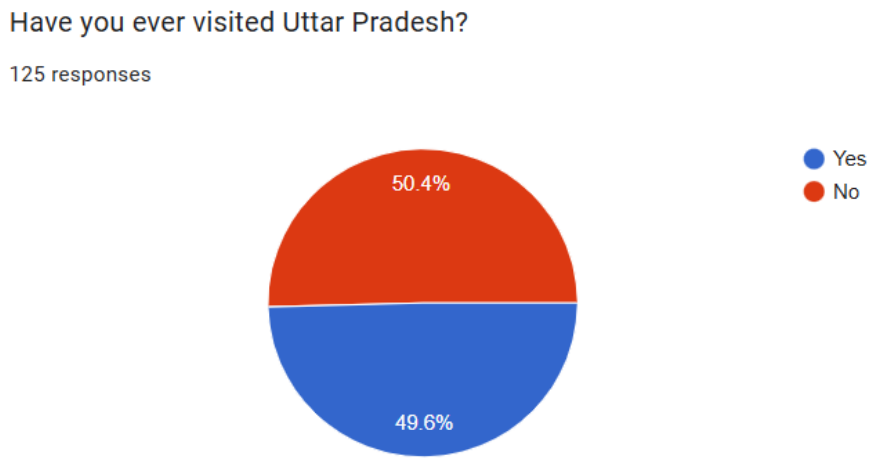
group. The remaining smaller segments represent "Below 18," "26-40," and "Above 40" age groups, with significantly lower percentages.



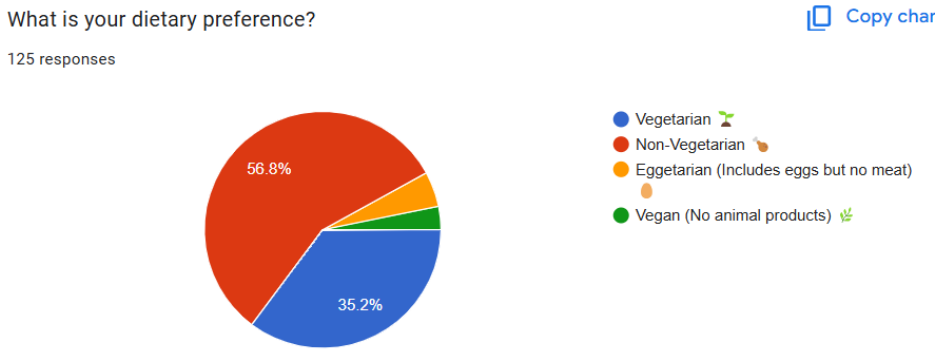
[2] This is a bar chart showing the "State of Residence" of the 125 survey respondents. The vast majority, 95 respondents (76%), reside in "Maharashtra." Other states, including "Madhya Pradesh," "Uttar Pradesh," and "West Bengal," have significantly fewer respondents, with counts ranging from 1 to 4.



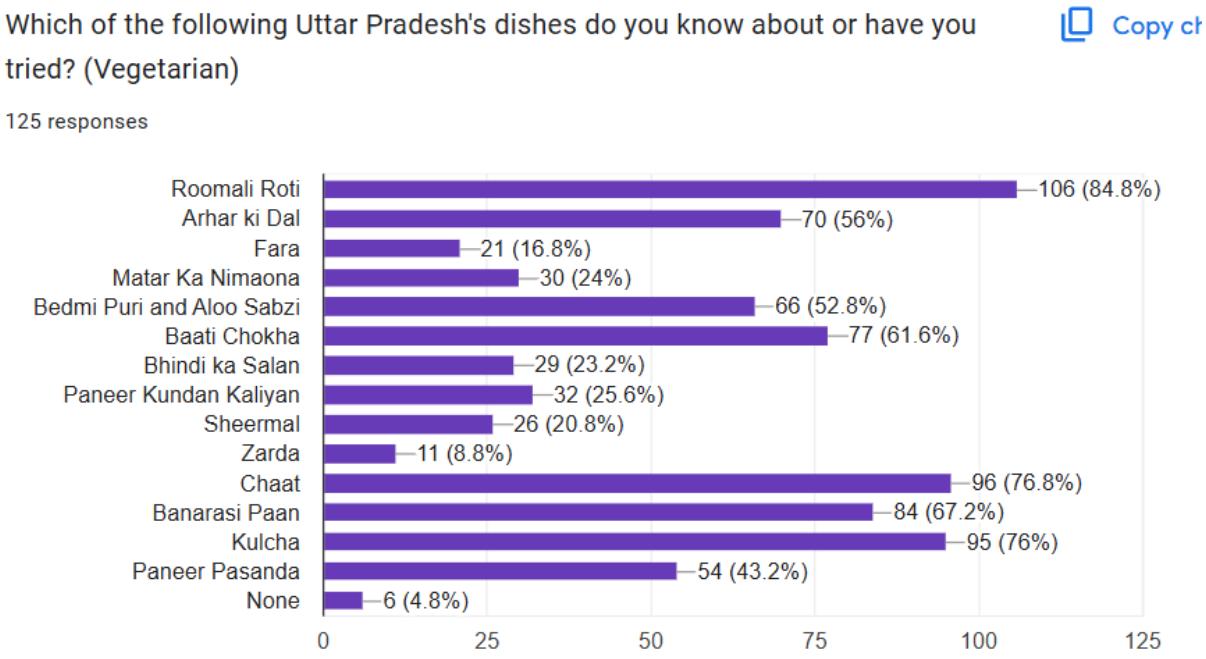
[3] This is a pie chart showing the responses to the question "Have you ever visited Uttar Pradesh?". The responses are almost evenly split, with 49.6% (represented in blue) indicating "Yes" and 50.4% (represented in red) indicating "No" out of the 125 total responses.



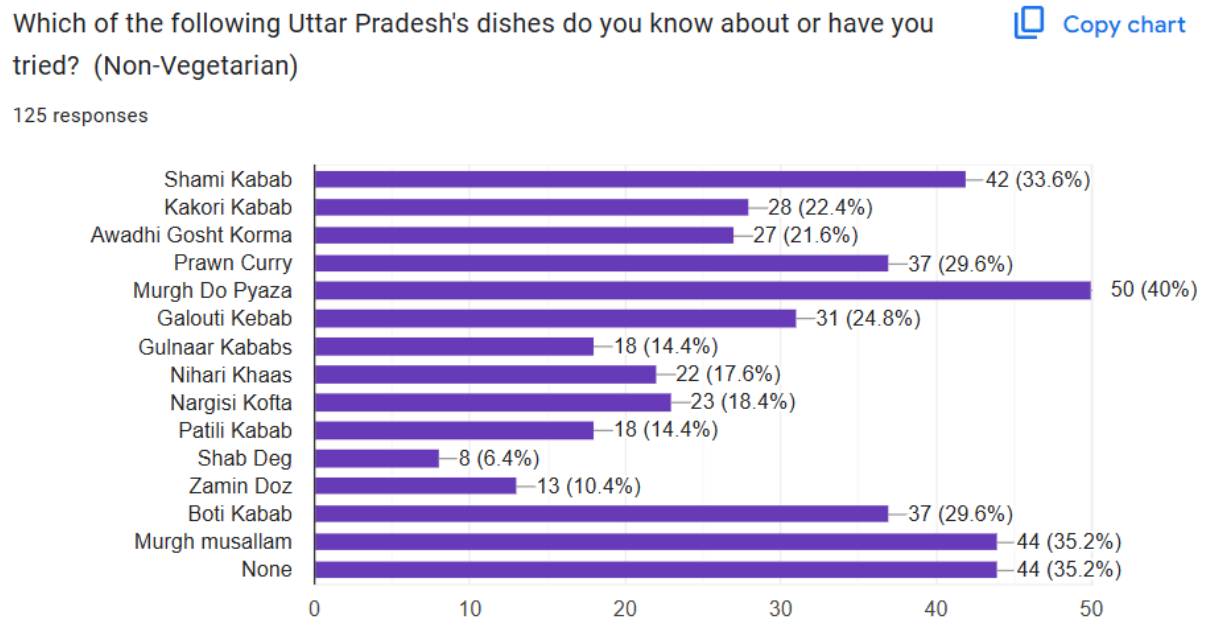
[4] This is a pie chart illustrating the dietary preferences of the 125 survey respondents. The largest segment, 56.8%, identifies as "Non-Vegetarian." "Vegetarian" is the second largest at 35.2%, followed by "Eggetarian" at 5.6%, and "Vegan" at 2.4%.



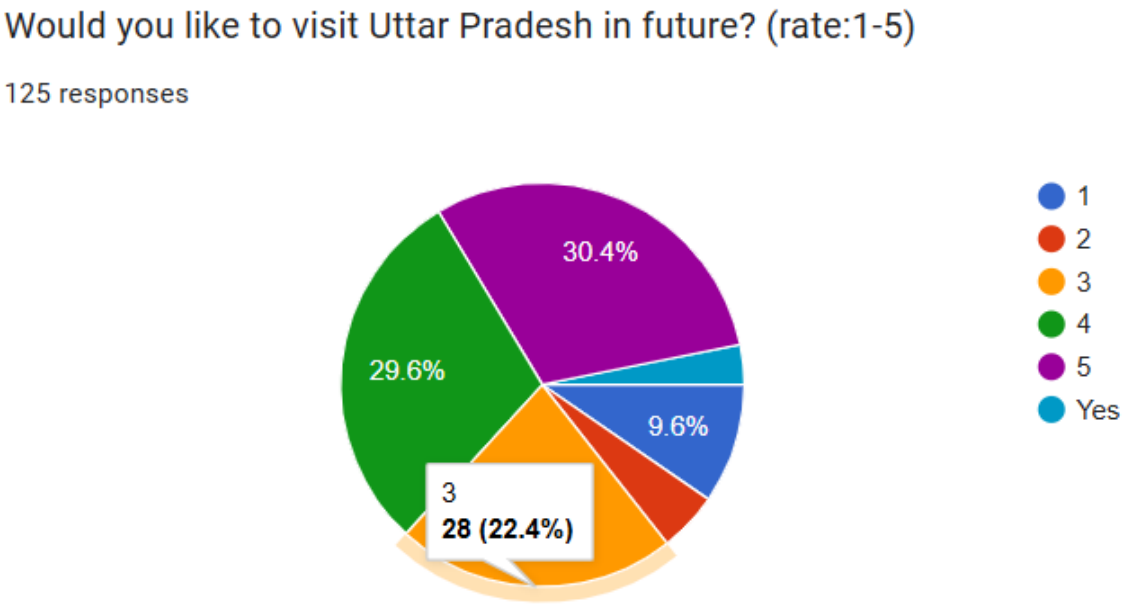
[5] The is a horizontal bar chart showing familiarity with or experience trying vegetarian Uttar Pradesh dishes among 125 respondents. "Roomali Roti" is the most known/tried dish with 106 responses (84.8%), followed by "Kulcha" with 95 responses (76%). "Zarda" and "None" have the lowest familiarity/experience.



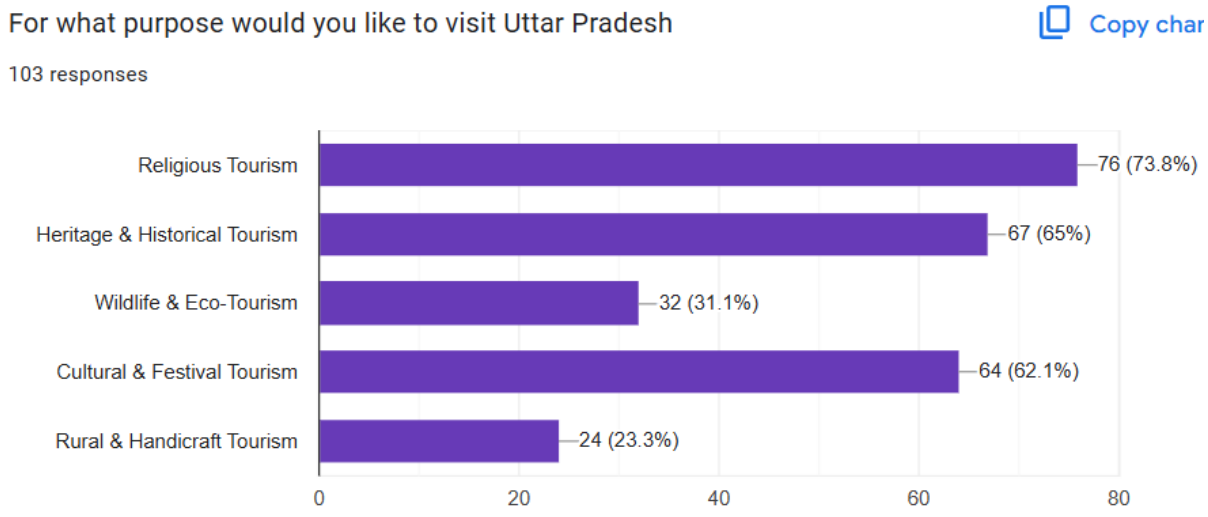
[6] The is a horizontal bar chart showing familiarity with or experience trying non-vegetarian Uttar Pradesh dishes among 125 respondents. "Murgh Do Pyaza" is the most known/tried dish with 50 responses (40%), followed by "Murgh musallam" and "Shami Kabab," both with 44 responses (35.2%). "Shab Deg" has the lowest familiarity/experience.



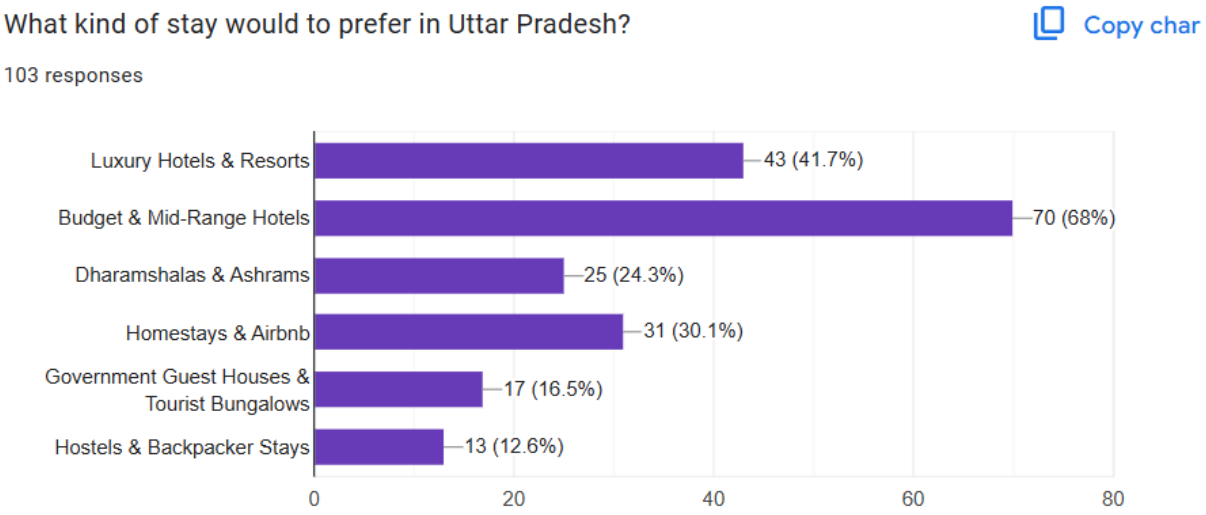
[7] This is a pie chart showing the responses to the question "Would you like to visit Uttar Pradesh in future? (rate: 1-5)" among 125 respondents. The rating of "5" is the most frequent response at 30.4%, followed by "4" at 29.6%. Ratings of "3," "2," and "1" have lower percentages. The "Yes" category seems to overlap with the numerical ratings.



[8] This is a horizontal bar chart showing the purposes for which 103 respondents would like to visit Uttar Pradesh. "Religious Tourism" is the most popular reason with 76 responses (73.8%), followed by "Heritage & Historical Tourism" with 67 responses (65%). "Rural & Handicraft Tourism" has the fewest responses at 24 (23.3%).

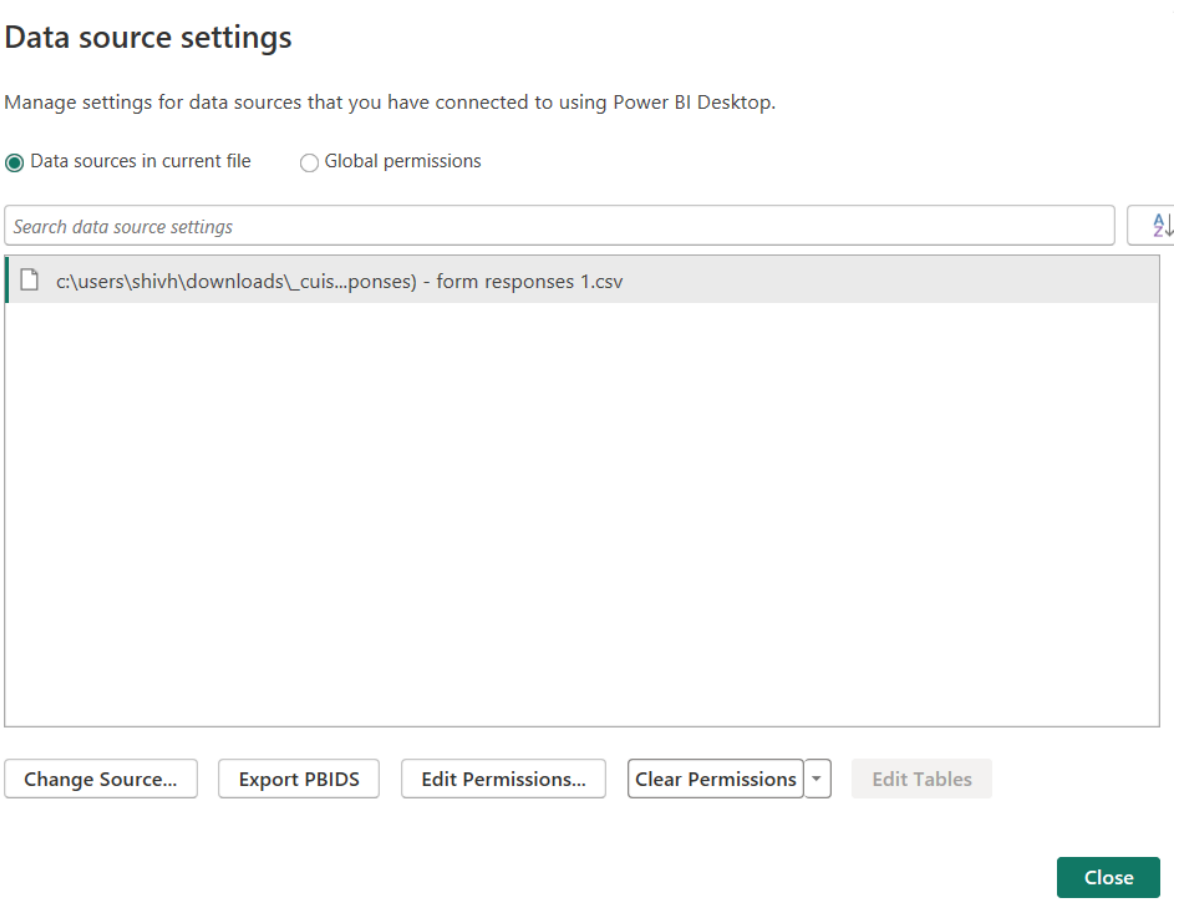


[9] This is a horizontal bar chart showing the preferred types of stay in Uttar Pradesh among 103 respondents. "Budget & Mid-Range Hotels" are the most preferred with 70 responses (68%), followed by "Luxury Hotels & Resorts" with 43 responses (41.7%). "Hostels & Backpacker Stays" are the least preferred option.



(d) Update With New Data

- Replace old CSV with updated one:
  - **Home > Transform Data > Source**
- Click **Refresh**

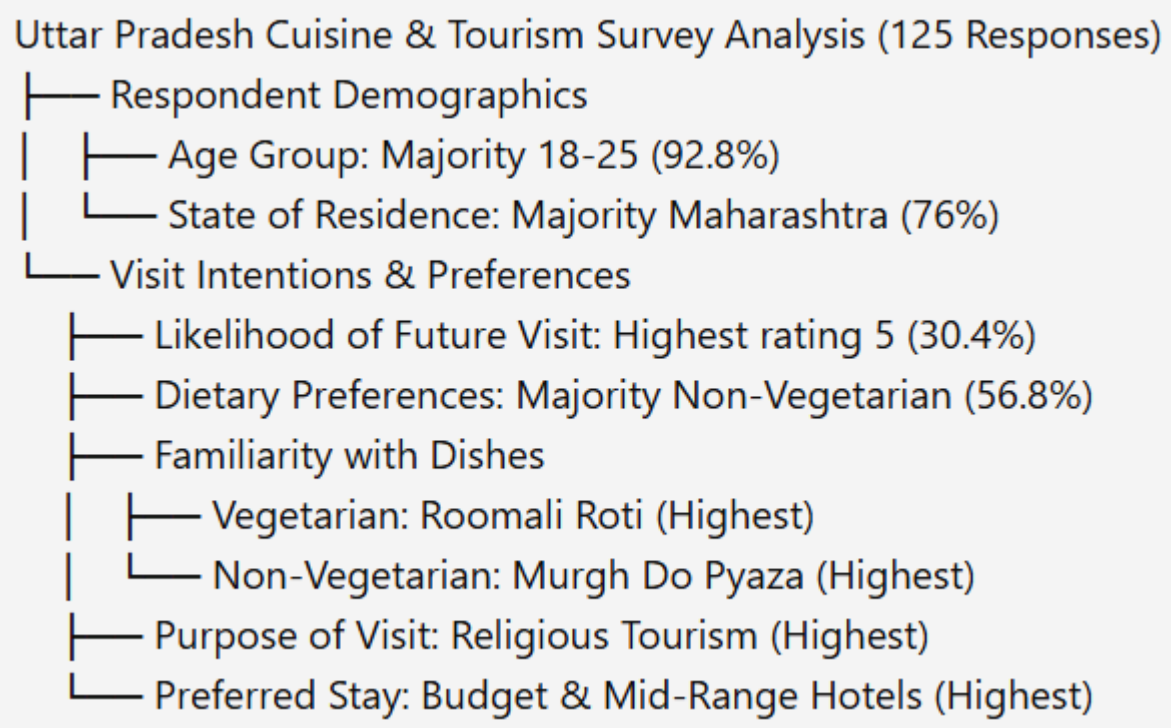


[6] Conclusion

The analysis of the survey data reveals key insights into perceptions and preferences related to Uttar Pradesh cuisine and tourism. A significant portion of respondents are from Maharashtra, with the 18-25 age group being the most represented. While there's a near even split in prior visits to Uttar Pradesh, non-vegetarian dietary preferences are more common.

Familiarity with vegetarian dishes like Roomali Roti and Kulcha is high, while Murgh Do Pyaza leads among non-vegetarian options. A strong interest in future visits to Uttar Pradesh is evident, driven primarily by religious and heritage tourism. The preference for "Budget & Mid-Range Hotels" suggests a cost-conscious approach to potential travel.

Overall, the data indicates a considerable awareness of Uttar Pradesh's culinary offerings and a strong inclination towards exploring its cultural and religious attractions, particularly among the younger demographic.



[7] Refrences

- **Github :**
  https://github.com/ArushiShiv/Data-Science/tree/main/Data%20Science

- **Google-Form :**
  https://docs.google.com/forms/d/e/1FAIpQLSch4vES5vNAZe_Q0-6BSEckCRmnTEPZmDTsua0wYKDCOJorNw/viewform?usp=sharing

- **Government and Tourism Sites:**

- *Official Uttar Pradesh Tourism Website: (Search for the official tourism website of Uttar Pradesh) - This may have sections on culture and food.*
- *Incredible India (Government of India): (Search for the official tourism website of India) - This site often features information on regional cuisines.*

- **Food Blogs and Websites:**

- *Reputable Indian food blogs (e.g., those by established chefs or food writers) - Search for "Indian food blog Uttar Pradesh cuisine."*
- *Websites specializing in Indian recipes - Use specific dish names as keywords.*