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Assignment Name: PowerBI Dashboard and Report

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PowerBI Dashboard and Report

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Introduction

This PowerBI dashboard is depicting a strategic dashboard. It reflects the order and sales of a Pizza producing and delivery firm where it sales different categories of pizza of different sizes in different cities in India. The strategic decision making to sustain the business requires on time visualization of key performance indicators like revenue, profit and profit margins. The relation between change in profit with respect to cost and price movements reflect on the variation in achievement with respect to operational cost to easily assess the efficiency gaps and decide on reallocation of resources looking back at operational indicators from operational dashboards, modify strategies and improve performance effectiveness.

Long-term objective

1. Create strategic decision based on more interactive, easy to visualize greater number of analyses in order to Increase sales growth and sustain profitability with optimal allocation and use of resources.

2. To visualize the performance of the firm based on key performance indicators – micro level spatial variation in progress towards the goal based on real time data-fed interactive maps and other analyses.

Medium- and short-term objectives

Objective 1:

a) Visualize the performance in sales revenue, profit and profit margin along with respective price and cost – by pizza categories (Matrix)
b) Visualize the sum of revenue by pizza size and categories (vertical bar comparison)
c) Visualize the sum of profit by pizza categories (vertical bar comparison)

Objective 2:

d) Performing two AI visuals to assess whether there is any need for reallocation of resources within and between categories to achieve the long-term objectives through continuous higher efficiency led performance effectiveness with update of database

Objective 3:

e) To visualize the performance by location using interactive local maps – one dashboard for each city to make micro level strategic decisions following bottom up strategy

State and City specific dashboards

The dashboards are created for 4 cities in the state of Maharashtra and for the state with a fictitious pizza firm data selling pizza in these cities - Amravati, Nagpur, Nasik, Pune in India. Therefore 8 dashboards are presented with state (4) and city (4) specific analyses covering all the indicators and the analytical techniques used. DAX is applied to calculate sales revenue, profit and profit margins and mostly the measures like count and sum are used for analysis.

DAX in estimating key performance indicators (KPI)

Total Sales Revenue (City wise, Pizza category wise)

This KPI helps to visualize firm's performance in terms of its earning from pizza sales (Price x Quantity). The dashboard helps to show how the revenue achievement is varying by cities as well as by the categories of pizza of different size to understand the nature of variation in demand among the consumers and where to allocate resources, from where to withdraw.

Total Profit (category wise Ai Visual)

This KPI reflects the profit contribution from the sale of each category thereby helping the firm to know which category is in higher demand in the state and in which city. This city specific demand analysis is the prerequisite for profit margin analysis with key influencers analysis and decomposition tree analysis to help to match resource allocation decision as per change in demand.

Decomposition tree

Profit is decomposed by location which is further drilled through pizza categories.

Profit Margin (AI visual)

Profit margin is estimated as net profit per unit of sales revenue to assess how much per unit earning from sales is contributed to generate profit to assess the degree of fit of the pizza categories with consumer demand and therefore helps the firm to sustain its business in the selected market.

Key influencer

This visual is showing when profit margin is increasing or decreasing with change in cost and price. It therefore helps to depict that if profit margin is increasing, it indicates that the firm is able to control its operational costs well given the level of current price and ensured positive earning. It helps the strategist to assess the degree of efficiency in resource allocation, how far expenses are successfully kept at the lower side, and pricing strategies are to what extent proper.

Interactive maps

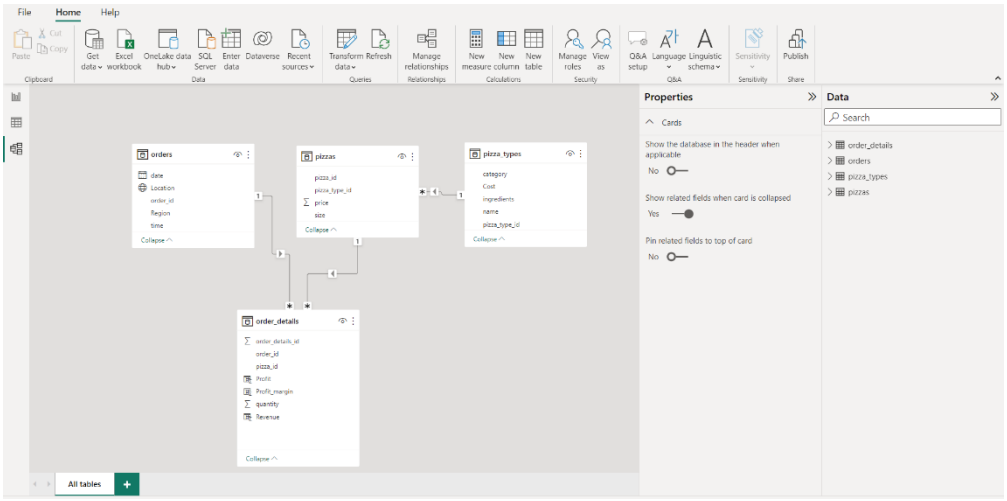
Location specific category of pizza sold is shown in map to easily identify the demand for each category by location and how it is changing to understand what the future demand pattern could be.

Therefore, in a nutshell, the above mentioned SMART interactive dashboards with strategic KPIs are presented where the audience is senior management and strategy division of the organization who wants to track the achievement of the firm towards the long-term goal.

The PowerBI Dashboard file contains

1. Data model with connections among tables
2. New estimated columns using DAX
3. Dashboards
4. Data tables

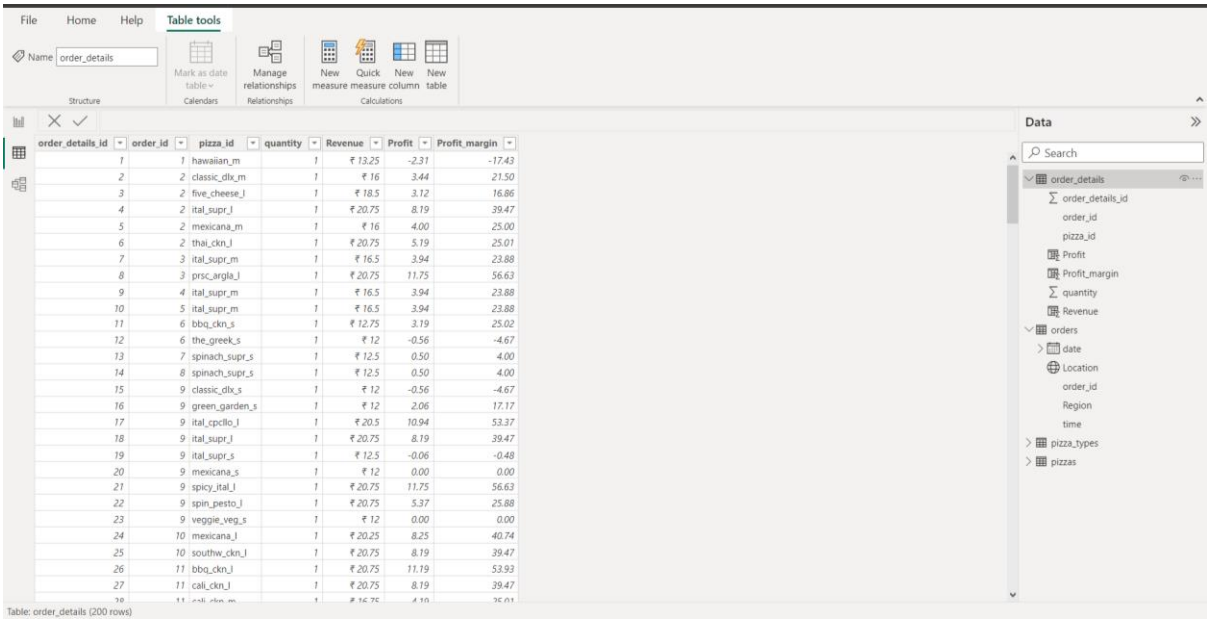
Data model



In the data model the links established between different tables are depicted. The lookup table to fact table connection cardinality is 'one to many'.

- 'Orders' to 'Order details' is connected in the direction of 'one to many'
- 'Pizzas' to 'Order details' is connected in the direction of 'one to many'
- 'Pizza types' to 'Pizzas' is connected in the direction of 'one to many'

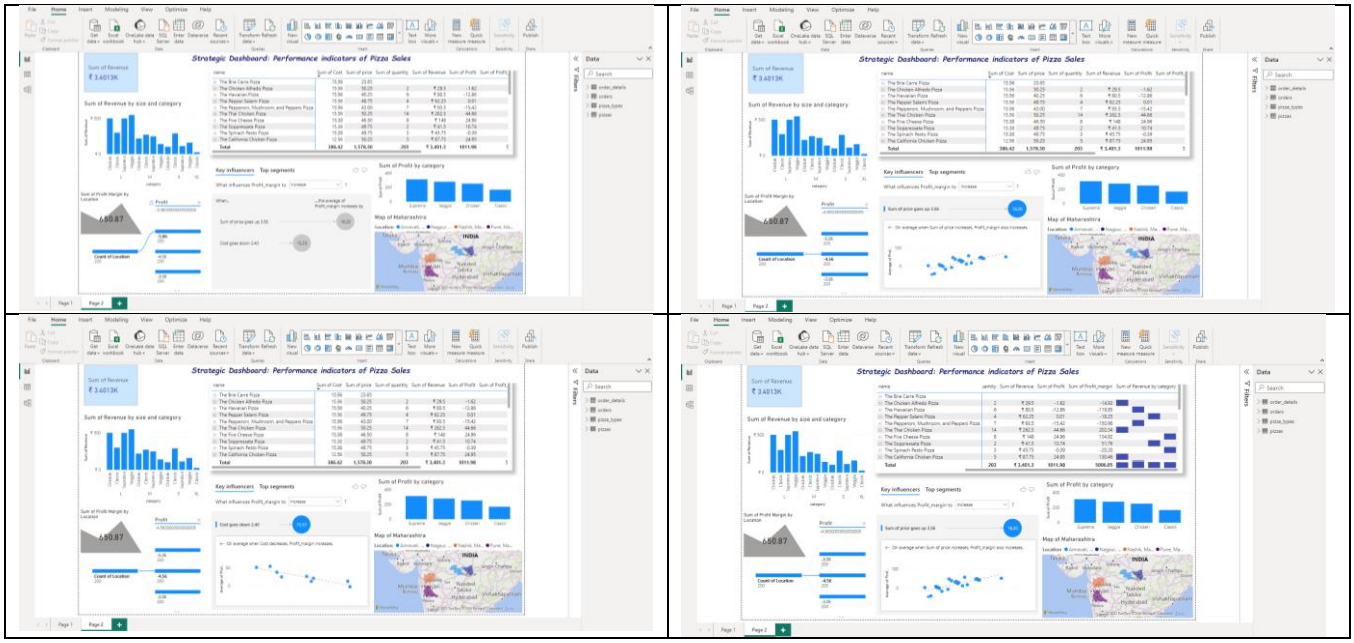
New estimated columns using DAX



DAX method is used to calculate new columns. Here three new columns are calculated – total revenue using two connected tables – 'Order details' and 'Pizzas'. Profit is calculated using two connected tables - 'Order details' and 'Pizza types'. Profit margin is calculated from 'Order details' table only. In majority of the analyses measures like sum and count are used.

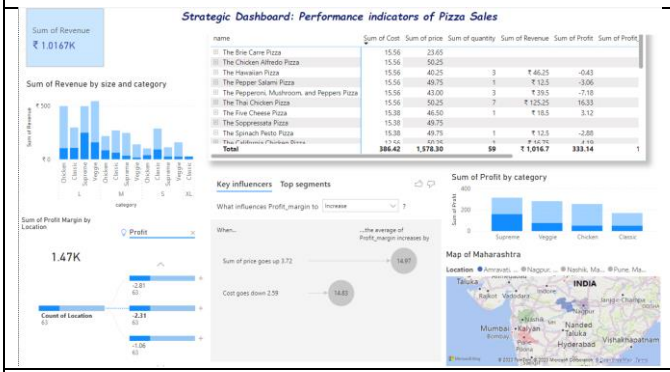
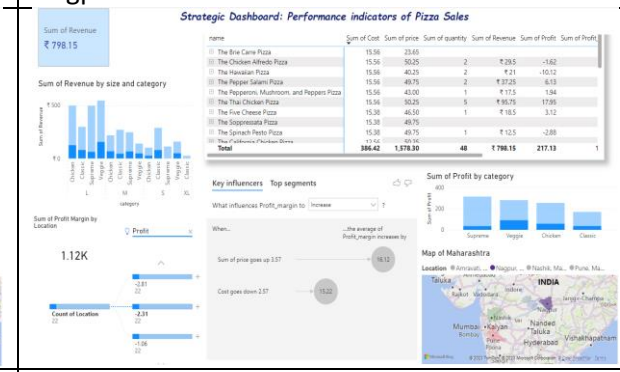
Dashboards

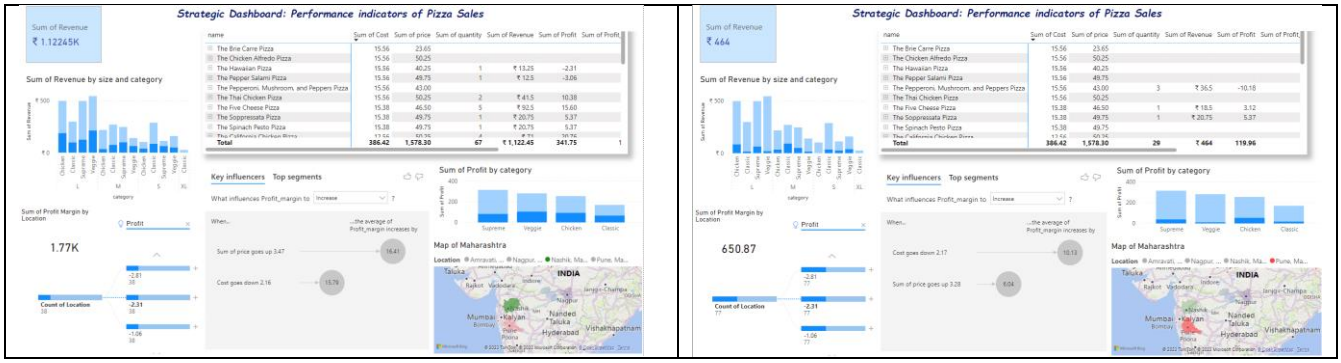
Overall Dashboard



The above table represents the picture of the main dashboard covering all the 4 cities of Maharashtra i.e., the performance in the state of Maharashtra. In the dashboards all the KPIs are depicted in interactive manner along with sparkline, interactive maps, cards and AI visuals. Top left corner shows the total revenue card, next below is the vertical bars comparing revenue earned by pizza size and category (Supreme, Veggie, Chicken, Classic). The matrix shows the major KPIs (summation values) with added sparkline for revenue. The decomposition tree shows profit decomposition by location drilled through categories of pizza, key influencer shows how profit margin varies with cost and price in which direction and the map shows the location of service. It is evident that Supreme and Veggie are contributing more to the profit. Among large and extra-large sizes 'Veggie' sold highest, for medium and small the 'Classic' sold highest. On average the profit margin increases with price and falls if cost increases.

City specific Dashboards

Amravati	Nagpur
	
Nashik	Pune



The city specific dashboards show that large size pizza is of highest demand may be given the eating habit mainly comprises of young population and family size with young population varies between 1 to 2. Mostly the 'Supreme', 'Chicken' or 'Veggie' are ordered, 'Supreme' contributed to highest profit followed by 'Veggie', 'Chicken' and 'Classic'. Key influencer indicates the price and costing strategies are in right direction ensuring good profit margin.

Conclusion

The dashboards are depicting the achievements of the firm by spatial variations in interactive manner and identifies which category and size is the major contributor to revenue and profit in the localities as well as the state.

Therefore, it can be inferred that the firm should focus more on

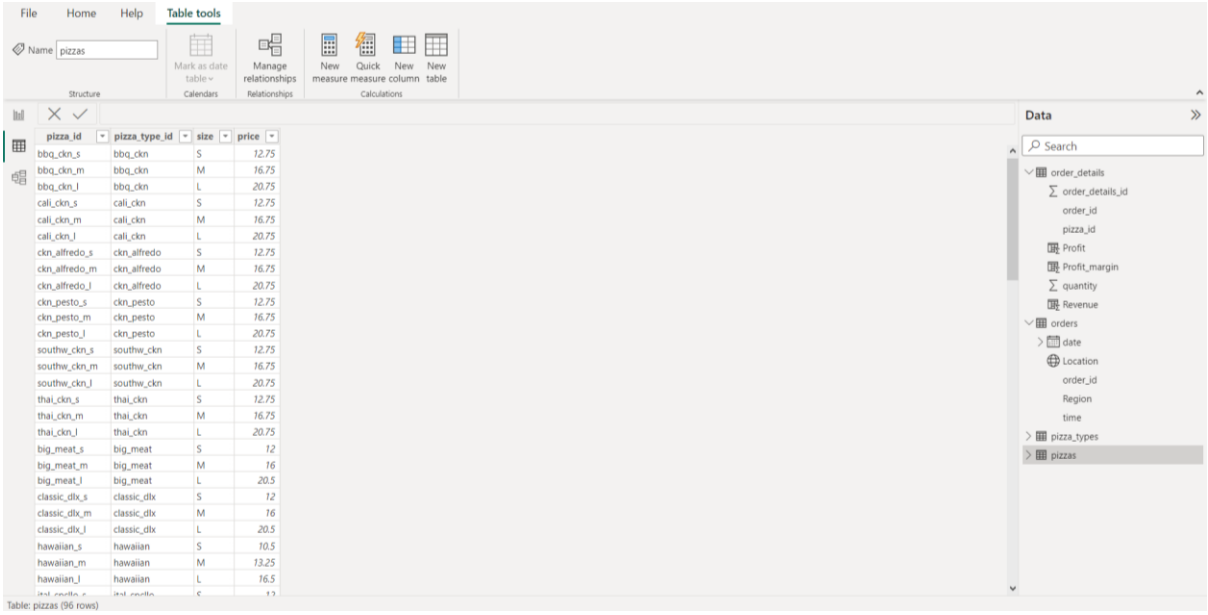
- Efficient resource allocation towards producing large size of 'Veggie' categories identifying the areas of cost reduction as it earns more revenue but less profit.
- 'Supreme' contributes to more profit but share in revenue is lower which is to be increased with increasing its demand.
- Allocate budget for identifying the stage specific frictions for the sale of 'Classic' and other categories and sizes.

Overall, the utility of the dashboards includes real-time decision-making capturing changes in achievements and easily facilitating the robustness in marketing and resource allocation related decisions.

Annex

The other tables:

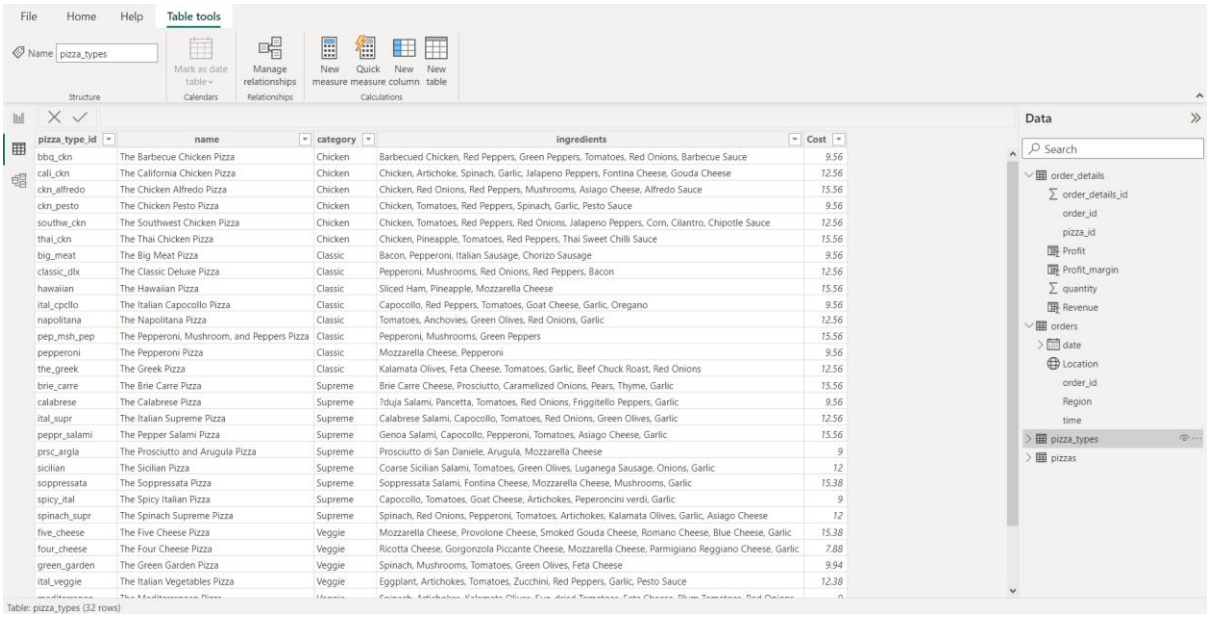
Pizzas:



pizza_id	pizza_type_id	size	price
bbq_ckn_s	bbq_ckn	S	12.75
bbq_ckn_m	bbq_ckn	M	16.75
bbq_ckn_l	bbq_ckn	L	20.75
cali_ckn_s	cali_ckn	S	12.75
cali_ckn_m	cali_ckn	M	16.75
cali_ckn_l	cali_ckn	L	20.75
ckn_alfredo_s	ckn_alfredo	S	12.75
ckn_alfredo_m	ckn_alfredo	M	16.75
ckn_alfredo_l	ckn_alfredo	L	20.75
ckn_pesto_s	ckn_pesto	S	12.75
ckn_pesto_m	ckn_pesto	M	16.75
ckn_pesto_l	ckn_pesto	L	20.75
southw_ckn_s	southw_ckn	S	12.75
southw_ckn_m	southw_ckn	M	16.75
southw_ckn_l	southw_ckn	L	20.75
thai_ckn_s	thai_ckn	S	12.75
thai_ckn_m	thai_ckn	M	16.75
thai_ckn_l	thai_ckn	L	20.75
big_meat_s	big_meat	S	12
big_meat_m	big_meat	M	16
big_meat_l	big_meat	L	20.5
classic_dlx_s	classic_dlx	S	12
classic_dlx_m	classic_dlx	M	16
classic_dlx_l	classic_dlx	L	20.5
hawaiian_s	hawaiian	S	10.5
hawaiian_m	hawaiian	M	13.25
hawaiian_l	hawaiian	L	16.5

Table: pizzas (96 rows)

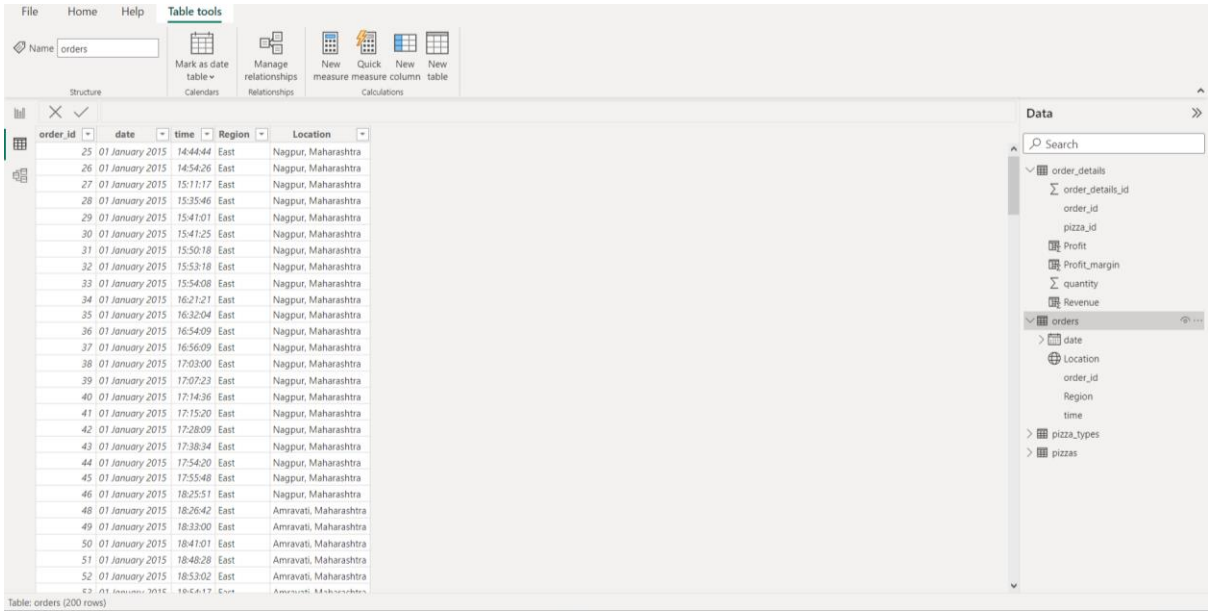
Pizza_types:



pizza_type_id	name	category	ingredients	Cost
bbq_ckn	The Barbecue Chicken Pizza	Chicken	Barbecued Chicken, Red Peppers, Green Peppers, Tomatoes, Red Onions, Barbecue Sauce	9.56
cali_ckn	The California Chicken Pizza	Chicken	Chicken, Artichoke, Spinach, Garlic, Jalapeno Peppers, Fontina Cheese, Gouda Cheese	12.56
ckn_alfredo	The Chicken Alfredo Pizza	Chicken	Chicken, Red Onions, Red Peppers, Mushrooms, Asiago Cheese, Alfredo Sauce	15.56
ckn_pesto	The Chicken Pesto Pizza	Chicken	Chicken, Tomatoes, Red Peppers, Spinach, Garlic, Pesto Sauce	9.56
southw_ckn	The Southwest Chicken Pizza	Chicken	Chicken, Tomatoes, Red Peppers, Red Onions, Jalapeno Peppers, Corn, Cilantro, Chipotle Sauce	12.56
thai_ckn	The Thai Chicken Pizza	Chicken	Chicken, Pineapple, Tomatoes, Red Peppers, Thai Sweet Chilli Sauce	15.56
big_meat	The Big Meat Pizza	Classic	Bacon, Pepperoni, Italian Sausage, Chorizo Sausage	9.56
classic_dlx	The Classic Deluxe Pizza	Classic	Pepperoni, Mushrooms, Red Onions, Red Peppers, Bacon	12.56
hawaiian	The Hawaiian Pizza	Classic	Sliced Ham, Pineapple, Mozzarella Cheese	15.56
ital_cpclio	The Italian Capocollo Pizza	Classic	Capocollo, Red Peppers, Tomatoes, Goat Cheese, Garlic, Oregano	9.56
napolitana	The Napolitana Pizza	Classic	Tomatoes, Anchovies, Green Olives, Red Onions, Garlic	12.56
pep_msh_pep	The Pepperoni, Mushroom, and Peppers Pizza	Classic	Pepperoni, Mushrooms, Green Peppers	15.56
pepperoni	The Pepperoni Pizza	Classic	Mozzarella Cheese, Pepperoni	9.56
the_greek	The Greek Pizza	Classic	Kalamata Olives, Feta Cheese, Tomatoes, Garlic, Beef Chuck Roast, Red Onions	12.56
brie_carre	The Brie Carre Pizza	Supreme	Brie Carre Cheese, Prosciutto, Caramelized Onions, Pears, Thyme, Garlic	15.56
calabrese	The Calabrese Pizza	Supreme	?duja Salami, Pancetta, Tomatoes, Red Onions, Friggitello Peppers, Garlic	9.56
ital_supr	The Italian Supreme Pizza	Supreme	Calabrese Salami, Capocollo, Tomatoes, Red Onions, Green Olives, Garlic	12.56
peppr_salami	The Pepper Salami Pizza	Supreme	Genoa Salami, Capocollo, Pepperoni, Tomatoes, Asiago Cheese, Garlic	15.56
prsc_argla	The Prosciutto and Arugula Pizza	Supreme	Prosciutto di San Daniele, Arugula, Mozzarella Cheese	9
sicilian	The Sicilian Pizza	Supreme	Coarse Sicilian Salami, Tomatoes, Green Olives, Luganega Sausage, Onions, Garlic	12
soppressata	The Soppressata Pizza	Supreme	Soppressata Salami, Fontina Cheese, Mozzarella Cheese, Mushrooms, Garlic	15.38
spicy_ital	The Spicy Italian Pizza	Supreme	Capocollo, Tomatoes, Goat Cheese, Artichokes, Peperoncini verdi, Garlic	9
spinach_supr	The Spinach Supreme Pizza	Supreme	Spinach, Red Onions, Pepperoni, Tomatoes, Artichokes, Kalamata Olives, Garlic, Asiago Cheese	12
five_cheese	The Five Cheese Pizza	Veggie	Mozzarella Cheese, Provolone Cheese, Smoked Gouda Cheese, Romano Cheese, Blue Cheese, Garlic	15.38
four_cheese	The Four Cheese Pizza	Veggie	Ricotta Cheese, Gorgonzola Piccante Cheese, Mozzarella Cheese, Parmigiano Reggiano Cheese, Garlic	7.88
green_garden	The Green Garden Pizza	Veggie	Spinach, Mushrooms, Tomatoes, Green Olives, Feta Cheese	9.94
ital_veggie	The Italian Vegetables Pizza	Veggie	Eggplant, Artichokes, Tomatoes, Zucchini, Red Peppers, Garlic, Pesto Sauce	12.38

Table: pizza_types (32 rows)

Orders:



order_id	date	time	Region	Location
25	01 January 2015	14:44:44	East	Nagpur, Maharashtra
26	01 January 2015	14:54:26	East	Nagpur, Maharashtra
27	01 January 2015	15:11:17	East	Nagpur, Maharashtra
28	01 January 2015	15:35:46	East	Nagpur, Maharashtra
29	01 January 2015	15:41:01	East	Nagpur, Maharashtra
30	01 January 2015	15:41:25	East	Nagpur, Maharashtra
31	01 January 2015	15:50:18	East	Nagpur, Maharashtra
32	01 January 2015	15:53:18	East	Nagpur, Maharashtra
33	01 January 2015	15:54:08	East	Nagpur, Maharashtra
34	01 January 2015	16:21:21	East	Nagpur, Maharashtra
35	01 January 2015	16:32:04	East	Nagpur, Maharashtra
36	01 January 2015	16:54:09	East	Nagpur, Maharashtra
37	01 January 2015	16:56:09	East	Nagpur, Maharashtra
38	01 January 2015	17:03:00	East	Nagpur, Maharashtra
39	01 January 2015	17:07:23	East	Nagpur, Maharashtra
40	01 January 2015	17:14:36	East	Nagpur, Maharashtra
41	01 January 2015	17:15:20	East	Nagpur, Maharashtra
42	01 January 2015	17:28:09	East	Nagpur, Maharashtra
43	01 January 2015	17:38:34	East	Nagpur, Maharashtra
44	01 January 2015	17:54:20	East	Nagpur, Maharashtra
45	01 January 2015	17:55:48	East	Nagpur, Maharashtra
46	01 January 2015	18:25:51	East	Nagpur, Maharashtra
48	01 January 2015	18:26:42	East	Amravati, Maharashtra
49	01 January 2015	18:33:00	East	Amravati, Maharashtra
50	01 January 2015	18:41:01	East	Amravati, Maharashtra
51	01 January 2015	18:48:28	East	Amravati, Maharashtra
52	01 January 2015	18:53:02	East	Amravati, Maharashtra