

## Power BI Exercise: Sales and Profit Analysis Using Dimensional Modeling

### Sample dataset WWI

#### [Download the dataset](#)

#### Objective:

In this exercise, you will explore a sales dataset from a fictional company that tracks transactions across multiple dimensions, including geography, customer demographics, time, employee performance, and product details. This exercise will guide you through transforming, visualizing, and analyzing data to uncover insights related to sales performance, profit margins, customer segmentation, and product trends.

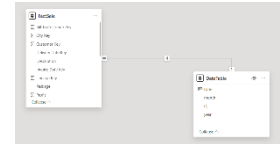
#### Dataset Overview:

The exercise involves a fact table capturing sales transactions and several dimension tables, each offering additional context for the transactional data:

1. **Fact Table (Sales Data):** This table contains records of individual sales transactions, with fields capturing details like quantity sold, unit price, tax, and profit. Each transaction links to a specific city, customer, date, salesperson, and product.
2. **City Dimension:** Geographic information about each city involved in transactions, including fields for state, country, and population.
3. **Customer Dimension:** Customer details, including customer category, billing group, credit limits, and primary contact information.
4. **Date Dimension:** Comprehensive date details, including fiscal and calendar periods, allowing for detailed time-based analysis. This table can be ignored if created using DAX.
5. **Employee Dimension:** Employee information, focused on sales representatives, providing insights into individual and team performance.

## Data Load:

1. Load FactSales csv file
2. Create a date table (date table) using DAX calendar include Jan to June 2013, use DAX addcolumns to add year , month and quarter to the table
3. Mark the DAX created Date table as date table
4. Link the date from the date table to the invoice date from the FactSales
5. Use the option to disable the auto date table



### Time intelligence

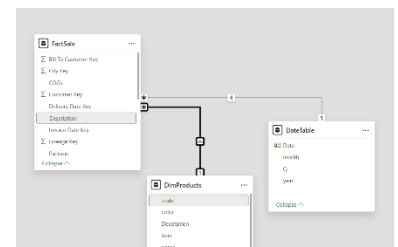
Auto date/time [Learn more](#)

## DAX:

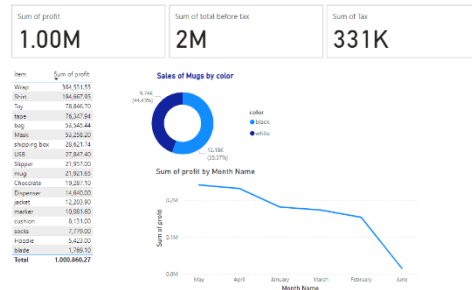
- |                        |   |
|------------------------|---|
| 6. Total before Tax:   | multiplying the `Quantity` by the `Unit Price` for each transaction." |
| 7. Tax Amount          | based on the `Total before Tax` and the `Tax Rate`."                  |
| 8. Total Including Tax | adding the `Total before Tax` and `Tax Amount`."                      |
| 9. Profit              | difference between `Total before Tax` and (COGS).                     |
| 10. month name.        | Use DAX or powerquery to add a column with month name                 |

## Products details

11. Load the products dimension table.
12. Create a relationship using code from products table and description from facts
13. Now add multi-card visual to display profit – total before tax – tax
14. Add a table with two columns item from products table and profit from FactSales table.



15. Create a donut chart for mug sales only that display the difference between white and black mugs.



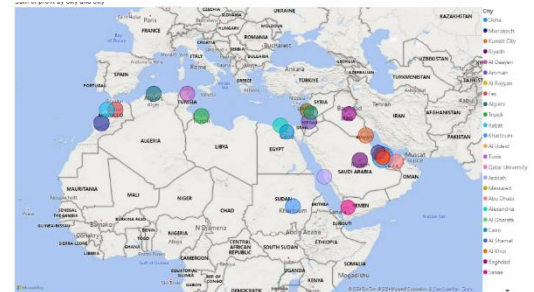
16. create a line chart for month name and profit

### City dimensions

17. load the city data from dimcity table , the company has more than 30 branches in Arab countries.

18. Ensure the relationship between the city and fact table.

19. Create a map on a new page with city and profit as bubble size.



20. Use city as legend and place it right center

### Employee information

21. Load the employee staff from dimemployee table

22. Related the employee key to salesperson key

23. In a new report page create a table sum of profit and employee and another table sum of profit and item.

All cities		1.00M	
Employee	Sum of profit	item	Sum of profit
Fatima Al-Najjar	92,028.06	bag	53,545.44
Ishaq Al-Hakim	37,564.85	Mask	53,258.20
Jamil Al-Ghareeb	36,906.48	mug	21,921.65
Latifa Al-Zayjad	45,658.52	shipping box	28,621.74
Nasser Al-Bishr	74,703.60	Shirt	194,667.95
Rowe. Ken	54,348.97	Slipper	21,957.00
Tariq Al-Sagheer	86,787.74	tape	76,347.94
Todd. Steven	90,194.18	Toy	78,846.70
Waleed Al-Qaisi	41,047.00	USB	27,847.40
Wolf. Debbie	31,633.28	Wrap	364,531.55
<b>Total</b>	<b>590,872.68</b>	<b>Total</b>	<b>921,545.57</b>

note : the total in the table is for top 10 values

24. Filter the two tables to display top 10 based on sum of profit

25. Add a DAX that returns city name if one city is selected otherwise displays "all cities"

26. Add multi-card with two selected city and profit

### Tooltip

27. Make the page tooltip and adjust its size

28. From the city map add the page as tooltip and confirm its functionality.

29. Hide the page