Microsoft Power BI Training

In Class Project

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Overview:

In this module we will implement the knowledge acquired from previous module and create a mini project on "Super Store Sales" dataset.

Situations:

Global Super Store is an online supergiant store that has worldwide operations. This store takes orders and delivers the products across the globe and deals with all the major product categories like furniture, office supplies & technology.

As a sales manager for this store, you want to analyse the sales of the products based on provided historical data, this analysis will help you to plan your inventory and business processes accordingly. Also, to know the products & customers behaviour.
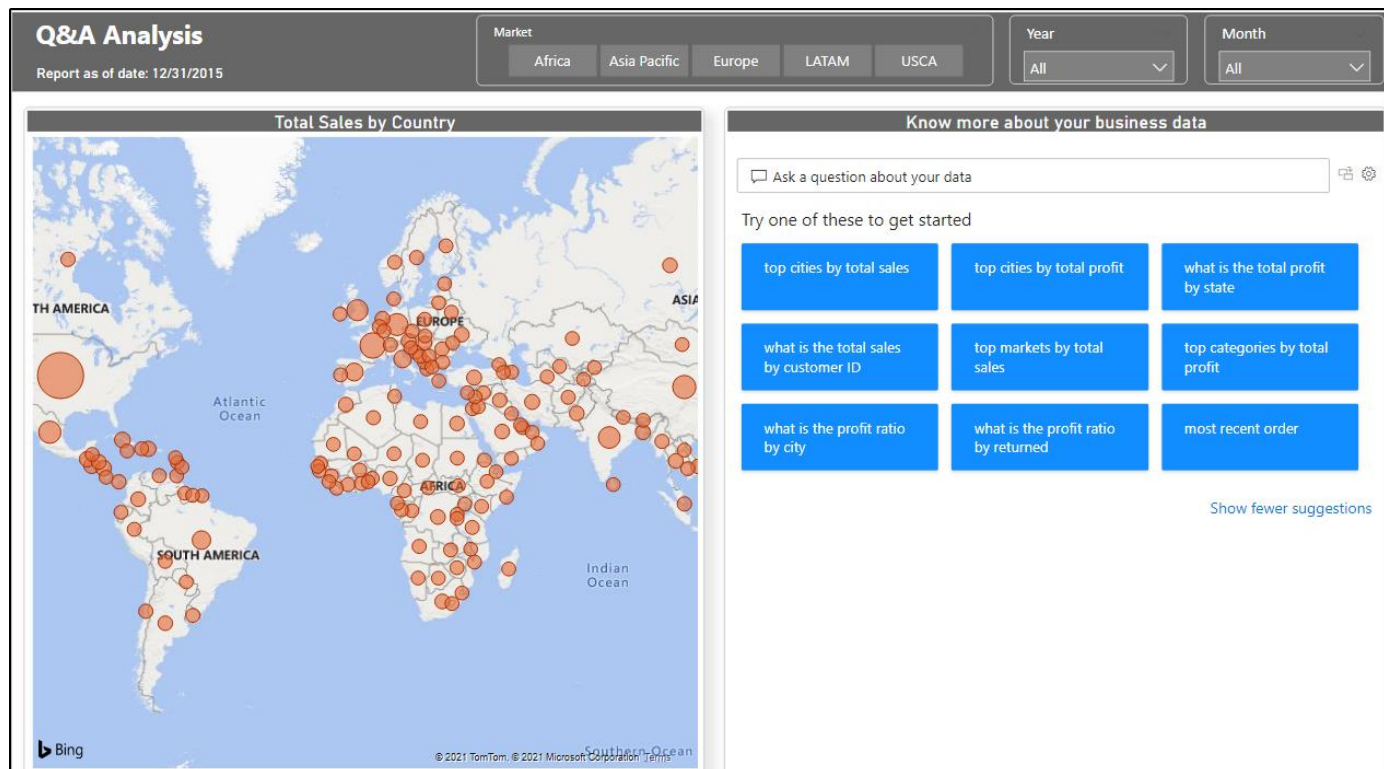
Output:

Final report should look contain below two pages: (Most of the time you would have sample designs, mock-up, wireframes of the visuals/reports)

1. **Sales Summary:**
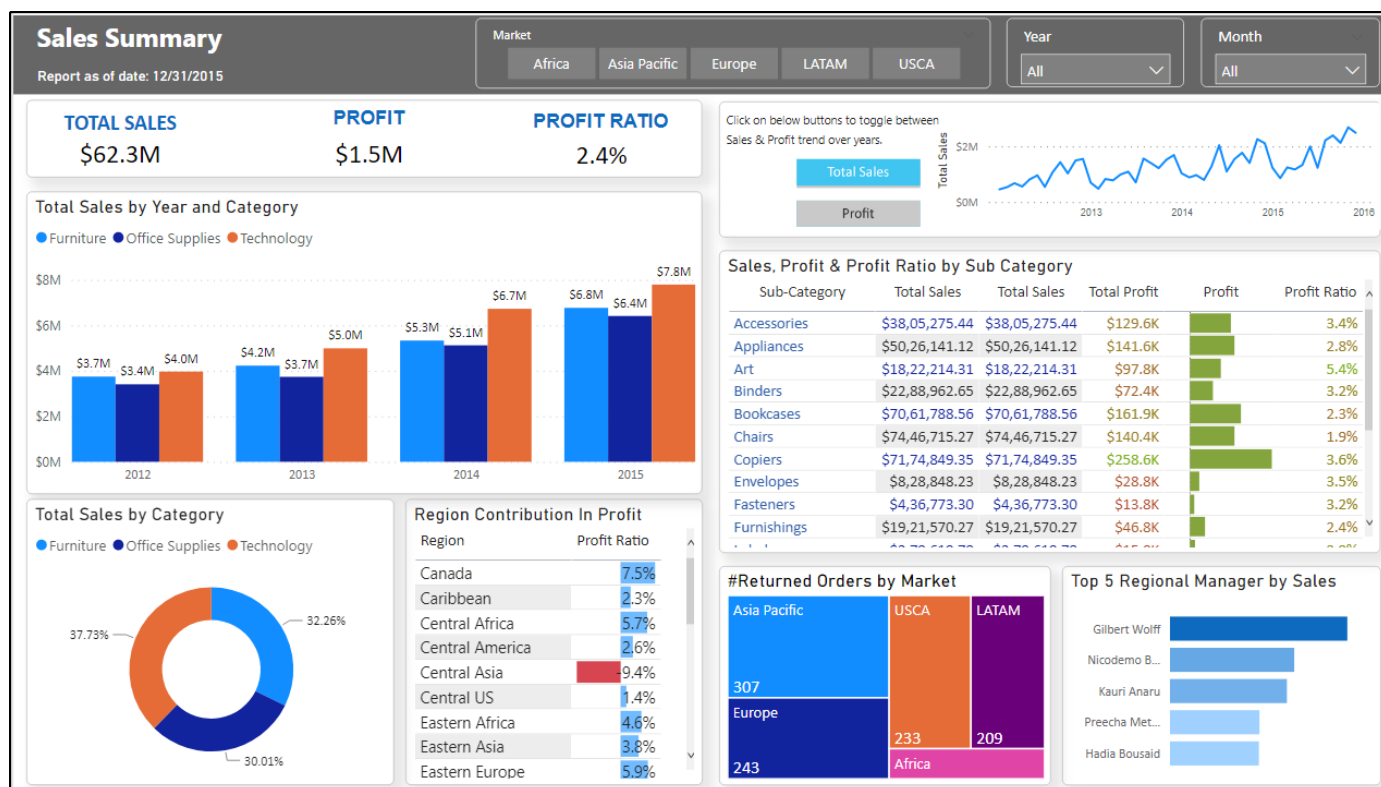
2. Q&A Analysis:


Tasks:

1. Load data from the provided data sources (excel workbooks).
2. Perform the required data transformations in Power Query Editor window.
3. Create the relationships in between the loaded tables.
4. Create the required measures for key performance indicators like Sales, Profit, Profit Ratio
5. Use the visuals as per provided design to plot dimensions like Category, Year, Region, Market, Sub category, Manager, etc. Add key slicers for slice & dice data in the visuals.
6. Train the Q&A data model for below synonyms:
   Revenue → Sales
   Income → Profit
   Income Percentage → Profit Ratio
7. Managers should have restricted data access as per their market allocation by the organisation. (Implement RLS)
8. Publish report in the Power BI Service and share with other users of the same market role.

Solutions:

Requirement analysis and data extraction in PBI Desktop:

1. Analyse excel sheets data and try to make understanding on the business data as per asked questions in the tasks/requirements.
2. Load data (both excel files one by one) in Power BI Desktop and use transform button to load data in Power query editor for transformation purpose.
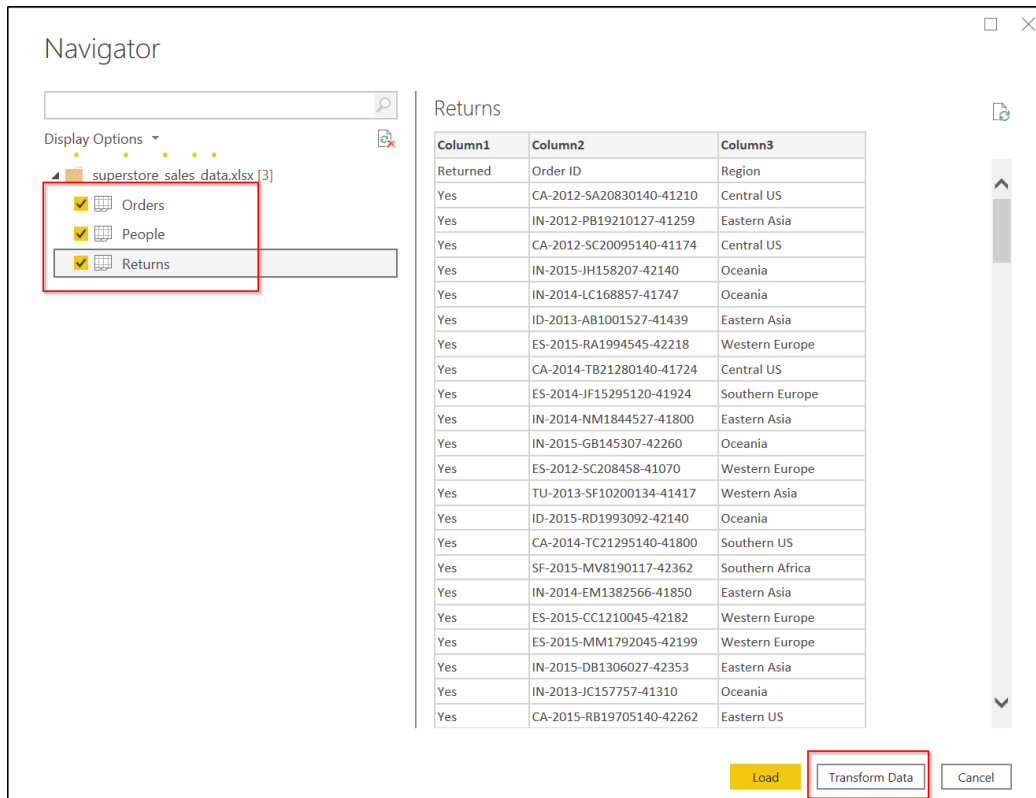
3. For Returns table promote the first row as headers.
4. For People table remove top 1 row and then promote the first row as headers.
5. Remove extra columns from the fact tables to keep data model size reduced. Columns like ship date, product name, postal code, etc can be removed.
6. Load data in Power BI Desktop and load another excel file (Date Table) in PBI desktop.

Work with relationships:

Create the relationships as per business & data understanding for this project these tables should be linked like below model.
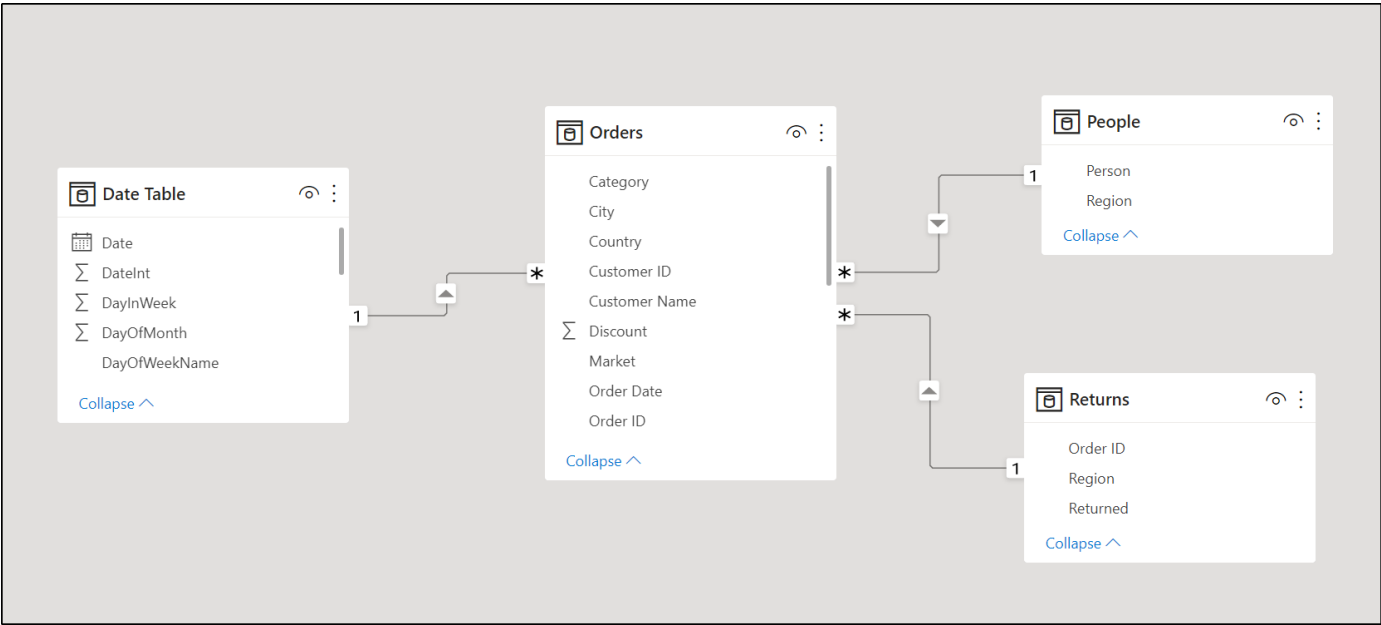
Create required measures:

Below formulas will be used to create these measures for creating visualisations on report page.

```
Total Sales = SUMX(Orders, Orders[Unit Price] * Orders[Quantity])

Total Profit = SUM(Orders[Profit])

Profit Ratio = DIVIDE([Total Profit],[Total Sales],0)

As of Date = "Report as of date: " & Max(Orders[Order Date])
```
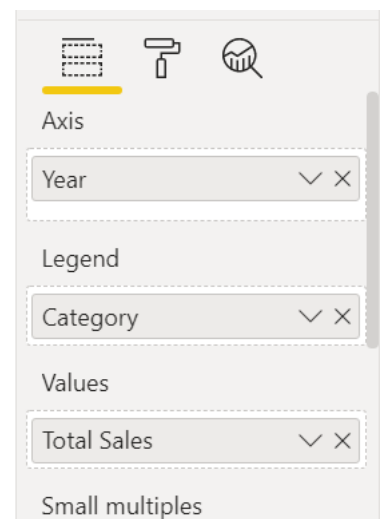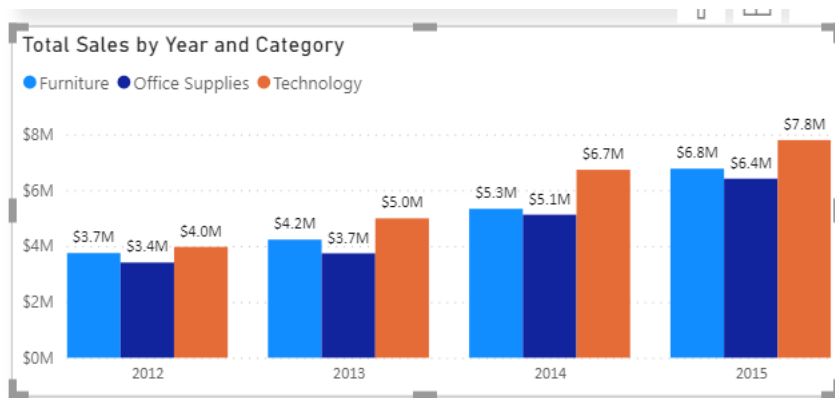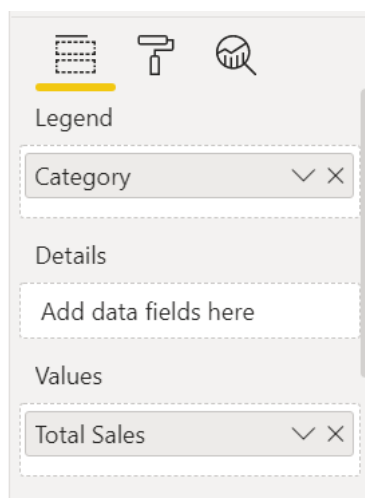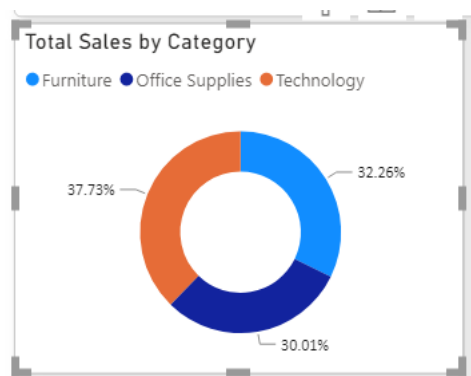
Add Visualisations:

Use card visuals to show Total Sales, Total Profit & Profit Ratio. Add text box for title of the cards.

Add clustered column chart to show "Total Sales by Year and Category". Drag and drop the fields on the added visual and make sure fields are added under correct data fields property.
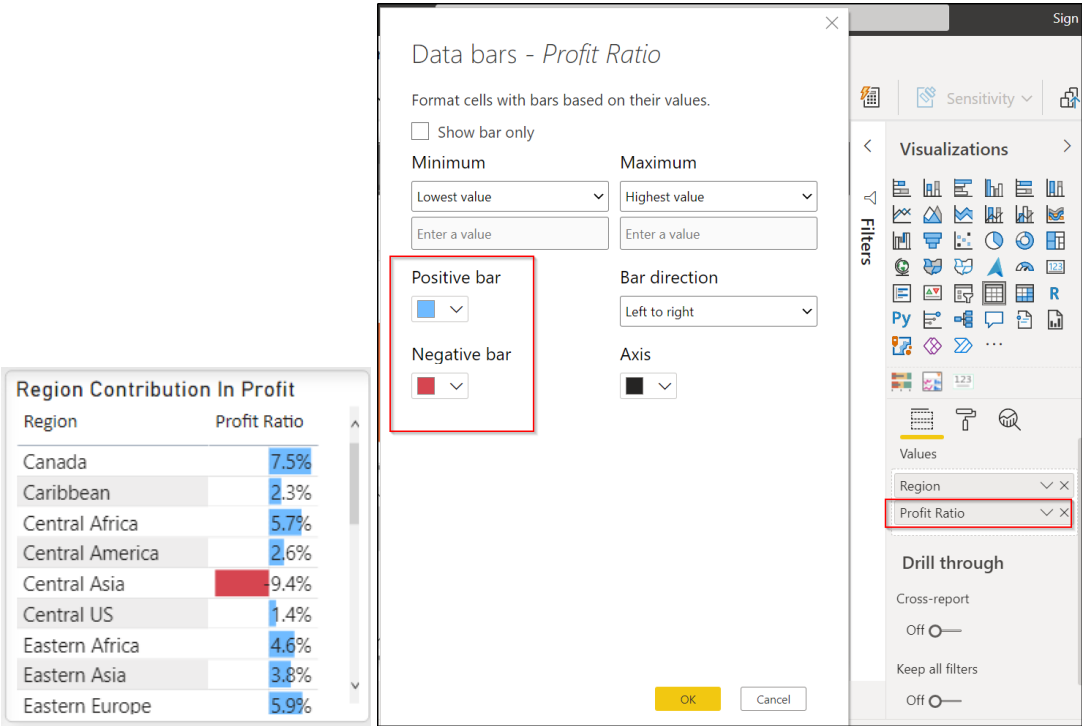

Add Donut chart to show "Total Sales Contribution by Category"

Add table visual from the vissuals list to show "Region Contribution In Profit". Apply the conditional formatting based on the Profit ratio field as show below.
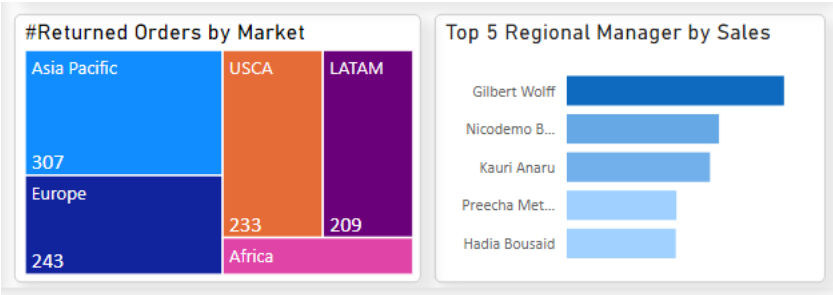
Right click on the Profit Ratio field and select data bars under the conditional formatting option.

Add another table visual to show below information. Apply conditional formatting on the Profit field as we did in above step.
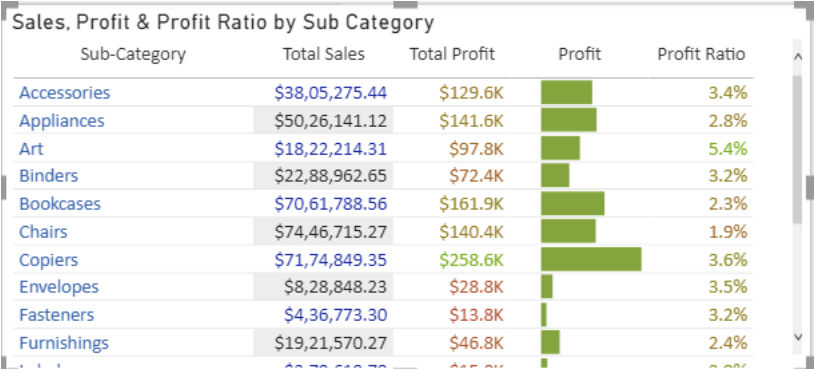
Add tree map and stacked bar chart to display below insight and place the column under the correct data field.

Use bookmark feature to create below functionality to switch values between sales & profit by clicking on the button on sales & profit.

Go to view tab and select bookmark and selection pane.

Add two button with button text and create line charts for sales & profit. Place these lines chart on top of each other.

Capture two bookmarks and define proper names for them. From the selection pane hide the visuals and link the buttons with the respective bookmark.
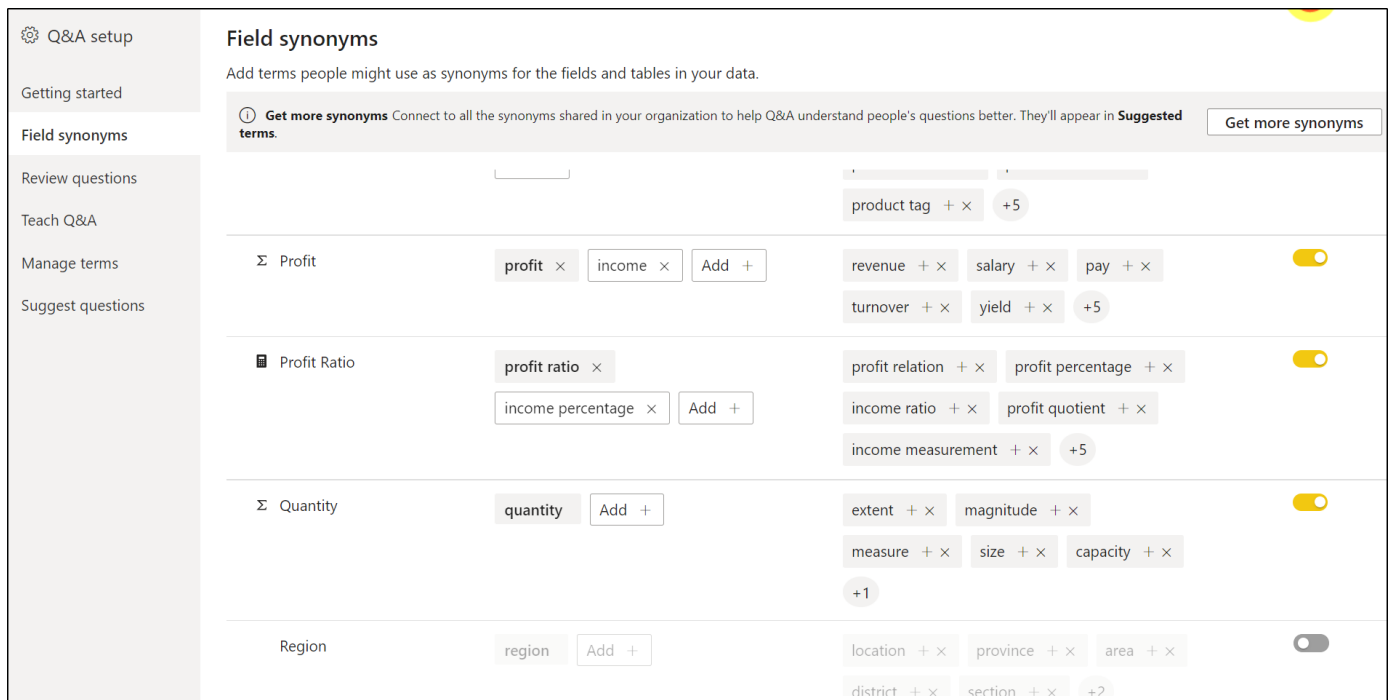
Create new page using duplicate page feature for "Q&A Analysis". Remove all the visuals except header part.

Now add Q&A visual on the new report page which will display suggested questions automatically.
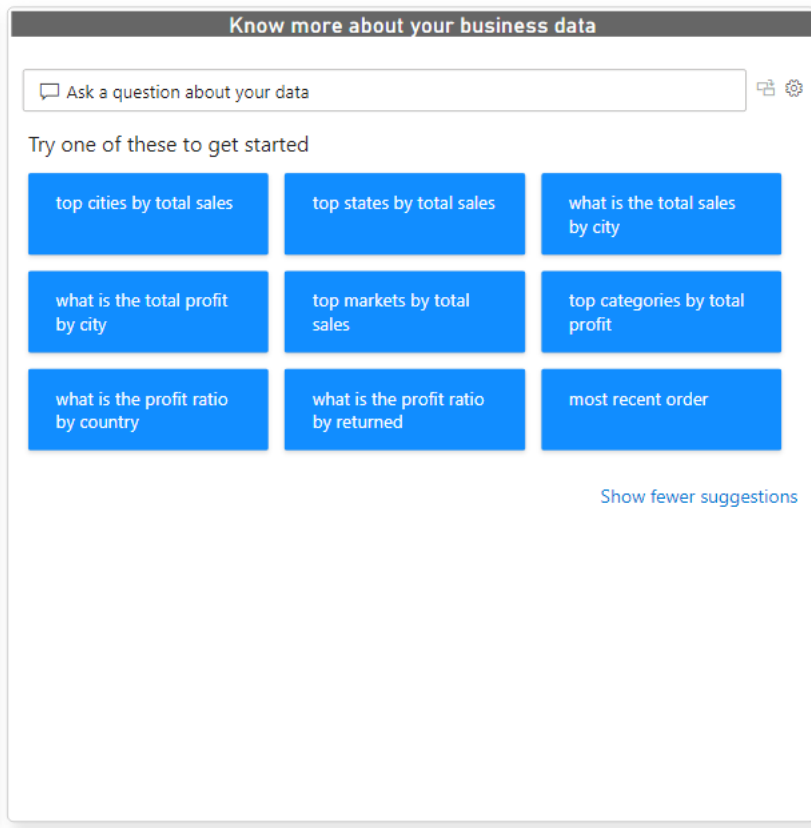
To train Q&A data model click on the settings icon on this visual and then choose add synonyms option.

Add map visual to show "Total sales by country" and change the data color property same as below screenshot.

Create Roles (Row level security) in the designed reprot as below.

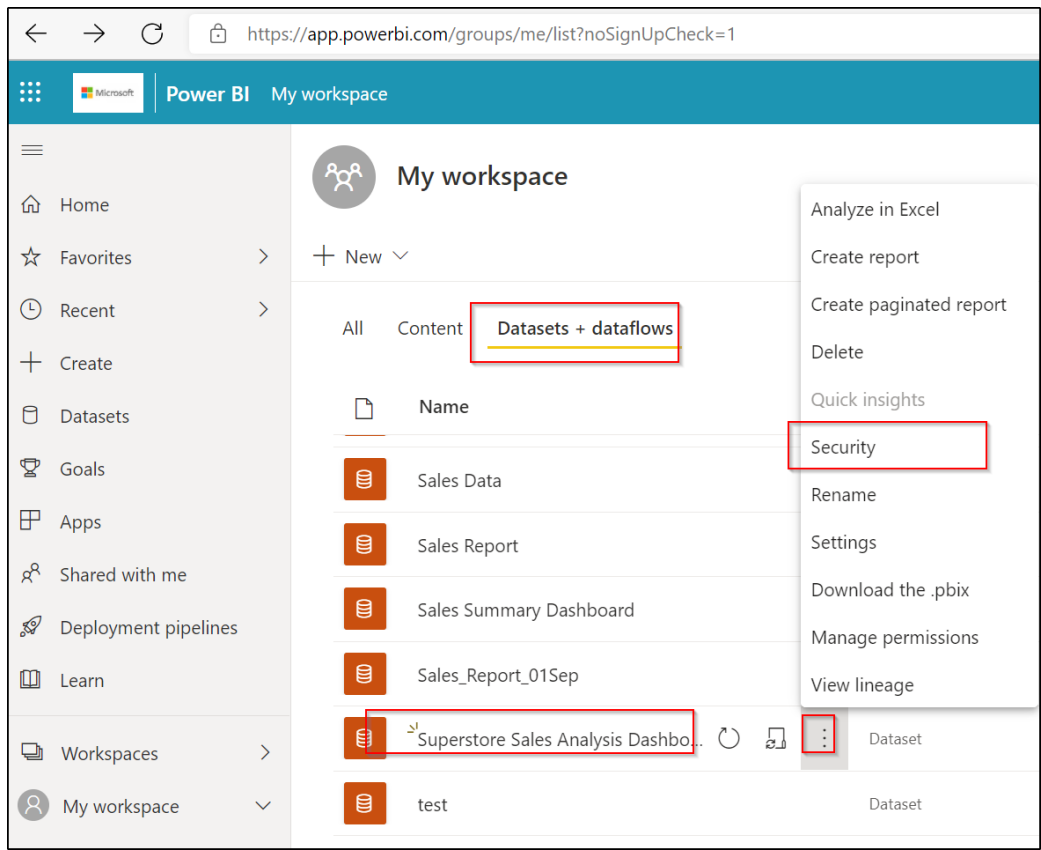Modelling tab → Manage roles → Click on create button

Similarlly other roles will also be create in above manage roles window based on the requirement.

Publish report on PBI Serivce:

Now save this report and publish to Power BI Service in workspace.

But before you share this report with any user you need to add users under the security roles created otherwise data will not be visible to any users.

Go to dataset and select security option on right click.

Share report with users:

Once report is shared with business users or other report viewers they will get data access in report as per the defined roles (RLS) only.