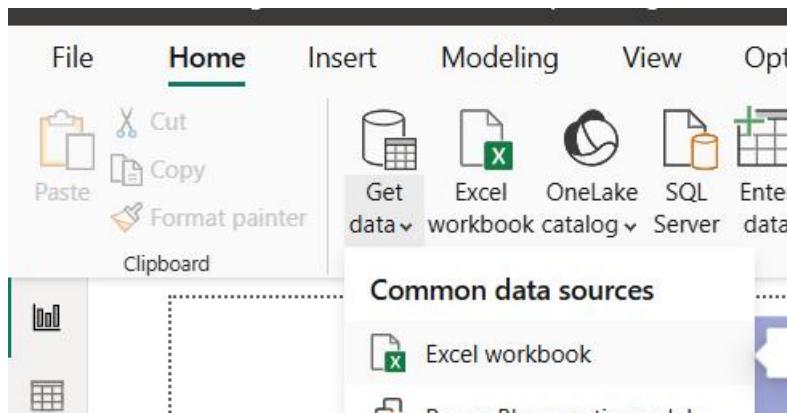


Assignment 5-Enterprise-Grade Power BI Report Design

Step 1: create the dataset

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	OrderID	OrderDate	ProductID	CustomerID	Region	Category	SubCategory	SalesAmount	Profit	Quantity			
2	O1001	2024-04-27 0:00:00	P103	C230	West-India	Technolog Accessorie		130496	22184	2			
3	O1002	2023-06-13 0:00:00	P134	C235	South-Indi	Technolog Phones		136675	34168	11			
4	O1003	2023-11-04 0:00:00	P115	C244	South-Indi	Furniture	Chairs	190644	49567	3			
5	O1004	2023-10-04 0:00:00	P106	C233	North-Indi	Technolog Phones		197380	53292	12			
6	O1005	2023-02-06 0:00:00	P120	C208	South-Indi	Technolog Phones		180377	59524	11			
7	O1006	2023-06-15 0:00:00	P112	C241	South-Indi	Office Sup	Binders	157464	47239	8			
8	O1007	2024-10-20 0:00:00	P126	C211	North-Indi	Technolog Accessorie		94393	14158	1			
9	O1008	2024-06-22 0:00:00	P114	C241	East-India	Office Sup	Binders	41232	12369	12			
10	O1009	2023-07-01 0:00:00	P149	C212	West-India	Office Sup	Binders	199653	21961	1			
11	O1010	2023-01-27 0:00:00	P138	C222	West-India	Office Sup	Paper	165510	31446	15			
12	O1011	2024-09-22 0:00:00	P105	C242	South-Indi	Technolog Laptops		89134	17826	13			
13	O1012	2023-08-07 0:00:00	P128	C248	West-India	Technolog Accessorie		71977	15115	11			
14	O1013	2023-07-19 0:00:00	P141	C245	East-India	Technolog Accessorie		121360	12136	11			
15	O1014	2023-02-13 0:00:00	P134	C204	East-India	Technolog Phones		163284	39188	10			
16	O1015	2023-09-16 0:00:00	P101	C239	South-Indi	Furniture	Bookcases	170667	29013	9			
17	O1016	2024-01-27 0:00:00	P146	C240	North-Indi	Furniture	Chairs	137035	23295	15			
18	O1017	2023-10-12 0:00:00	P128	C242	South-Indi	Technolog	Accessories	80202	80202	11			

Step 2: open PowerBI Desktop and click on get data option there choose Excel Workbook and then load the data



Step 3: now click on the location where the data is stored and then choose all the tables of the data and click on transform data

The screenshot shows the Power BI Navigator interface. On the left, there's a tree view of the data source "Sales_Data_Enterprise.xlsx [4]" containing tables like DimCustomer, DimProduct, FactSales, and Targets. The "FactSales" table is currently selected. To the right is a preview of the FactSales table with columns: OrderID, OrderDate, ProductID, CustomerID, Region, and Category. The table has 23 rows of data. At the bottom, there are buttons for "Load", "Transform Data", and "Cancel".

OrderID	OrderDate	ProductID	CustomerID	Region	Category
O1001	45409	P103	C230	West-India	Techno
O1002	45090	P134	C235	South-India	Techno
O1003	45234	P115	C244	South-India	Furniture
O1004	45203	P106	C233	North-India	Techno
O1005	44963	P120	C208	South-India	Techno
O1006	45092	P112	C241	South-India	Office S
O1007	45585	P126	C211	North-India	Techno
O1008	45465	P114	C241	East-India	Office S
O1009	45108	P149	C212	West-India	Office S
O1010	44953	P138	C222	West-India	Office S
O1011	45557	P105	C242	South-India	Techno
O1012	45145	P128	C248	West-India	Techno
O1013	45126	P141	C245	East-India	Techno
O1014	44970	P134	C204	East-India	Techno
O1015	45185	P101	C239	South-India	Furniture
O1016	45318	P146	C240	North-India	Furniture
O1017	45212	P128	C242	North-India	Techno
O1018	45060	P113	C235	East-India	Office S
O1019	45535	P126	C208	North-India	Techno
O1020	45189	P104	C232	North-India	Furniture
O1021	44962	P136	C231	East-India	Office S
O1022	45066	P114	C206	South-India	Office S
O1023	45554	P133	C213	North-India	Office S

STEP 4: Remove missing values:
In the FactSales table, click on remove blank rows for the column orderID

The screenshot shows the Power Query Editor interface. The "FactSales" query is selected in the Queries list. The main area shows the FactSales table with four rows of data. In the ribbon, under the "Transform" tab, the "Remove Blank Rows" button is highlighted with a red box. A tooltip for this button says "Remove all blank rows from this table." The status bar at the bottom shows the formula: `= Table.TransformColumnTypes(#"Promoted Headers",{{"OrderID", t`.

The screenshot shows the Power BI Data Editor interface. A context menu is open over a table, specifically the 'Remove Rows' option. The menu items are:

- Remove Top Rows
- Remove Bottom Rows
- Remove Alternate Rows
- Remove Duplicates
- Remove Blank Rows
- Remove Errors

STEP 5: Remove duplicate values:

The screenshot shows the Power BI Data Editor interface. A context menu is open over a table, specifically the 'Remove Rows' option. The menu items are:

- Remove Top Rows
- Remove Bottom Rows
- Remove Alternate Rows
- Remove Duplicates
- Remove Blank Rows
- Remove Errors

The 'Remove Duplicates' option is highlighted.

STEP 6: convert the datatype

OrderDate -> date

SalesAmount->decimal

Profit->decimal

Quantity->whole number

The screenshot shows the Power BI Data Editor interface. A context menu is open over a column named 'OrderDate'. The menu items are:

- Decimal Number
- Fixed decimal number
- Whole Number
- Percentage
- Date/Time
- Date
- Time
- Date/Time/Timezone
- Duration
- Text
- True/False
- Binary
- Using Locale...

The image shows three separate data type selection panes side-by-side:

- SalesAmount:** Shows options like Decimal Number, Fixed decimal number, Whole Number, Percentage, Date/Time, Date, Time, Date/Time/Timezone, Duration, and Text.
- Profit:** Shows options like Decimal Number, Fixed decimal number, Whole Number, Percentage, Date/Time, Date, Time, Date/Time/Timezone, Duration, and Text.
- Quantity:** Shows options like Decimal Number, Fixed decimal number, Whole Number, Percentage, Date/Time, Date, Time, Date/Time/Timezone, Duration, and Text.

STEP 7: Split Region Column

In the transform tab, click on split column and then click - as delimiter

The screenshot shows the Power BI 'Transform' tab interface. The 'Split Column' button in the ribbon is highlighted. A dropdown menu for 'Split Column' is open, showing the 'By Delimiter' option. Below it, the 'Split Column by Delimiter' option is also visible.

Transform Add Column View Tools Help

Transpose Data Type: Any Replace Values Unpivot Columns
 Reverse Rows Detect Data Type Fill Move
 Count Rows Rename Pivot Column Convert to List

Format Merge Columns ABC Extract
 abc Parse

Any Column

= Table.TransformColumnTypes(#"Remo

	ABC 123 Region	ABC 123 Category
1	West-India	Technology
2	South-India	Technology
3	South-India	Furniture

By Delimiter

Split Column by Delimiter

Split values in the selected column based on the specified delimiter

By Uppercase to Lowercase

By Digit to Non-Digit

By Non-Digit to Digit

Split Column by Delimiter

Specify the delimiter used to split the text column.

Select or enter delimiter

--Custom--

-

Split at

- Left-most delimiter
- Right-most delimiter
- Each occurrence of the delimiter

▷ Advanced options

Quote Character

"

Split using special characters

Insert special character ▾

OK

Cancel

Now rename the
Region 1->ZONE
Region 2->country

A ^B _C Region.1	A ^B _C Region.2
West	India
South	India
South	India
North	India
South	India
South	India
North	India
East	India

A ^B _C Zone	A ^B _C Country
West	India
South	India
South	India
North	India
South	India

STEP 8:Create Conditional Column (Business Logic)

Add Column → Conditional Column

Name: Sales Performance

SalesAmount > 100000 → High
 SalesAmount > 50000 → Medium
 Else → Low

Add Conditional Column

Add a conditional column that is computed from the other columns or values.

New column name

Sales Performance

Column Name	Operator	Value	Output
If SalesAmount	is greater than	100000	Then High
Else If SalesAmount	is greater than	50000	Then Medium
... Add Clause			
Else		Low	

OK Cancel

Followed steps :

APPLIED STEPS

- Source
- Navigation
- Promoted Headers
- Removed Blank Rows
- Removed Duplicates
- Changed Type
- Split Column by Delimiter
- Changed Type1
- Renamed Columns
- Added Conditional Column

File Home Transform

Close & Apply

Close the Query Editor window and apply any pending changes.

After close and apply the data will be loaded:

Data

»

Search

- > **DimCustomer**
- > **DimProduct**
- > **FactSales**
- > **Targets**

Model view:

The screenshot shows the Power BI Model view interface. On the left, there's a navigation pane with icons for Home, Data, Relationships, and Parameters. The main area displays four tables:

- DimCustomer**: Contains columns Column1, Column2, Column3.
- DimProduct**: Contains columns Column1, Column2, Column3, Column4.
- FactSales**: Contains columns Category, Country, CustomerID, OrderDate, OrderID, ProductID, Profit, Quantity, Sales Performance.
- Targets**: Contains columns Category, SalesTarget, Year.

Now we create a new table called DimDate and now here we create the essential columns needed

The screenshot shows the Power BI ribbon with the Home tab selected. The ribbon includes sections for File, Home, Help, Clipboard, Data, Queries, Relationships, and a search bar.

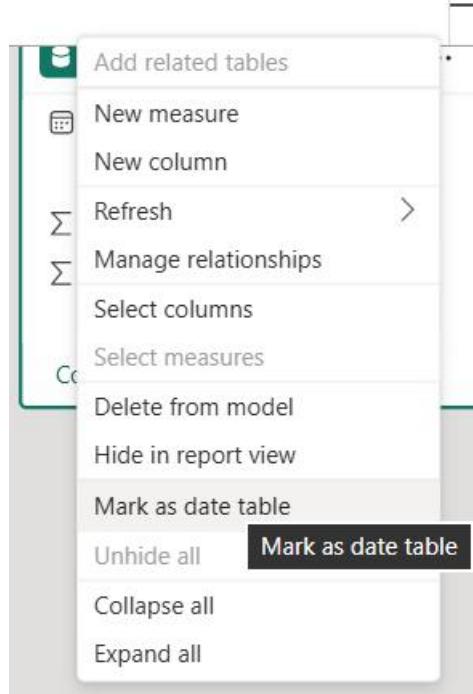
```

1 DimDate =
2 ADDCOLUMNS(
3     CALENDAR (DATE(2023,1,1), DATE(2024,12,31)),
4     "Year", YEAR([Date]),
5     "Month", FORMAT([Date], "MMM"),
6     "MonthNumber", MONTH([Date])
7 )
8

```

The screenshot shows the Power BI Model view with the newly created **DimDate** table. The table contains columns Date, Month, MonthNumber, and Year. The other tables (DimCustomer, DimProduct, FactSales, Targets) are also visible in the background.

Mark table as date table :



Relationships:

FactSales[OrderDate] → DimDate[Date]

FactSales[ProductID] → DimProduct[ProductID]

FactSales[CustomerID] → DimCustomer[CustomerID]

FactSales[Category] → Targets[Category]

New relationship

X

Select tables and columns that are related.

From table

FactSales

Category	Country	CustomerID	OrderDate	OrderID	ProductID	Profit
Technology	India	C230	27 April 2024	O1001	P103	22184
Technology	India	C235	13 June 2023	O1002	P134	34168
Furniture	India	C244	04 November ...	O1003	P115	49567

To table

DimDate

Date	Month	MonthNumber	Year
01-01-2023 0...	Jan	1	2023
02-01-2023 0...	Jan	1	2023
03-01-2023 0...	Jan	1	2023

Cardinality

Many to one (*:1)

Cross-filter direction

Single

Make this relationship active

Apply security filter in both directions

Assume referential integrity

Save

Cancel

Renamed the columns to create the relationships

Queries [4]

DimCustomer

DimProduct

FactSales

Targets

= Table.Skip(#"Renamed Columns",1)

	A ^B _C ProductID	A ^B _C ProductName	A ^B _C Category	A ^B _C SubCategory
1	P101	Bookcases Model 1	Furniture	Bookcases
2	P102	Binders Model 2	Office Supplies	Binders
3	P103	Accessories Model 3	Technology	Accessories
4	P104	Bookcases Model 4	Furniture	Bookcases

New relationship

X

Select tables and columns that are related.

From table

FactSales



Category	Country	CustomerID	OrderDate	OrderID	ProductID	Profit
Technology	India	C230	27 April 2024	O1001	P103	22184
Technology	India	C235	13 June 2023	O1002	P134	34168
Furniture	India	C244	04 November...	O1003	P115	49567

To table

DimProduct



Category	ProductID	ProductName	SubCategory
Furniture	P101	Bookcases M...	Bookcases
Office Supplies	P102	Binders Mode...	Binders
Technology	P103	Accessories ...	Accessories

Cardinality

Many to one (*:1)



Cross-filter direction

Single



Make this relationship active

Apply security filter in both directions

Assume referential integrity

Save

Cancel

New relationship

X

Select tables and columns that are related.

From table

FactSales

Category	Country	CustomerID	OrderDate	OrderID	ProductID	Profit
Technology	India	C230	27 April 2024	O1001	P103	22184
Technology	India	C235	13 June 2023	O1002	P134	34168
Furniture	India	C244	04 November...	O1003	P115	49567

To table

DimCustomer

CustomerID	CustomerName	Segment
C201	Customer_1	Home Office
C202	Customer_2	Consumer
C203	Customer_3	Consumer

Cardinality

Many to one (*:1)

Cross-filter direction

Single

Make this relationship active

Apply security filter in both directions

Assume referential integrity

Save

Cancel

New relationship

X

Select tables and columns that are related.

From table

Targets

Category	SalesTarget	Year
Furniture	223385	2023
Technology	398187	2023
Office Supplies	433174	2023

To table

DimProduct

Category	ProductID	ProductName	SubCategory
Furniture	P101	Bookcases M...	Bookcases
Office Supplies	P102	Binders Mode...	Binders
Technology	P103	Accessories ...	Accessories

Cardinality

Many to many (*:*)

Cross-filter direction

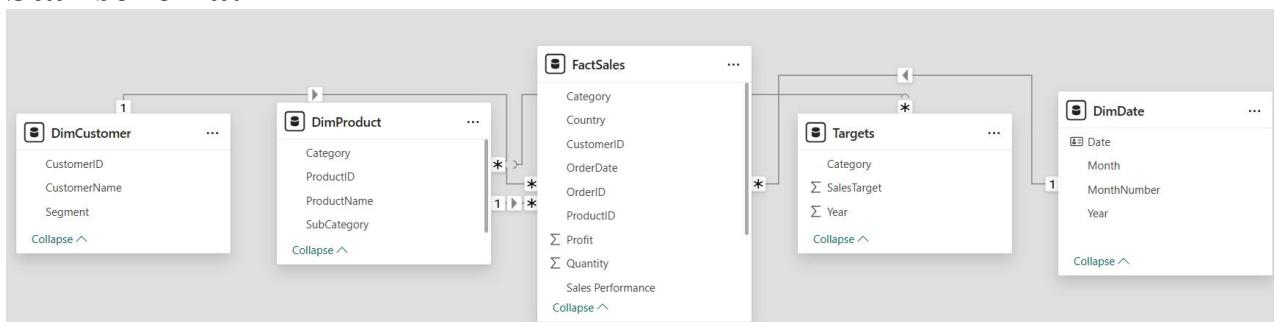
Both

Make this relationship active

Apply security filter in both directions

Assume referential integrity

Star schema:



Dax

Here, create a new measure

Optimize Help **Table tools**

New measure Quick measure New column New table

Measure Calculations

1 Total Sales = SUM(FactSales[SalesAmount])

1 Total Profit = SUM(FactSales[Profit])
2

1 Total Quantity = SUM(FactSales[Quantity])
2

Sales YTD =
TOTALYTD(
 [Total Sales],
 DimDate[Date]
)

1 Sales LY =
2 CALCULATE(
3 [Total Sales],
4 SAMEPERIODLASTYEAR(DimDate[Date])
5)
6

1 YoY Growth % =
2 DIVIDE(
3 [Total Sales] - [Sales LY],
4 [Sales LY]
5)
6

1 Target Sales = SUM(Targets[SalesTarget])
2

```

1 Target Achievement % =
2 DIVIDE(
3     [Total Sales],
4     [Target Sales]
5 )
6

```

Here we are sorting the month by month number

Performing visuals:

PAGE 1: Executive Dashboard

- KPI Cards (Sales, Profit, YoY Growth)
- Donut Chart → Sales by Category
- Ribbon Chart → Category Rank Over Time
- Line Chart → Sales Trend (Monthly)

PAGE 2: Trend Analysis

- Line Chart (Sales & Profit)
- Line + Stacked Column Chart
- Shape Map → Sales by Region

PAGE 3: Product Performance

- Matrix (Category → Subcategory → Product)
- Conditional formatting
- Top N filters

EXECUTIVE DASHBOARD

[View Product Details](#)

Total Sales

11.99M

Total Sales

Help Q&A understand people better by adding synonyms.

Add synonyms now

total sales by category

Showing results for [Fact sale category and total sales](#)



YoY Growth %

1.17

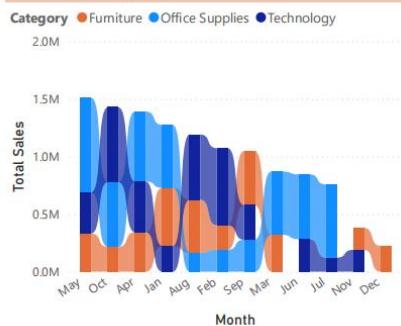
YoY Growth %

Total Profit

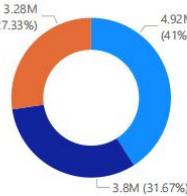
2.56M

Total Profit

Category Rank Over Time



Total Sales by Category

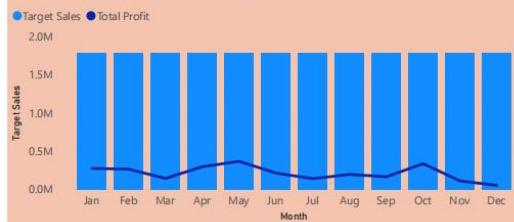


Monthly Sales Trend



TREND ANALYSIS

Actual vs Target Sales & Profit Trend



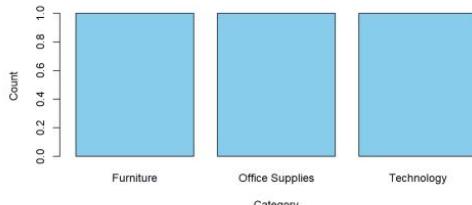
Sales by Region



Sales & Profit Trend



Category Distribution using R



PRODUCT PERFORMANCE

Year Category Country

All All India

Product Performance Summary			
Category	Total Sales	Total Quantity	Total Profit
Furniture	32,76,853.00	188	6,67,441.00
Office Supplies	49,16,161.00	368	10,30,200.00
Technology	37,97,364.00	234	8,59,727.00
Total	1,19,90,378.00	790	25,57,368.00

performed conditional formatting on the visuals for the matrix:

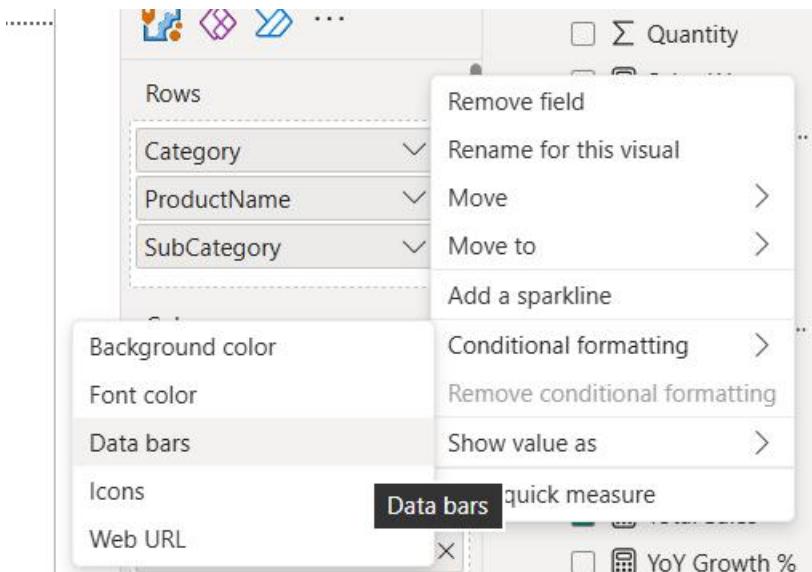
Matrix Formatting

- Data bars for Sales
- Color scale for Profit
- Bold totals

Report-Level Filters

- Year
- Region
- Category

Applied once → affects all pages



Data bars - Total Sales

Format style Apply to

What field should we base this on? Bar direction

Minimum Maximum
Enter a value

Positive bar Negative bar Axis
 Show bar only

[Learn more about conditional formatting](#)

Changed the color for total profit

Background color - Total Profit X

Format style Apply to

Gradient Values only

What field should we base this on? How should we format empty values?

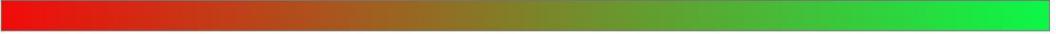
Total Profit As zero

Minimum Maximum

Lowest value Highest value

Enter a value Enter a value

Add a middle color



[Learn more about conditional formatting](#) OK Cancel

Text color

Background color

Banded row color On

Alignment

Text wrap On

▼ +/- icons On

Color

Size ^ ▼

Dashboard Creation & Actions

1. Publish to Power BI Service
2. Pin visuals to Dashboard
3. Create **Dashboard Actions**
 - o Click KPI → Navigate to detail page
4. Enable **Q&A visual**
5. Set alerts on KPIs

The screenshot shows the Microsoft Power BI desktop interface. A central modal window titled "Publishing to Power BI" is open, prompting the user to publish a report. The report itself is titled "TREND ANALYSIS" and contains a chart titled "Actual vs Target Sales & Profit Trend". To the right of the chart is another chart titled "Sales by Region" showing a map of Asia. Below these charts is a summary section with three large KPIs: "Total Sales" (\$11.99M), "Total Profit" (\$2.56M), and "YoY Growth %" (1.17%). The left sidebar shows the navigation pane with various workspace and report options. The bottom navigation bar includes links for "Copilot", "Explore", "Share", "Set alert", "Monitor", "Edit", and "...".

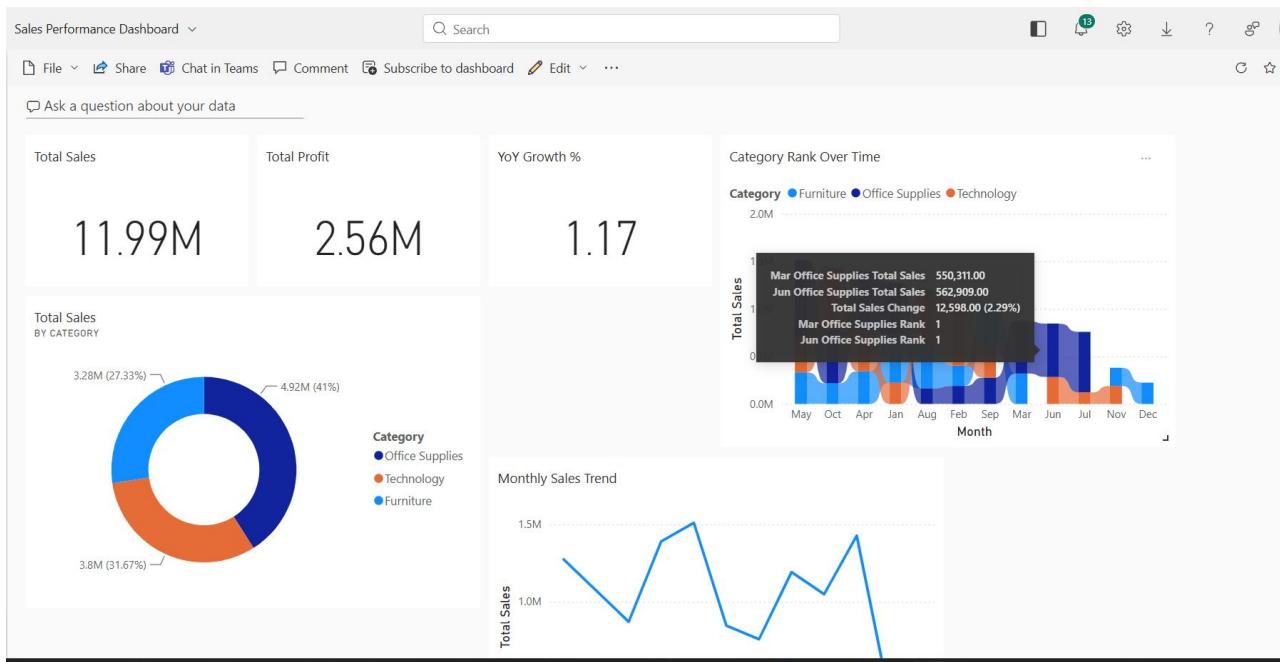
The screenshot shows the Microsoft Power BI workspace interface. At the top, there's a navigation bar with options like 'My workspace', 'New item', 'New folder', 'Import', 'Migrate', 'Filter by keyword', 'Filter', and 'Workspace settings'. Below the navigation bar, there's a placeholder image of two overlapping squares. A central message says 'Choose from predesigned task flows or add a task to build one' and 'Select from one of Microsoft's predesigned task flows or add a task to start building one yourself.' Below this, there are two buttons: 'Select a predesigned task flow' and 'Add a task'. A link to 'Import a task flow' is also present. The main area is a table listing task flows:

Name	Status	Type	Task	Owner	Refreshed	Next refresh	Endorsement	Sensitivity
Assignment-Grade Power BI Report Design	Report	—	Pranathi Mag...	12/14/2025, 1:23....	—	—	—	—
Assignment-Grade Power BI Report Design	Semantic mo...	—	Pranathi Mag...	12/14/2025, 1:2....	N/A	—	—	—

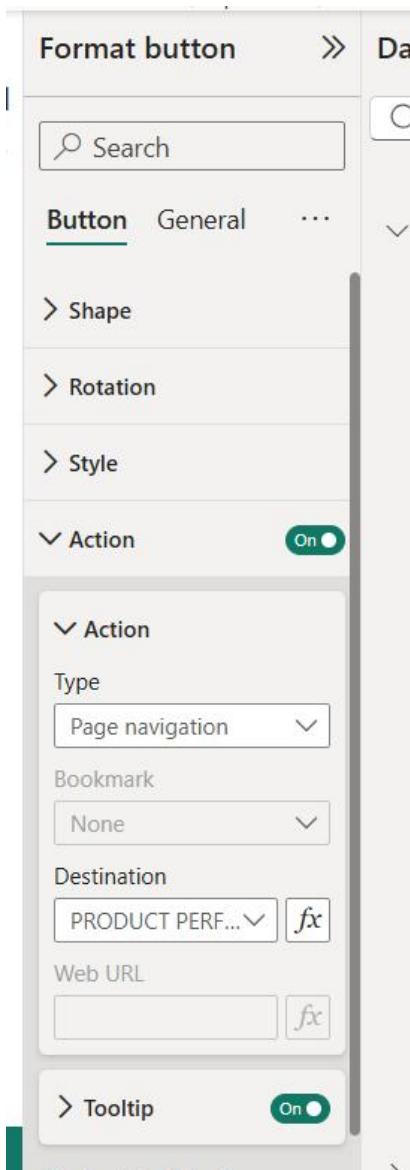
Pin visuals to Dashboard:

Initially we create a new dashboard and next when we pin the others we pin in the existing dashboard itself

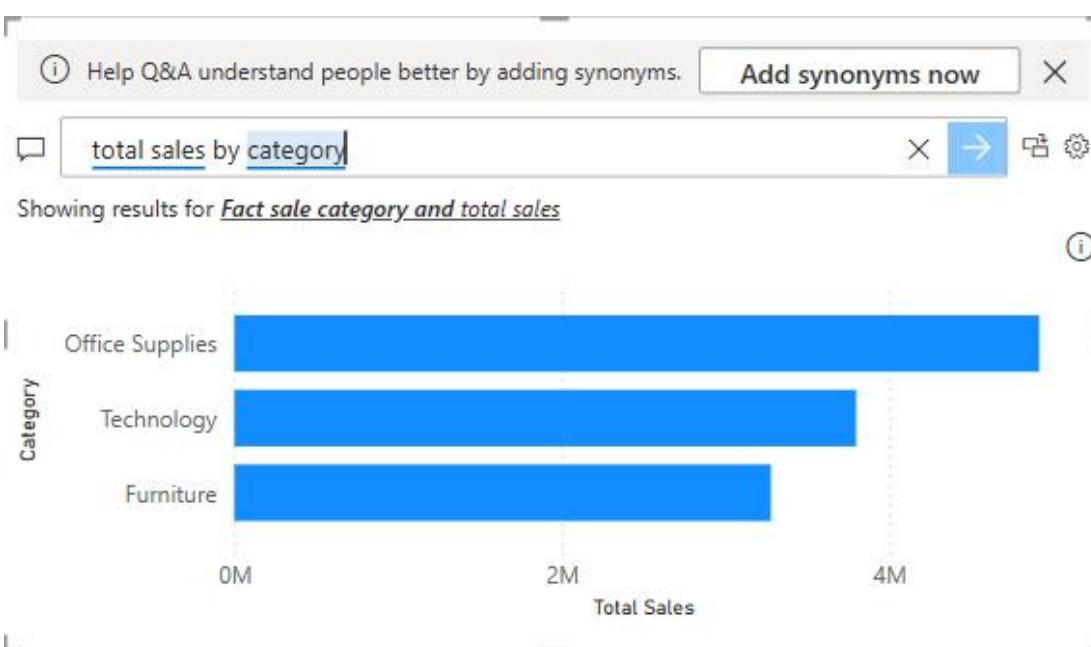
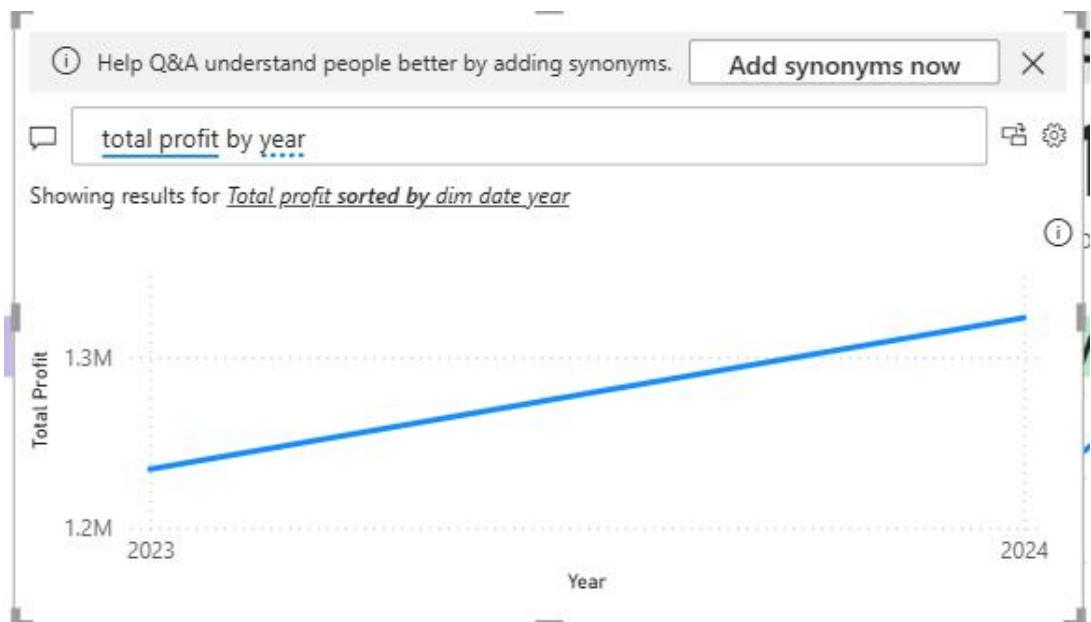
The screenshot shows a 'Pin to dashboard' dialog box. On the left, there's a preview of a dashboard card titled 'Total Sales' with the value '11.99M'. The main part of the dialog has a title 'Pin to dashboard' and a sub-instruction 'Select an existing dashboard or create a new one.' Below this, there's a section 'Where would you like to pin to?' with two radio button options: 'Existing dashboard' (unchecked) and 'New dashboard' (checked). There's also a 'Dashboard name' input field containing 'Sales Performance Dashboard'. At the bottom are two buttons: 'Pin' (in a green box) and 'Cancel'.



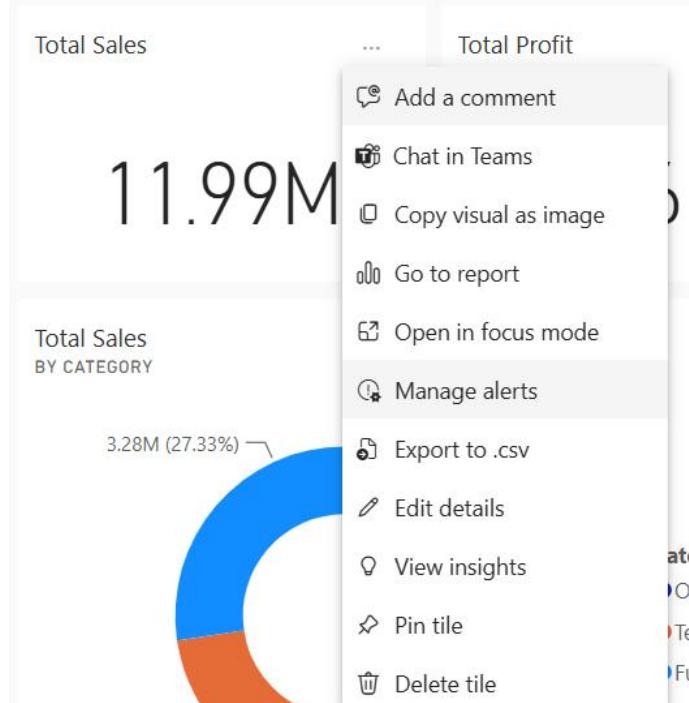
Add the button for navigation



Q/A query:



Managing Alerts:



TOTAL SALES X

Manage alerts

+ Add alert rule

Alert title
Total Sales

Set alerts rule for
Total Sales

Condition **Threshold**
Above

Maximum notification frequency
 At most every 24 hours
 At most once an hour

Alerts are only sent if your data changes.

By default, you'll receive notifications on the service in the notification center.

Send me email, too

[Learn more about alerting in Power BI](#)

Save and close

Cancel

Advanced Visuals Using R scripts

The screenshot shows a Power BI dashboard interface. On the left, there is an R script editor window with the following code:

```
1 Sales = FactSales[SalesAmount]
2
```

The main area displays two visualizations:

- A line chart titled "Target Sales" showing monthly sales data from January to December. The Y-axis ranges from 0.0M to 2.0M. The chart shows actual sales (blue line) and target sales (orange bars). Actual sales fluctuate between 0.5M and 1.5M, while target sales remain constant at 1.0M.
- A bar chart titled "Category Distribution using R" showing the distribution of sales across three categories: Furniture, Office supplies, and Technology. The Y-axis represents "Target Sales and Actual Sales" ranging from 0.0M to 1.0M. The chart shows that Furniture has the highest sales, followed by Technology and Office supplies.

On the right side, there is a "Visualizations" pane with various chart icons, and a "Filters on this visual" pane showing a filter for "Category is (All)". The bottom of the screen shows navigation tabs: EXECUTIVE DASHBOARD, TREND ANALYSIS (selected), PRODUCT PERFORMANCE, and a plus sign icon.