



# Power BI Training Session #1

Akrítí Lal



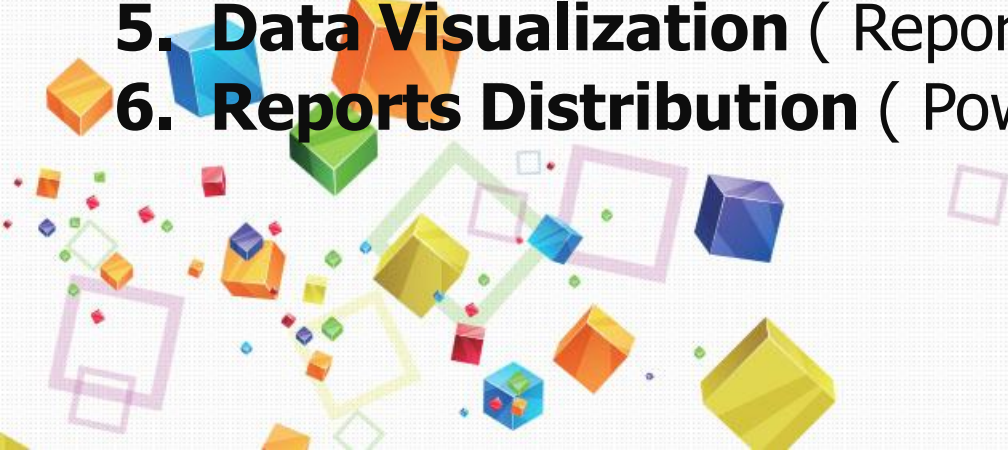
# Akriti Lal

- Professionally I am a Freelance Data Analytics & Visualization Consultant and Trainer from the last 5 yrs + with a total experience of more than 10 years in different Industry Verticals.
- Designed and developed multiple Data Visualization Reports & Dashboard using Tableau , Microsoft Power BI etc. for different Industries..



This is a Practical Hands on Workshop based course, to learn Data Analytics and Business Intelligence ( BI ) with Microsoft Power BI Desktop

- 1. Understanding Business Intelligence (BI ), Self Service BI , Data Analytics & Data Visualization**
- 2. Introduction to Microsoft Power BI**
- 3. Data Discovery** ( Connecting & Shaping Data with Power BI Desktop )
- 4. Data Modelling** ( Creating Relationship, Star Schema , DAX )
- 5. Data Visualization** ( Reports , Dashboard )
- 6. Reports Distribution** ( Power BI Services )





# Business Intelligence (BI), Self Service BI, Data Analytics & Data Visualization Introduction



# BUSINESS INTELLIGENCE

- Business Intelligence (BI) refers to **technologies, applications and practices** for the **collection, integration, analysis**, and **presentation** of business information
- The Purpose of Business Intelligence is to support **Better Business Decision Making** via **Data Analytics** .
- **Data analytics** is the process of examining data sets in order to find **valuable knowledge** and **actionable insights** from the Raw Data increasingly with the aid of specialized systems and software.



# SELF SERVICE BI

- With self-service bi, business users are able to filter, segment, and analyze their data like never before, **without the in-depth technical knowledge** that most analytical systems have required in the past.
- **Identify Your Users** - Who are your “**casual users**,” such as employees and managers, and who are your “**power users**” like data analysts , data scientists and software developers.
- Casual users just want to pop in and pull some reports or view their KPI dashboard.
- The power users group – which is really just 10% of your users at best who have that training, who can program, programmatically access data **really do need self-service.**





# WHY IS DATA ANALYTICS & SELF SERVICE BI IMPORTANT?

- In 2020 the world's data is expected to reach 45ZB.
- Within these data are huge, unparalleled opportunities for human advancement. But to turn opportunities into reality, people need the power of data at their fingertips.
- Microsoft PowerBI is helping People Do Exactly This.



## How Big is Big?

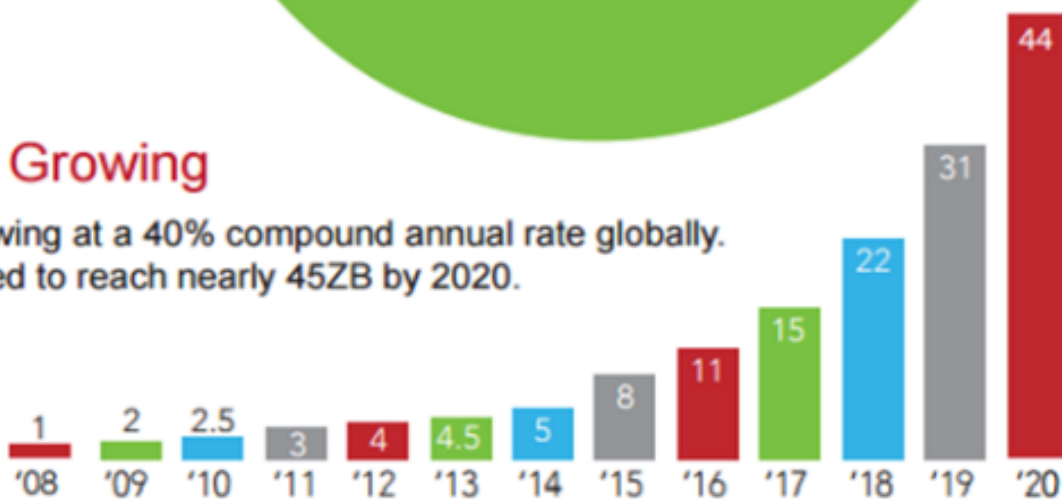
1,000 gigabytes =  
**1 terabyte**

1 million terabytes =  
**1 exabyte**

1 billion terabytes =  
**1 zettabyte**

## And It's Growing

Data is growing at a 40% compound annual rate globally.  
It is expected to reach nearly 45ZB by 2020.



Data in zettabytes (ZB)

Source: Oracle 2012



# What is Visual Analytics And Why ?

“Visual analytics is the representation and presentation of data that exploits our visual perception abilities in order to amplify cognition.”

- Andy Kirk, author of “Data Visualization: a successful design process”



**Please Count The Total 9 in the below data set !**

3	3	0	3	0	1	8	7	6	8	2	1	4	0	3	8	3	7	7	2	0	5	2	3	2	7	0	2	0
7	1	4	6	0	2	1	3	2	7	6	0	2	5	6	3	2	5	7	6	3	3	0	2	0	3	0	7	2
8	7	5	7	2	8	3	8	7	7	8	2	0	7	7	5	2	3	1	1	5	6	3	8	4	7	8	2	0
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8	6	2	2	6	5	4	6	7	0	7	6	0	0	3	9	0	2	4	7	1	7	2	3	3	5	8	7	0
0	8	4	5	1	3	1	7	6	4	5	4	1	2	4	5	3	3	5	4	9	6	7	7	6	3	4	2	5
4	7	7	0	2	2	0	1	1	7	7	7	0	2	6	6	4	7	5	8	6	1	4	3	7	8	5	4	6
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0	5	2	4	1	5	3	3	1	5	5	1	4	0	1	6	4	3	3	9	8	8	3	4	6	8	4	8	6
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1	0	2	2	7	6	3	3	0	8	8	0	3	1	8	8	1	2	1	7	5	2	9	3	5	8	3	2	5



# Please Count Now !

3	3	0	3	0	1	8	7	6	8	2	1	4	0	3	8	3	7	7	2	0	5	2	3	2	7	0	2	0
7	1	4	6	0	2	1	3	2	7	6	0	2	5	6	3	2	5	7	6	3	3	0	2	0	3	0	7	2
8	7	5	7	2	8	3	8	7	7	8	2	0	7	7	5	2	3	1	1	5	6	3	8	4	7	8	2	0
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2	4	3	1	3	5	4	9	5	0	7	6	0	7	4	3	1	8	2	7	3	4	6	0	2	4	8	2	3
8	6	2	2	6	5	4	6	7	0	7	6	0	0	3	9	0	2	4	7	1	7	2	3	3	5	8	7	0
0	8	4	5	1	3	1	7	6	4	5	4	1	2	4	5	3	3	5	4	9	6	7	7	6	3	4	2	5
4	7	7	0	2	2	0	1	1	7	7	7	0	2	6	6	4	7	5	8	6	1	4	3	7	8	5	4	6
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2	8	5	2	1	2	8	7	7	6	2	5	6	2	6	4	1	5	1	6	1	2	1	1	0	5	6	4	0
2	1	1	7	7	2	0	0	1	8	7	0	2	9	0	2	8	5	7	8	4	6	0	6	5	0	7	1	2
0	5	2	4	1	5	3	3	1	5	5	1	4	0	1	6	4	3	3	9	8	8	3	4	6	8	4	8	6
7	3	7	5	2	4	0	2	7	6	3	8	5	5	4	5	8	8	7	5	5	6	5	6	7	9	7	7	4
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1	0	2	2	7	6	3	3	0	8	8	0	3	1	8	8	1	2	1	7	5	2	9	3	5	8	3	2	5



# Human Perception & Cognition

Humans Are Slow at Mental Math

24

X 86

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# Using Pen & Paper

We're Faster When We Use the Pen

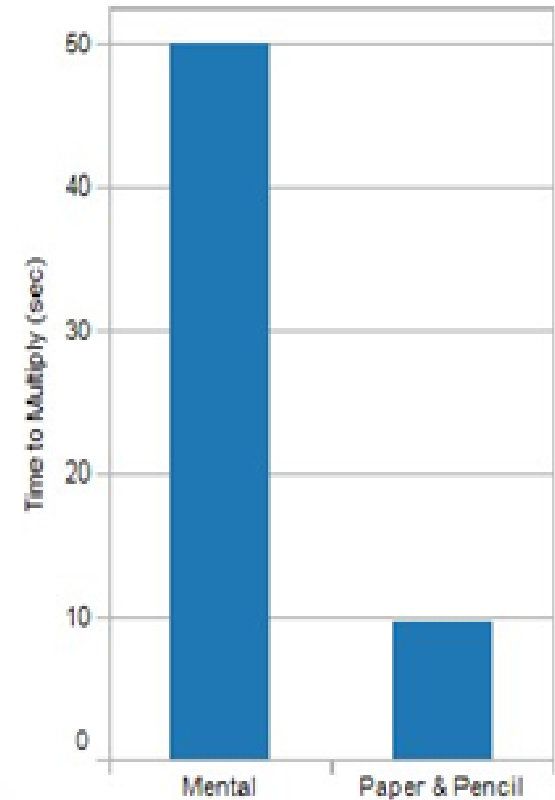
24  
X 86

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144  
1920

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2064



# We're Much Faster When We Can "See" Data

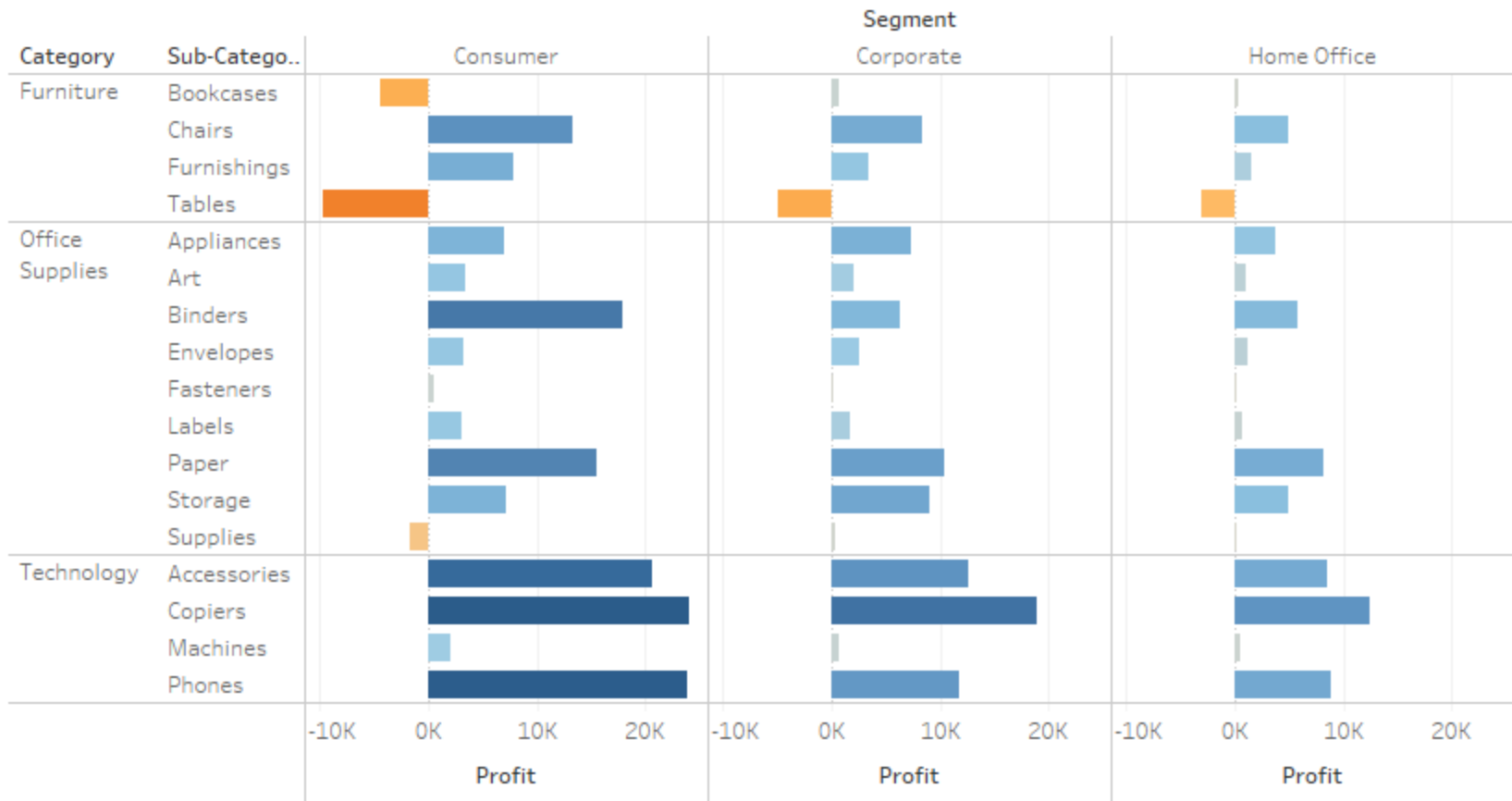
## Profit

Category	Sub-Catego..	Segment		
		Consum..	Corpora..	Home Office
Furniture	Bookcases	-4,436	638	325
	Chairs	13,235	8,345	5,010
	Furnishings	7,919	3,508	1,632
	Tables	-9,728	-4,906	-3,091
Office Supplies	Appliances	6,982	7,430	3,726
	Art	3,454	2,005	1,069
	Binders	17,996	6,377	5,849
	Envelopes	3,264	2,571	1,129
	Fasteners	577	252	121
	Labels	3,076	1,761	709
	Paper	15,535	10,362	8,157
	Storage	7,104	9,131	5,044
	Supplies	-1,658	339	130
Technology	Accessories	20,736	12,707	8,493
	Copiers	24,084	18,990	12,544
	Machines	2,141	703	541
	Phones	23,837	11,766	8,912



# We're Much Faster When We Can "See" Data

Profit Across Different Segment



# The Cycle of Visual Analysis



# Visualization Best Practices

- Representing data for humans
- Color
- Maps
- Creating Reports / Dashboards





# Introduction To Microsoft Power BI



# What is Microsoft Power BI

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**Power BI** is a standalone Microsoft business intelligence product, which includes both desktop and web-based applications for loading, modeling, and visualizing data

More information at  
**[powerbi.microsoft.com](https://powerbi.microsoft.com)**



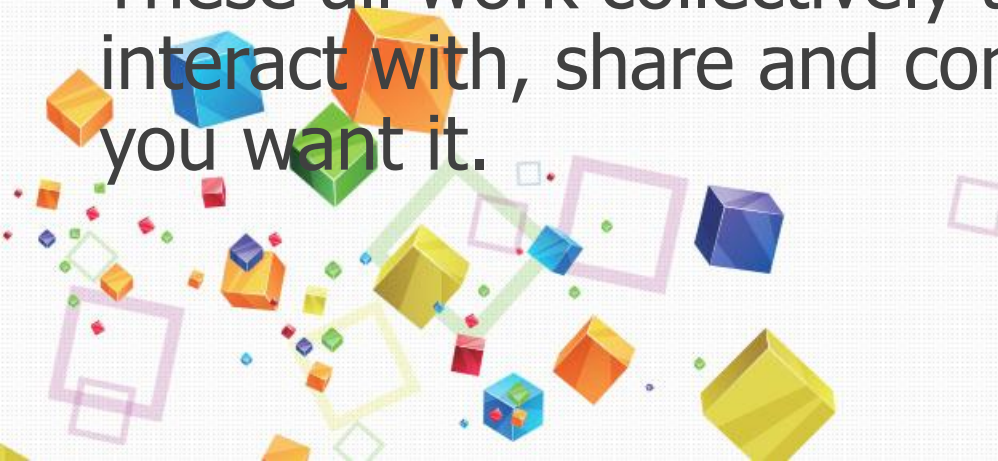
# PRODUCTS OFFERED BY MICROSOFT

## POWER BI

Power BI consists of three main Products :

- 1. Power BI Desktop** -- [powerbi.microsoft.com](https://powerbi.microsoft.com)
- 2. Power BI Service** -- [app.powerbi.com](https://app.powerbi.com)
- 3. Power BI Mobile** -- mobile apps for iOS, Android, and Windows 10 mobile

These all work collectively to let you create, interact with, share and consume your data how you want it.





# WHY POWER BI?

- 1. Connect, transform and analyze *millions* of rows of data**
  - Access data from virtually anywhere (database tables, flat files, cloud services, folders, etc), and create fully automated data shaping and loading (ETL) procedures
- 2. Build relational models to blend data from multiple sources**
  - Create table relationships to analyze performance across an entire data model
- 3. Define complex calculations using Data Analysis Expressions (DAX)**
  - Enhance datasets and enable advanced analytics with powerful DAX expressions
- 4. Visualize data with interactive reports & dashboards**
  - Build custom business intelligence tools with best-in-class visualization and dashboard features
- 5. Power BI is the industry leader among BI platforms**
  - Microsoft Power BI is intuitive, powerful and absolutely FREE to get started



Figure 1. Magic Quadrant for Analytics and Business Intelligence Platforms



Source: Gartner (February 2018)

As of February 2018

© Gartner, Inc



Power BI

# Pricing

Flexible pricing to fit your budget

Indian Rupee (₹)

## Author

Power BI Desktop

Free

DOWNLOAD FREE >

## Share and collaborate

Power BI Pro

₹600.00

per user  
per month

TRY FREE >

## Scale large deployments

Power BI Premium

Capacity pricing

per node  
per month

PLAN YOUR COSTS >



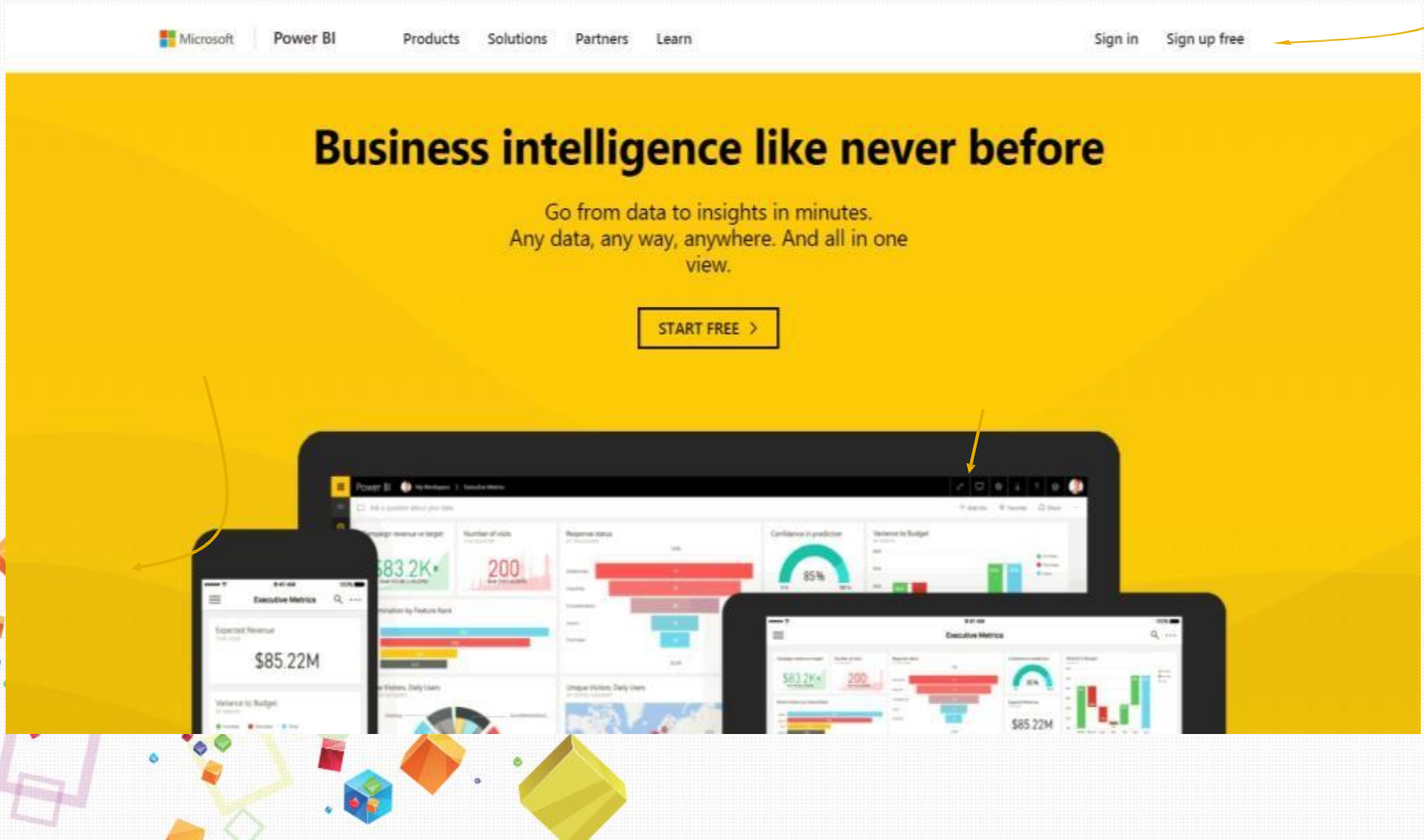
Request demo





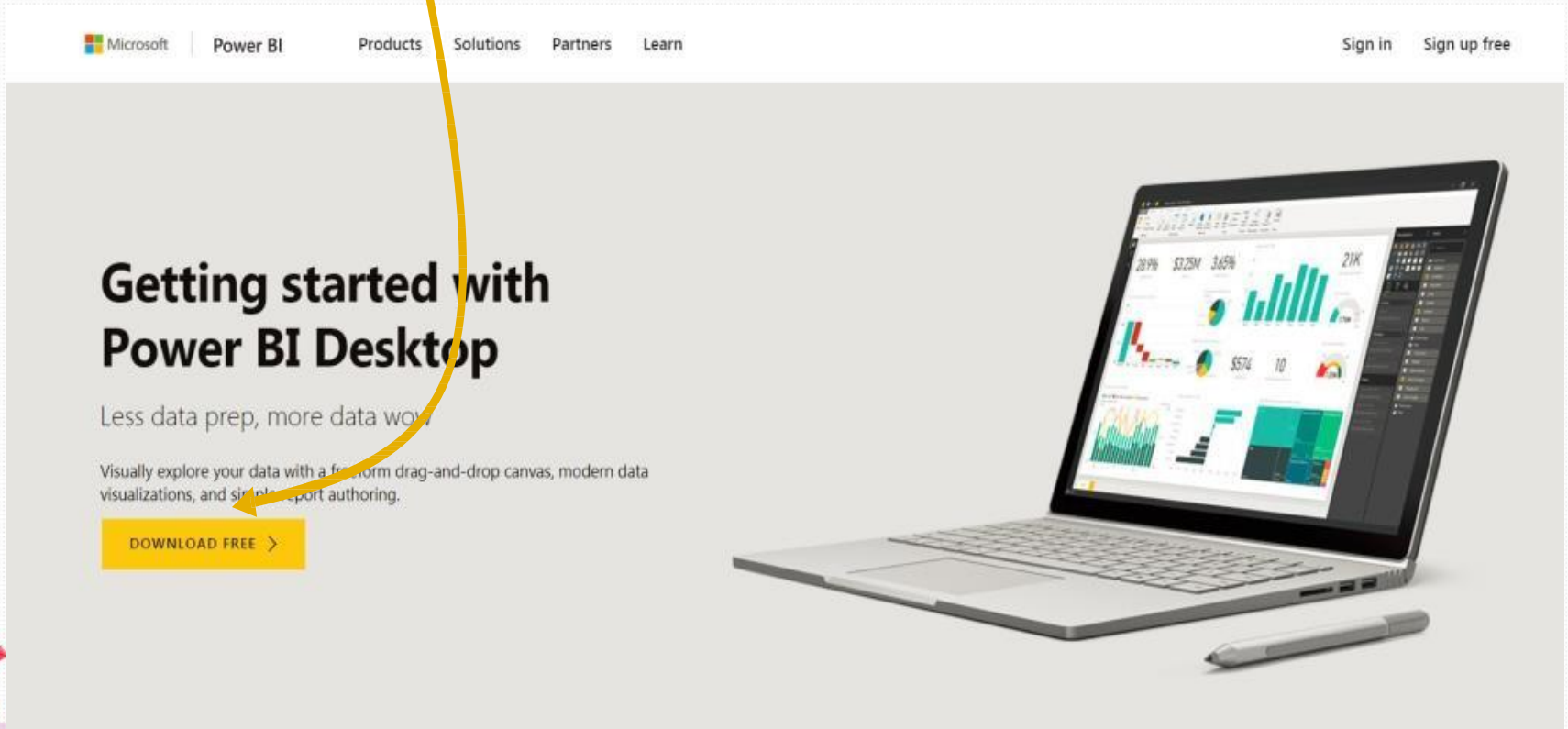
# INSTALLING POWER BI DESKTOP

1. Head to **powerbi.microsoft.com** and click “Sign Up Free”



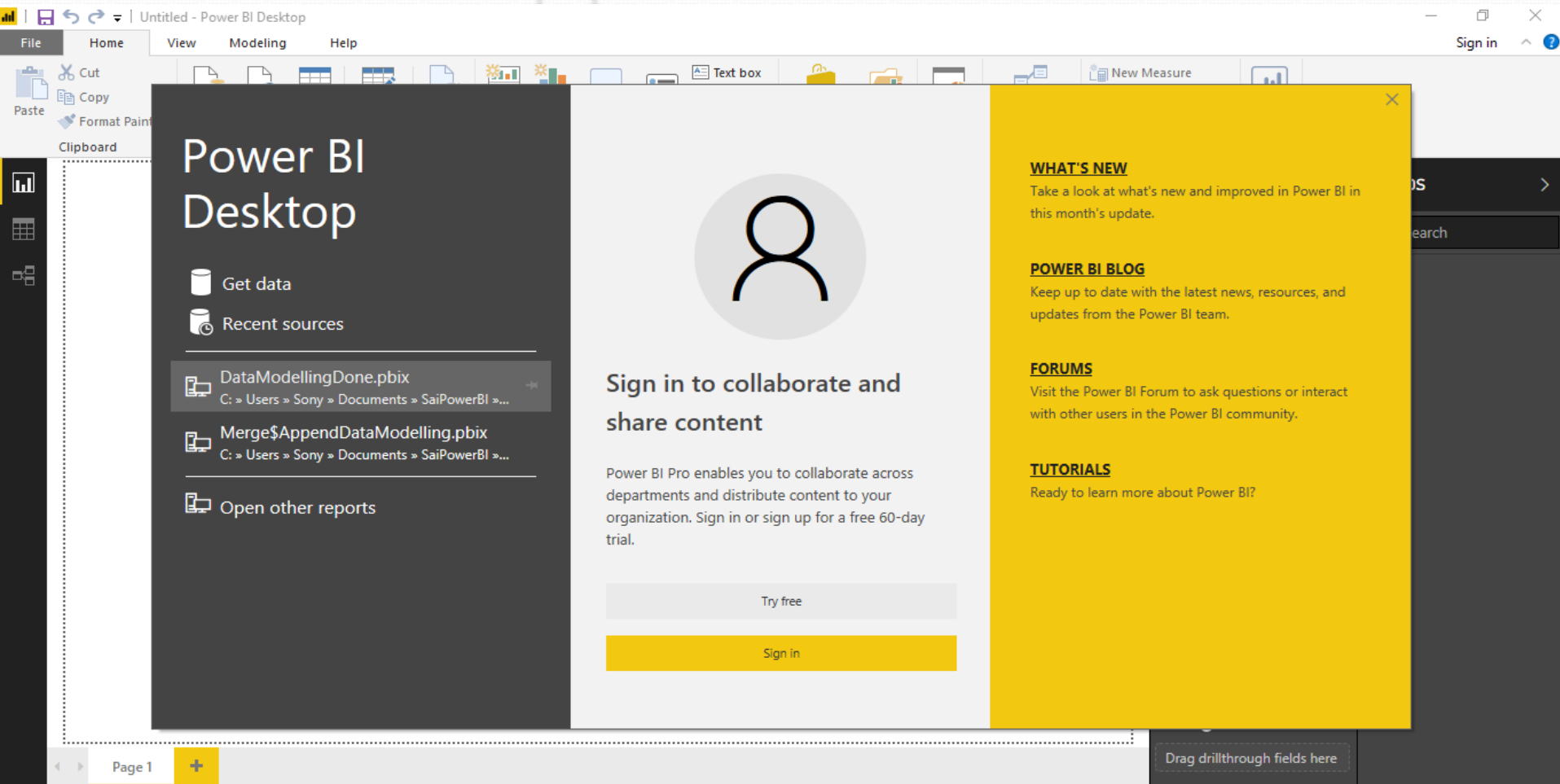
# INSTALLING POWER BI DESKTOP

## 2. Click “Download Free” to start the Power BI Desktop download



You do **Not** need to sign in or register for a **Power BI Pro** account to access Power BI Desktop (*you can simply close this window*)

- Sign-in is required to collaborate and share content available through Power BI Service (*app.powerbi.com*)
- *You would not be able to sign in through gmail / yahoo account . Microsoft requires a **work** or **school** e-mail address*





# You need a Power BI Pro account – to Share and Collaborate your report on Power BI Services .

The screenshot shows the Power BI web interface. The browser address bar displays the URL: <https://app.powerbi.com/groups/me/reports/492d7d07-3e1e-4537-829a-e411f4f5163f/ReportSection>. The page title is "Power BI" and the user is logged in as "My Workspace > US\_Sales\_Analysis".

The main report, titled "Regional Sales Analysis" by "Tailspin Toys", displays a "Sales and Avg Price by Month" chart. The chart shows sales and average price for 2017 Oct, 2017 Nov, and 2017 Dec. The Y-axis represents Sales (0 to 400) and the X-axis represents the months. The chart shows a general upward trend in sales and a slight increase in average price.

An "Upgrade to Power BI Pro" dialog box is overlaid on the report. The dialog box contains the following text:

Upgrade to Power BI Pro

This feature is only available to users with a Power BI Pro license. When you upgrade, you get access to collaborate with others and distribute content. Upgrade today or try it free for 60 days. [Learn more](#)

The dialog box has three buttons: "Try Pro for free", "Upgrade account", and "Cancel".

The background report also shows a "Sales by Demographic" chart. The chart is a horizontal bar chart showing sales for different demographic groups: Professional (\$54M), Intermediate (\$13M), Advanced (\$9M), Novice (\$1M), and Beginner (\$1M). The X-axis represents Sales (\$0M to \$60M).

The left sidebar shows the navigation menu with sections: DASHBOARDS (Excel\_Sample\_Superstore.xlsx), REPORTS (US\_Sales\_Analysis), WORKBOOKS (You have no workbooks), and DATASETS (Excel\_Sample\_Superstore, US\_Sales\_Analysis). The bottom of the sidebar has a "Get Data" button.

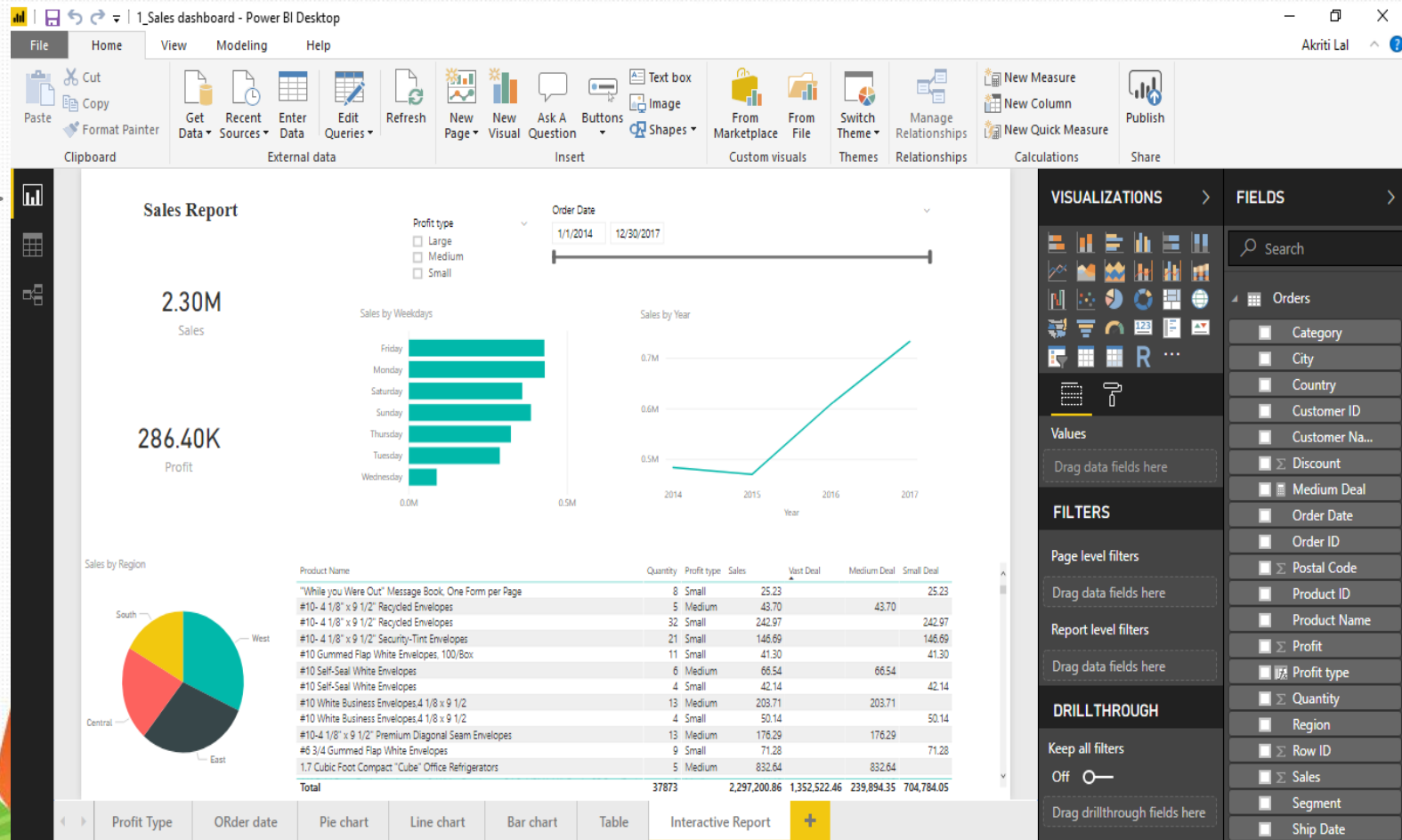
# THE POWER BI INTERFACE

## Three Core Views:

Report

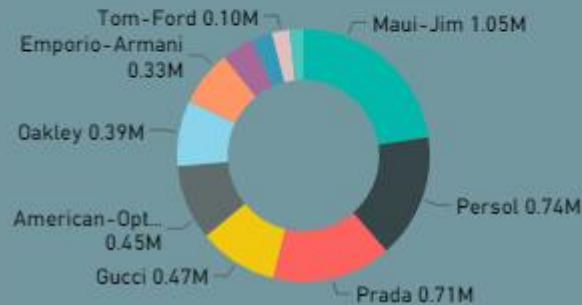
Data

Relationships

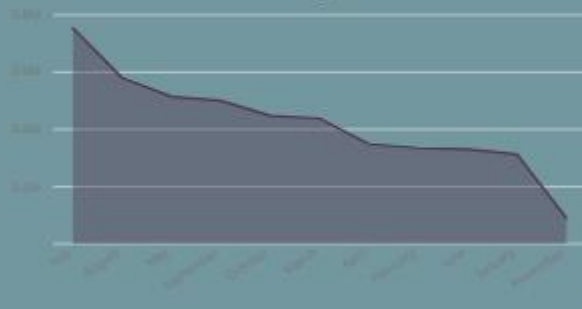


# Quick Demo of Creating a Report Using Microsoft Power BI

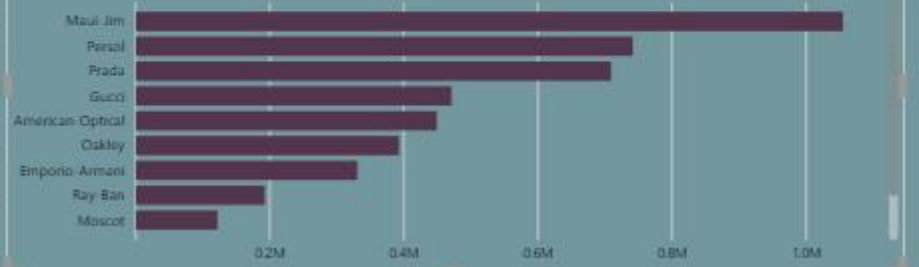
## Sample Sunglasses Sales 2018



## Sale 2018 by Month



## Sale 2018 by Sunglasses Mfg





# History of Microsoft Power BI and its Relationship with Microsoft Excel Add ins - Power Query, Power View, Power Pivot



# Key Take-away

At the end of this lecture you will have:

- Overview of Business Intelligence ( BI) , Self Service BI , Data Analytics & Data Visualization
- Understanding of Power BI and its various product family;
- Power BI Desktop downloaded on your system and quickly create a sample report .

