Power BI - Introduction

What is Power BI?

Power BI is a comprehensive business analytics tool by using it end user can create their own Reports and Dashboards. It has more than 300 data connectors.

Key components of Power BI

- **Power BI Desktop:** User can create reports, connect different data sources and do data modelling.

- **Power BI Services:** Users can share the reports, create a dashboard and collaborate with others.

- **Power BI Mobile App:** This allows users to access the reports and dashboard on phones.

Why is it used?

As mentioned Power BI is a BI tool that provides highly interactive reports and dashboards. Below are reasons why should use Power BI.

•Quick set-up compared to traditional BI
•Interactive visualisations
•Supports different data sources
•The ability to publish to the web
•Cloud-based, no on-premise infrastructure needed
•Scalable
•Accessibility view the dashboards/reports on iPad, iPhone, Android, and Windows devices
•Scheduled data refresh
•Collaboration – can share with different users at a time

What are the Power BI features?

- **Get Data – Data Connections:** Connects to various data sources like Excel, SQL Server, CSV, and cloud-based platforms.
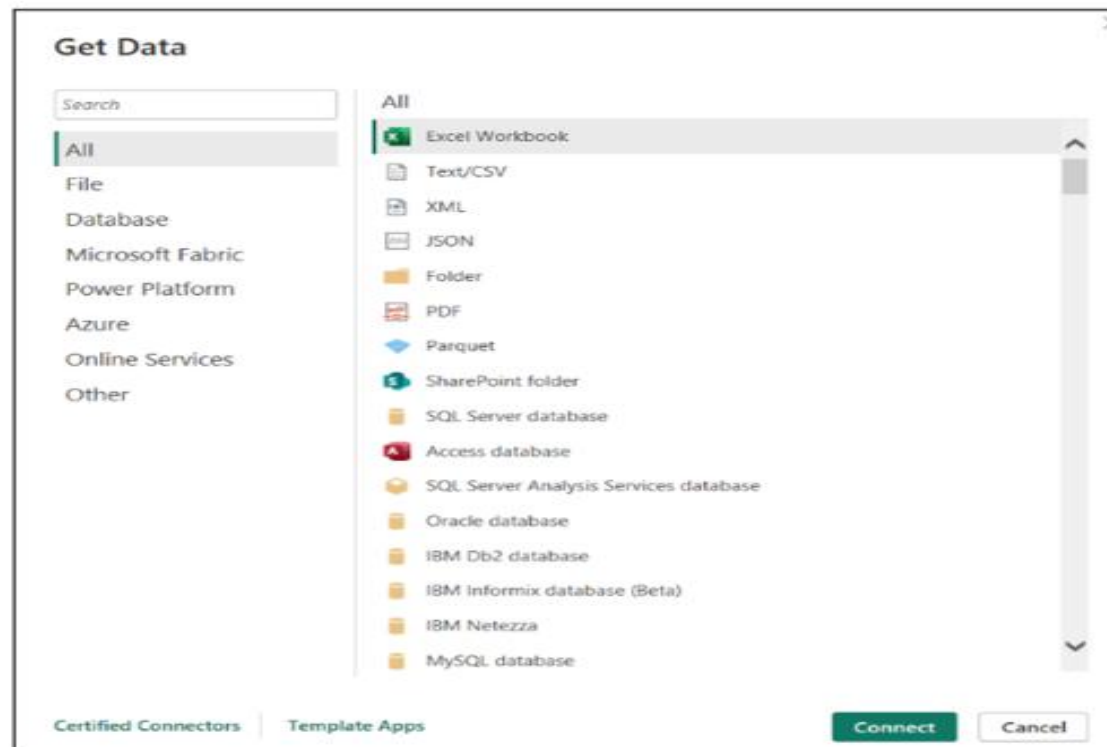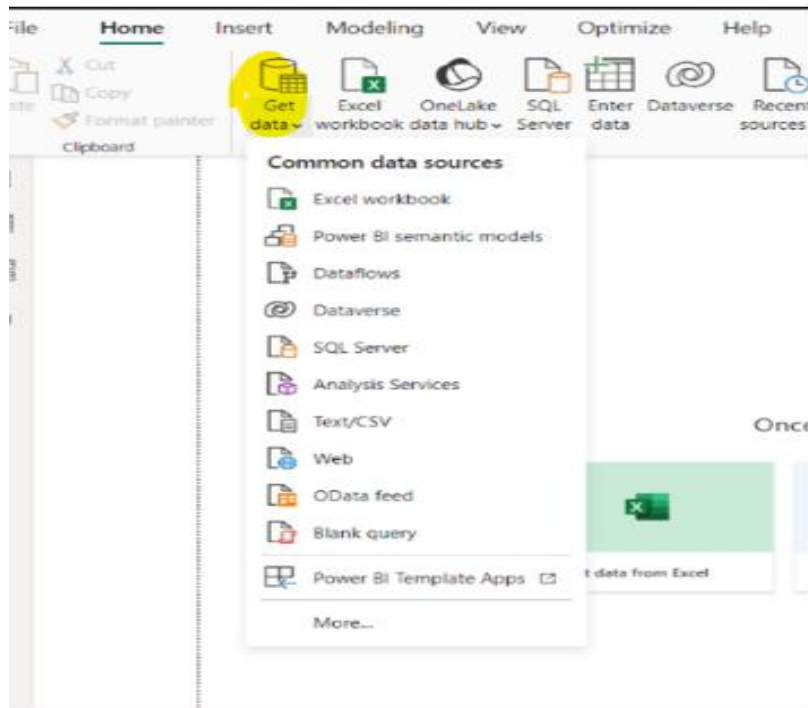
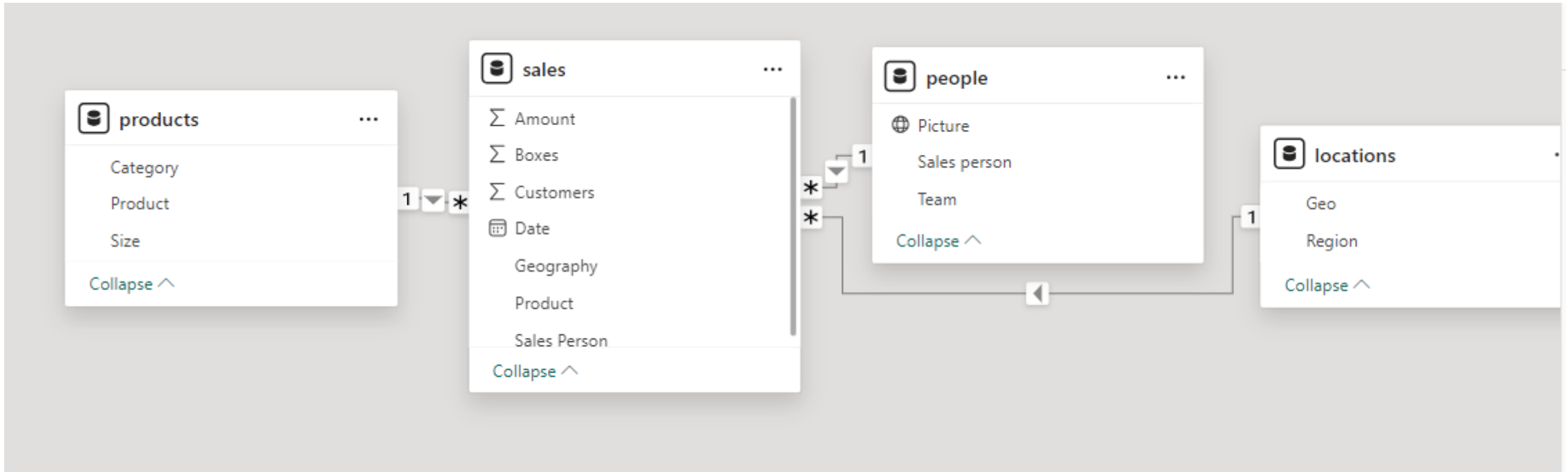***Data Modelling:*** Creates relationships between data tables for accurate analysis.

Fig: Demonstrate a data model diagram with entities and relationships.

Data Transformation: Cleans, shapes, and transforms data for analysis.

•***Data Visualization:*** Power BI Offers a rich library of visualizations like bar charts, line charts, scatter plots, maps, and custom visuals.

Interactive Dashboards: Combines multiple visualizations from different reports into interactive dashboards for storytelling.

•***NLP Queries:*** Power BI has a feature called Q&A which allows users to ask questions in natural language to create viz.

Collaboration: This enables sharing reports and dashboards with others and collaborating on insights.

•***AI Integration:*** Leverages AI capabilities for advanced analytics and insights.

Mobile Access*:* Provides mobile apps for accessing reports and dashboards on the go.

Identify the Business needs with the help of data

Data Requirements

1. Sales data: Historical sales data, including transaction dates, product information, customer details, and sales amounts.
2. Product information: Product categories, subcategories, and attributes (e.g., color, size, material).
3. Customer information: Customer demographics, location, and purchase history.
4. Time-related data: Date and time of sales, including day, week, month, quarter, and year.

Functional Requirements

1. Sales trending: Analyze sales trends over time, including total sales, sales by product category, and sales by region.
2. Product analysis: Examine sales performance by product, including top-selling products, product categories, and product attributes.
3. Customer analysis: Investigate customer purchasing behavior, including customer segments, loyalty, and retention.
4. Geographic analysis: Evaluate sales performance by region, including country, state, city, or zip code.
5. Seasonality analysis: Identify seasonal patterns in sales data to inform inventory management and marketing strategies.

About the data

- we have four tables ,they are Products , locations, people, sales.
  so now we will discuss in detail about each table
- firstly its product table, in that we have product, category and size columns.
  in product column we have 22 distinct values, in category column we have
  3 distinct values, they are Bars ,Bits and other similarly in size column we have
  small and large size.
- in People table , we have Sales person ,Team and picture columns.
  in sales person column we have 25 distinct values , in team column we have 4 teams
  they are Delish , Jucies , Special , Yummie.
  we also have picture for each Sales Person in JPG format in picture column.
- in locations table , we have geography and region column,
  in geography column its 6 distinct values and in region its 3 distinct values.
- in Sales table , we have 7 columns they are Date ,amount , customers, boxes and we also
  have sales person ,geography ,product which are not originally from the sales table but
  we got it by connecting to other tables ,we can view it Model View.

Sales Insights

Sum of Amount by Product

0.91M 0.90M 0.89M 0.89M 0.89M 0.88M 0.88M 0.88M 0.89M 0.88M 0.87M 0.86M 0.86M 0.85M 0.85M 0.82M 0.82M 0.82M

0.9M
0.8M

50% Cho... Org... Alm... 99% Afte... Spic... 85% Eclairs Smo... Whi... 70% Cara... Man... Milk... Fruit...

Product

Total Products	Total no. of Sales Person	Total Customers	Total Amount
22	25	497	19M
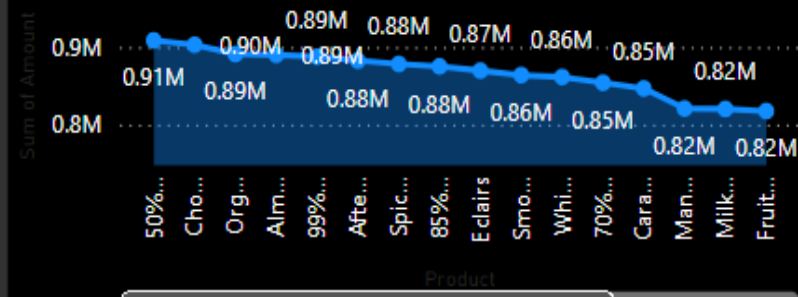
Month

| January | February | March | April | May | June | July | August | September | October | November | December |

Count of Boxes by Geography

150
140

Austra... Canada New Z... USA UK India
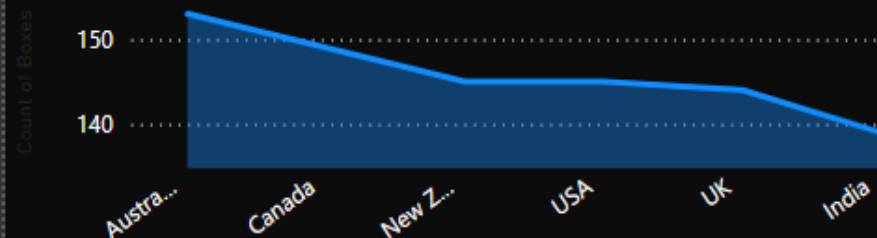
Sum of Customers by Product

20K
0K

Drink... 99%... Smo... Oran... Cara... 70%... Fruit... Pean... Man... Mint... Choc... Almo... After... 50%... Rasp... Spicy... Eclairs Orga...

Amount by Geography

100%

Canada	838K
Austra...	811K
USA	802K
New Z...	776K
UK	765K
India	714K

85.1%
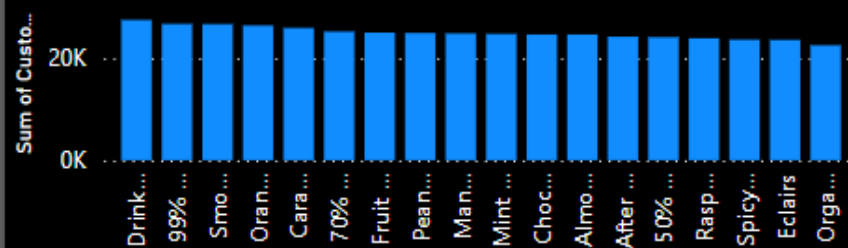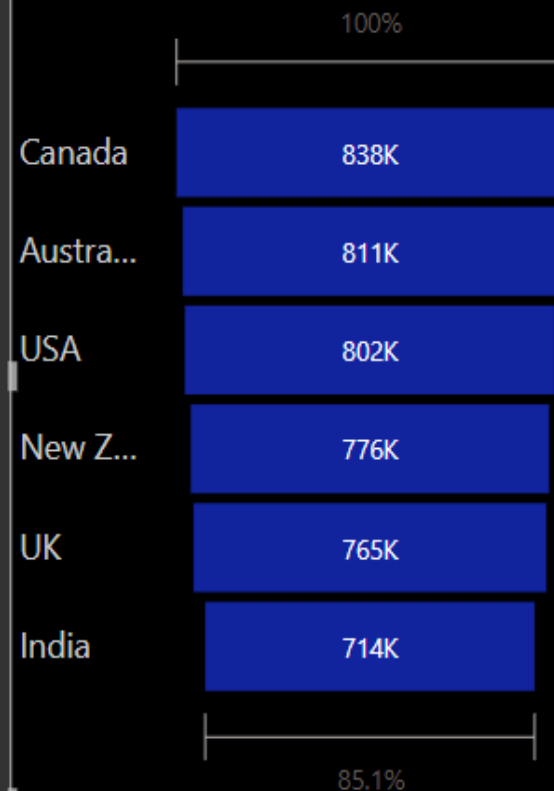
Top 5 Product's

50% Dark Bit...	0.91M
Choco Coate...	0.90M
Organic Cho...	0.89M
Almond Cho...	0.89M
99% Dark & ...	0.89M

Top 5 Sale's Person

Rafaelita Blak...	0.81M
Karlen McCaf...	0.80M
Dotty Strutley	0.79M
Roddy Speec...	0.79M
Gigi Bohling	0.79M

Count of Product by Size

10 (4...)
12 (54...)

Size
LAR...
SM...
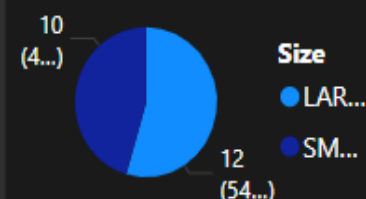
Based on the provided dashboard image
   here is an analysis and potential predictions:

Current Performance Insights:

1. Overall Sales : Total sales amount: 19M.Sales are fairly consistent across months but show slight fluctuations.
2. Geographical Performance : Top contributing regions : Canada (838K), followed by Australia (811K) and USA (802K).Lower performance regions include India (714K).
3. Top Products : Leading products include 50% Dark Bitter (0.91M), Choco Coated (0.90M), and Organic Chocolate (0.89M).
4. Top Sales Personnel : Rafaellta Blake leads with 0.81M, followed by Karlen McCaffrey (0.80M) and others.
5. Customer Engagement : Total customers: 497.High customer engagement is seen for specific products like dark chocolates.
6. Product Sizes : Larger product sizes dominate sales with 54%, compared to smaller sizes at 46%.

THANK YOU