A
Learning Project-2 Report
On

"Data Analysis of RX Sales In Industries Using POWER BI Tool"

Submitted in partial fulfillment of
The requirements for the 4th Semester Sessional Examination
of
BACHELOR OF TECHNOLOGY
IN
COMPUTER SCIENCE & ENGINEERING
By

NAME:-

Anurag Thakur (20CSE036)
Rishabh Raj (20CSE053)
Neeraj Kumar (20CSE054)

Registration No:-

20UG010169
20UG010185
20UG010186

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

GIET UNIVERSITY, GUNUPUR

2021 - 22

GIET UNIVERSITY,GUNUPUR

Dist. - Rayagada, Odisha-765022, Contact:- +91 7735745535,
06857-250170,172, Visit us:- **www.giet.edu**

Department of Computer Science & Engineering

CERTIFICATE

This is to certify that the project work entitled "Data Analysis of RX Sales In Industries Using POWER BI Tool" is done by Name- Anurag Thakur(20CSE036) , Rishabh Raj(20CSE053) and Neeraj Kumar(20CSE054) ,

Regd. No.- 20UG010169,20UG010185 and 20UG010186 in partial fulfillment of the requirements for the 4th Semester Sessional Examination of Bachelor of Technology in Computer Science and Engineering during the academic year 2021-22.

This work is submitted to the department as a part of evaluation of 4th Semester Learning Project-2.

Name:-Anurag Thakur, Rishabh Raj and Neeraj Kumar
Class Teacher :- Priyanka Priyadrshani

Mr. Bhavani Sankar Panda
Project Coordinator, 3rd Year *HoD, CSE*

ACKNOWLEDGEMENT

I would like to thank my class teacher Ms. Priyanka Priyadarshini for supporting and guiding us in project.

Secondly I would like to thanks our Project Coordinator Mr. Bhavani Sankar Panda for giving us opportunity to do so.

A special gratitude to our HOD Dr. Sanjay Kumar Kuanar for guiding and support.

Thanks to friends and any others to whom you want.

Anurag Thakur(20UG010169)
Rishabh Raj(20UG010185)
Neeraj Kumar(20UG010186)

Data Analysis of RX Sales In Industries Using POWER BI Tool

➢OBJECTIVE:-

The main aim of Data Analysis is to:-

- Apply statistical analysis of data and technologies on data to find trends and solve problem.
- It makes studying data a lot simpler and more accurate.
- It helps the researchers to interpret the data.
- It is used to find meaning in data so that the derived knowledge can be used to make informed decisions.
- Assessment and improvement of the quality of the data.
- It helps to analyse data from different outlooks.

➢SCOPE:-

Data analysis is used everywhere because of its

- Numerous benefits
- High demand
- Automate the decision making process.

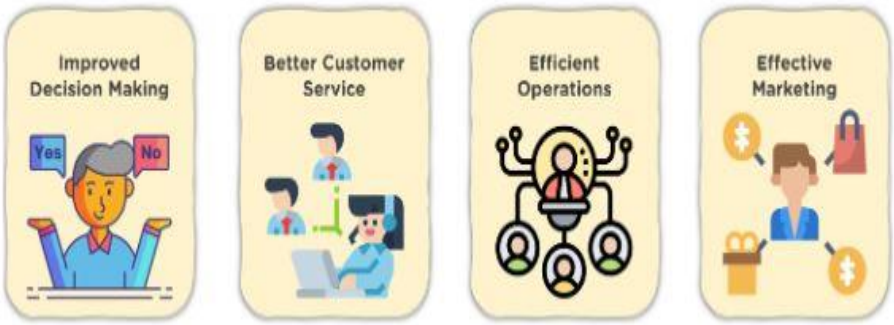
It's scope is limitless.

➢SYSTEM ANALYSIS:-

- *Hardware Requirements:-*
  - → Memory (RAM): At least 2 GB available, 4 GB or more recommended.
  - → Display: At least 1440x900 or 1600x900 (16:9) required.
  - → CPU: 1 gigahertz (GHz) 64-bit (x64) processor or better recommended.
- *Software Requirements:-*
  - → Windows 11/10
  - → Microsoft Power BI Desktop requires Internet Explorer 9 or higher

→ Microsoft Power BI Desktop is avail+able for 32-bit (x86) and 64-bit (x64) platforms.

➢WHYS TO USE DATA ANALYSIS:-



1-IMPROVED DECISION MAKING:-

Data Analytics eliminates guesswork and manual tasks. Be it choosing the right content, planning marketing campaigns, or developing products. Organizations can use the insights they gain from data analytics to make informed decisions. Thus, leading to better outcomes and customer satisfaction.

2-Better Customer Service:-

Data analytics allows you to tailor customer service according to their needs. It also provides personalization and builds stronger relationships with customers. Analyzed data can reveal information about customers' interests, concerns, and more. It helps you give better recommendations for products and services.

3-Efficient Operations:-

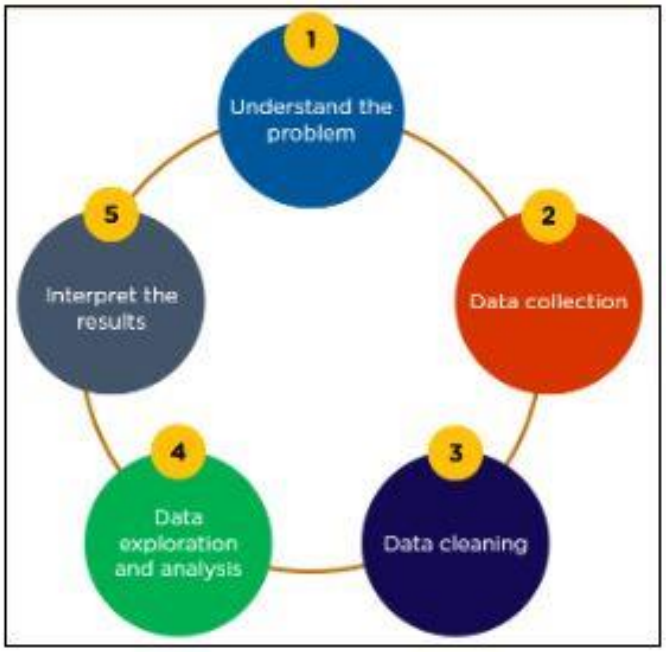
With the help of data analytics, you can streamline your processes, save money, and boost production. With an improved understanding of what your audience wants, you spend lesser time creating ads and content that aren't in line with your audience's interests.

4-Effective Marketing:-

Data analytics gives you valuable insights into how your campaigns are performing. This helps in fine-tuning them for optimal outcomes. Additionally, you can also find potential customers who are most likely to interact with a campaign and convert into leads.

➢STEPS INVOLVED IN DATA ANALYTICS:-

There are five steps involved in data analytics :-



1. Understand the problem:-

Understanding the business problems, defining the organizational goals, and planning a lucrative solution is the first step in the analytics process. E-commerce companies often encounter issues such as predicting the return of items, giving relevant product recommendations, cancellation of orders, identifying frauds, optimizing vehicle routing, etc.

2. Data collection:-

We need to collect transactional business data and customer-related information from the past few years to address the problems your business is facing. The data can have information about the total units that were sold for a product, the sales, and profit that were made, and also when was the order placed. Past data plays a crucial role in shaping the future of a business.

3. Data Cleaning:-

Now, all the data you collect will often be disorderly, messy, and contain unwanted missing values. Such data is not suitable or relevant for performing data analysis. Hence, you need to clean the data to remove unwanted, redundant, and missing values to make it ready for analysis.

4. Data Exploration and Analysis:-

After you gather the right data, the next vital step is to execute exploratory data analysis. You can use data visualization and business intelligence tools, data mining techniques, and predictive modeling to analyze, visualize, and predict future outcomes from this data. Applying these methods can tell you the impact and relationship of a certain feature as compared to other variables.

5. Interpret the Result:-

The final step is to interpret the results and validate if the outcomes meet your expectations. You can find out hidden patterns and future trends. This will help you gain insights that will support you with appropriate data-driven decision making.

➢ DATA ANALYTICS TOOL:-

There are various types of Analytics tool:-

1- Python: Python is an object-oriented open-source programming language. It supports a range of libraries for data manipulation, data visualization, and data modeling.

2-R: R is an open-source programming language majorly used for numerical and statistical analysis. It provides a range of libraries for data analysis and visualization.

3-Tableau: It is a simplified data visualization and analytics tool. This helps you create a variety of visualizations to present the data interactively, build reports, and dashboards to showcase insights and trends.

4-Power BI: Power BI is a business intelligence tool that has an easy drag and drop functionality. It supports multiple data sources with features that visually appeal to data.
Power BI supports features that help you ask questions to your data and get immediate insights.

5- QlikView: QlikView offers interactive analytics with in-memory storage technology to analyze vast volumes of data and use data discoveries to support decision making. It provides social data discovery and interactive guided analytics. It can manipulate colossal data sets instantly with accuracy.

6-Apache Spark: Apache Spark is an open-source data analytics engine that processes data in real-time and carries out sophisticated analytics using SQL queries and machine learning algorithms.

7-SAS: SAS is a statistical analysis software that can help you perform analytics, visualize data, write SQL queries, perform statistical analysis, and build machine learning models to make future predictions.

POWER BI

Power BI is a technology-driven business intelligence tool provided by Microsoft for analyzing and visualizing raw data to present actionable information. It combines business analytics, data visualization, and best practices that help an organization to make data-driven decisions. In February 2019, Gartner confirmed Microsoft as Leader in the "2019 Gartner Magic Quadrant for Analytics and Business Intelligence Platform" as a result of the capabilities of the Power BI platform.

POWER BI is a collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights.

WHY POWER BI ??

Following are the reasons why Power BI is so popular and needed in the BI domain:

1. Access to Volumes of Data from Multiple Sources:-

Power BI can access vast volumes of data from multiple sources. It allows you to view, analyze, and visualize vast quantities of data that cannot be opened in Excel. Some of the important data sources available for Power BI are Excel, CSV, XML, JSON, pdf, etc. Power BI uses powerful compression algorithms to import and cache the data within the.PBIX file.

2. Interactive UI/UX Features:-

Power BI makes things visually appealing. It has an easy drag and drops functionality, with features that allow you to copy all formatting across similar visualizations.

3. Exceptional Excel Integration:-

Power BI helps to gather, analyze, publish, and share Excel business data. Anyone familiar with Office 365 can easily connect Excel queries, data models, and reports to Power BI Dashboards.

4. Accelerate Big Data Preparation with Azure :-

Using Power BI with Azure allows you to analyze and share massive volumes of data. An azure data lake can reduce the time it takes to get insights and increase collaboration between business analysts, data engineers, and data scientists.

5. Turn Insights into Action:-

Power BI allows you to gain insights from data and turn those insights into actions to make data-driven business decisions.

6. Real-time Stream Analytics:-

Power BI will enable you to perform real-time stream analytics. It helps you fetch data from multiple sensors and social media sources to get access to real-time analytics, so you are always ready to make business decisions.

Components of Power BI

1. Power Query :-

Power Query is the data transformation and mash up the engine. It enables you to discover, connect, combine, and refine data sources to meet your analysis need. It can be downloaded as an add-in for Excel or can be used as part of the Power BI Desktop.

2. Power Pivot :-

Power Pivot is a data modeling technique that lets you create data models, establish relationships, and create calculations. It uses Data Analysis Expression (DAX) language to model simple and complex data.

3. Power View :-

Power View is a technology that is available in Excel, Sharepoint, SQL Server, and Power BI. It lets you create interactive charts, graphs, maps, and other visuals that bring your data to life. It can connect to data sources and filter data for each data visualization element or the entire report.

4. Power Map :-

Microsoft's Power Map for Excel and Power BI is a 3-D data visualization tool that lets you map your data and plot more than a million rows of data visually on Bing maps in 3-D format from an Excel table or Data Model in Excel. Power Map works with Bing maps to get the best visualization based on latitude, longitude, or country, state, city, and street address information.

5. Power BI Desktop :-

Power BI Desktop is a development tool for Power Query, Power Pivot, and Power View. With Power BI Desktop, you have everything under the same solution, and it is easier to develop BI and data analysis experience.

6. Power Q&A:-

The Q&A feature in Power BI lets you explore your data in your own words. It is the fastest way to get an answer from your data using natural language. An example could be what was the total sales last year? Once you've built your data model and deployed that into the Power BI website, then you can ask questions and get answers quickly.

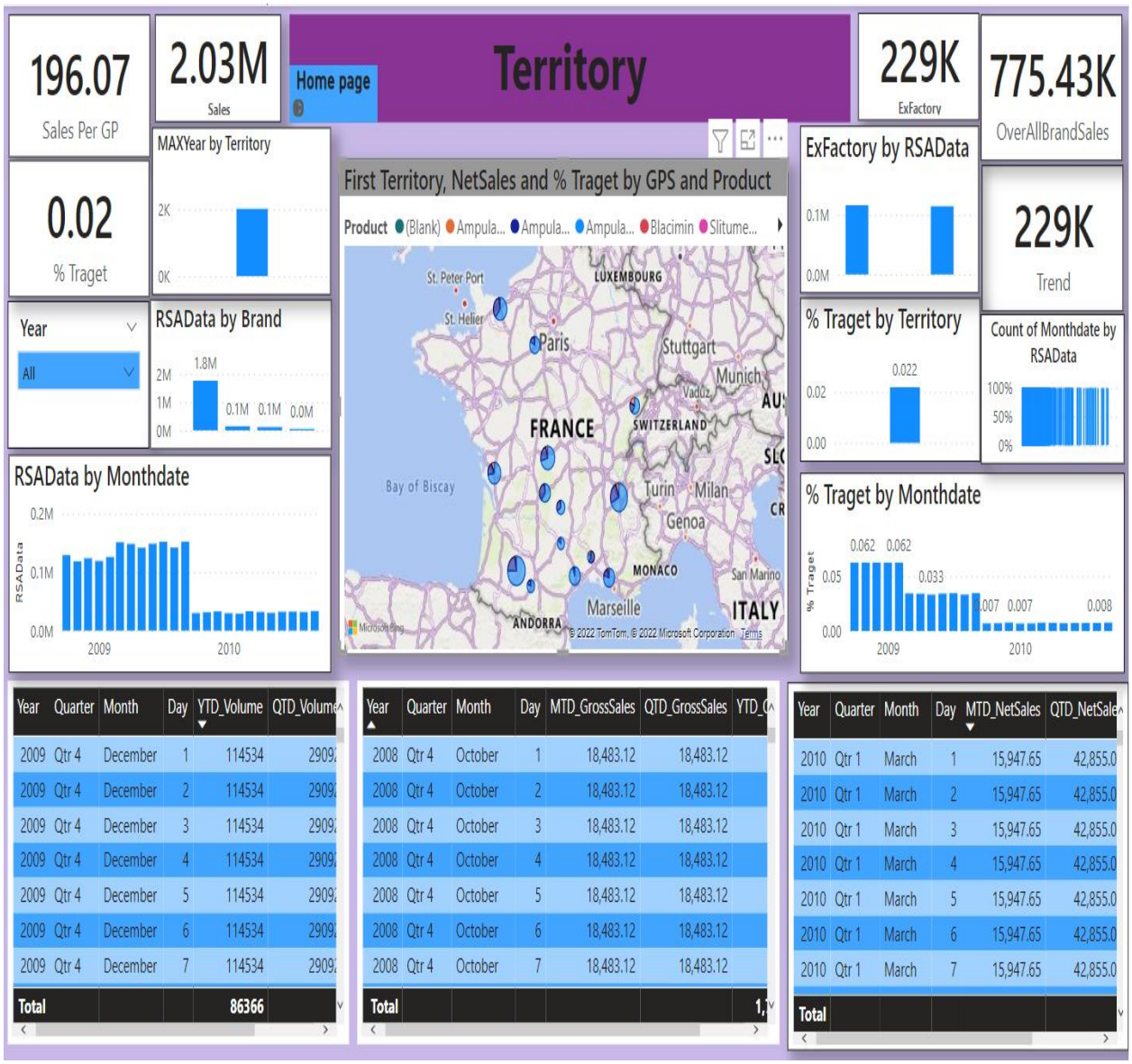
POWER BI DASHBOARD:-

NAVIGATION PAGE:-

- ***This is navigation page of our project. Here, we have linked four buttons (Home, Territory, ExFactory and sales)which helps us to goto the other pages by one click.***

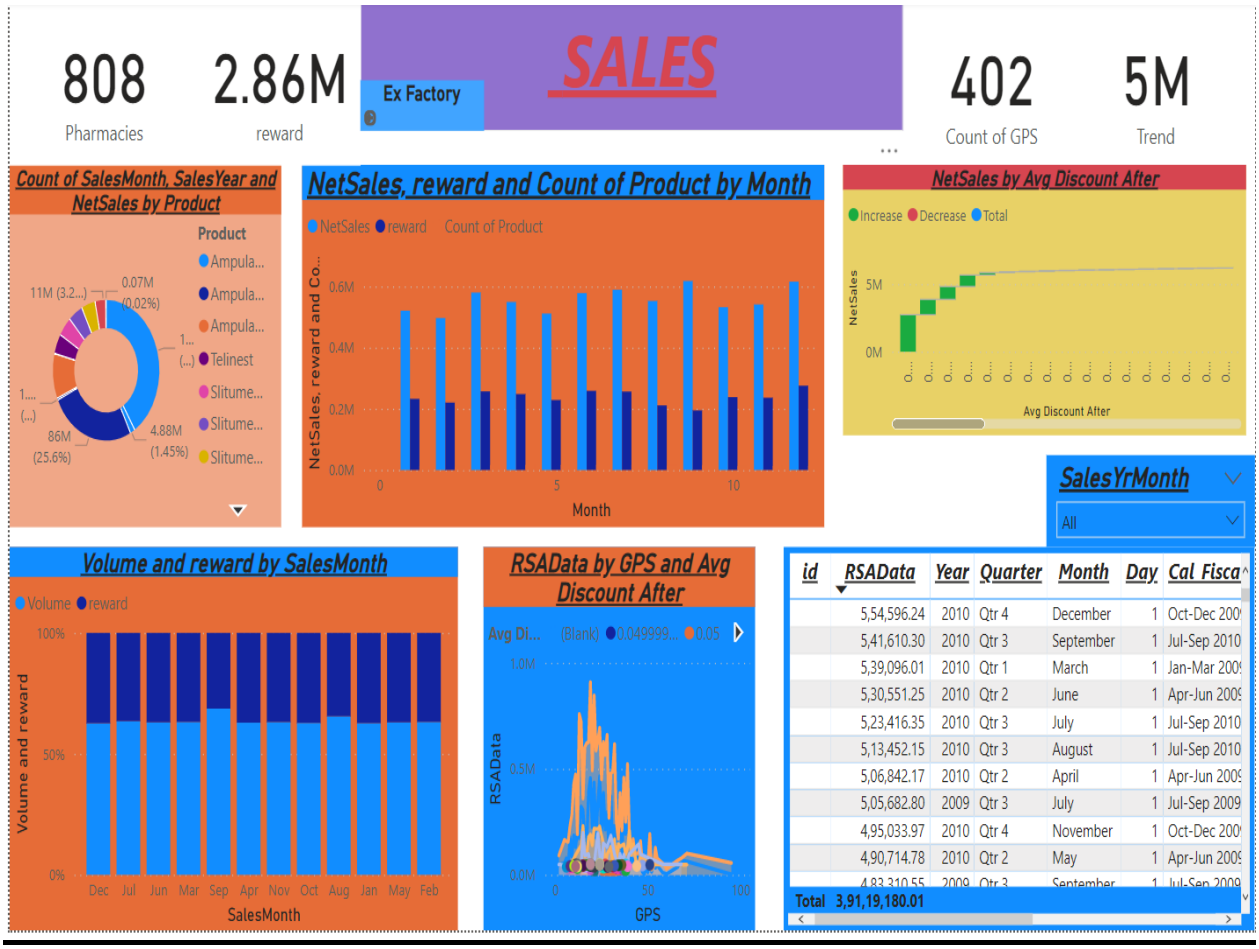
TERRITORY:-

- ***This is the territory page. Here, we have shown how sales happen world wide on the basis product and Target percentage (year wise and month wise).***
- ***With the help of card, slicer, clustered column chart and table we have analysed data year wise.***
- ***We have linked this page to home page so that directly we can goto the home page.***



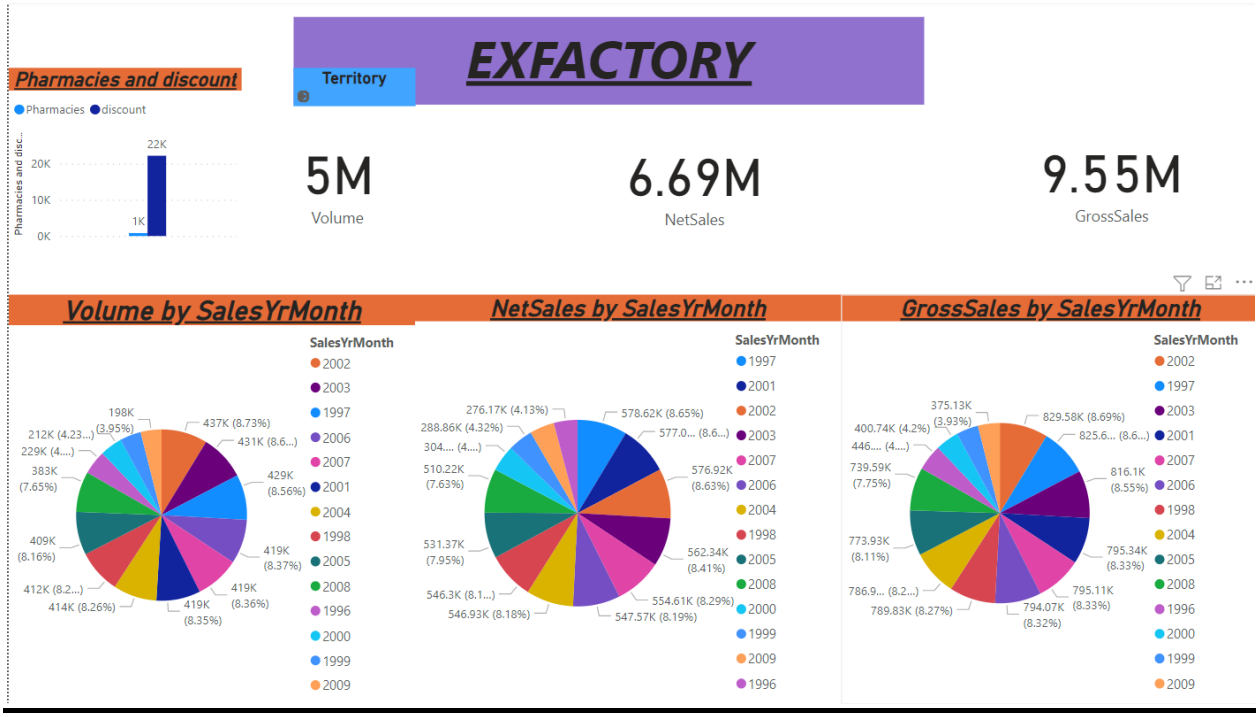
SALES:-

- ***This is sales page of our visualization. Here, we are depicting how sales happen in industries and calculated different measures.***
- ***With the help of different card and graphs calculated GPS and trend pharmacies.***
- ***With the help of dropdown slicer, we are calculating sales per year.***
- ***We have linked this page to home page so that directly we back.***



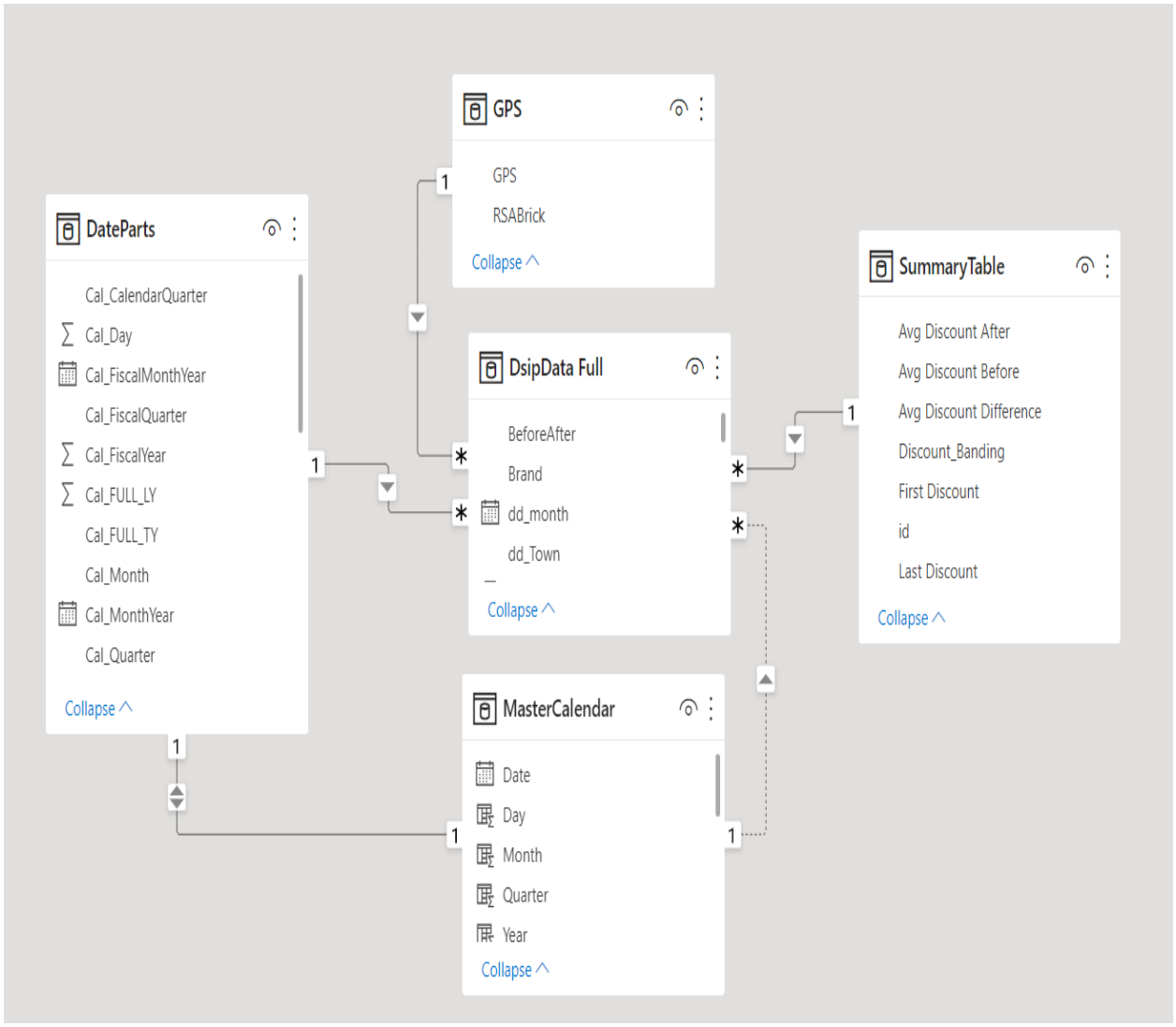
EX FACTORY:-

- ***This is Ex-Factory page. It means selling of goods from seller's factory.***
- ***All other expenses from the factory of seller's and buyer's premise has to be born by the buyer.***
- ***Here, with the help of Pi Chart, Card and bar chart we have shown VOLUME, NET SALES and GROSS SALES by SALES PER MONTH.***
- ***We have linked this page to home page so that directly we back to the home page.***



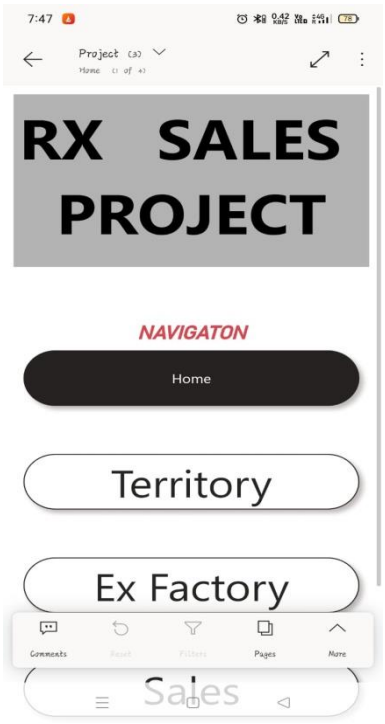
DATA MODEL:-

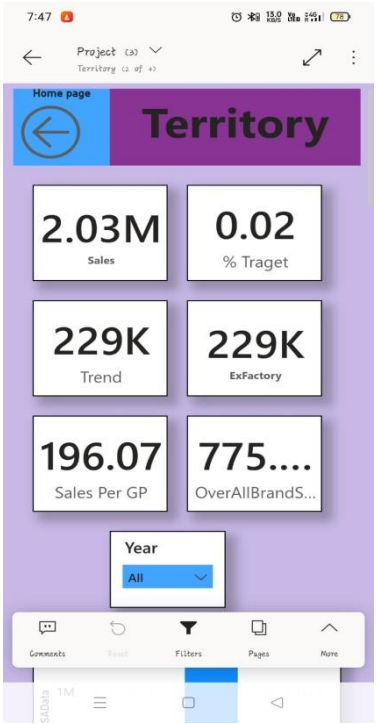
- ***This is the DATA model of our RX Sales project. Here, we have 5 different tables including master calendar.***
- ***With the help of different Primary and foreign key we have joined different tables.***
- ***Here, we have one to one, one to many, many to one cardinality.***

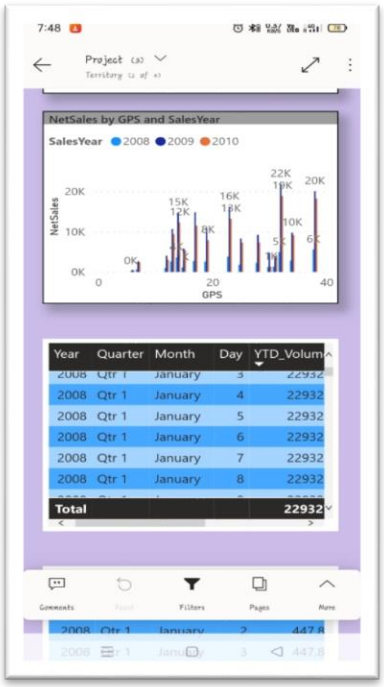


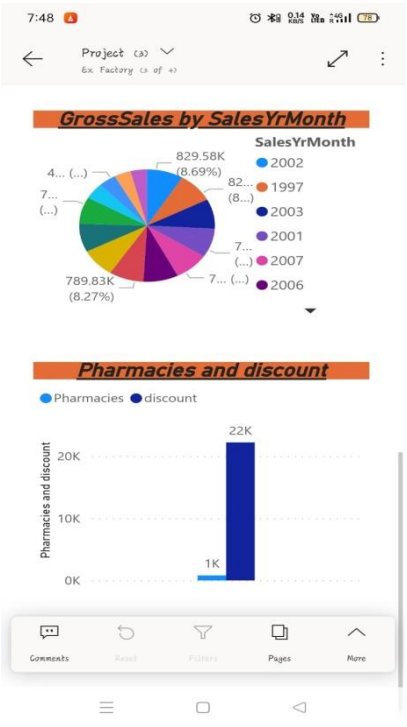
MOBILE LAYOUT:-

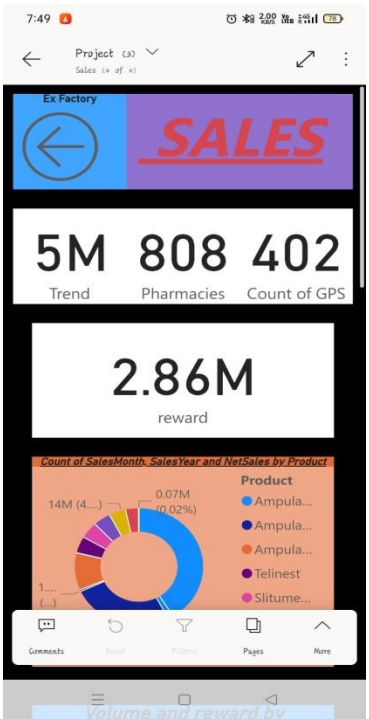
- ***This is the mobile ready project of power bi.***

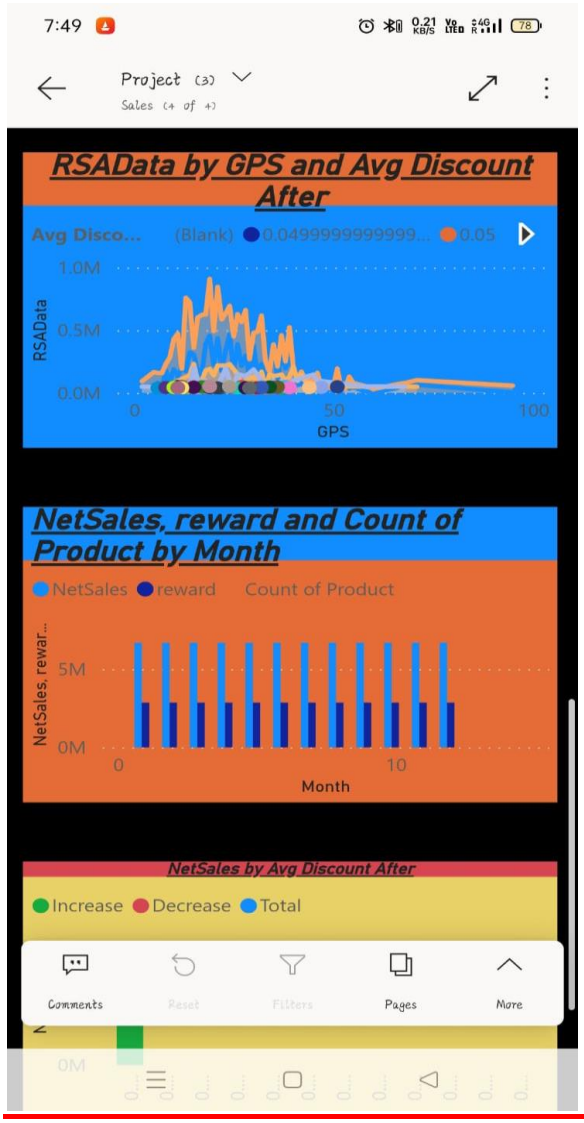


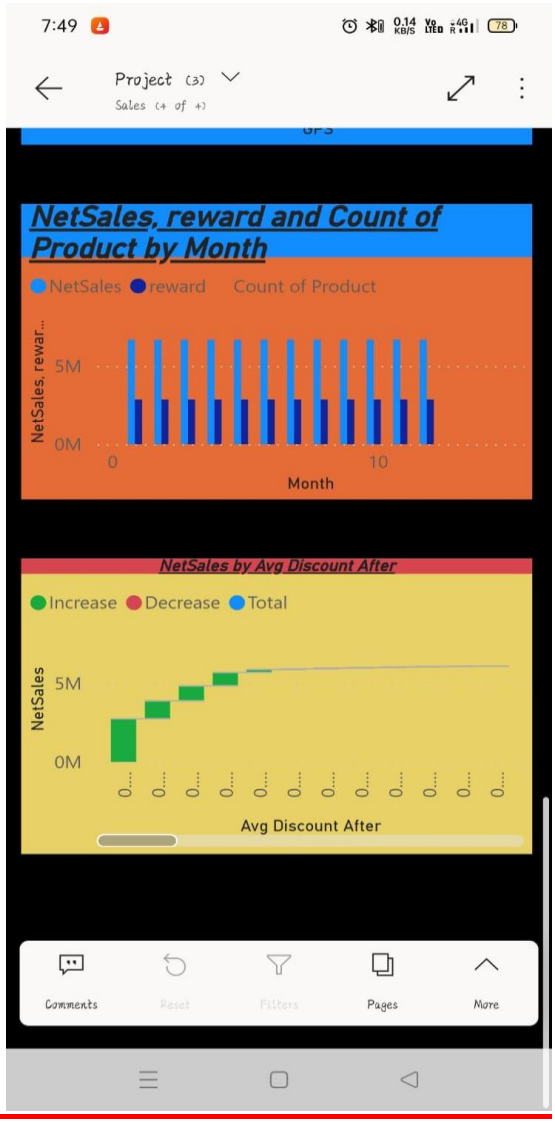









7:49
Project (3)
Sales (4 of 4)
RSAData by GPS and Avg Discount After
Avg Disco...
(Blank)
0.0499999999999...
0.05
1.0M
0.5M
0.0M
RSAData
0
50
100
GPS
NetSales, reward and Count of Product by Month
NetSales
reward
Count of Product
NetSales, rewar...
5M
0M
0
10
Month
NetSales by Avg Discount After
Increase
Decrease
Total
Comments
Reset
Filters
Pages
More


7:49
Project (3)
Sales (4 of 4)
NetSales, reward and Count of Product by Month
NetSales
reward
Count of Product
NetSales, rewar...
5M
0M
0
10
Month
NetSales by Avg Discount After
Increase
Decrease
Total
NetSales
5M
0M
Avg Discount After
Comments
Reset
Filters
Pages
More

CONCLUSION:-

The purpose of this project was to identify the effective strategies for dealing with Power BI tool in order to enhance the visualizations for different reports thereby making the analysis of data much simpler and easier to understand. When it comes to industrial point of view this helps the companies to predict their sales and analyze accordingly their future plans.

This project was a complete handson experience for our team and the entire work was completed by us.

REFERENCE:-

- ***Lagozon LMS(Learning Management System)***
- ***Wikipedia***

THANK YOU

TEAM- A22