Power BI Mini Projects

Insurance Company's Dashboard

Objective:

Develop a Power BI dashboard to compare income, life insurance share, market share, penetration, reinsurance ratio, and retention ratio across various countries. The objective is to facilitate data-driven decision-making for the company's global expansion.

Datasets:

Primary Dataset: Insurance Sample Dataset

Secondary Dataset: Global Financial Development Database

Data Integration: Utilize Power BI's data modeling features to combine information from both datasets.

Steps to Perform:

1. **Geographic Map:**
   - Use the Power BI map visual to display countries.
   - Color the map based on the income column from the secondary dataset.
   - Include an income group filter in the dashboard for enhanced interactivity.
2. **KPI Table:**
   - Create two parameters for Year Selection and Category Selection using Power BI's parameter feature.
   - Define the Category parameter to include life insurance share, market share, penetration, reinsurance ratio, and retention ratio.
   - Develop a calculated column or measure to compute the Growth %.
   - Create a table displaying these values with a dynamic title based on the selected category.
3. **Growth Indicator Shapes:**
   - Generate Growth Indicator Shapes based on the calculated Growth % using Power BI shapes or conditional formatting.
   - Display Negative, No Change, and Positive as values along with corresponding shapes for easy interpretation.
4. **Trend Line:**
   - Construct a trend line showcasing selected category values using Power BI line charts.
   - Enhance the trend line by incorporating arrows or triangles at the last data point for visual emphasis.

5. **Dashboard Filter:**
    - Implement a dashboard filter for the income group using Power BI's filter options.
    - Ensure that the filter is applied across all relevant visuals for consistent and synchronized data exploration.
6. **Formatting:**
    - Apply appropriate formatting for a polished and professional appearance using Power BI's formatting options.
    - Ensure consistency in colors, fonts, and layouts for a cohesive visual experience.

Dataset:-
https://drive.google.com/drive/folders/1aut4O2py6NOnN6pdEVUYpMiaB0_KMer7?usp=sharing

Google Stock Price Analysis

Google Stock Overview:

Alphabet Inc. serves as the parent entity for Google, having undergone corporate restructuring in 2015. The company issues two types of stock, namely Class A and Class C, each with distinct voting rights compared to Class B shares. Notably, insiders predominantly hold Class B shares, endowed with higher voting influence. The trading symbols for Alphabet's Class C and Class A shares are "GOOG" and "GOOGL," respectively. Google is a significant constituent in major stock market indices such as the S&P 500 and NASDAQ-100, functioning as benchmarks for overall market performance assessment.

You are a data analyst and you have to gain a comprehensive understanding of Google's stock performance and make informed decisions based on historical trends and current market dynamics.

Dataset Information:

The provided dataset encapsulates Google's stock price dynamics from its public debut on 19th August 2004 to 10th November 2023, encompassing details across 4842 trading sessions. Seven distinct elements, each represented by a corresponding column, furnish insights into the trading activity and performance of the stock over this extensive period. A concise overview of these elements is as follows:

Column	Description
Date	Records the calendar date when stock-related data is documented.
Open	Represents the initial recorded price of the stock for a given trading session.
High	Indicates the highest traded price of the stock during a specific trading session, reflecting its peak value.
Low	Denotes the lowest traded price of the stock within a specific trading session, signifying the minimum value reached.
Close	Reflects the closing price, marking the last traded value of the stock at the session's conclusion.
Adj Close	Adjusted closing price accommodates corporate actions like dividends and stock splits, offering a nuanced evaluation.
Volume	Represents the total shares traded during a defined time period, serving as an indicator of market activity and liquidity.

Objectives:

1. **Price Trends Over Time**: Visually represent how the Open, High, Low, and Close prices fluctuate over the dataset timeline.
2. **Volatility Analysis:** Showcase the range between High and Low prices, providing insights into stock volatility.
3. **Volume Activity:** Illustrate the variations in trading volume over different periods, aiding in identifying market interest.
4. **Moving Averages:** Implement moving average calculations to smooth out price fluctuations, aiding in trend identification.
5. **Comparative Analysis:** Assess how Google's stock performance aligns with market indices like S&P 500 and NASDAQ-100.

Dataset:
https://drive.google.com/file/d/1OCaBhJKOkjHGigUnPhUIwavfJMs3EV0L/view?usp=drive_link

Netflix Movies and Shows

Dataset Overview:

This dataset provides a comprehensive snapshot of the movies and shows available on Netflix, offering a wealth of information to understand content trends, popularity, and various significant aspects. It is a valuable resource for exploring entertainment trends, discerning preferences across different age groups, and conducting comparative analyses of genres and production locations.

You are a Data Analyst at Netflix. By making use of the following data make a Power BI dashboard which will help Netflix to gain important data-driven insights for decision-making on further strategies.

Features:

- **title:** The name of the movie or show an essential identifier.
- **type:** Distinguish between a movie and a show, indicating the format of the content.
- **release_year:** The year the content was released, providing a temporal context.
- **age_certification:** Indicates the age suitability rating, important for audience targeting.
- **runtime:** Duration of the movie or show in minutes, reflecting content length.
- **genres:** Categories of the content, such as comedy, drama, or horror, are crucial for understanding its theme.
- **production_countries:** The countries where the content was produced, highlighting geographical influences.
- **seasons:** Number of seasons (applicable for shows), indicating the extent of the content.
- **imdb_id:** A unique identifier for each title on IMDb, useful for cross-referencing.
- **imdb_score:** The IMDb rating of the content, reflecting its popularity and quality.
- **imdb_votes:** The number of votes the content received on IMDb indicates viewer engagement and popularity.

Use Case:

1. Trend Analysis in Entertainment: Identify evolving patterns and trends in the Netflix content library.

2. Predictive Modeling for Viewer Preferences: Leverage features like genres, IMDb ratings, and release years to build predictive models for anticipating viewer preferences.

3. Comparative Studies of Genres and Release Years: Conduct detailed analyses to compare the success and popularity of different genres and content released in various years.

4. Audience Targeting: Use age certification information to tailor content recommendations and targeting for specific age groups.

5. Viewer Engagement Assessment: Analyze IMDb votes and scores to evaluate viewer engagement and the perceived quality of content.

Dataset:

https://drive.google.com/file/d/1e-JWeapMYI6nQxWLwam_1ktRHw8VqNxb/view?usp=sharing

ICC T20 World Cup Analysis (2007-2021)

Description

Suppose you are a Cricket Data Analyst, this dataset provides a comprehensive collection of statistics from previous tournaments held between 2007 and 2021. The dataset comprises seven distinct files, each corresponding to a specific edition of the T20 World Cup.

1. **Match No** - An index column telling the match number.
2. **Date** - The date on which the match was played.
3. **Group/Semi Final/Final**- Whether the match was a group stage match or a semi-final or the final.
4. **Match Between** - The two opponents the match was played between
5. **Venue** - The venue of the match
6. **Winning Team Score** - The score of the team that won the match.
7. **Losing Team Score** - The score of the team that lost the match.
8. **Winner Team** - The name of the winning team.
9. **Result** - The final result of the match
10. **Player of the Match** - Player of the match.

Use Case:

1. **Team Performance Over Time:** Showcase the performance of specific teams across different editions. Compare win-loss ratios, runs scored, and wickets taken over the years.
2. **Tournament Overview:** Utilize summary cards to display the total matches played, total runs scored, and total wickets taken. Create a timeline visualizing the growth of the tournament with each edition.
3. **Venue Analysis**: Plot maps or charts to showcase the distribution of matches across different venues. Highlight venues with the most matches or those associated with significant events.
4. **Performance Metrics**: Implement bar charts to compare average scores, average wickets, and average run rates. Explore trends in team performance based on different metrics.
5. **Player of the Match Insights**: Create a list or visual highlighting players with the most "Player of the Match" awards. Explore the correlation between player performance and overall team success.

Data:
https://drive.google.com/drive/folders/1PjhjUImq4t7xZtV5M58FUAdjrQSS8JhM?usp=drive_link

HR Analytics Dashboard

High employee attrition rates and suboptimal performance can have detrimental effects on organizational effectiveness and morale. The organization faces the challenge of understanding the factors contributing to attrition, identifying patterns in employee performance, and implementing targeted strategies to improve the work environment. The problem is to create an HR analytics solution that not only provides a holistic view of employee data but also allows for in-depth analysis of key performance indicators and their correlations with factors such as job satisfaction, work-life balance, and business travel. The goal is to help the organization reduce attrition rates and enhance overall employee performance by uncovering actionable insights through the exploration of HR data.

Objective:

The dashboard will leverage key HR-related metrics to provide meaningful insights into various aspects of employee engagement, satisfaction, and overall performance.

1. **Attrition Overview:** Display the overall attrition rate and its trend over time.
2. **Employee Demographics**: Represent the distribution of employees by age, gender, and education field. Implement filters for users to drill down into specific demographic segments.
3. **Performance Metrics**: Showcase performance metrics such as average monthly income, hourly rate, and percent salary hike.
4. **Job Satisfaction and Involvement:** Visualize job satisfaction and job involvement scores for different job roles. Allow users to explore correlations between job satisfaction, job involvement, and attrition.
5. **Work-Life Balance Analysis:** Depict work-life balance ratings across different departments. Explore the impact of work-life balance on attrition rates.

Dataset Fields:

➔ EmpID
➔ Age
➔ Age Group
➔ Attrition
➔ Business Travel
➔ Department
➔ Distance from Home
➔ Education Field
➔ Employee Number
➔ Environment Satisfaction
➔ Gender

➔ Hourly Rate
➔ Job Involvement
➔ Job Role
➔ Job Satisfaction
➔ Monthly Income
➔ Monthly Rate
➔ Overtime
➔ Percent Salary Hike
➔ Performance
➔ Work-Life Balance

Dataset:
https://drive.google.com/file/d/153KjM7VsidNPu9LYNgdgEb9ZO6VVcgCj/view?usp=drive_link

Sales Analytics Dashboard

Description

This project focuses on building a Power BI dashboard to analyze the sales dataset of a company, providing a comprehensive view of key metrics and trends. By harnessing the power of data visualization, the dashboard aims to empower decision-makers to gain actionable insights, optimize sales strategies, and enhance overall business performance.

Problem Statement

The company faces challenges in effectively analyzing and interpreting its sales data, resulting in potential inefficiencies in decision-making and sales strategies. There is a need to consolidate and visualize critical information related to orders, shipping, customers, and product details to identify patterns, optimize processes, and ultimately improve sales performance. The goal is to address these challenges through the development of an insightful Power BI dashboard.

Objective

The primary objective of this project is to create a dynamic and interactive Power BI dashboard that enables stakeholders to:

1. Gain Overview: Obtain a quick overview of key sales metrics, such as total sales, average unit price, and total unit cost.

2. Analyze Sales Trends: Visualize sales trends over time using line charts or time series visuals to identify peak sales periods and potential seasonality.

3. Customer Insights: Explore customer-related metrics, such as the number of orders per customer and total sales per customer, to identify high-value customers.

4. Channel Analysis: Analyze sales performance across different channels (e.g., online, offline) to identify the most effective sales channels.

5. Currency Impact: Understand the impact of currency fluctuations on sales by visualizing sales data in different currencies.

6. Warehouse Efficiency: Evaluate warehouse performance by analyzing order fulfillment times, shipping delays, and overall order processing efficiency.

7. Product Performance: Assess the performance of individual products through visuals such as bar charts or heatmaps, identifying top-selling products and potential inventory management opportunities.

8. Cost and Profitability: Visualize the relationship between unit price, total unit cost, and profit margins to optimize pricing strategies.

9. Regional Analysis: Explore sales patterns across different delivery regions to tailor marketing and sales efforts based on regional demand.

Data Fields:

➔ Order Number
➔ Order Date
➔ Shipping Date
➔ Customer Name Index
➔ Channel
➔ Currency Code
➔ Warehouse Code
➔ Delivery Region Index
➔ Product Description Index
➔ Product Quantity
➔ Unit Price
➔ Total Unit Cost

Dataset:
https://docs.google.com/spreadsheets/d/1vj_DSY2BWLwazhNU_62xl0CT3z1_RM0B/edit?usp=drive_link&ouid=10607143638389230706 9&rtpof=true&sd=true

COVID 19 Region Wise Analysis

Description:

This project focuses on creating a Power BI dashboard to analyze and visualize COVID-19 data. The dataset contains key information about reported cases and deaths in various countries, providing a comprehensive overview of the global impact of the pandemic. The dashboard aims to assist health organizations, policymakers, and the public in understanding the spread of the virus, identifying hotspots, and making informed decisions.

Problem Statement:

The ongoing COVID-19 pandemic presents a complex challenge in tracking and understanding the patterns of infection and mortality across different countries and regions. There is a need for a centralized and user-friendly platform to consolidate and analyze this data, providing stakeholders with real-time insights to guide public health responses and policy decisions.

Objective:

The primary objective of this project is to develop a dynamic and interactive Power BI dashboard that enables users to:

1. **Visualize Global Trends**: Provide an overview of global COVID-19 trends, including new cases and deaths, over time.
2. **Country-Specific Analysis**: Enable users to explore and compare COVID-19 statistics for specific countries. Highlight countries with the highest incidence rates, allowing for targeted interventions.
3. **Regional Insights**: Analyze COVID-19 data based on WHO regions to identify regional variations in the spread and impact of the virus.
4. **Daily and Cumulative Trends**: Visualize daily and cumulative cases and deaths to understand the trajectory of the pandemic.
5. **Hotspot Identification**: Implement heatmaps or color-coded maps to identify COVID-19 hotspots and areas with high mortality rates.
6. **Rate of Change Analysis**: Calculate and visualize the rate of change in new cases and deaths to identify potential spikes or declines.
7. **Interactive Date Selection**: Allow users to interactively select specific date ranges for a more detailed analysis.

Data Fields:

- ➔ Date Reported
- ➔ Country Code
- ➔ Country
- ➔ WHO Region
- ➔ New Cases
- ➔ Cumulative Cases
- ➔ New Deaths
- ➔ Cumulative Deaths

Dataset:

https://drive.google.com/file/d/16SATkQQBMzPqz_ce2S-0IS-qs9sDCX2q/view?usp=drive_link

Superstore: Comparison of Region Based on Sales - Power BI

Description:

The director of a leading organization aims to compare sales data between two regions. Each region's operator has been tasked with recording sales data for analysis. The upper management seeks to visualize this sales data through a dashboard to comprehend regional performance and identify areas for improvement.

Objective:
Assist the organization by creating a Power BI dashboard to effectively visualize and compare sales data between two selected regions.

Datasets:

Primary Dataset: Sample Superstore

Steps to Perform:
1. Select Sample Superstore as Dataset: Utilize the Sample Superstore dataset for this analysis.
2. Use Sample Superstore Dataset: Import and load the Sample Superstore dataset into Power BI.
3. Select Data: Choose the necessary columns from the dataset, including Customer Name, Order ID, Region, Order Date, Sales, and other relevant fields.

4. Use Group By from Data Source Table on a Folder: Employ the Group By function on the Data Source Table to create a folder, organizing data thoroughly based on Customer Name and Order ID.

5. Create Two Parameters: Primary Region and Secondary Region: Establish two parameters named Primary Region and Secondary Region, listing all available regions for comparison.

6. Create Calculated Fields for Primary and Secondary Regions: Develop calculated fields for both Primary Region and Secondary Region to filter data based on the selected regions.

7. Create a First Order Date: Generate a calculated field named First Order Date to identify the initial order date for each customer.

8. Create a Dashboard: Design a Power BI dashboard to present key insights effectively.

9. Align Sheets in the Dashboard: Arrange all sheets in the dashboard for a cohesive and organized layout.

10. Partition the Dashboard: Partition the dashboard to display the following details for both the Primary Region and Secondary Region:

*First Order Date
*Total Sales
*Average Sales per Order
*Number of Customers
*Number of Orders
*Number of Products in Sale

Dataset:

https://docs.google.com/spreadsheets/d/1RhQPDc89eFS7OWUkWMvM_d6nHra6rfgA/edit?usp=drive_link&ouid=10607143638389207069&rtpof=true&sd=true

Basketball Player Performance

Description:

This Power BI project aims to conduct a comparative analysis of basketball player performance using a comprehensive dataset. The dataset includes various statistics such as field goals made, three-pointers made, free throws made, and more for each player. The project's objective is to create an insightful and interactive Power BI dashboard that visually compares player performances and extracts valuable insights.

Objective:

The primary goal is to design a user-friendly Power BI dashboard allowing users to compare basketball player performances effectively. The focus is on key metrics like total points, field goal percentage, three-point percentage, and free throw percentage. The objective is to provide insights into player efficiency, contribution, and overall impact on the game.

Steps to Perform:

1)**Import and Load the Dataset:** Open Power BI Desktop. Click on "Get Data" to import the provided basketball player dataset.

2)**Data Cleaning and Transformation:** Use Power Query Editor for data cleaning and transformation. Handle missing values, format columns, and address data quality issues.

3)**Create Key Metrics:** Derive key metrics like total points, field goal percentage, and others using calculated columns or measures.

4)**Data Exploration**: Utilize Power BI visuals to explore player statistics and trends.

5)**Parameterize the Analysis:** Create parameters for user interactivity, enabling dynamic player, team, or metric comparisons.

6)**Generate Visualizations:** Design visualizations (bar charts, scatter plots, tables) to effectively represent player performance.

7)**Dashboard Layout:** Organize a cohesive and well-structured dashboard layout to tell a compelling story about player comparisons.

8)Filtering and Slicing: Implement filters and slicers for users to focus on specific teams, years, or individual players.

9)Interactivity: Enhance the dashboard with interactive elements such as drill-downs and tooltips.

10)Documentation: Document key findings and insights derived from the analysis. Explain the significance of each metric in evaluating player performance.

11)Publish to Power BI Service: Save and publish the Power BI file to the Power BI service for online sharing and collaboration.

12)Share and Collaborate: Share the Power BI dashboard with stakeholders for collaborative decision-making.

Data Fields:

· **first: First name of the basketball player.**

· **last: Last name or surname of the basketball player.**

· **team: Team for which the player played.**

· **year: The year in which the statistics were recorded.**

· **games_played: Number of games the player participated in.**

· **min: Minutes played per game.**

· **fgm: Field goals made per game.**

· **fga: Field goals attempted per game.**

· **fg3m: Three-point field goals made per game.**

· **fg3a: Three-point field goals attempted per game.**

· **ftm: Free throws made per game.**

· **fta: Free throws attempted per game.**

· **oreb: Offensive rebounds per game.**

· **dreb: Defensive rebounds per game.**

· **reb: Total rebounds per game.**

- ast: Assists per game.

- stl: Steals per game.

- blk: Blocks per game.

- turnover: Turnovers per game.

- pf: Personal fouls per game.

- pts: Points scored per game.

- fg_pct: Field goal percentage.

- fg3_pct: Three-point field goal percentage.

- ft_pct: Free throw percentage.

Dataset:

https://drive.google.com/file/d/1dRG9MHL8Fc6Ew2mmOK2DDJY5huToT9wT/view?usp=drive_link

Used Car Analysis

Description:

This Power BI project involves the analysis of used car sales data, with each row representing information about a specific car listing. The dataset includes details such as the car's name, manufacturing year, selling price, present price, kilometers driven, fuel type, seller type, transmission type, and ownership history. The objective is to create a comprehensive Power BI dashboard to visualize and gain insights into the factors influencing used car prices.

Objective:

The primary goal of this Power BI project is to create a user-friendly dashboard that provides valuable insights into the used car market. The analysis aims to understand the factors affecting the selling price of cars, explore trends over the years, and compare different car models. Additionally, the dashboard will allow users to filter data based on various attributes such as fuel type, seller type, and transmission.

Steps to Perform:

1)Import Data: Import the provided dataset into Power BI.

2)Data Cleaning: Address any missing values, handle outliers, and ensure data quality**.**

3)Data Exploration: Examine the distribution of variables, identify patterns, and explore summary statistics.

Create Calculated Columns: If necessary, create calculated columns to derive additional insights, such as the age of the car.

4)Visualizations: Build visualizations to represent key aspects of the dataset, such as: Scatter plots to explore the relationship between selling price and other variables. Bar charts to compare the distribution of car models, fuel types, and seller types. Line charts to analyze trends in selling prices over the years.

5)Dashboard Layout: Design a cohesive dashboard layout that presents key findings in an organized manner. Include slicers and filters for interactivity.

6)Parameterization: Create parameters to allow users to dynamically select and compare different aspects of the dataset.

Correlation Analysis: Explore correlations between variables to identify factors influencing selling prices.

7)Top Insights: Highlight top insights, such as the most common car models, the impact of fuel type on prices, and trends in the used car market.

8)Review and Refine: Review the dashboard, ensuring that it effectively communicates insights. Refine visualizations, formats, and labels for clarity.

9)Documentation: Document key findings and insights derived from the analysis.

10)Publish to Power BI Service: Save the Power BI file and publish it to the Power BI service for online sharing and collaboration.

11)Share and Collaborate: Share the Power BI dashboard with stakeholders for collaborative decision-making.

Dataset:

https://drive.google.com/file/d/1tyPBNTCQkaaqDhLqTGMkoV3K_SlPqizv/view?usp=drive_link