**Power BI Project Solution**

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|  | **About Dataset** |
|  | The TechnoEdge sales dataset contains a wealth of information about the company's sales performance, including key metrics such as Sales, Quantity, Discount, and Profit. With columns such as Category, Sub-Category, and Product Name, it is possible to analyze performance by product and identify trends and opportunities. Other columns such as Order Date, Dispatch Date, and Ship Mode can provide insights into the company's logistics and supply chain management. Overall, this dataset can help the company make data-driven decisions to improve its sales performance and profitability. |
|  | **PROJECT TASKS** |
| **A** | **Installation** |
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| **Q** | Downloading **Power BI Desktop.** |
| 1 | [Go to https://powerbi.microsoft.com/en-us/desktop/ and select "Power BI Desktop" from the "Products" tab.](https://powerbi.microsoft.com/en-us/desktop/) |
| 2 | Go to the Power BI Desktop download page |
| 3 | Click "Download free" |
| 4 | Select your system version (32-bit or 64-bit) |
| 5 | Click "Download" |
| 6 | Locate the downloaded file in your downloads folder |
| 7 | Double-click to start the installation |
| 8 | Follow on-screen instructions |
| 9 | Launch Power BI Desktop from the desktop shortcut or the Windows Start menu. |
| Instruction: | Download and install Power BI Desktop from Instruction: Download and install Power BI Desktop from the official website and start exploring its features for creating impactful reports. |
| **B** | **Data Cleaning** |
| 1 | Show me how to append the sales table from 2020-2023 into one table? |
| Hint | To combine multiple tables in Power Query of Power BI, use the "Append Queries" feature and select the relevant tables, ensuring they have the same structure. Renaming tables and organizing them in folders can help with navigation. |
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| 2 | Display the steps to merge the profit column from the profit table into the sales table? |
| Hint | To merge the profit column from the profit table into the sales table in Power Query of Power BI, you need to use the Merge Queries option and match the tables based on a common column. |
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| 3 | Use the appropriate command to change the data type of all columns in the sales table. |
| Hint | To change the data type of all columns in the sales table in Power Query of Power BI, the appropriate command to use is "Transform Data Types." |
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| 4 | Can you demonstrate how to remove duplicates from the sales table? |
| Hint | To remove duplicates from the sales table in Power Query of Power BI, you can use the Remove Duplicates function. |
| 5 | Apply a filter to remove null values from the sales table, and display the steps. |
| Hint | Applying a filter to remove null values from the sales table in Power Query of Power BI is a simple and effective way to clean up data. |
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| 6 | Add an index column to the filtered sales table and replace it with "sr.no." |
| Hint | Adding an index column in Power Query is a useful technique to provide unique identifiers to each row in a table. |
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| 7 | Use the fill-down function to populate empty cells in the sales table. |
| Hint | Using the fill-down function in Power Query of Power BI can efficiently populate empty cells in the sales table. |
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| 8 | Replace any values in the sales table with " " (a blank space). |
| Hint | To replace any values in the sales table with a blank space, use the Replace Values function in Power Query of Power BI. |
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| 9 | Use the date function to extract the year, month, start of the month, month name, and day from the order date column in the sales table. |
| Hint | In Power Query of Power BI, the Date function can be used to extract various components from the Order Date column in the Sales table such as Year, Month, Start of Month, Month Name, and Day. |
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| 10 | Use a conditional column in the profit table to identify low-profit and high-profit sales, and display the steps. |
| Hint | Using conditional columns in Power Query of Power BI helps to easily identify and categorize low-profit and high-profit sales. |
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| **C** | **Data view** |
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| 1 | Display all geographical datasets in Power BI along with their corresponding data categories, such as city, country, state, and region. |
| Hint | To show geographic data with its categories like city, country, state, and region, use Power BI's map visual. It's an easy and effective way to analyze and display geographical information. |
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| **D** | **Visual Insights** |
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| 1 | Show the trend of Total Sale from 2020 to 2023 using a Card visual. |
| Visual Used | Cards |
| Hint | The Card visual in Power BI is an effective way to display key performance indicators such as total sales over a specific time period, allowing for easy trend analysis and data-driven decision making. |
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| 2 | You can use Card visuals to display various parameters such as Total Sales, Net Profit, Total Customers, and Total Quantity for the years 2020-2023. |
| Visual Used | Cards |
| Hint | Overall, Card visuals in Power BI provide an effective way to display key parameters and their trends over time. |
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| 3 | Show the Count ratio of total orders by category in a pie chart. |
| Visual Used | Pie Chart |
| Hint | The pie chart visualization in Power BI shows that the highest count of orders is in the Office Supplies category, followed by Furniture and Technology. |
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| 4 | Show a stacked bar chart visualizing the sales data of a store's top-5 selling products and bottom-5 selling products over the past year.  (Allow the user to hover over each bar to see the exact sales figures for each product category.) |
| Visual Used | stacked bar chart |
| Hint | The stacked bar chart provides a clear visual representation of the sales performance of the top-5 and bottom-5 selling products of a store over the past year. |
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| 5 | Show me the net profit trend over time in the Line chart visual, and allow me to filter by specific date hierarchy levels such as month, quarter, or year. |
| Visual Used | Line chart |
| Hint | The Line chart visual allows you to track the net profit trend over time and filter by specific date hierarchy levels, providing a clear understanding of performance changes over time. This visual is useful for identifying trends and making informed business decisions. |
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| 6 | Show the top 10 customers by profit in each country using the "Customer name, Country, Profit" table visual. |
| Visual Used | Table Visual |
| Hint | The "Customer name, Country, Profit" table visual is useful for displaying top customers by profit in each country, providing a clear and concise overview of sales performance. |
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| 7 | Show me the sales distribution of different product categories using a stacked bar chart. |
| Visual Used | stacked bar chart |
| Hint | A stacked bar chart is an effective way to display the sales distribution of different product categories by showcasing the relative proportion of each category's contribution to total sales. |
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| 8 | Display the stacked column chart for the profit margin of all product categories. |
| Visual Used | Stacked column chart |
| Hint | The stacked column chart is used to visually compare the profit margins of different product categories by stacking the values on top of each other. |
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| 9 | Add a label to the donut chart to show the exact percentage of sales for each segment. |
| Visual Used | donut chart |
| Hint | The donut chart is used to display the precise sales percentage for each segment in a visually appealing and easily understandable manner. |
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| 10 | Apply a filter to the stacked bar chart to show the profitability of the top 5 products. |
| Visual Used | stacked bar chart |
| Hint | To show the profitability of the top 5 products in a stacked bar chart, apply a filter to display only the relevant data. This can provide useful visual insights for making informed business decisions. |
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| 11 | Use the line and stacked column chart to analyze the trend in sales and profit over the years. |
| Visual Used | stacked column chart |
| Hint | Using the line and stacked column chart in Power BI, we can observe that sales have been steadily increasing over the years, while profit margins have been relatively inconsistent. Overall, there is a positive correlation between sales and profit. |
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| 12 | Display the scatter chart to analyze the relationship between total sales and total profit for each segment. |
| Visual Used | scatter chart |
| Hint | The scatter chart provides a visual representation of the relationship between total sales and total profit for each segment. It can be observed that there is a positive correlation between the two variables, with the highest sales and profit in the Corporate segment. |
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| 13 | Insert the text box to explaining the insights from the scatter chart. |
| Visual Used | Text Box |
| Hint | Using text boxes to explain the insights from a scatter chart in Power BI can help to enhance the understanding of the data and facilitate better decision-making. |
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| 14 | Display the sale percentage of different countries using a custom visual scroller on our first homepage? |
| Custom Visual Used | scroller |
| Hint | To display the sale percentage of different countries using a scroller visual on the first homepage in Power BI, you can add a "Scroller" visual from the marketplace and connect it to your dataset. Configure the visual by selecting the appropriate fields and adjusting the settings for the scroller. This will allow users to scroll through the percentage of sales for different countries on the homepage. In Hint, using a scroller visual can help to highlight important information and make it easily accessible for users. |
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| 15 | Add a tooltip to the pie chart in category wise order to display the detailed sales of each sub-category. |
| Visual Used | pie chart |
| Hint | Adding tooltips to a pie chart in Power BI helps to display detailed information about each sub-category's sales, providing deeper insights into the data. |
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| 16 | Add a "Start" button to the homepage that directs the user to the summary page. |
| Shape | Button |
| Hint | To add a ""Start"" button to the homepage in Power BI, you can use the ""Button"" visual and link it to the summary page using bookmarks. This provides an easy and intuitive way for users to access important information and insights. Overall, incorporating clear navigation options can improve the user experience and encourage engagement with the data. |
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| 17 | Add to Summary Bookmark' button and show how it directly displays project details when clicked?" |
| Shape | Button |
| Hint | The 'Add to Summary Bookmark' button in Power BI allows users to save a snapshot of a visual and display it in the summary view. Clicking on it will display the saved visual with its associated project details directly. This feature enhances user experience and helps to quickly access important insights. |
| **E** | **Published Report** |
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| 1 | Power BI reports can be published and shared with others, making it easy to collaborate and work with others on data analysis projects. |
| Hint | Power BI's ability to publish and share reports facilitate seamless collaboration and teamwork in data analysis projects. |
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