**Task 1**

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| Using the provided dataset, create a BI report that enables strategic decision-making through the following analyses:     1. **Producer Performance Dashboard:**  * Develop a comprehensive view of each producer's performance, including Total Revenue, Average Yearly Growth Rate, and Risk Factor for accounts.  1. **Segmentation and Filtering:**  * Implement multi-level filtering to examine data by different categories like Producer, Market Segment, and Risk Factor. Ensure drill-down capability from summary to detailed views.  1. **Revenue-Employee Relationship:**  * Visualize the correlation between Annual Revenue and the Number of Employees per account, segmented by Risk Factor and Market Segment.  1. **Contract Renewal Forecast:**  * Create a model to forecast contract renewals, considering factors like Account Lifetime Value and Yearly Growth Rate.  1. **Producer Efficiency Index:**  * Calculate and rank an efficiency index for producers based on Total Revenue versus the Number of Accounts managed.  1. **Strategic Account Planning:**  * Identify key accounts with high Lifetime Value but low Growth Rate and suggest strategies for revenue optimization. |

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| **Power BI: Producer Performance Dashboard**  Step 1: Importing Data   * Open Power BI. * Click "Get Data" > "Excel". Browse to select your file. * Select the relevant sheet, then click "Load".   Step 2: Data Modeling   * Navigate to the "Model" view. * Ensure relationships are set correctly between tables, especially if your data is spread across multiple sheets.   Step 3: Creating Measures for Analysis   * Click "New Measure" on the "Home" tab. * Enter the DAX formula for Total Revenue: Total Revenue = SUM('TableName'[Revenue]). * Create Average Yearly Growth Rate: Avg Growth Rate = AVERAGE('TableName'[GrowthRate]). * Ensure you have a column in your table that categorizes Risk Factor for accounts.   Step 4: Building the Dashboard   * Switch to the "Report" view. * Use "Bar Chart" to display Total Revenue by Producer. Drag "Producer" to the Axis and "Total Revenue" to the Values. * Add a "Card" to display the Average Yearly Growth Rate. Select the card, drag "Avg Growth Rate" to the Fields. * For Risk Factor distribution, use a "Pie Chart". Drag "Risk Factor" to Legend and "Account ID" (or equivalent unique identifier) to Values, set aggregation to Count.   Step 5: Publishing   * Once your report is complete, publish by going to "Home" > "Publish" > "To Power BI".   **Tableau: Producer Performance Dashboard**  Step 1: Connecting to Data   * Open Tableau Desktop. * Select "Excel" under "Connect", find your file, and open it. * Drag the sheet into the main area if it's not automatically selected.   Step 2: Data Preparation   * Go to the "Data Source" tab and ensure all fields are correctly recognized and formatted, especially dates and numbers.   Step 3: Creating Visuals for Dashboard   * Navigate to "Sheet 1" to start building your visuals. * To visualize Total Revenue by Producer, select "Bar Chart" from "Show Me". Drag "Producer" to Columns and "Revenue" to Rows. Use SUM aggregation for Revenue. * Create a new sheet for Average Yearly Growth Rate. Drag "GrowthRate" to Columns and choose AVG aggregation. Use "Text" from "Show Me" for display. * For Risk Factor distribution, create another sheet. Drag "Risk Factor" to Color in "Marks" and "Account ID" (or equivalent) to Rows, choosing Count (Distinct).   Step 4: Assembling the Dashboard   * Click on "Dashboard" at the bottom, then "New Dashboard". * Drag your created sheets onto the dashboard canvas. Arrange as desired. * Use the "Filter" option on the dashboard items to enable filtering across the dashboard based on Producer, Market Segment, or Risk Factor.   Step 5: Sharing Your Dashboard   * To share, go to "Server" > "Publish Workbook" to publish to Tableau Public or Tableau Server. |

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| **Power BI: Segmentation and Filtering**  Step 1: Setup Your Data Model   * Ensure your data is correctly imported and relationships are established. * Import Data: Follow the initial steps mentioned in the previous guide to import your dataset into Power BI. * Verify Relationships: In the Model view, ensure there are relationships between tables that might be used for filtering (e.g., a Producers table linked to Transactions).   Step 2: Implementing Multi-level Filtering   * Create Slicers: * Go to the Report view. * Select the Slicer icon from the Visualizations pane. * Add a slicer for each of the following fields: Producer, Market Segment, and Risk Factor. Drag these fields into the Values section of each slicer. * Configure Slicers for Better UX: * For each slicer, click on the drop-down arrow to explore options like Dropdown, List, or Between. * Customize further under the Format pane, adjusting items like the slicer header, items color, and selection controls.   Step 3: Drill-down Capability   * Create a Drill-down Visual: * Start with a basic bar chart or any visual that supports drill-down. * Drag your main category (e.g., Market Segment) to the Axis area. * Use the Expand all down one level in the hierarchy button (↘️) to enable drill-down. * Enhance Drill-down: * Add additional fields to the Axis to create a hierarchy (e.g., Market Segment > Producer > Risk Factor). * Users can now click on a segment to drill down into the producers within that segment, then further into the Risk Factor.   Step 4: Publishing and Sharing   * After setting up your report with segmentation and filtering, save your work. * Publish by going to Home > Publish > To Power BI.   **Tableau: Segmentation and Filtering**  Step 1: Data Preparation   * Connect to Your Data: Similar to the initial steps for Power BI, connect to your Excel file in Tableau. * Review Data Source: Ensure that all fields are recognized correctly and set up any necessary data hierarchies or groups in the Data pane.   Step 2: Building Filters   * Add Filters: * Navigate to a new sheet. * Drag the Producer, Market Segment, and Risk Factor fields to the Filters shelf. * For each filter, choose how users should interact with it (e.g., Multiple values dropdown). * Customize Filters: * On the sheet, show the filter by right-clicking on the field in the Filters shelf and selecting Show Filter. * Customize the appearance and functionality of each filter using the options presented in the dropdown menu adjacent to the filter on the sheet.   Step 3: Implementing Drill-downs   * Create a Hierarchical Field: * In the Data pane, create a hierarchy by dragging related fields together (e.g., Market Segment > Producer > Risk Factor). * To use the hierarchy, drag it to Rows or Columns on your sheet. Tableau automatically enables drilling down through the hierarchy. * Configure Visualization: * Choose an appropriate visualization type that supports drill-down, such as a Treemap or Bar Chart. * Users can navigate through the hierarchy using the plus (+) and minus (-) icons on the visualization.   Step 4: Assemble Dashboard and Publish   * Drag the sheets you’ve created into a new dashboard. * Ensure that filters apply to all relevant sheets by setting them in the Dashboard pane. * Share your insights by publishing to Tableau Public or Tableau Server. |

**Task 2**

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| The dataset containing UMR, Binder, Year of Account (YOA), Dates (Months), Premium, Earned, Total Claims, Quarter, Year-To-Date (YTD) Premium, YTD Earned, YTD Total Claims, and Loss Ratio, complete the following analytical tasks to create a comprehensive BI report:     1. **Time-Series Analysis of Total Claims:**  * Using the dataset, create a time-series plot for 'Total Claims' for each UMR and YOA combination. Display the trend over the months.  1. **Year-to-Date (YTD) Metrics Calculation:**  * Calculate and visualize the Year-to-Date (YTD) figures for 'Premium', 'Earned', and 'Total Claims' for each year. Ensure these calculations reset annually.  1. **Loss Ratio Analysis:**  * Plot a line graph showing the 'Loss Ratio' trend for each Binder across different years.  1. **Claims Analysis:**  * Create a bar chart to compare the total number of claims ('Total Claims') for each Binder across different years.  1. **Premium Earnings Trend:**  * Visualize the trend of 'Premium' versus 'Earned' amounts over the years for each UMR. Use a dual-axis line chart for this purpose.  1. **Quarterly Data Breakdown:**  * Generate a pie chart for each year showing the distribution of 'Total Claims' across different quarters.  1. **Risk Analysis Using Loss Ratio:**  * Create a scatter plot correlating 'Total Claims' with 'Loss Ratio' for each Binder, color-coding data points by year. |

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| **Power BI**  Step 1: Importing the Data   * Open Power BI Desktop, go to "Home" > "Get Data" > "Excel", select your dataset, and click "Load".   Step 2: Preparing the Data   * Ensure correct data types for your columns, especially date and numeric fields. * Create a Date Table if not already done for the Time-Series Analysis.   Step 3: Creating YTD Measures   * Navigate to the Fields pane, right-click on your dataset, and choose "New measure" for each YTD calculation: * YTD Premium: YTD Premium = TOTALYTD(SUM('YourData'[Premium]), 'Date'[Date]) * YTD Earned: YTD Earned = TOTALYTD(SUM('YourData'[Earned]), 'Date'[Date]) * YTD Claims: YTD Claims = TOTALYTD(SUM('YourData'[Total Claims]), 'Date'[Date])   Step 4: Visualizing YTD Metrics   * Create a Line Chart for each YTD measure. For a consolidated view, consider a Combo Chart. * Drag the Date field from the Date table to the Axis. * Drag each YTD measure to the Values and adjust the chart type as needed.   Step 5: Customizing and Publishing   * Format your visuals by adjusting colors, labels, and titles. * Save your report and publish it to Power BI Service.   **Tableau**  Step 1: Connecting to Data   * Open Tableau Desktop, click on "Excel", and select your dataset to import it.   Step 2: Data Preparation   * Ensure your date and numeric fields are correctly recognized by Tableau. * Create a Date hierarchy by dragging the date field to the Rows shelf, then choosing "Hierarchy" > "Create Hierarchy".   Step 3: Calculating YTD Metrics   * In the Data pane, right-click and choose "Create Calculated Field" for each YTD measure: * YTD Premium: RUNNING\_SUM(SUM([Premium])) * YTD Earned: RUNNING\_SUM(SUM([Earned])) * YTD Claims: RUNNING\_SUM(SUM([Total Claims])) * Set the calculation to restart every year by editing the table calculation settings.   Step 4: Building the Dashboard   * Create separate line charts for each YTD metric by dragging the Date to Columns and each calculated field to Rows. * Adjust the chart to show the data as a running total. * Combine the charts on a dashboard for a comprehensive view.   Step 5: Sharing Insights   * Assemble your dashboard, ensuring it's clean and informative. * Publish your workbook to Tableau Public or Tableau Server. |

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| **Power BI**  Step 1: Importing the Data   * Launch Power BI Desktop. * Go to "Home" > "Get Data" > "Excel". Select your dataset file and click "Open". * In the Navigator pane, check the box next to the sheet you want to use, then click "Load".   Step 2: Preparing the Data   * Ensure Date Formatting. In the Fields pane, right-click the date column > "Change Type" > "Date" to ensure proper date formatting. * Create a Date Table (recommended for time intelligence functions). Go to "Modeling" > "New Table" and use the formula: * Date Table = CALENDAR(MIN('YourData'[Date]), MAX('YourData'[Date])) * Establish a Relationship between your data table and the Date table. Go to "Model" view, drag the date column from your data table to the Date column in the Date table.   Step 3: Analyzing Total Claims Over Time   * Create a Total Claims Measure. Right-click on your dataset in the Fields pane > "New measure". Enter: * Total Claims = SUM('YourData'[Total Claims]) * Build a Time-Series Chart. Click on the "Report" view, select the line chart icon from the Visualizations pane, and drag it to your canvas. * Configure the Chart. Drag the date field from the Date table to the Axis area. Drag the "Total Claims" measure to the Values area.   Step 4: Customizing the Visualization   * Format the Chart for better readability—adjust the colors, text size, and axis titles through the Formatting pane. * Add Data Labels for clarity. In the Visualizations pane, under the Format section, turn on "Data Labels".   Step 5: Publishing the Report   * Save your work. Go to "File" > "Save As" and name your report. * Publish the report by clicking "Home" > "Publish" > "To Power BI". Log in to your Power BI account and choose a workspace.   **Tableau**  Step 1: Connecting to Your Data   * Open Tableau Desktop. * Click on "Connect to Data" > "Microsoft Excel". Select your dataset file and click "Open". * Navigate to the sheet tab to preview your data, ensuring it's correctly loaded.   Step 2: Preparing the Data   * Convert the Date Field. In the Data pane, right-click the date column > "Change Data Type" > "Date" to ensure it's recognized as a date. * Create a Time Hierarchy. Drag the date field to the Rows shelf, right-click it, and select "Hierarchy" > "Create Hierarchy" to facilitate drilling down from year to day.   Step 3: Visualizing Total Claims Over Time   * Drag the Date Hierarchy to the Columns shelf. * Create a Total Claims Measure. In the Data pane, right-click and select "Create Calculated Field". Name it "Total Claims" and use: * SUM([Total Claims]) * Drag the "Total Claims" Measure to the Rows shelf.   Step 4: Enhancing the Chart   * Choose a Line Chart from the "Show Me" toolbar. * Adjust the Time Period. Click the "+" on the date field in the Columns shelf to drill down to the desired level (year, quarter, month). * Format the Visualization. Right-click the chart > "Format" to adjust labels, lines, and overall appearance.   Step 5: Sharing Your Findings   * Create a Dashboard. Navigate to the Dashboard tab, drag your sheet onto the canvas. * Publish to Tableau Public. Go to "Server" > "Tableau Public" > "Save to Tableau Public", sign in, and follow the prompts to publish. |