**Real Case Scenario (Part I & Part II)**

**Analyzing Support Ticket Response Times and Creating a Summary Report in Excel**

Timothy has been assigned a new task: to present a detailed report on the support tickets he handled over the past month. To accomplish this, he needs to organize the data according to specific requirements and begin his analysis. Here are the steps he should follow:

1. **Data Collection:**
   * Gather all support ticket data for the past month. This should include ticket IDs, dates and times of ticket creation, first responses, resolutions, ticket categories/types, priority levels, and the names of the support agents involved.
2. **Data Organization:**
   * Import the collected data into an Excel spreadsheet.
   * Ensure the dataset is organized with the following columns: Ticket ID, Date and Time of Ticket Creation, Date and Time of First Response, Response Time, Ticket Category/Type, Priority Level, Support Agent/Team, and Resolution Time.
3. **Data Analysis:**
   * Calculate key metrics such as overall average response time, response time by category/type, response time by priority, response time by agent/team, and response time trends over time.
   * Identify any outliers with extremely long response times and analyze them for potential issues.
   * Compare performance across different categories, priorities, agents, or teams.
   * Correlate response times with resolution times to see if slower initial responses lead to longer overall resolution times.

**1. Data Preparation**

**Step-by-Step Instructions:**

1. **Import Your Data into Excel:**
   * Open Excel and import your dataset. You can do this by going to File > Open and selecting your data file (e.g., CSV, Excel file).
   * Alternatively, you can copy and paste your data directly into an Excel worksheet.
2. **Organize Your Dataset:**
   * Ensure your dataset includes the following columns:
     + **Ticket ID:** Unique identifier for each support ticket.
     + **Date and Time of Ticket Creation:** When the ticket was created.
     + **Date and Time of First Response:** When the first response was made.
     + **Response Time:** Time taken to respond to the ticket (calculated as the difference between the first response time and the ticket creation time).
     + **Ticket Category/Type:** The category or type of the ticket (e.g., technical issue, billing inquiry).
     + **Priority Level:** The priority level of the ticket (e.g., high, medium, low).
     + **Support Agent/Team:** The agent or team handling the ticket.
     + **Resolution Time:** Time taken to resolve the ticket (calculated as the difference between the resolution time and the ticket creation time).
3. **Clean the Data:**
   * **Check for Missing Values:** Use the Filter feature to identify and fill or remove any missing values.
   * **Ensure Correct Data Types:** Verify that dates are in date format, numbers are in number format, etc.
   * **Look for Inconsistencies:** Ensure that all entries are consistent (e.g., no typos in category names).

**2. Calculate Key Metrics**

**Step-by-Step Instructions:**

1. **Overall Average Response Time:**
   * Use the AVERAGE function to calculate the average response time for all tickets.
   * =AVERAGE(D2:D100) // Assuming Response Time is in column D
2. **Response Time by Category/Type:**
   * Use the AVERAGEIF function to calculate the average response time for each ticket category/type.
   * =AVERAGEIF(E2:E100, "Category\_Name", D2:D100) // Assuming Category is in column E and Response Time is in column D
3. **Response Time by Priority:**
   * Use the AVERAGEIF function to calculate the average response time for each priority level.
   * =AVERAGEIF(F2:F100, "Priority\_Level", D2:D100) // Assuming Priority is in column F and Response Time is in column D
4. **Response Time by Agent/Team:**
   * Use the AVERAGEIF function to calculate the average response time for each support agent/team.
   * =AVERAGEIF(G2:G100, "Agent\_Name", D2:D100) // Assuming Agent is in column G and Response Time is in column D
5. **Response Time Trends Over Time:**
   * Use a pivot table to analyze response time trends over different time periods (e.g., daily, weekly, monthly).
     + Go to Insert > PivotTable, select your data range, and place it in a new worksheet.
     + Drag the Date and Time of Ticket Creation to the Rows area and Response Time to the Values area.
     + Group the dates by the desired time period (e.g., months).

**3. Identify Areas for Improvement**

**Step-by-Step Instructions:**

1. **Analyze Outliers:**
   * Identify tickets with extremely long response times using conditional formatting or sorting.
     + Select the Response Time column, go to Home > Conditional Formatting > Highlight Cells Rules > Greater Than, and set a threshold to highlight long response times.
2. **Compare Performance:**
   * Compare response times across different categories, priorities, agents, or teams using pivot tables and charts.
     + Create pivot tables for each comparison and use bar charts to visualize the differences.
3. **Correlate with Resolution Time:**
   * Use scatter plots to see if there is a correlation between response time and resolution time.
     + Select the Response Time and Resolution Time columns, go to Insert > Scatter (X, Y) or Bubble Chart, and choose a scatter plot.

**4. Create a Summary Report**

**Step-by-Step Instructions:**

1. **Executive Summary:**
   * Summarize key findings and overall trends in a concise paragraph.
     + Example: “The average response time for support tickets is 2 hours. Tickets categorized as ‘Technical Issues’ have the longest response times, averaging 3 hours. High-priority tickets are resolved faster, with an average response time of 1 hour.”
2. **Visualizations:**
   * Create line charts, bar charts, and scatter plots to present key metrics and trends.
     + **Line Chart:** For response time trends over time.
     + **Bar Chart:** For average response times by category, priority, and agent/team.
     + **Scatter Plot:** For correlation between response time and resolution time.
3. **Tables:**
   * Present key metrics in tables, such as average response times by category, priority, and agent/team.
     + Use pivot tables to summarize the data and format them for clarity.
4. **Insights and Recommendations:**
   * Provide insights based on your analysis and highlight areas needing improvement.
     + Example: “Technical issues have the longest response times, indicating a need for additional training or resources in this area.”
   * Offer specific, actionable recommendations for process changes, staffing adjustments, training, and automation.
     + Example: “Implement a training program for handling technical issues to reduce response times.”