**🏥 Power BI Project: Bar Chart of Patient Visits by Department**

**🎯 Objective:**

Create a **bar chart** that shows the **number of patient visits** for each **hospital department** using the **"Hospital Visits.csv"** dataset.

**📊 Step-by-Step Instructions:**

1. **Open Power BI** and load the file:
   * Go to Home > Get Data > Text/CSV
   * Select Hospital Visits.csv and click **Load**
2. **Explore the dataset**:
   * Look at the fields available in the data.
   * Focus on the column named something like Department and Visit ID or similar (we're counting visits by department).
3. **Create a bar chart**:
   * In the **Visualizations** pane, click on the **Bar Chart** icon (choose "Clustered bar chart" or "Stacked bar chart").
   * Drag the **Department** field to the **Axis** area.
   * Drag the **Visit ID** (or another field that represents a unique visit) to the **Values** area.
   * Change the aggregation to **Count** (Power BI should do this automatically).
4. **Customize the chart** (optional but encouraged):
   * Add a title: “Patient Visits by Department”
   * Adjust colors, labels, and sorting for readability.
   * Make sure each bar represents one department’s total visits.
5. **Check your work**:
   * Hover over bars to see total visit counts.
   * Are all departments included? Are numbers accurate?

**✅ Tips:**

* If departments appear duplicated (like "Emergency" and "emergency"), check for formatting inconsistencies.
* Use the **"Transform Data"** button to clean or format department names if needed.

**🏥 Mini-Project: Analyzing Departmental Revenue Performance**

**📘 Scenario:**

You are a **junior data analyst** at a hospital. Your supervisor wants to understand how each department is doing compared to its **revenue goals**. You’ll use Power BI to build visuals that tell this story clearly.

**🎯 Learning Objectives:**

* Connect and model two datasets
* Create a bullet graph to compare actuals vs. goals
* Use DAX to create calculated columns
* Design a clear and readable dashboard

**📂 Files You'll Use:**

* Hospital Visits.csv (Actual revenue)
* Hospital Goals.csv (Target revenue)

**✅ PART 1: Load the Data and Create Relationships**

1. **Open Power BI Desktop**
2. Go to **Home > Get Data > Text/CSV**
3. Load Hospital Visits.csv
4. Repeat for Hospital Goals.csv
5. Click on the **Model View** icon on the left
6. Drag the Department field from one table to connect it with the Department field in the other table (this creates a relationship)

**✅ PART 2: Create the Bullet Graph (Revenue vs. Goal)**

1. In Power BI, go to **Visualizations**
2. Click the **three dots (…) > Get more visuals > AppSource**
3. Search for **Bullet Chart by OKViz** (or similar) and click **Add**
4. On your report page, click the new Bullet Chart visual
5. In the **Fields pane**, drag:
   * Department to the **Category** field
   * Revenue (from Hospital Visits) to the **Value** field
   * Revenue Goal (from Hospital Goals) to the **Target** field
6. Format the visual:
   * Turn on **data labels** in the Format pane
   * Add a title: **“Revenue Performance by Department”**
   * Adjust colors to make the chart easy to read

**✅ PART 3: Create a Table with Revenue Metrics**

1. Click on the **Table** visual from the Visualizations pane
2. Drag in the following fields:
   * Department
   * Revenue (Hospital Visits)
   * Revenue Goal (Hospital Goals)
3. Now let’s create two new calculated columns:

**➕ Add the Revenue Difference Column:**

1. In the **Data view**, click on the **Hospital Visits** table
2. Go to the **Modeling** tab > click **New column**
3. Paste this formula:
4. Revenue Difference = 'Hospital Visits'[Revenue] - RELATED('Hospital Goals'[Revenue Goal])

**➕ Add the Goal Met? Column:**

1. Click **New column** again
2. Paste this formula:
3. Goal Met? = IF('Hospital Visits'[Revenue] >= RELATED('Hospital Goals'[Revenue Goal]), "Yes", "No")
4. Go back to your table visual and add both:
   * Revenue Difference
   * Goal Met?
5. Rename the table visual title:  
   **“Department Revenue Summary”**

**✅ PART 4: Add a Slicer (Optional but Recommended)**

1. Click on the **Slicer** visual
2. Drag the Department field into the slicer
3. Resize and place it to the side of your visuals

**🧠 Wrap-Up Questions (Answer in class discussion or notes):**

* Which departments met or exceeded their goals?
* Which departments need improvement?
* What trends do you notice?
* If you were the hospital director, what would you do?

**🎯 Mini-Project: Year-over-Year Revenue (Bar-in-Bar Chart)**

**🧠 Objective:**

Create a **Bar-in-Bar Chart** that compares **total revenue** across different **years**, using built-in Power BI functionality — no coding needed!

**📂 Dataset to Use:**

* Hospital Visits.csv

**🛠 Instructions (No DAX!):**

1. **Load the Data**
   * Import Hospital Visits.csv into Power BI.
2. **Insert a Bar Chart**
   * Go to the **Visualizations** pane and select **Clustered Bar Chart**.
3. **Set Up the Axis**
   * Drag Date of Admit into the **X-Axis (or Axis field)**.
   * Power BI will **automatically group the dates by Year** — leave it like that!
4. **Add Revenue Data**
   * Drag the Revenue field into the **Values** area.
   * Power BI will automatically **sum** the revenue for each year.
5. **Duplicate for Comparison**
   * Drag the Revenue field into the **Values** area again.
   * Now you’ll have **two bars per year** — this is your “bar-in-bar” layout!
6. **Customize Colors**
   * Click each series and assign a **different color** for visual comparison (e.g., light blue and dark blue).
7. **Add a Title**
   * Click on the chart title and rename it to:

**"Year-over-Year Hospital Revenue"**

1. **(Optional) Add a Filter**
   * Drag the Hospital Branch field into a **Slicer** if you want to compare branches side-by-side.

**🤔 Discussion Questions:**

* Which year had the highest total revenue?
* Do you notice any trends between years?
* If you filtered by hospital branch, do revenue patterns change?

**🏥 Mini Project: Patient Visits by Department (ICU + Neonatal Focus)**

**🎯 Goal**

Create a bar chart in Power BI that shows the **number of patient visits per department**, with a special **highlight on the ICU and Neonatal departments**.

**🧩 Steps to Follow**

1. **Open Power BI Desktop**  
   Launch Power BI and open a new report.
2. **Load the Data**
   * Click **Home > Get Data > Text/CSV**.
   * Select the **“Hospital Visits.csv”** file.
   * Click **Load** to bring the data into Power BI.
3. **Explore the Data**
   * Look for a column that shows **Department Names**.
   * Look for a column that shows **Patient Visits** (or something similar like rows that represent visits).
4. **Create the Bar Chart**
   * Go to the **Visualizations** pane.
   * Select the **Clustered Bar Chart** (or Column Chart).
   * Drag the **Department** field to the **X-axis** (or Category).
   * Drag the **Patient Visits** field to the **Y-axis** (or Values).
     + If you don't have a "visits" number, just count the number of rows per department (Power BI will do this automatically if you drag a text field like "Patient ID" to Values and set it to **Count**).
5. **Highlight ICU and Neonatal**
   * Click the chart to select it.
   * In the **Format** pane, go to **Data colors**.
   * Find the color options for each department.
   * Change **ICU** and **Neonatal** to standout colors (like red or blue).
   * Keep the other departments in neutral colors (like gray).
6. **Add a Title**
   * Click on the chart.
   * In the **Format** pane > **Title**, turn it on and name it:  
     **“Patient Visits by Department (ICU & Neonatal Highlighted)”**

**💡 Helpful Hints**

* Hovering over a bar shows exact values (tooltips).
* You can sort the bars by number of visits to see which departments are busiest.
* Want to go further? Try adding **data labels** to show exact counts on each bar.

**🏥 Mini-Project: Patient Visits Over Time (Line Chart)**

**🎯 Goal:**

Create a **line chart** that shows the number of patient visits **per month**, comparing the trends in **2018** and **2019**.

**📁 Dataset:**

* Hospital Visits.csv

**🛠 Step-by-Step Instructions:**

1. **Load the Dataset**
   * Open Power BI and load Hospital Visits.csv.
2. **Check Your Fields**
   * Make sure you see these two fields:
     + Date of Admit (should be a Date type)
     + Number of Patient Visits
3. **Create Date Parts**
   * Go to the **Data View**.
   * Create two new columns:
   * Year = YEAR([Date of Admit])
   * Month = FORMAT([Date of Admit], "MMM")
   * MonthNumber = MONTH([Date of Admit])
4. **Sort the Month Column**
   * Click on the Month column.
   * In the ribbon, choose **Sort by Column → MonthNumber**.
   * This keeps months in proper order (Jan, Feb, Mar...).
5. **Create the Line Chart**
   * Go to **Report View** and insert a **Line Chart** visual.
   * Set up the chart using these fields:
     + **X-axis** → Month
     + **Y-axis** → Number of Patient Visits (SUM)
     + **Legend** → Year
6. **Format the Chart**
   * Add a title: **“Monthly Patient Visits (2018 vs 2019)”**
   * Turn on **data labels** (optional but helpful).
   * Customize colors for better comparison.

**✅ You’re Done When:**

* The line chart has **two lines**—one for **2018** and one for **2019**.
* **Months are in the correct order** (Jan → Dec).
* You can clearly see how patient visits changed month to month across both years.

**📊 Reflection Questions:**

1. **What trends do you notice?**
   * Do the number of patient visits go up or down during certain months?
   * Are there any spikes or drops that stand out?
2. **Compare the years:**
   * How does 2019 compare to 2018 overall?
   * Were there more or fewer visits in one year than the other?
3. **Spot the differences:**
   * Are there specific months where the two years look very different?
   * What might have caused this? (You can make guesses—even if you don’t know for sure.)
4. **Real-world thinking:**
   * If you worked for this hospital, what would you do with this information?
   * How might this chart help you prepare for the future?