



Bharatiya Vidya Bhavan's

# **Sardar Patel Institute of Technology**

(Autonomous Institute Affiliated to University of Mumbai)

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India

## **Experiment no - 6**

Design Interactive Dashboards and Storytelling using using Power BI or Tableau on the dataset  
- Animal / Wildlife / Marine

- Basic - Bar chart, Pie chart, Histogram, Time line chart, Scatter plot, Bubble plot
- Advanced - Word chart, Box and whisker plot, Violin plot, Regression plot (linear and nonlinear), 3D chart, Jitter
- Use of DAX queries in Power BI  
(<https://learn.microsoft.com/en-us/power-bi/transform-model/desktop-quickstart-learn-dax-basics>)
- Write observations from each chart

### **Interactive Dashboards and Storytelling Using Power BI on Animal/Wildlife/Marine Dataset**

**Aim:**

To design interactive dashboards using Power BI for visualizing and analyzing an Animal/Wildlife/Marine dataset, employing both basic and advanced charts to uncover insights and trends.

**Objectives:**

1. To create visually appealing and interactive dashboards that provide insights into the dataset.
2. To explore the distribution, trends, and relationships within the dataset using various types of visualizations.
3. To enable data-driven storytelling by highlighting key patterns, anomalies, and correlations.



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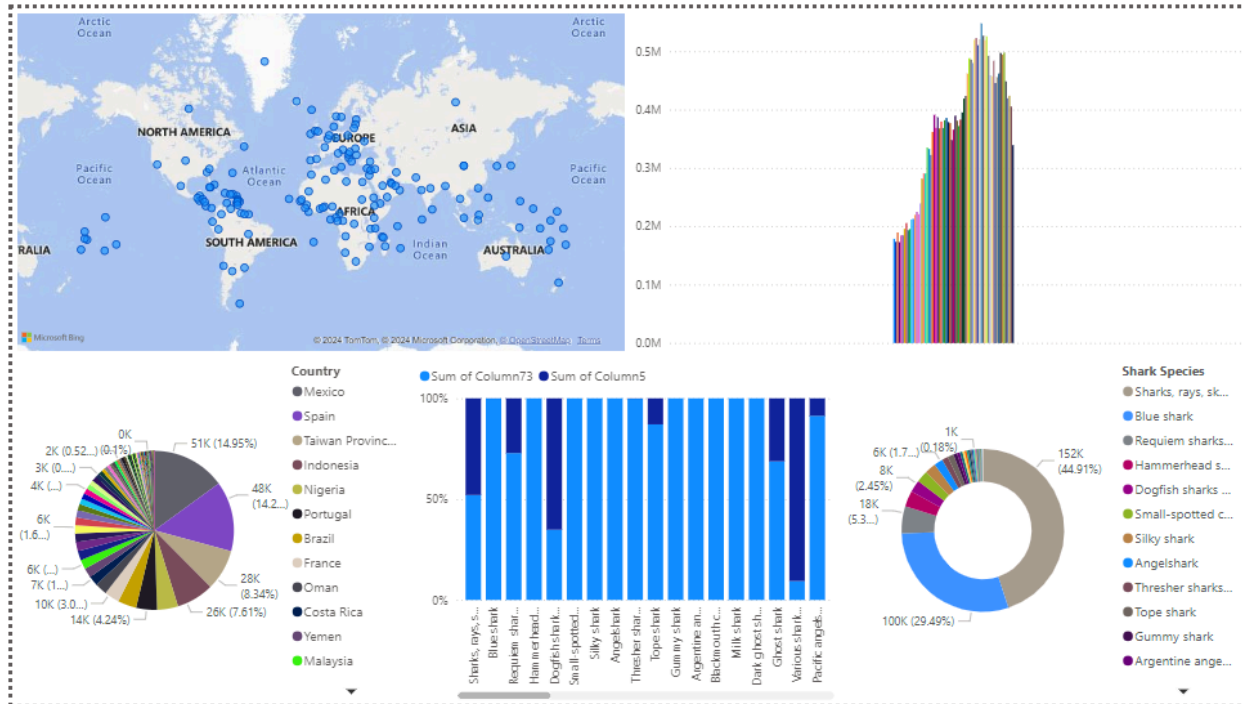
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## Dashboard



## Explanation

### 1. Map Visualization for shark population

The visualization depicts the global distribution of shark populations, represented by blue dots. The map reveals a wide-ranging presence of sharks across the globe, with clusters observed in certain regions, suggesting higher concentrations or specific habitats. While a majority of the dots are concentrated on continents, particularly in North America, Europe, and Asia, there's also a notable presence in oceanic areas, indicating the adaptability of sharks to diverse marine environments. To gain deeper insights into the distribution patterns and potential factors influencing shark populations, further analysis is required, considering factors such as ocean currents, temperature, prey availability, and human activities.

### 2. Bar Chart (Total Shark Species per Country)

The visualization presents a stark comparison of shark populations in 1950 and 2018, revealing a significant decline across most species. This alarming trend is likely attributed to a combination of factors, including overfishing, bycatch, habitat loss, and the impacts of climate change. The data highlights the urgent need for effective conservation measures to protect

shark populations and maintain the balance of marine ecosystems.

### 3. Pie Chart (Distribution of Shark Species within a Country)

The pie chart illustrates the distribution of shark populations among various countries, revealing a diverse landscape. While Mexico and Taiwan Province emerge as dominant countries in terms of shark abundance, the chart also highlights the presence of significant populations in several other regions. Factors such as ecological conditions, conservation efforts, and human activities likely influence this distribution. To gain a deeper understanding of the underlying factors and inform effective conservation strategies, further analysis is necessary, considering the specific context of each country and region.

### 4. Line Chart (Cumulative Sum of Shark Species)

The chart presents a cumulative sum of shark species over time, revealing a general upward trend from 1950 to 1980. However, there are fluctuations indicating periods of growth and decline. The data shows a significant decline in shark populations over the past three decades. This decline is likely attributable to a combination of factors, including overfishing, bycatch, habitat loss, and climate change. To ensure the survival of shark populations and maintain the health of marine ecosystems, it is crucial to address the underlying causes of the population decline and implement effective conservation strategies.

### 5. Shark Species Distribution

The doughnut chart presents a visual comparison of the relative abundance of different shark species within a specific population. Requiem sharks emerge as the dominant species, accounting for a significant portion of the total population. However, the chart also highlights the presence of a diverse range of other species, each with varying levels of abundance. This suggests that the population is not dominated by a single species, but rather exhibits a more balanced distribution. Understanding the factors influencing the distribution of shark species is crucial for effective conservation and management. By analyzing the relative abundance of different species, we can gain insights into the ecological dynamics and potential threats facing shark populations. This information can be used to develop targeted conservation strategies that address the specific needs of vulnerable species and promote the overall health of marine ecosystems.

## DAX queries

### 1. Map

Location = GEO.POINT(Locations[Latitude], Locations[Longitude])

### 2. Bar Chart (Total Shark Species per Country)

Total Shark Species =

```
CALCULATE(
    SUM(SharkSpecies[Count]),
    ALLEXCEPT(Countries, Countries[CountryName])
)
```

)

### 3. Pie Chart (Distribution of Shark Species within a Country)

Shark Species Percentage =

```
CALCULATE(  
    DIVIDE(  
        SUM(SharkSpecies[Count]),  
        CALCULATE(SUM(SharkSpecies[Count]), ALL(SharkSpecies))  
    ),  
    ALLEXCEPT(SharkSpecies, SharkSpecies[SharkSpeciesName])  
)
```

### 4. Line Chart (Cumulative Sum of Shark Species)

Cumulative Shark Species =

```
CALCULATE(  
    SUM(SharkSpecies[Count]),  
    FILTER(  
        ALL(Countries),  
        Countries[CountryName] <= EARLIER(Countries[CountryName])  
    )  
)
```

### 5. Shark Species Distribution

Shark Species Breakdown =

```
CALCULATE(  
    SUM(SharkSpecies[Count]),  
    ALLEXCEPT(SharkSpecies, SharkSpecies[SharkSpeciesName])  
)
```