Sardar Patel Institute of Technology
SEM VII:ADVANCE DATA VISUALIZATION.

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Branch	BE CSE DS (BATCH B)
Experiment no.	6

Topic:	Design Interactive Dashboards and Storytelling using using Power BI or Tableau on the dataset - Animal / Wildlife / Marine
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.
Theory:	DataSet:https://www.kaggle.com/datasets/iamsouravbanerjee/animal-information-dataset This dataset encompasses a diverse array of attributes pertaining to various animal species worldwide. The dataset prominently includes fields such as Animal, Height (cm), Weight (kg), Color, Lifespan (years), Diet, Habitat, Predators, Average Speed (km/h), Countries Found, Conservation Status, Family, Gestation Period (days), Top Speed (km/h), Social Structure, and Offspring per Birth. These columns collectively offer a comprehensive understanding of animal characteristics, habitats, behaviors, and conservation statuses. Researchers and enthusiasts can utilize this dataset to analyze animal traits, study their habitats, explore dietary patterns, assess conservation needs, and conduct a wide range of ecological research and wildlife studies.
Program:	DAX QUERIES: 1)Speed Category:Here if the average speed of an animal is less than 20km/h then categorize it as slow otherwise medium and fast. 2)Average of the column lifespan 3)Filtern the animals by colors , animals are filtered by the color brown.

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Formatting | Properties | Sort | Groups | Relatio

1 SpeedCategory = IF([Average Speed (km/h)] <= 20, "Slow", IF([Average Speed (km/h)] <= 50, "Medium", "Fast"))
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Structure | Formatting

1 avglifespan=AVERAGE(animal[Lifespan (years)])

Habitat
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ıre | Formatting | Properties

1 COUNTBYCOLOR = COUNTROWS(FILTER('animal', 'animal'[Color] = "Brown"))
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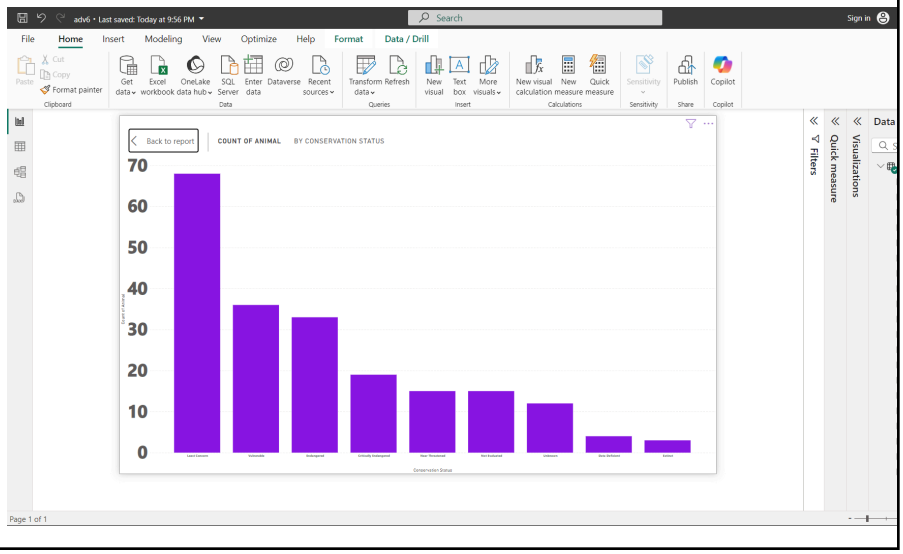
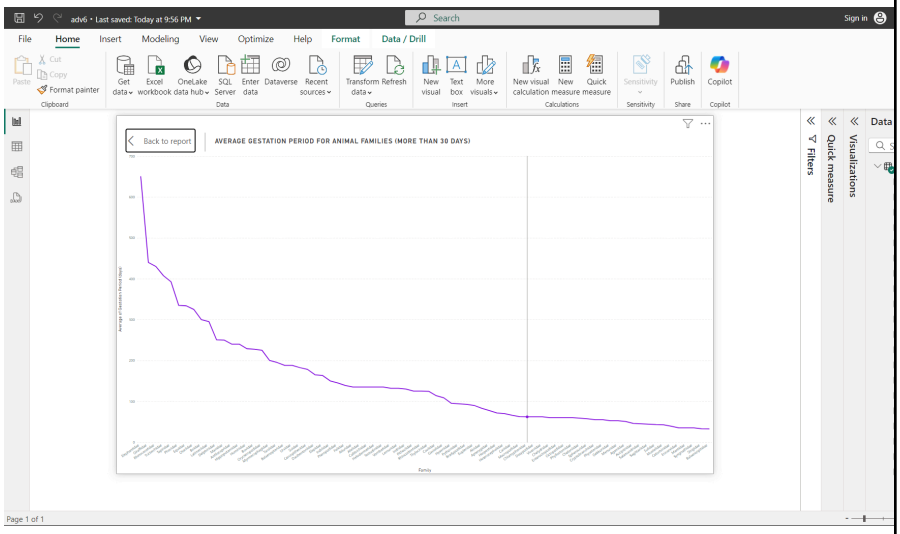
CHARTS:

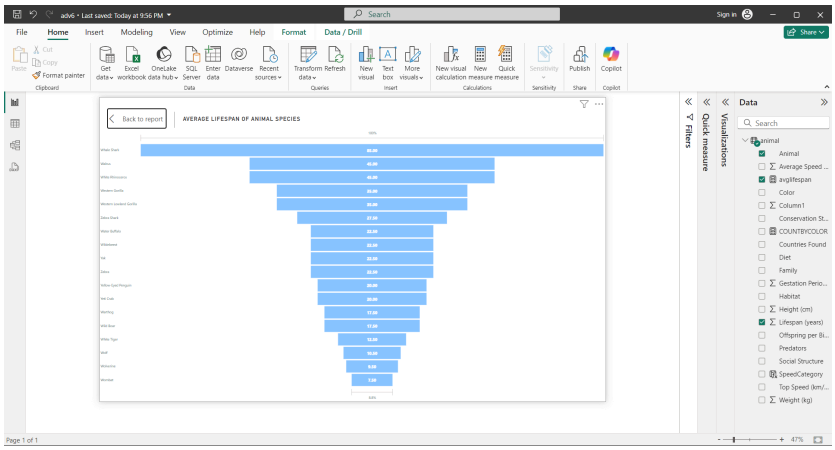
1. Count of Animal by Conservation Status: This is a bar chart showing the number of animals in different conservation status categories. The highest bar indicates that "Least Concern" is the most common status, followed by "Vulnerable" and "Endangered". This chart gives a quick overview of the conservation needs across the animal species in the dataset.



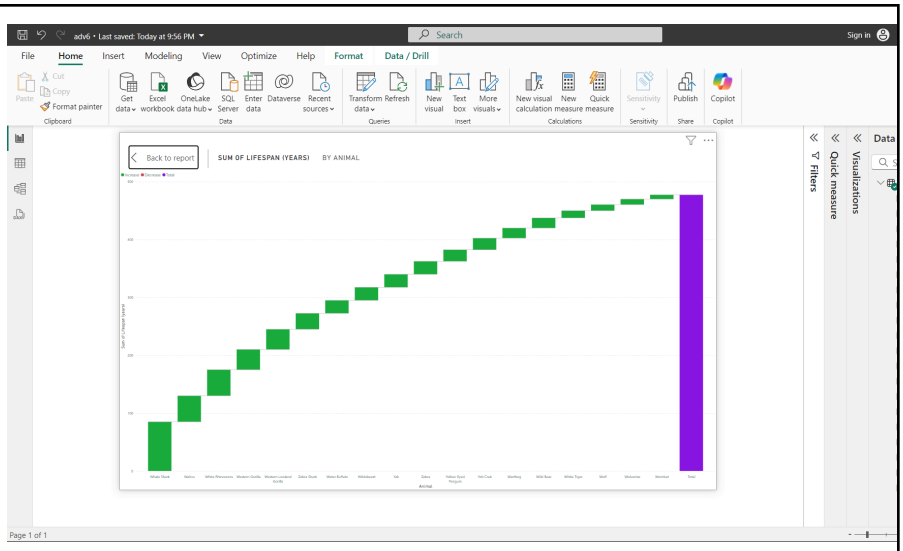
2. Average Gestation Period for Animal Families (More Than 30 Days): This line graph displays the average gestation period for different animal families. The y-axis shows the gestation period in days, while the x-axis lists various animal families. The declining trend suggests that families on the left have longer gestation periods compared to those on the right.



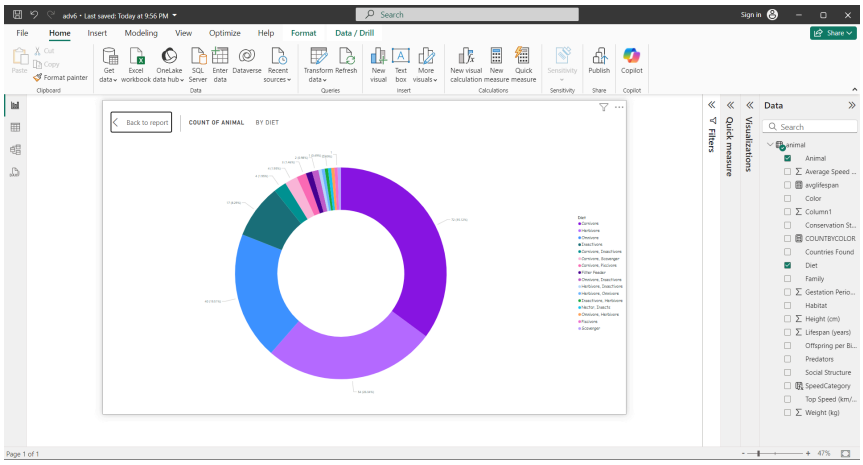
3. Average Lifespan of Animal Species: This horizontal bar chart compares the average lifespans of different animal species. The Whale Shark appears to have the longest average lifespan at around 45 years, while species at the bottom of the chart have shorter lifespans.



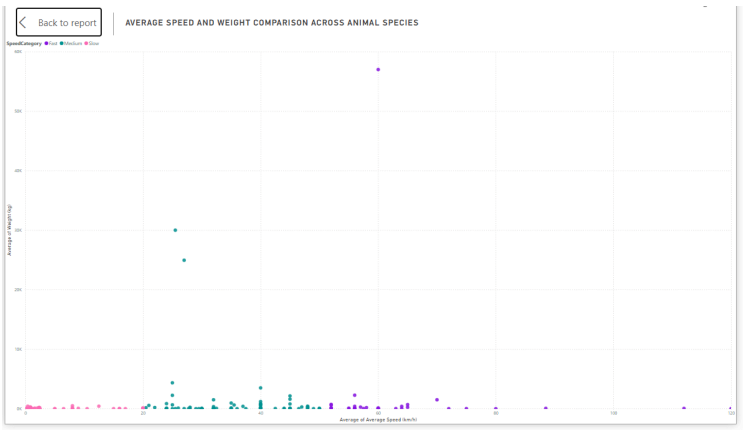
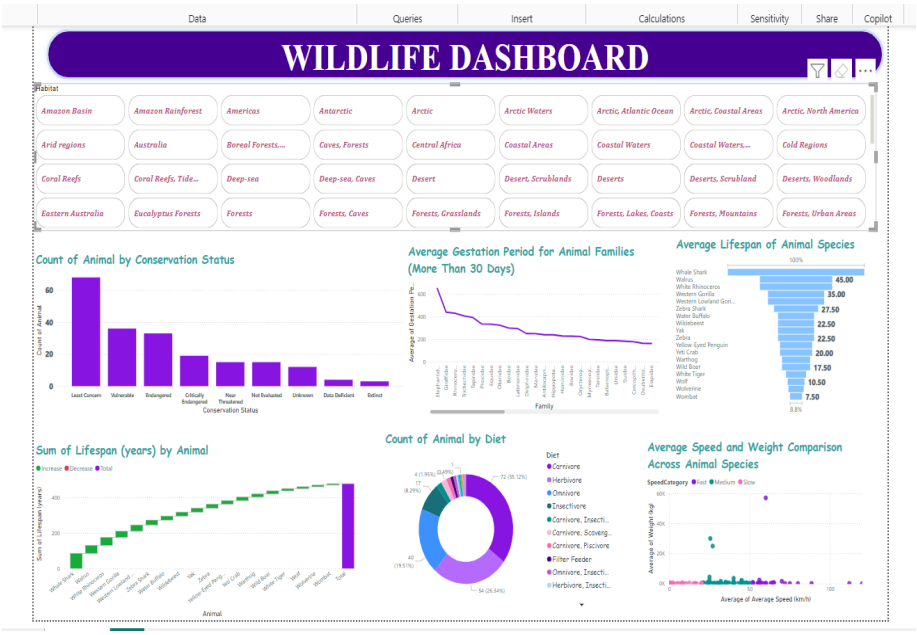
4. Sum of Lifespan (years) by Animal: This is a combination chart with bars and lines showing the sum of lifespans for different animals. It appears to compare multiple metrics (possibly different types of lifespan data) across various animal species.



5. Count of Animal by Diet: This donut chart breaks down the animals by their diet types. Each colored section represents a different diet category, with the size of the section indicating the proportion of animals in that category. The largest section appears to be for herbivores.



6. Average Speed and Weight Comparison Across Animal Species: This scatter plot compares the average speed and weight of different animal species. Each dot likely represents a species, with its position indicating its speed and weight. Its categorized by DAX Query of speedcategoryThe color coding suggests different categories, possibly related to the type of animal or its habitat.

	
Result:	
Conclusion:	The Wildlife Dashboard showcases a comprehensive approach to visualizing and analyzing wildlife data. Utilizing diverse chart types including bar, line, donut, and scatter plots, it offers insights into various aspects of animal life. The dashboard's key feature is a dynamic habitat slicer, enabling real-time filtering across all charts for focused analysis. Advanced data modeling techniques, particularly DAX queries implemented in the scatter plot, demonstrate the project's technical depth. This interactive tool provides a holistic view of wildlife conservation status, biology, and physical characteristics, while significantly enhancing our skills in data visualization and creating user-friendly, responsive dashboards with Power BI.