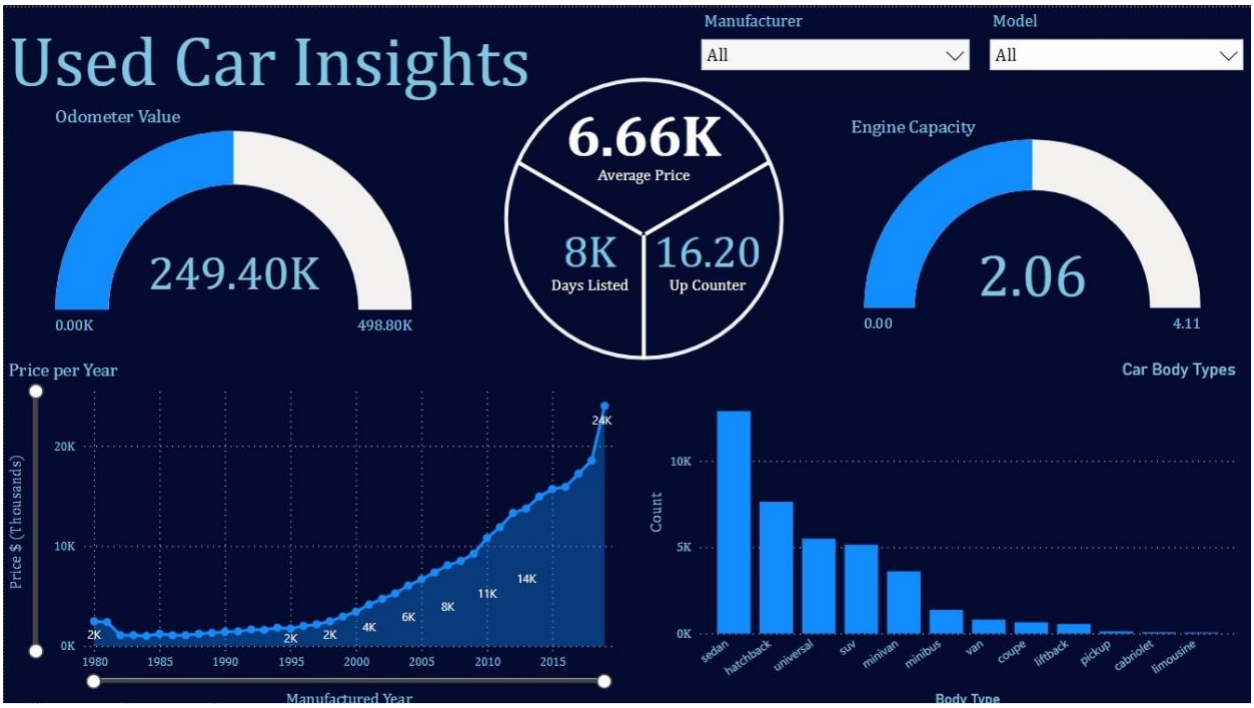
Assignment 10

Objective:

The project focuses on the development of an interactive dashboard designed to provide users with valuable insights derived from a comprehensive dataset of used cars. The primary goal of the dashboard is to shed light on the pricing dynamics of cars from various manufacturers and their different models. It serves as a powerful tool for users to explore and analyze the market prices of used cars over a significant time span, spanning from 1980 to 2019.

The dataset utilized for this project encompasses a wide range of information pertaining to used cars, including key attributes such as make, model, year of manufacture, mileage, fuel type, transmission, and more. Additionally, it provides the current market prices of these used cars, offering users real-time data to make informed decisions. The project aims to deliver an intuitive and user-friendly dashboard that simplifies the process of researching and understanding the price trends of used cars. By leveraging insightful visualizations and advanced filtering capabilities, users can make well-informed decisions and identify the best options available to them in the used car market.

Used Cars Insights

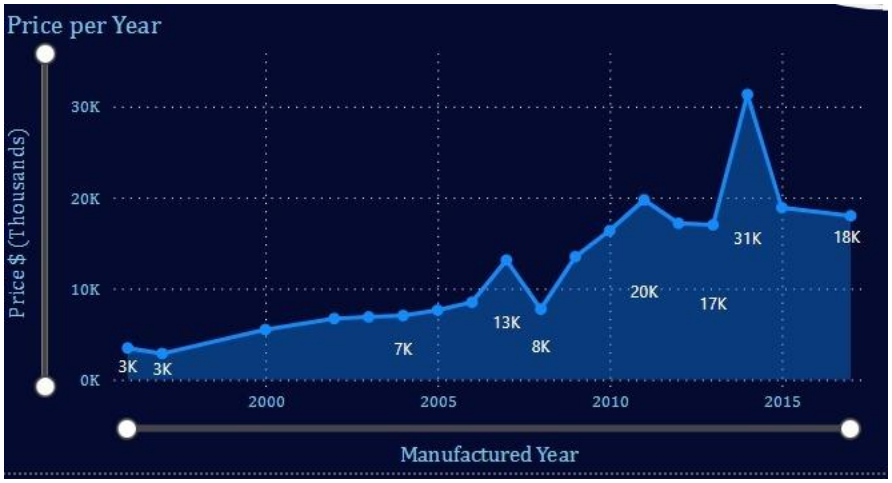


Link for interactive dashboard- https://app.powerbi.com/links/bs4LCdnQkG?ctid=e85c5307-76b1-4c48-bc5d-e88373dda261&pbi_source=linkShare&bookmarkGuid=b81abfbc-2d9d-411b-a47c-99bcb45a662f

Steps to Develop:

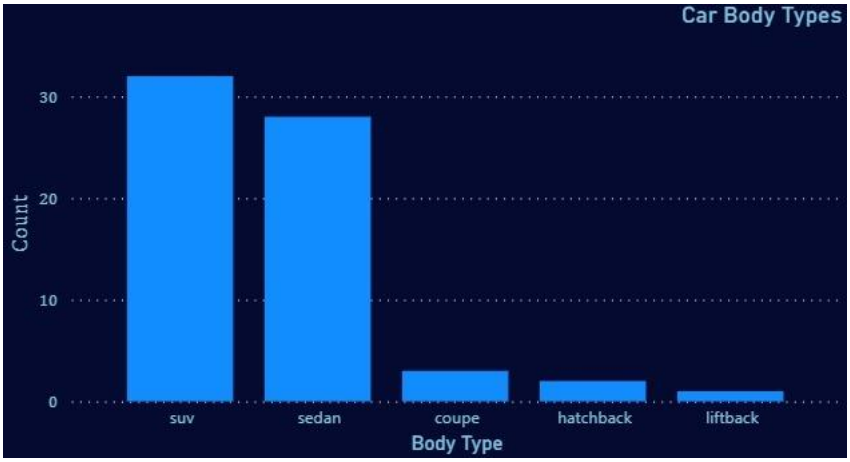
The development process for the dashboard involved several key steps. Initially, used cars dataset was obtained from Kaggle. The data consists of different cars and their models used since 1980 their fuel type, warranty, number of photos available for the cars. Then data analysis was performed to identify the essential metrics that would provide valuable insights to the users. The dataset utilized for this purpose included the odometer, which indicates the distance a car has traveled on the road, and the engine capacity, which represents the car's capacity. Both of these measures were visually represented using gauges to provide a clear understanding to the users.

The average value of each car was calculated, odometer readings and engine capacities of different cars to present an overall perspective,. This average value was prominently displayed on the dashboard, allowing users to quickly assess the general characteristics of the cars.

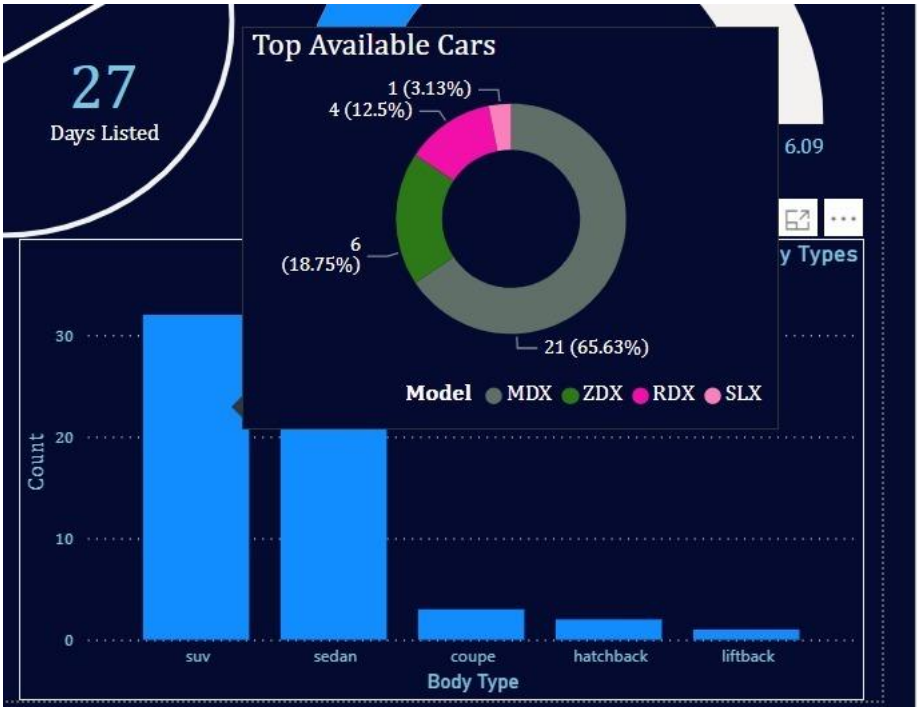


The dashboard also incorporated an area chart that depicted the prices of various cars based on their manufacturing year. To enhance usability, a slicer was included within the area chart, enabling users to focus on specific time periods or price ranges of interest. This interactive feature empowers users to customize their analysis according to their preferences.

To facilitate a personalized experience, dropdown menus were incorporated to provide options for selecting different car manufacturers and their models. By utilizing these dropdown menus, users can easily explore cars based on their preferred manufacturers and models. As users make selection, the values displayed on the dashboard dynamically update to reflect the chosen manufacturer and model.



A bar graph was generated to display the distribution of car body types. The body types were plotted on the x-axis, while the y-axis represented the count or frequency of each body type. This bar graph serves the purpose of showing users the different body types available for the cars in the dataset. The values are arranged in descending order such that users can quickly identify the common or popular body types.



Recognizing that users may have different levels of familiarity with car model names, a hover-over tooltip interaction was implemented. When users hover over the bars of a bar chart displaying different body types available for the selected manufacturer, a pie chart appears, visually presenting the availability of various car models along with their respective counts. This feature helps users understand the distribution of models within different body types and facilitates exploration of the available options.

By carefully considering user needs, incorporating interactive elements, and presenting data in a visually appealing manner, the dashboard aims to deliver a user-friendly and informative experience for analyzing car-related information.

Key Principles:

- **Monochromatic color**: A cohesive and monochromatic blue color palette, consisting of different shades, was implemented throughout the dashboard. This consistent color scheme helps create a unified and visually appealing interface.
- To improve readability and organization, numbers were grouped and visually separated using boxes. This technique assists users in quickly identifying and comprehending numerical values associated with different aspects of the dashboard. This strategic placement aims to capture users' attention and provide them with key insights at a glance.
- **Visual encoding**: The price of cars was given special emphasis by making it bold and increasing its font size. This intentional visual distinction ensures that users can easily locate and focus on the price information without having to search extensively within the dashboard.

- The values within the bar graph depicting the count of available cars were arranged in descending order. This arrangement helps users identify the most popular or abundant car types at a glance, creating a clear visual hierarchy within the graph
- The dashboard design took into account the mental models and expectations of users. By using familiar visual representations, such as gauges, area charts, bar charts, and dropdown menus, the dashboard aligns with users' cognitive models, making it easier for them to interpret and interact with the presented information.
- **Gestalt principle of Proximity**: The use of proximity is implied in the grouping of related elements. For example, numbers are grouped by boxing them, indicating that they are related to each other. The bar chart also uses proximity by placing bars next to each other to represent different body types.
- **Gestalt principle of Similarity**: The use of monochromatic blue color of different shades throughout the dashboard suggests the application of similarity. It creates a cohesive visual experience and visually groups related elements together.
- **Gestalt principle of Figure-ground**: Figure-ground perception involves differentiating between the main object or figure and the background. While it is not explicitly mentioned, figure-ground relationship could be utilized to ensure that important data or key metrics stand out against the background elements.

By incorporating these graphic design principles, cognitive models, and Gestalt principles, the dashboard strives to provide a visually appealing, user-friendly, and intuitive interface for users to explore and analyze car-related information efficiently.