

# Austo Data Analysis

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# Business Problem Overview

- Most people tend to buy different types of cars based on their day-to-day necessities and preferences. So, it is essential for automobile companies to analyze the preference of their customers before launching a car model into the market.
- Austo, a UK-based automobile company aspires to grow its business into the US market after successfully establishing its footprints in the European market. In order to be familiar with the types of cars preferred by the customers and factors influencing the car purchase behavior in the US market, Austo has contracted a consulting firm and want to understand the demand of the buyers and trends in the US market.
- They want to build customer profiles based on the analysis to identify new purchase opportunities so that they can manipulate the business strategy and production to meet certain demand levels. Further, the analysis will be a good way for management to understand the dynamics of a new market.

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# Solution Approach

- Understand the demand of vehicles
- Vehicle preference of various customers in USA
- Understand the requirement of customers based on various age group
- Understand the requirements of business owners and salaried individuals
- Impact of education, age, Loans on purchase of vehicles
- Help the company to take decision on launching a vehicle model in US market

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# Data Overview

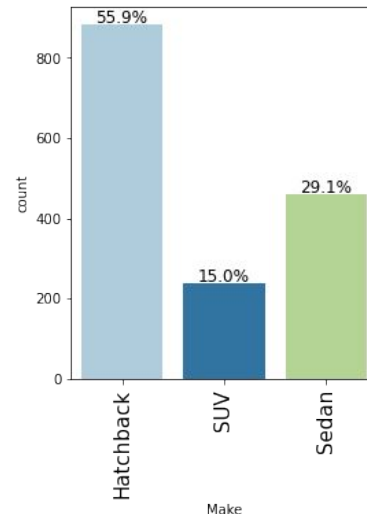
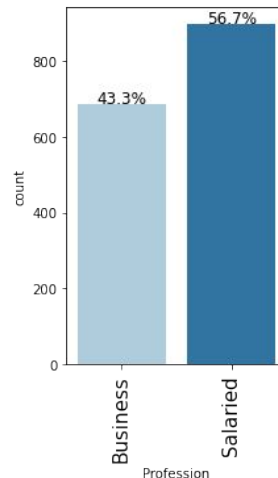
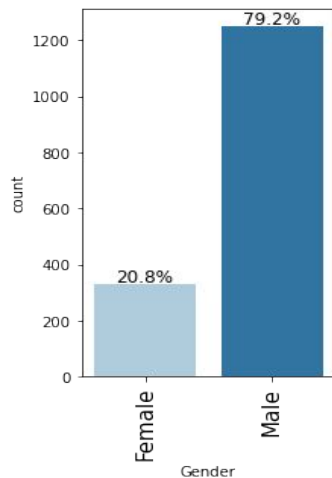
- The data provided was compiled based on various market surveys and contains details of the car owners of 3 major types of cars that are extensively used across the US market.
- There are total of 1581 observations and 14 attributes, including car owner's age, gender, profession, marital status, education, number of dependents, personal loan, house loan, partner working, salary, partner salary, total salary, price and make of the car bought.
- There are no missing values in the data.
- The Gender, Profession, Marital\_status, Education, Personal\_loan, House\_loan, Partner\_working and Make columns have been converted to category.

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# Univariate Analysis



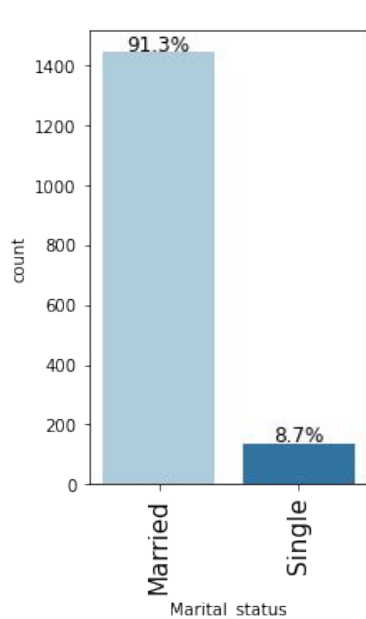
- The 'Gender' column consists of 2 unique values - Male and Female
- The distribution shows that around 79.2% customers are male and 20.8% are female
- The distribution of 'Profession' shows that the more customers are Salaried individuals (around 56.7%), followed by a rating of Business (around 43.3%).
- The distribution of Make shows that Hatchback are having the highest sales count (56%) followed by Sedan (29%) and SUV (15%)

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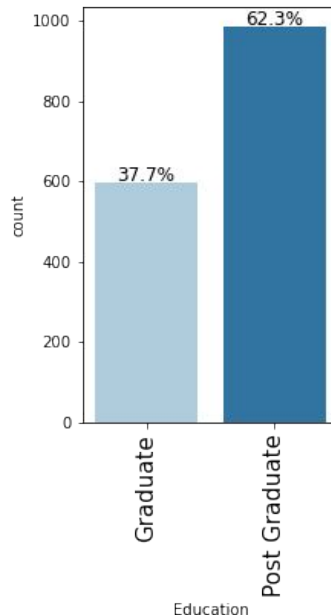
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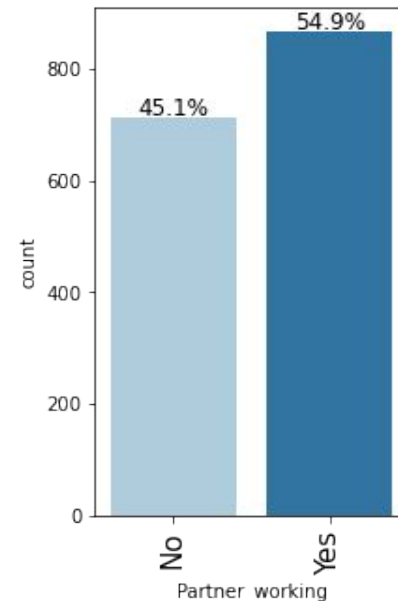
# Univariate Analysis



- The distribution shows that around 91.3% customers are Married and 8.7% are Single



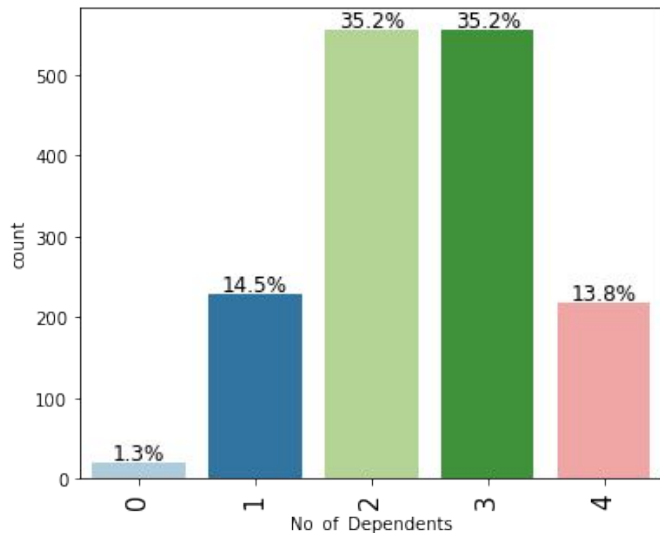
- The distribution of 'Education' shows that around 62.3% of customers are Post Graduates and 37.7% of



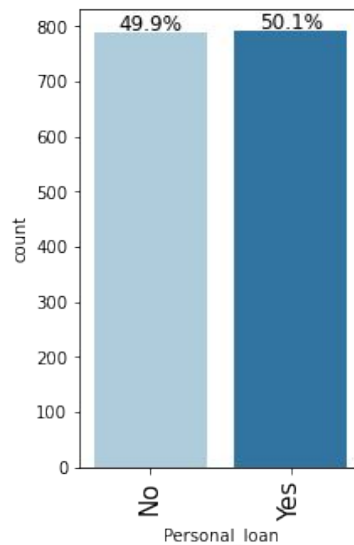
- The distribution shows that almost 55% customers are having working partners

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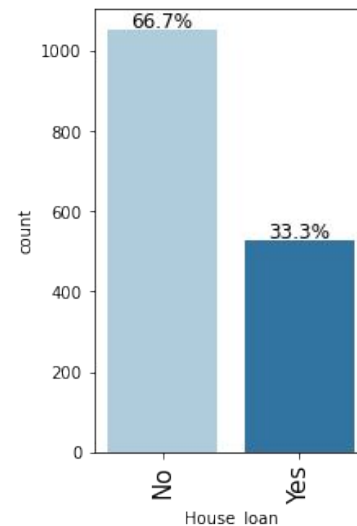
# Univariate Analysis



- The distribution shows that around 70% customers have 2 to 3 dependants. Customers with no dependants are less likely to purchase a vehicle



- The distribution shows that almost 50% customers have personal loan



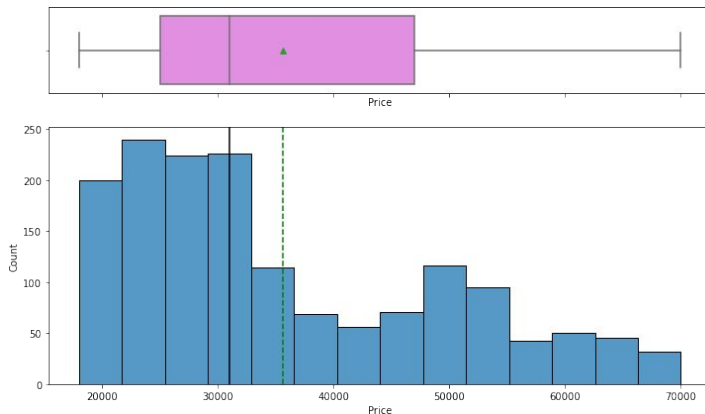
- The distribution shows that only 33.33% of customers have House loan

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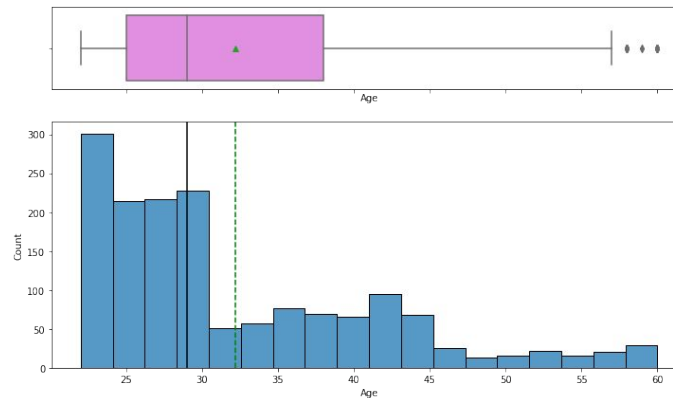
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# Univariate Analysis



- Most of the cars cost in the range 20000-40000.
- The mean price of the cars is greater than the median. This indicates that the car price is right-skewed.

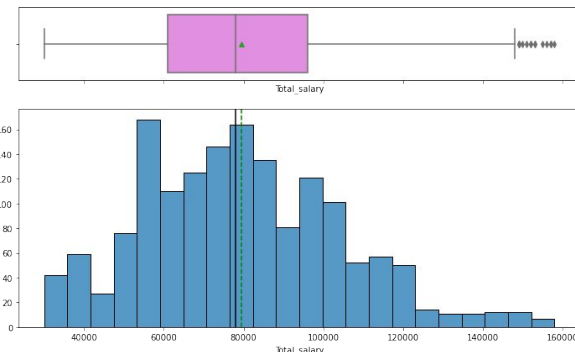
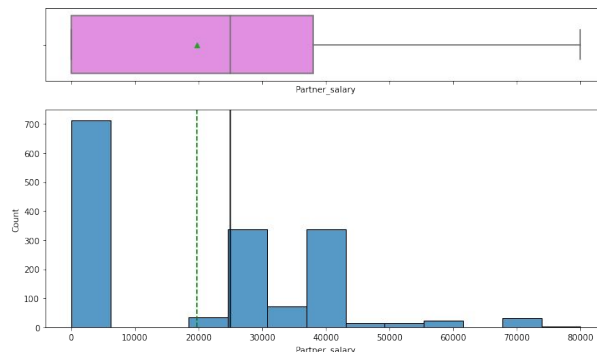
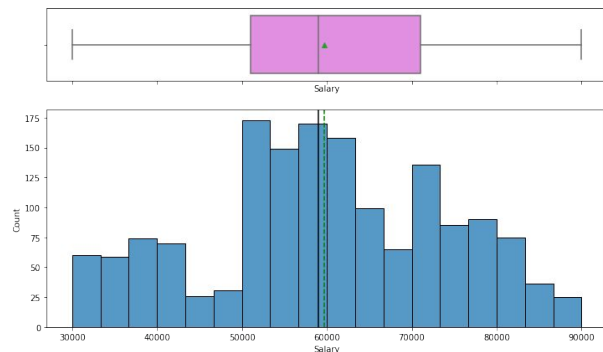


- The distribution of Age is right skewed.
- From boxplot we can see that the second quartile(Q2) is less than 30 which means more than 50% of customers in the dataset are below the age of 30.
- There are a few outliers in this variable.

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# Univariate Analysis



- The average cost of the order is greater than the median cost indicating that the distribution for the cost of the order is right-skewed.
- The salary of the customer lie between 30,000 to 90,000, with an average of around 60,000.
- The mean salary is almost equal to the median.

- The total salary of the customer's household follows normal distribution, with an average of around 80,000.
- The mean salary is almost equal to the median.
- There are few outliers in this variable.

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# Univariate Analysis - Key Questions

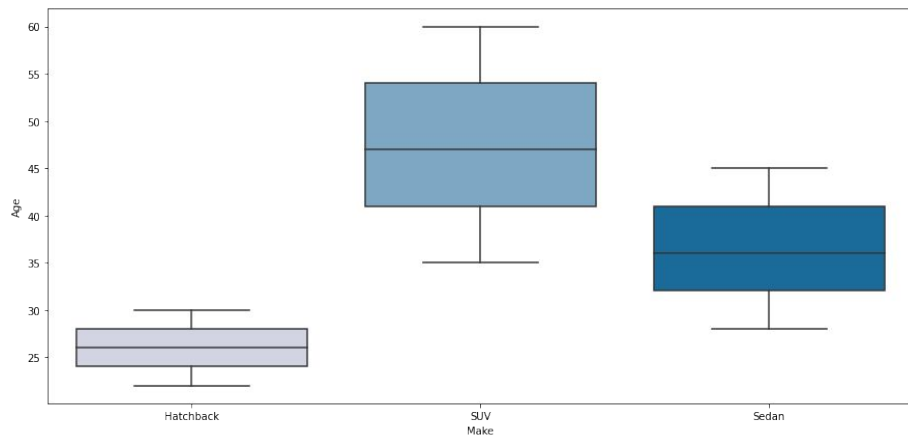
- There are 237 cars of SUV type. 884 of type Hatchback and 460 of type Sedan.
- There are 96 customers who have purchased cars pricing higher than their salary. Around 45% of them have taken Personal loan
- There are 444 cars of Type Hatchback which are priced above 25000. 50% of hatchbacks are priced above 25000. These hatchbacks comprise of 28% of total vehicles.

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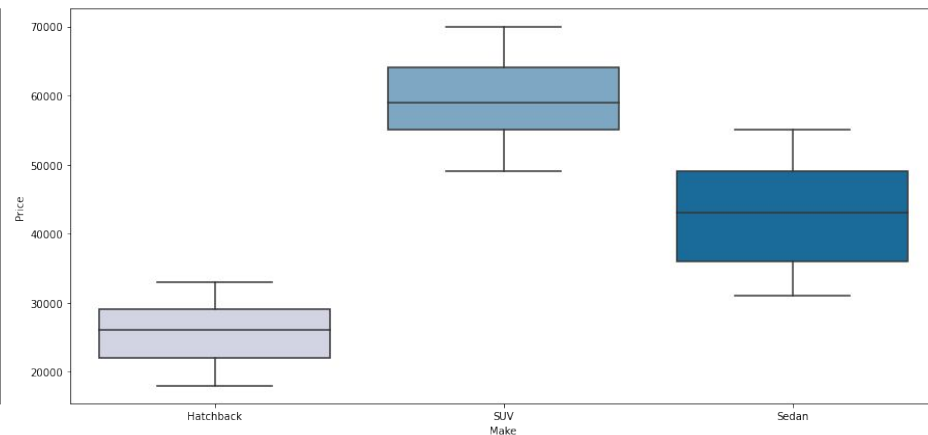
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# Bivariate Analysis



- SUV is preferred by customers in the age group 35-60.
- Sedan is preferred by customers in the age group 30-45.
- Hatchback is preferred by the younger customers in the age group 22-30.



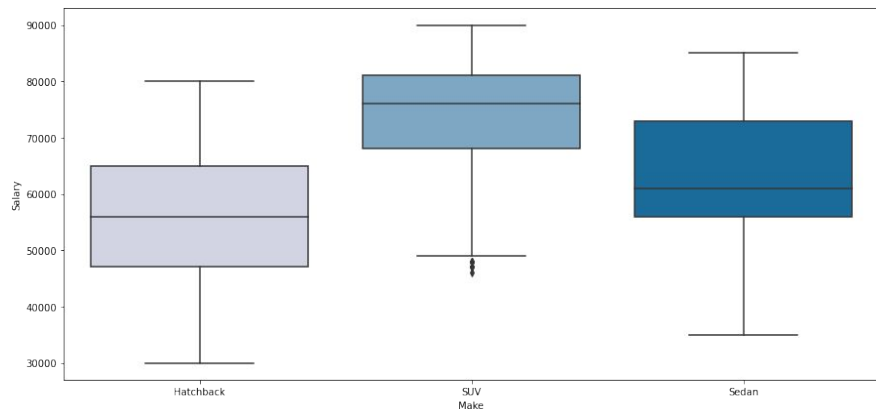
- SUV is the costliest type of car among the three car types. The price range of the SUVs is 50000-70000.
- Sedan is costlier compared to hatchback type cars.
- Hatchback is the most affordable car ranging between 15000-35000.

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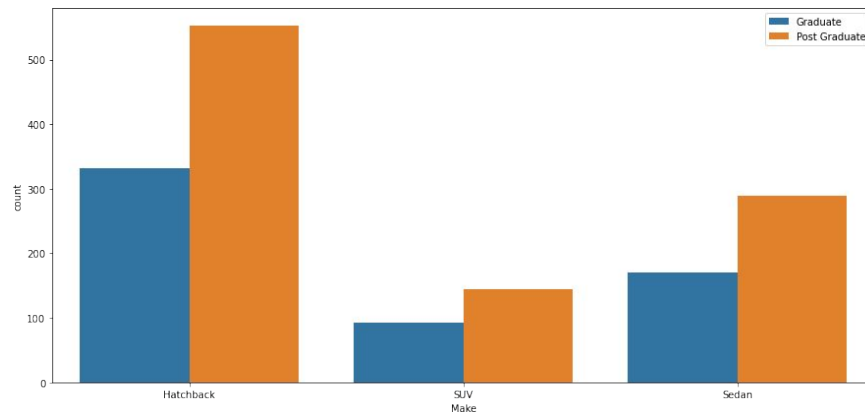
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# Bivariate Analysis



- SUV is the costliest type of car among the three car types. Hence, customers with higher household incomes prefer to buy SUVs.



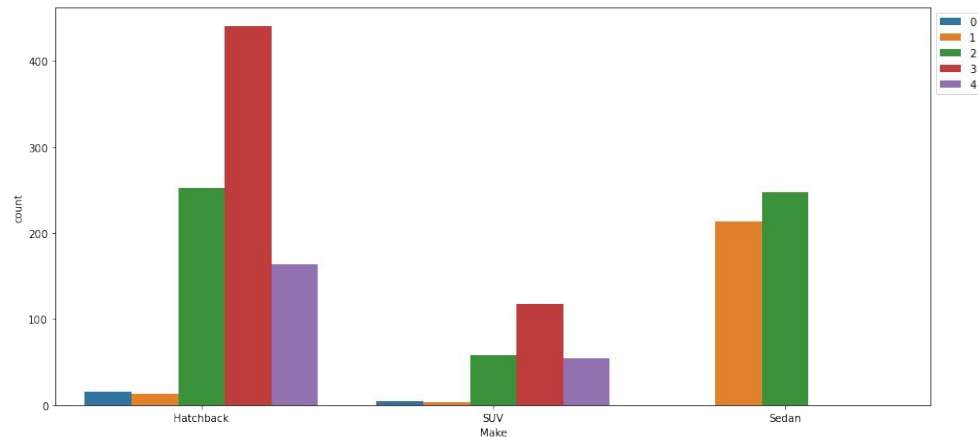
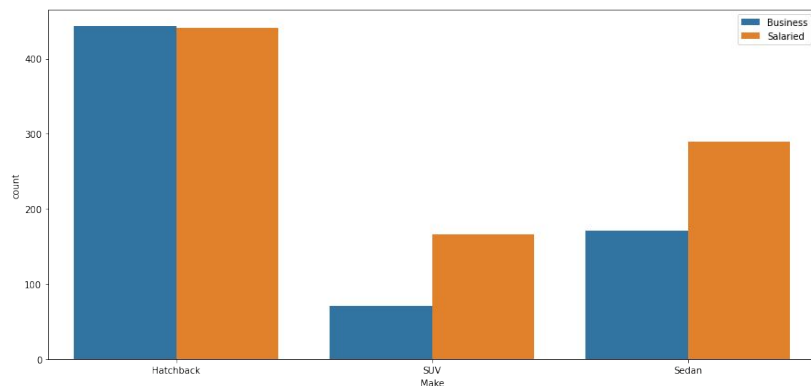
- Customers with higher education are more tend to buy cars. As observed Post Graduates have purchased more cars in all the types.

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# Bivariate Analysis



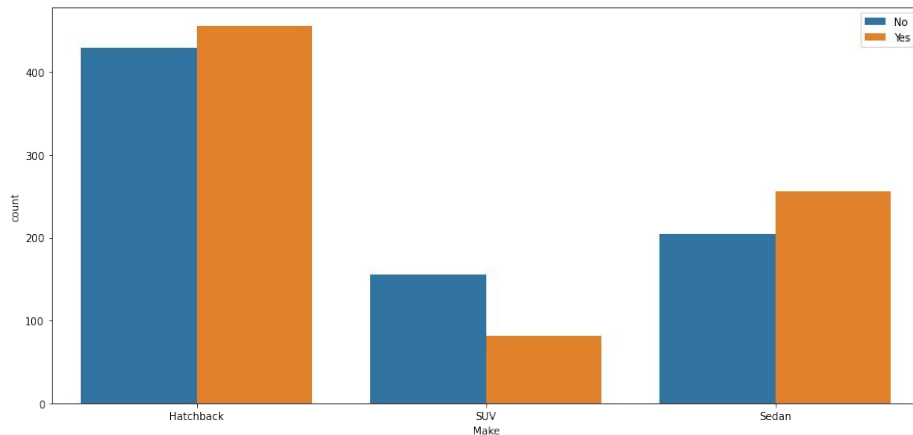
- Customers with salaries buy more cars compared to customers who own their business.
- Sales of hatchback is almost same for Business and Salaried individuals. Hatchback is more popular in both the professions.

- Customers with 3 or more number of dependents are more likely to buy a Hatchback or SUV.
- Sedan cars are purchased by customers with 1 or 2 dependents.

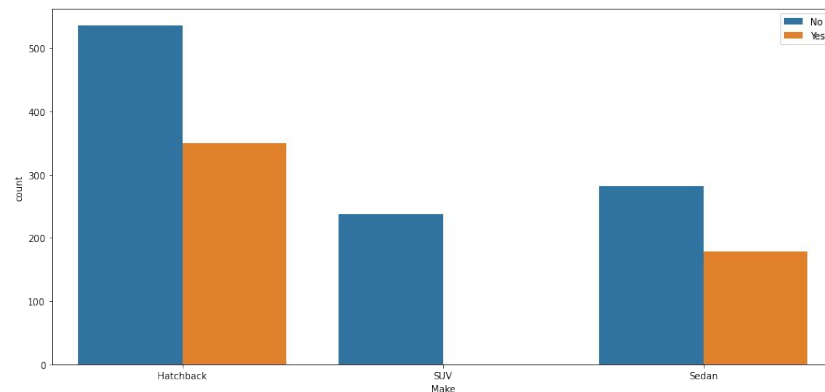
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# Bivariate Analysis



- Few SUV customers have personal loans on them.
- For Hatchback and Sedan, there is equal distribution of personal loans among the customers.



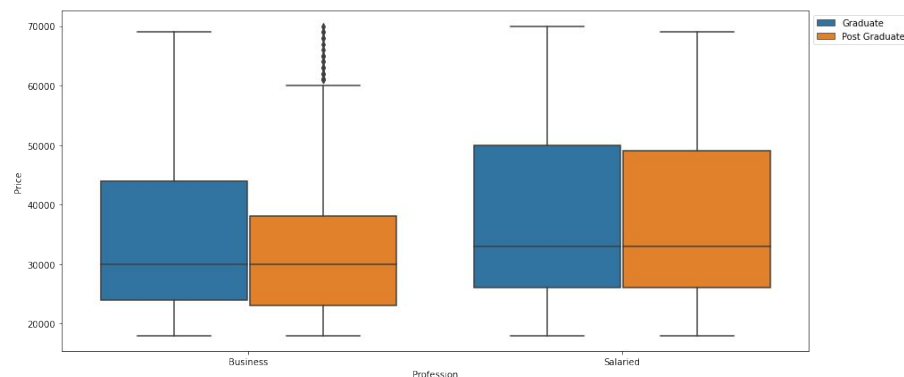
- SUV customers do not have a house loan.
- More of the hatchback customers have a house loan compared to the Sedan customers.

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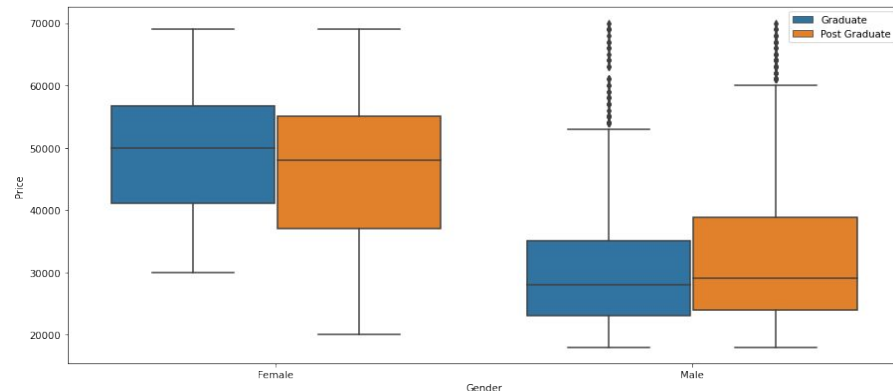
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# Multivariate Analysis



- 75% of cars purchased by Business individuals are below 45000 dollars
- Post Graduates who have their own business buy cars below 60000 dollars with few exceptions.



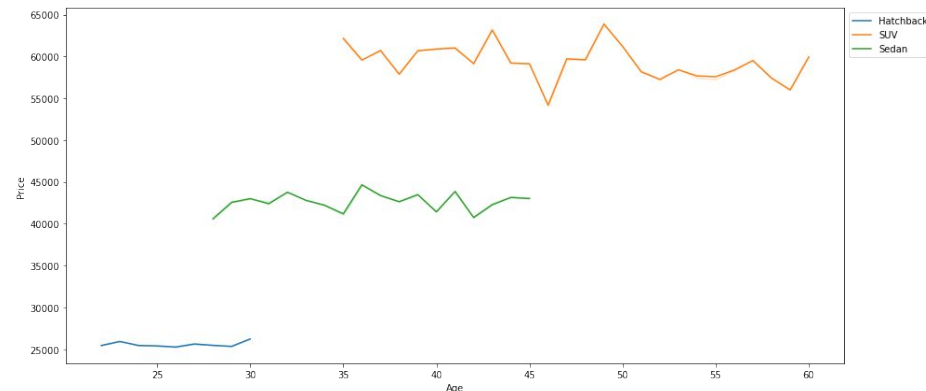
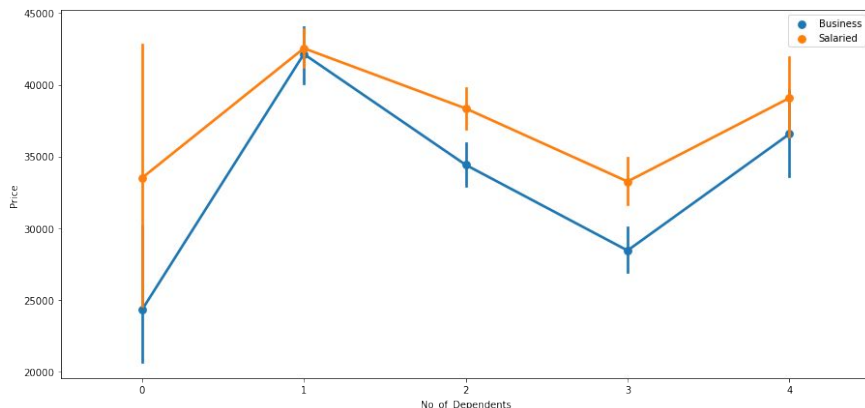
- The average cost of car purchased by males is nearly 30000 USD whereas the average price of cars purchased by females is nearly 50000 USD.
- Males tend to buy cars in range of 20k-60k USD with few exceptions.

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# Multivariate Analysis



- Customers with only 1 dependent, be it of salaried or business owner by profession, buy costlier cars.

- SUV is purchased by customers of age group above 35 and is only car purchased by customers in age group of 45 to 60+ years
- Sedan is purchased by age group of 27 to 45(approximately) years
- Hatchback is purchased by youths from age of 20 to 30

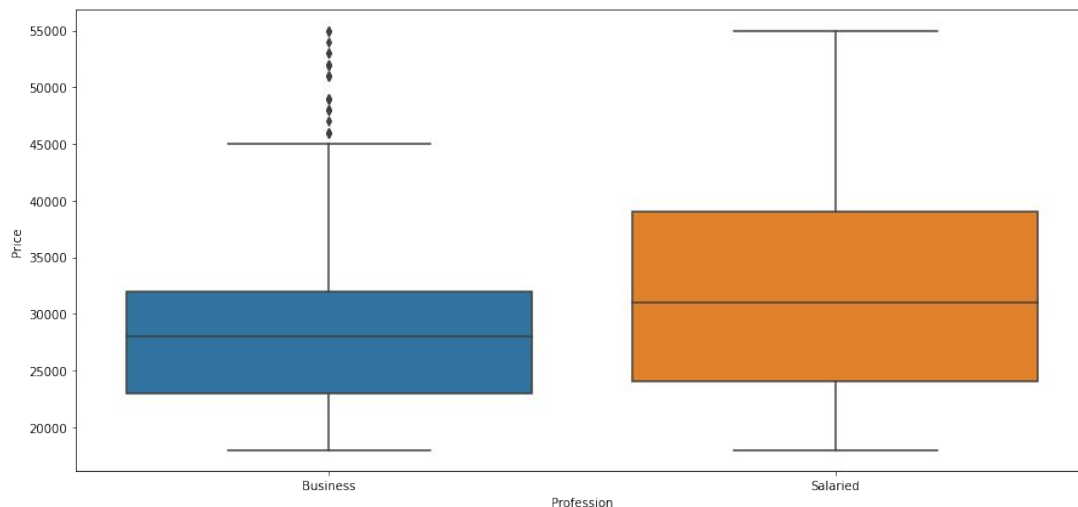
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# Multivariate Analysis - Key Questions

- For customers who have 3 or fewer dependents, the average car price is higher for salaried professionals (37036.18) compared to business professionals (32830.22)
- For customers having both personal and housing loans, we see that the variability in the price of cars bought by salaried employees is more than that for people who have their own business



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# Car Profiles

- Hatchback
  - An affordable and general-purpose car that can be used for a wide range of users.
  - It can be considered as an entry-level car generally targeted for the younger population with an average income of 55k.
- Sedan:
  - Slightly costlier compared to hatchback type cars. The product also generally targets the customers in their 30's who have a slightly higher income.
  - The product is suitable for single customers.
- SUV:
  - A costly car that will excite the car-lovers
  - It has a higher price point and is more suitable for customers who do not have any kind of loans on them.
  - The buyers in this segment are elder and are salaried individual.

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# Business Recommendations

- Austo should first launch the affordable Hatchback model in the US market targeting the younger population. This car type can be the flagship product that brings in the profits for the company as most of the young USA customers prefer this model.
- Then, Austo should launch a good and affordable Sedan model. The company needs to engage in more marketing for this model and should try to lure the younger age group customers into buying this model.
- After the successful launch of these models, the company can launch the SUV model with a competitive pricing strategy to gain more profits from the US automobile market. SUVs can be targeted to people from age group of 35 -60. As most of the customers for SUV are in this age range.

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