

# **Austo Motors Company**

## **Data Analysis Report**

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## **Introduction**

Austo Motor Company is a leading car manufacturer specializing in SUV, Sedan, and Hatchback models. In its recent board meeting, concerns were raised by the members on the efficiency of the marketing campaign currently being used. This report aims to analyse customer demand and identify target demographics for each vehicle segment. Additionally, it will conduct a market analysis to assess purchasing trends and enhance the customer experience.

## **Data Overview**

The data received consists of a set of market surveys done regarding the recent sales of cars from Austo Motor Company. The dataset contains various parameters related to the customers who are currently their customers. We have run through the dataset to analyse how these data affects the trend in car sales in the present scenario.

The dataset contains 1,581 records, encompassing various customer-related parameters. The data type of all the columns are correct and no corrections were required. However there were two parameters having null values. As per the dataset there are 53 rows missing Gender value and 106 rows missing Partner salary. For the analysis purpose the missing gender value was updated as Unknown. There were two records having wrong spelling for Female which also corrected. For the missing Partner Salary 0 was added as the value.

## **Observations**

After the data was cleaned of all the issues, we did a basic analysis of the data. The observations are noted below:

- As per the data Men tend to buy cars more than women. According to the recent data 75% of car sales have been involved with male customers. Only 20% corresponds to female customers.
- Average age of men buying a car is just above 29 years while on an average, women above 39 years of age buy car.
- People tend to buy cars when they are married rather than single. Close to 50% of married couples prefer Sedan over any other model whereas 60% of singles prefer Hatchback.
- Salaried people have more tendency of buying cars than business owners. Salaried men prefer Sedan over SUV or Hatchback whereas salaried women prefer SUVs.
- But based on the survey 47% Men prefer hatchback followed by 43% liking Sedan while 52% women prefer SUV over any other model of cars.
- Married people whose partner is working mostly prefers Sedan. Although it does not have much effect on Hatchback and SUV purchase.
- Families having 3 or 4 dependencies prefer Hatchback than SUV or Sedan. Person with no dependents tend to buy either Hatchback or SUV.
- The Sales of cars tend to decrease as the price increases. The preferred price range is between 18k-50k. Less number of cars are sold when priced above 50k to 70k.
- 50% of the customers having Personal Loan has purchased car.

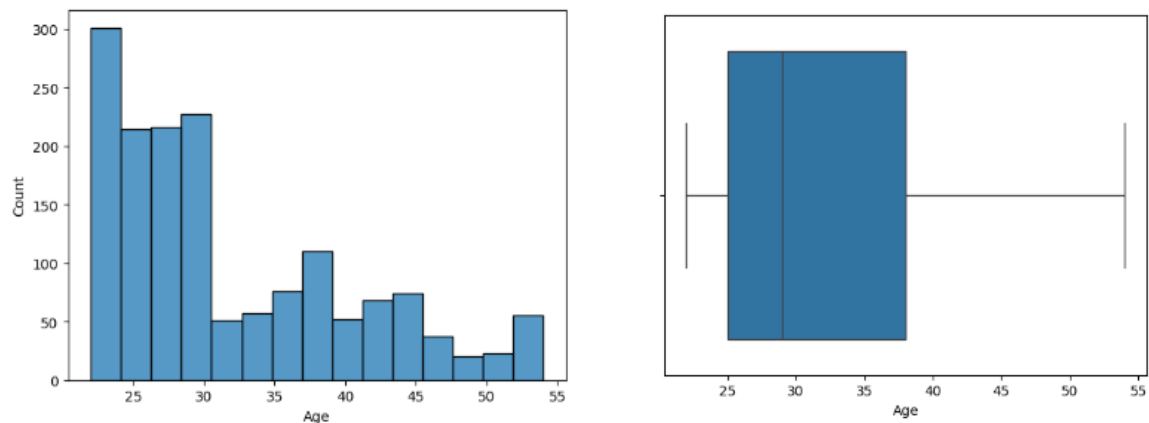
# Exploratory Data Analysis

Here we analyse the relation of numerical variables as well as categorical variables.

## Univariate Analysis

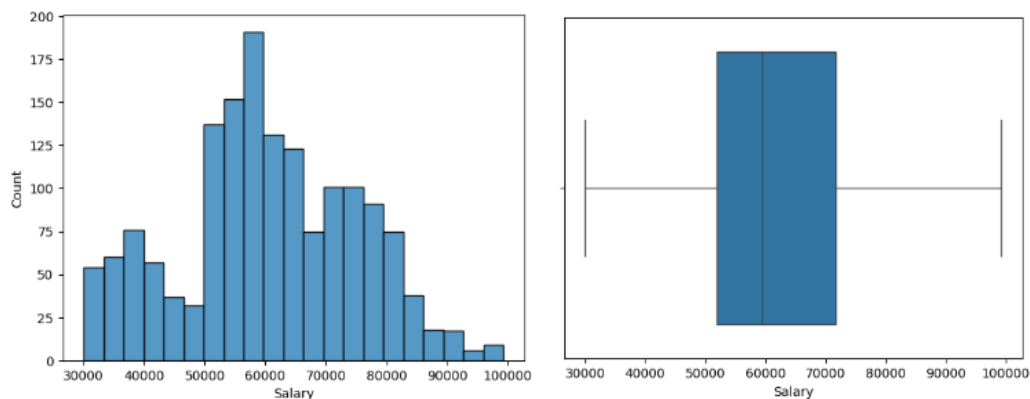
Below is the analysis on all the numeric parameters.

### 1. Age



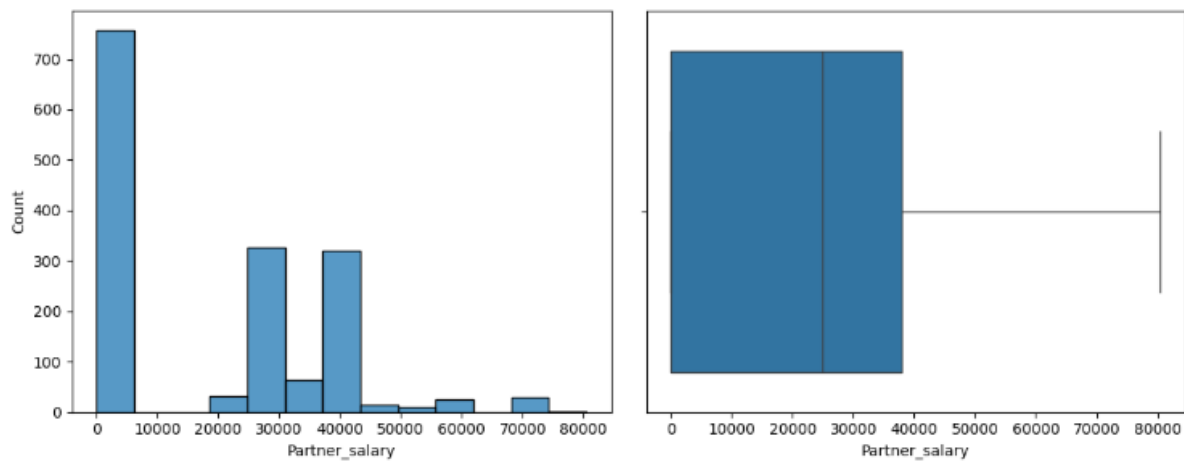
- The age distribution is right-skewed.
- No significant outliers are observed in the age parameter.
- The average age of customers is 29 years.

### 2. Salary



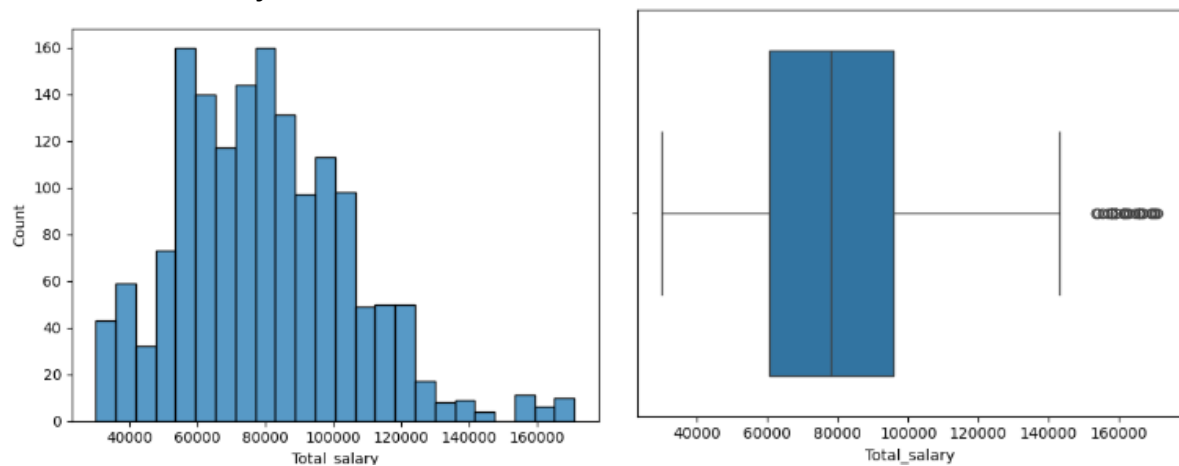
- The salary distribution exhibits a slight skew but remains approximately normal.
- The median salary among customers is \$59,000.
- No significant outliers are present in the data

### 3. Partner salary



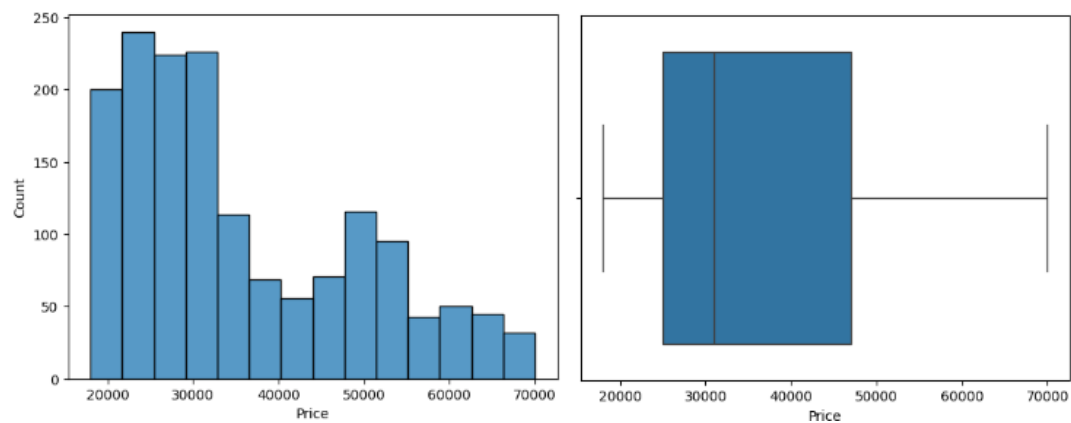
- The Partner Salary is highly right skewed.
- The first quartile aligns with the minimum salary value.

### 4. Total salary



- There are outliers in the total salary parameter
- The total salary is normal skewed

### 5. Price



- The price is slightly right skewed
- There are no outliers
- The most preferred car is having price range of 31k

## Heat Map

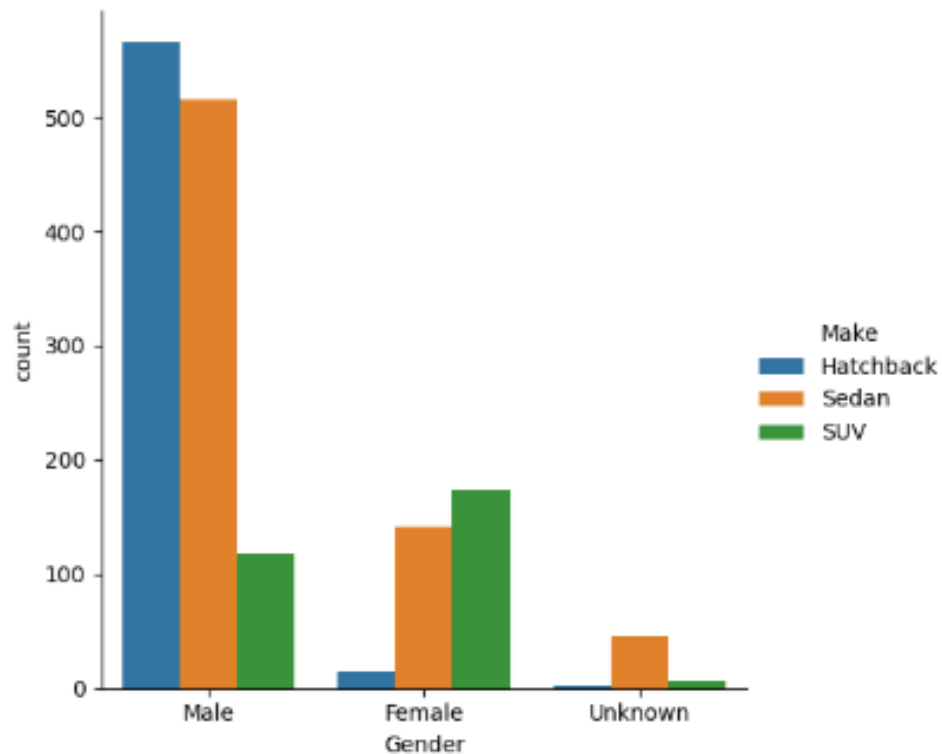
Here we are exploring the correlation between all numeric values.



- There is high correlation between Age and Price.
- There is very less correlation between the Partner Salary and Price which implies that buying tendency is not affected due to Partner salary.
- There is some correlation between the Salary and the Price of cars.
- The least correlation is between Salary and partner salary. Majority of the customers are dependent on single salary.
- No of dependents and Price is negatively correlated.
- No. Dependents is negatively correlated with all other parameters except for Partner Salary

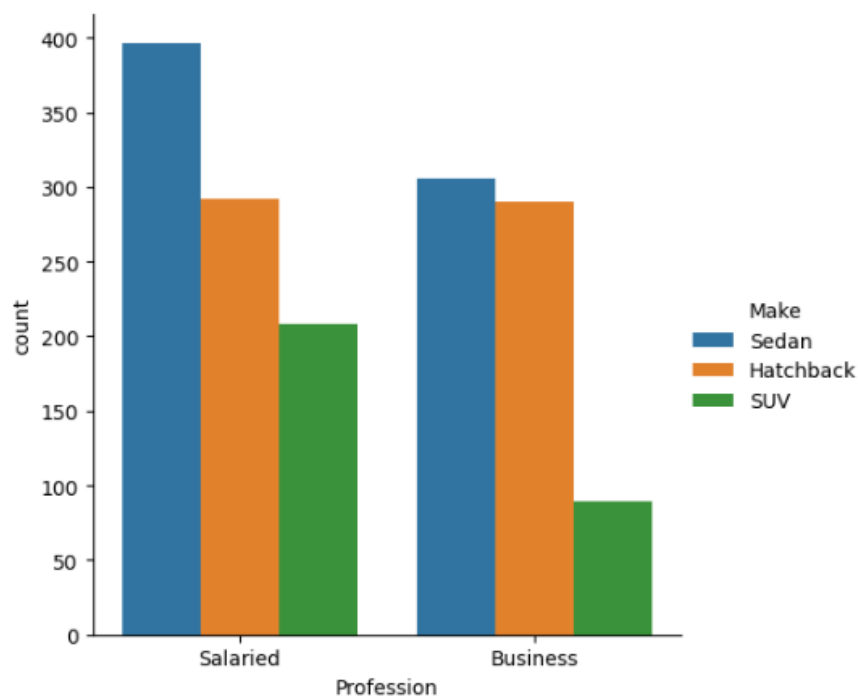
## Bivariate Analysis on Categorical Variables

### Gender and Make



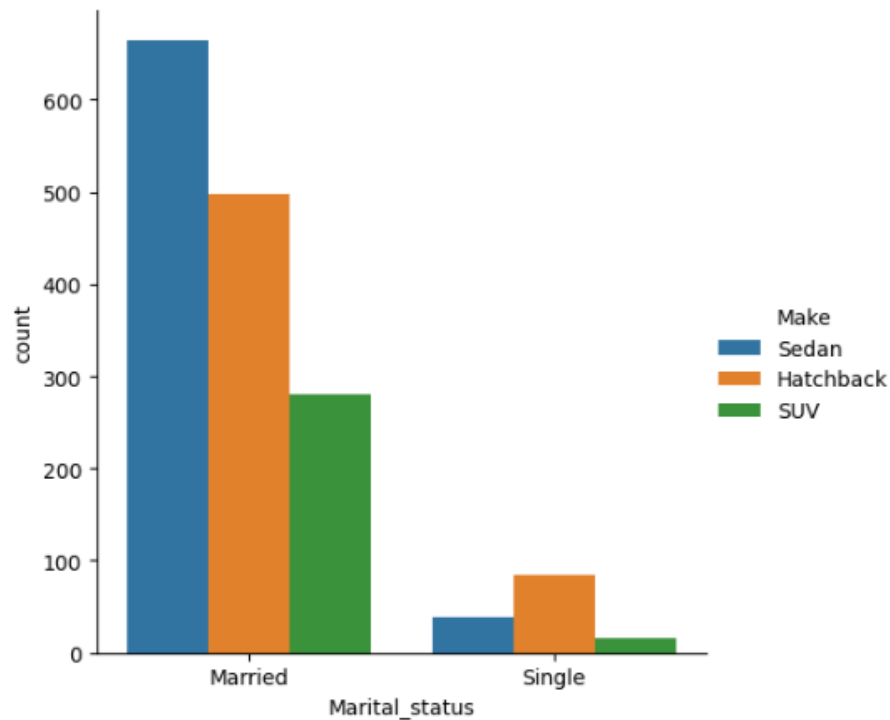
- According the analysis Men are main customers for Austo Automobiles.
- Men prefer Hatchback compared to Sedan and SUVs
- However Females prefer SUVs over Hatchback or Sedan

### Profession and Make



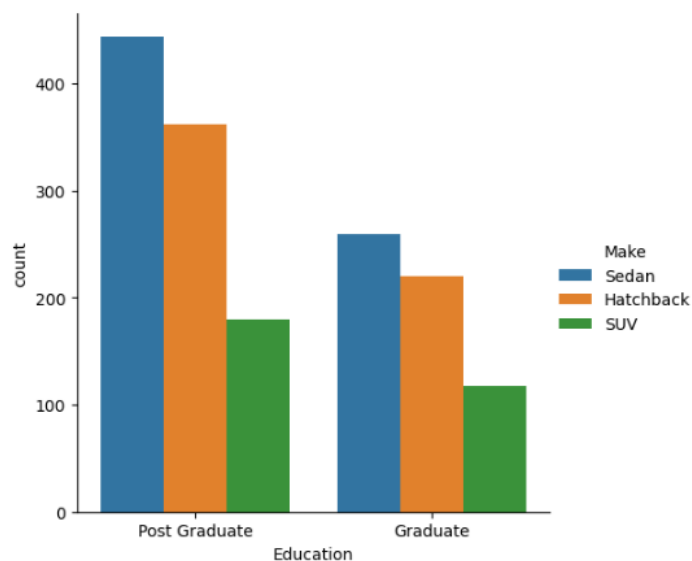
- Sedan is the most preferred type of car for both Salaried as well as Business professionals.
- Hatchback is the next preferred model equally liked by both professions.
- SUV is the least preferred model

### **Marital Status and Make**



- Sedan is the most preferred model among Married people.
- Married couples are among the larger number of customers for any model than Singles
- Whereas Singles prefer Hatchback
- The least preferred among both the categories is SUV

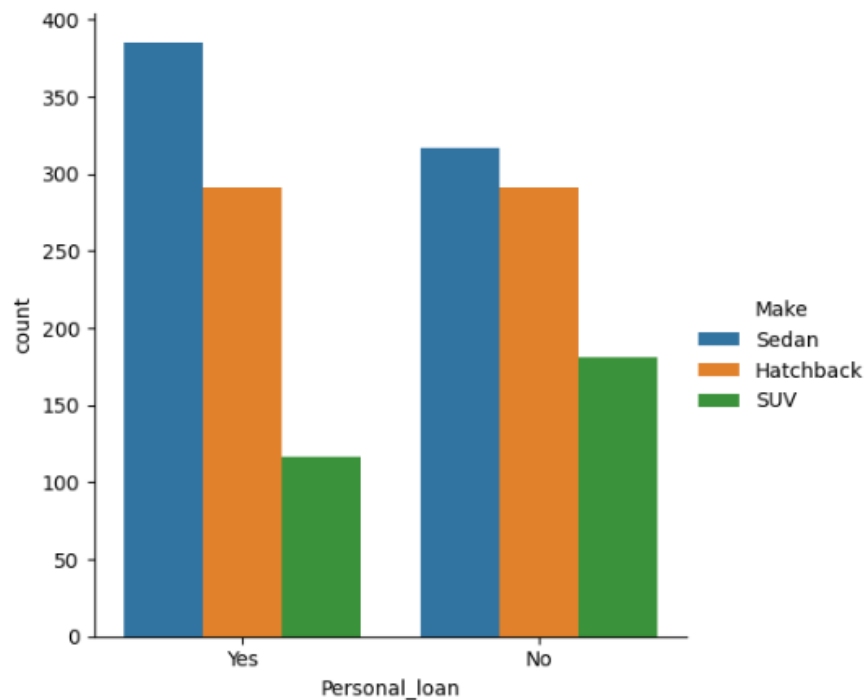
### **Education and Make**





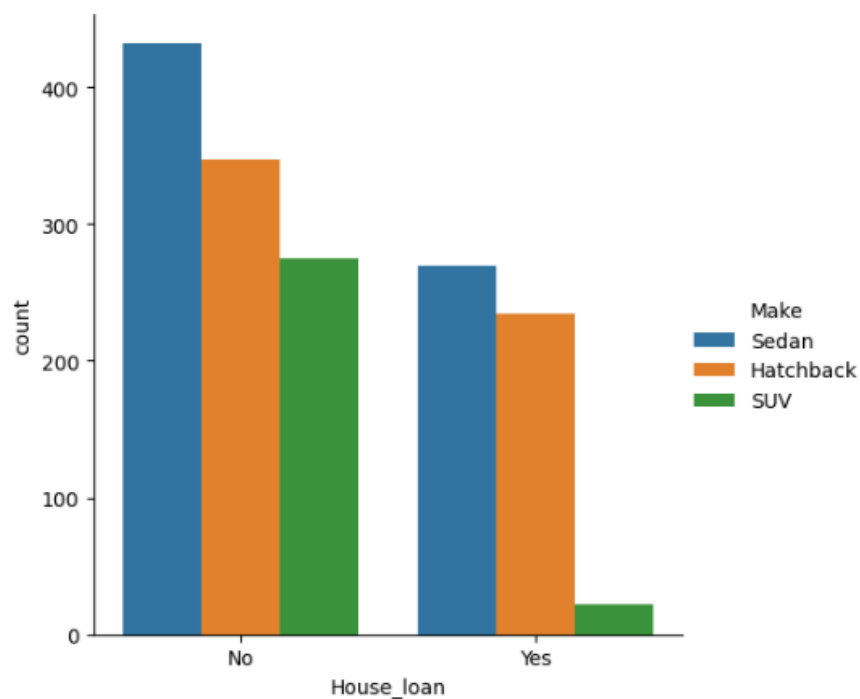
- Sedan is the most popular car model among both Post Graduate as well as Graduate customers
- Post Graduates are among the best customers of any car models.
- Graduates tend to buy cars lesser than Post Graduates.

### **Personal Loan and Make**



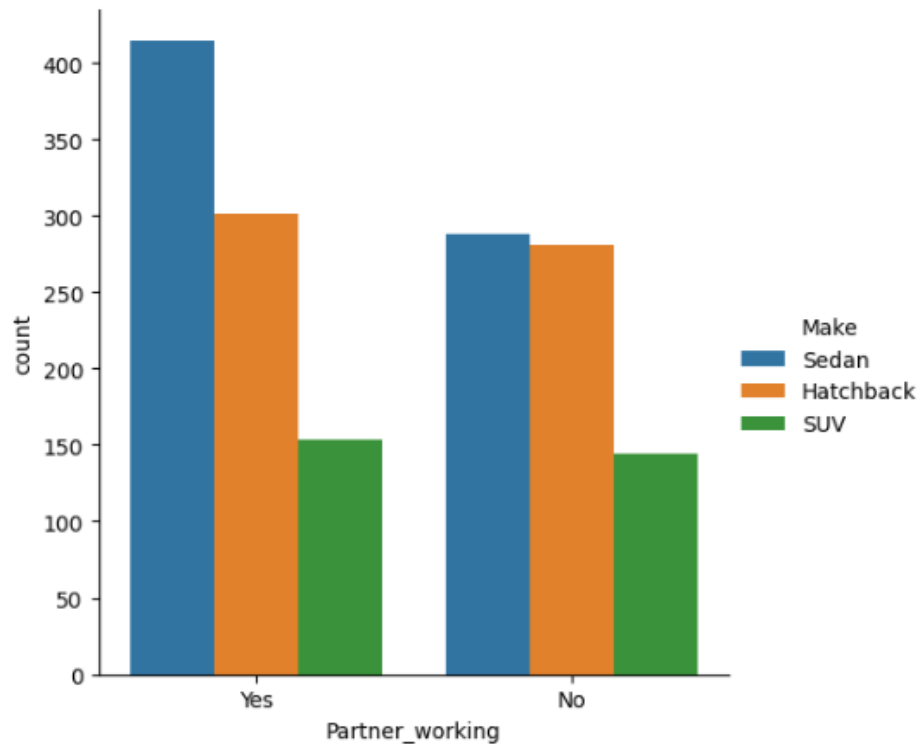
- Customers having personal loan has 50% chance of buying a car
- Sale of Hatchback is equal among customers having Personal Loan

### **House Loan and Make**



- The sale of cars is affected when customers have House Loan
- Customers not having House loan tend to buy cars more than customers not having House loan.

### **Partner Working and Make**



- Partner working has some effect on the sales of cars
- Couples having working partner tend to buy Sedan more than any other models.

## **Key Questions and Answers Based on Analysis**

### **1. Do men tend to prefer SUVs more compared to women?**

**Ans:** As per the data Men tend to buy cars more than women. According to the recent data 75% of car sales have been involved with male customers. Only 20% corresponds to female customers. Men prefer Hatchback compared to Sedan and SUVs

### **2. What is the likelihood of a salaried person buying a Sedan?**

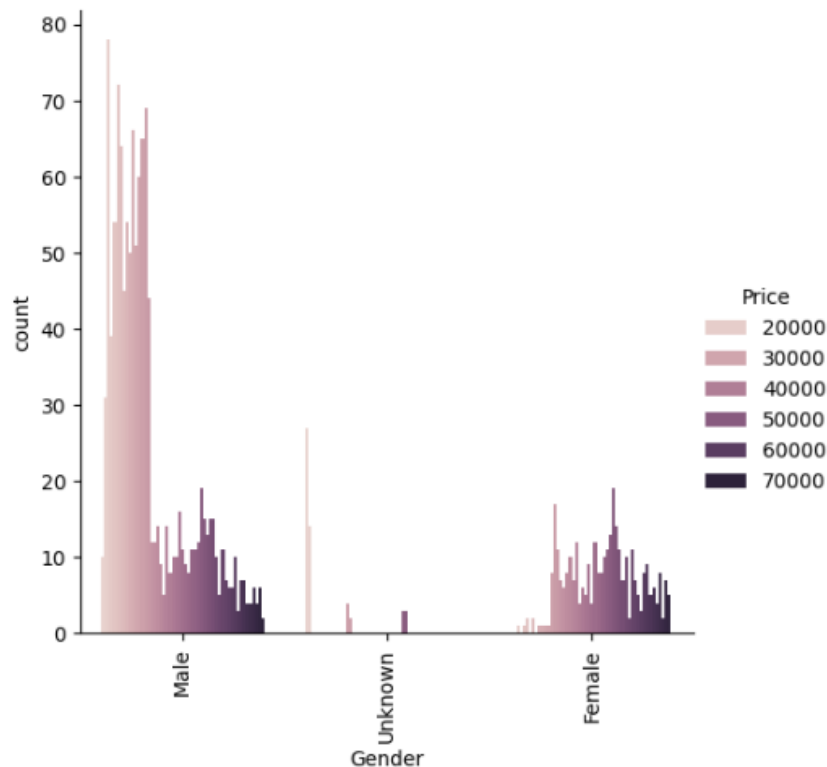
**Ans:** There is close to 45% chance for a salaried person buying a Sedan.

### **3. What evidence or data supports Sheldon Cooper's claim that a salaried male is an easier target for a SUV sale over a Sedan sale?**

**Ans:** According to the analysis Salaried male Prefer Sedan or Hatchback over SUV. Hence the marketing strategy can be rewired to target the male customers into purchasing SUVs.

### **4. How does the amount spent on purchasing automobiles vary by gender?**

**Ans:** There is high chance that a male purchase a car which is priced on a higher side than a female customer.

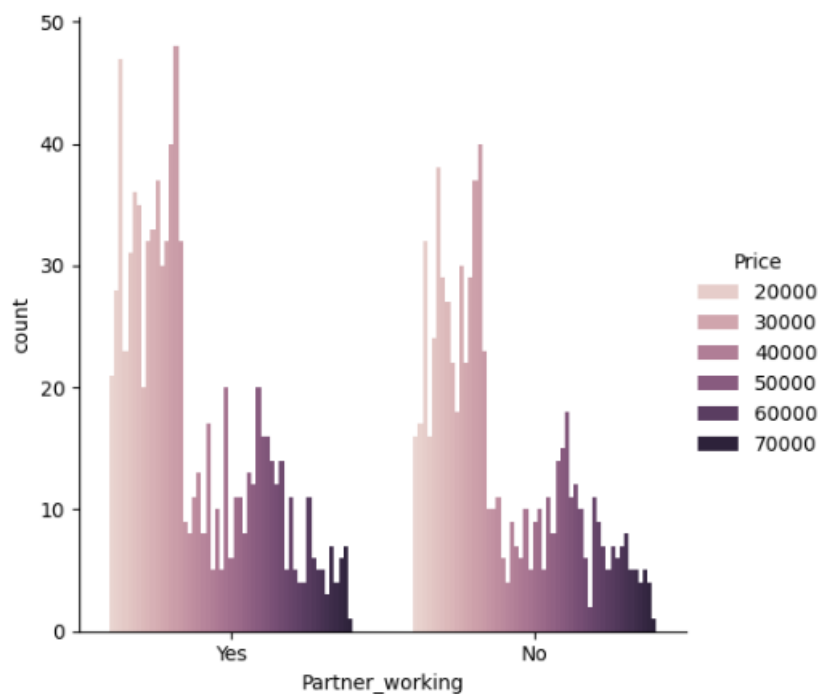


**5. How much money was spent on purchasing automobiles by individuals who took a personal loan?**

**Ans:** 50% of customers having personal loan have purchased a car. The maximum amount spent on a car purchased by a customer with personal loan is 70000.

**6. How does having a working partner influence the purchase of higher-priced cars?**

**Ans:** Partner working is not a factor for purchasing high priced cars. As we can see from the below graph that the purchasing trend is almost the same when it comes to higher priced cars for Partner working or not working.



## **Key Insights**

Based on the sales report analysis for Austo Motor Company, the marketing team has an opportunity to expand its customer base by refining its outreach strategies.

- ✓ There are currently fewer female customers purchasing cars. The marketing team can emphasize key features that appeal to female buyers, focusing on models they prefer. Since SUVs are the top choice, the team can integrate features that attract female customers into other vehicle models as well.
- ✓ Hatchbacks and sedans are currently favoured by male customers. To encourage SUV purchases, the team can incorporate appealing features from these models that align with male buyers' preferences.
- ✓ Currently, fewer business professionals are purchasing cars. The marketing team can focus on their needs and travel patterns to identify the features they value most. Highlighting safety and ease of use across all car models can enhance appeal to this customer segment
- ✓ Marital status significantly influences car-buying decisions, with sedans being the preferred choice. The marketing team can emphasize key features such as safety, ease of use, and spacious interiors to better appeal to this customer segment.
- ✓ Single customers tend to favour hatchbacks over other models. The marketing team can emphasize features like compact design, sporty appeal, and stylish aesthetics to attract this demographic and expand the customer base.

## **Summary**

To summarize, Austo Motors Company's marketing team can grow its customer base by improving outreach strategies. They can incorporate popular features from well-performing models into others to appeal to a broader audience. To attract professionals, the team can highlight features suited to different work lifestyles. For married couples, the focus should be on safety, space, and convenience, while compactness, stylish design, and a sporty appeal can help draw interest from single customers. This approach can enhance customer engagement across different groups.