

Business Report

# AUSTO MOTOR COMPANY



Gudla Sai Srinivas

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## 01 Problem-1


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Report



## Problem 1 - 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. The board decides to rope in analytics professional to improve the existing campaign.

You as an analyst have been tasked with performing a thorough analysis of the data and coming up with insights to improve the marketing campaign.



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A. What is the important technical information about the dataset that a database administrator would be interested in?



The total number of customer base is: 1581  
Total characteristics available in the base: 14  
Revenue of the company = 5.62 Cr

Features	Nature of the features	Type
Age	Age of the customers	Numeric
Gender	Gender of the customers	Categoric
Profession	Customers with different professions	Categoric
Marital_status	Marital_status of the customers	Categoric
Education	Education Level of the customers	Categoric
No_of_Dependents	No_of_Dependents in the family	Categoric
Personal_loan	Personal_loan acquired by the car owner(Y/N)	Categoric
House_loan	House_loan acquired by the car owner(Y/N)	Categoric
Partner_working	Partner working status(Y/N)	Categoric
Salary	Salary of the customer	Numeric
Partner_salary	Customers dependant's salary	Numeric
Total_salary	Addition of Partner Salary and Customer Salary	Numeric
Price	Revenue generated by selling each model	Numeric
Make	Categories of the sold cars	Categoric

**B. Take a critical look at the data and do a preliminary analysis of the variables. Do a quality check of the data so that the variables are consistent. Are there any discrepancies present in the data?**

- The table gives us an idea about the unique values that each feature holds.

Features	Count of Individual features
Age	33
Gender	4
Profession	2
Marital_status	2
Education	2
No_of_Dependents	5
Personal_loan	2
House_loan	2
Partner_working	2
Salary	538
Partner_salary	149
Total_salary	754
Price	53
Make	3

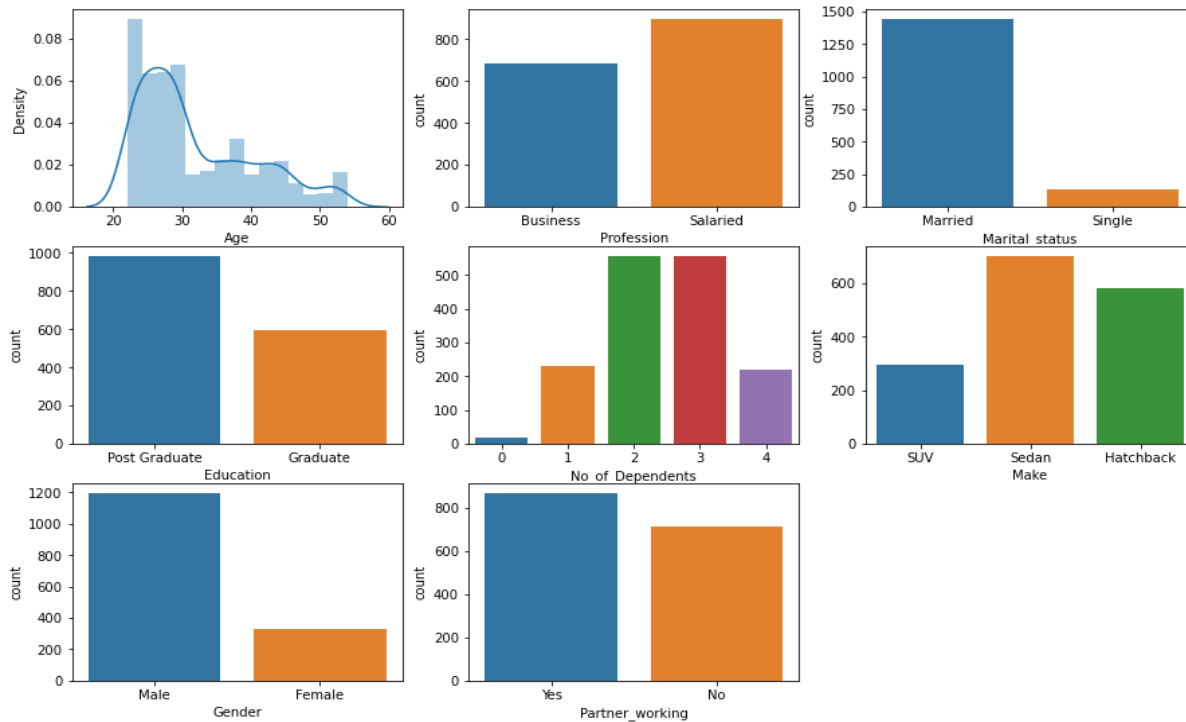
- Post a primary quality check on the dataset, **2 features** in the data have missing values:
1. GENDER: 53 missing values
  2. PARTNER\_SALARY: 106 missing values

For more accuracy, treated the missing values with mode and mean of the features.

- Observed that multiple typing/data entry errors in the feature 'GENDER'

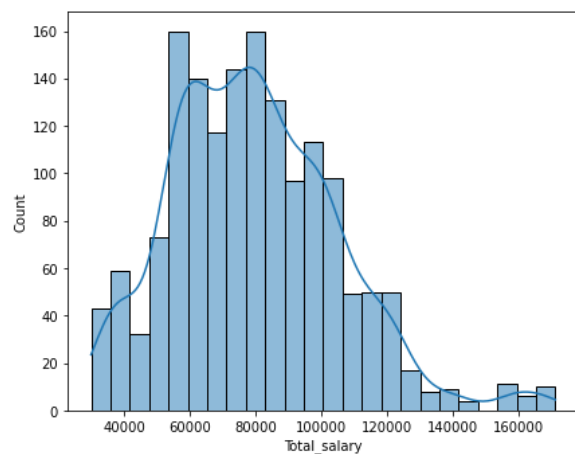
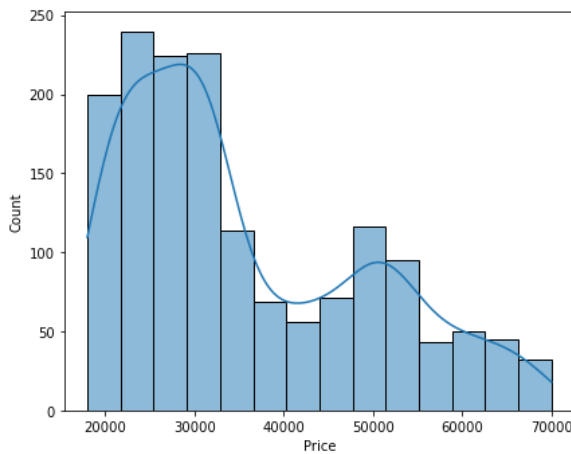
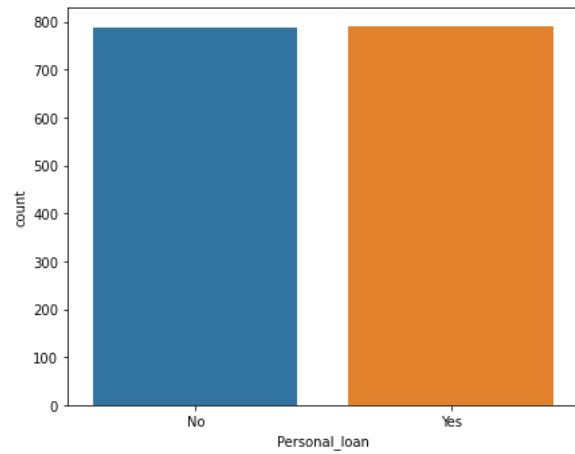
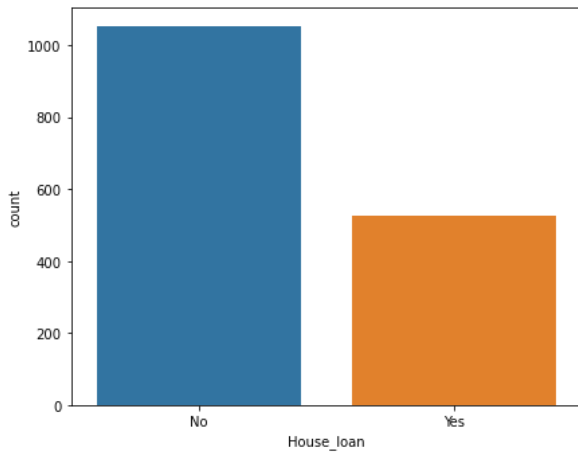
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Unique values in Gender ['Male' 'Femal' 'Female' nan 'Femle']
```

**C. Explore all the features of the data separately by using appropriate visualizations and draw insights that can be utilized by the business.**



#### Insights:

- Customers above 30 years of age tend to show a dip in purchase.
- Customers with business as profession have a lesser contribution in revenue generation.
- Singles are not preferring to purchase Austo Motor Company Cars.
- Dip is seen in the car purchase for graduates than post graduates.
- Customers with no,1 and 4 dependants are lower in count. The demand should be more with 4 dependant categories.
- Least selling model is SUV, followed by Hatchback.
- Female customers can be focused more.
- The count of the cars sold is less where the partners are not working.



### Insights:

- Customers with house loans are having less contribution.
- There is not much difference with or without personal loans.
- Dip is seen in the count of cars which are valued more than 35000(approx.)
- After 80000 of total salary, purchase of cars is getting reduced.



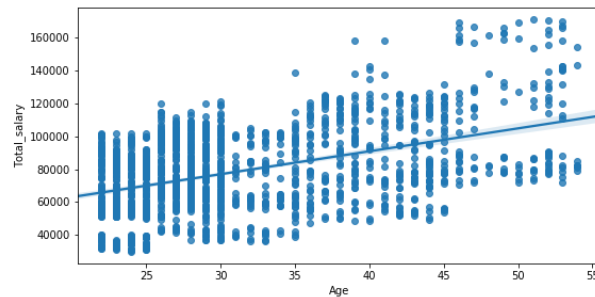
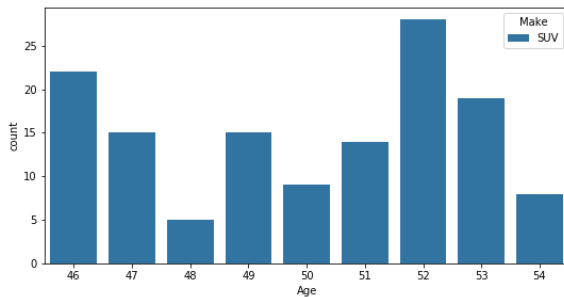
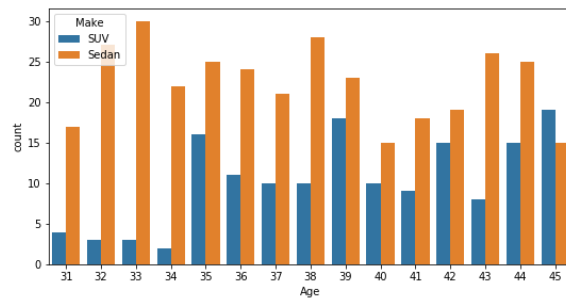
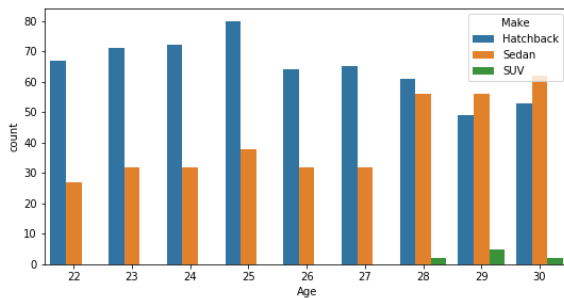
**D. Understanding the relationships among the variables in the dataset is crucial for every analytical report. Perform analysis on the data fields to gain deeper insights. Comment on your**

Following are the different relationships amongst the variables:

1. Age V/Make V/S Total Salary.

To gain more accuracy, further bucketizing of age is done.

Generally, age is directly proportional to salary, on bucketizing the age we can get deep insights.



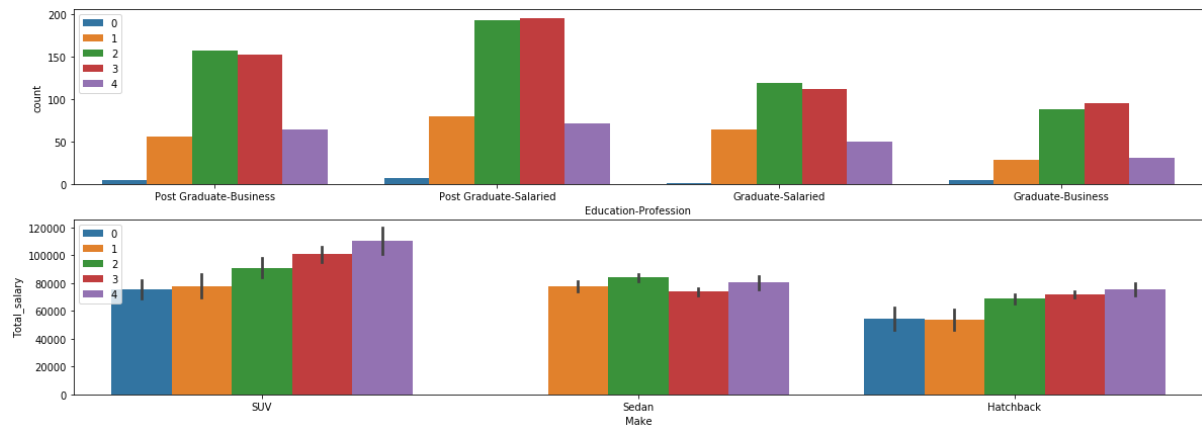
- Less SUV is sold within 22-30 years of age.
- No Hatchback is sold within 31-45 years of age.
- No Hatchback or Sedan is sold amongst people with age 46 and above.

With increase on salary range, potential to sell various car models are high.



## 2. Education, Profession V/S Make V/s No of Dependants.

To focus on a set of customers ,have considered various groups based on Education,Profession and No of dependants with Make.

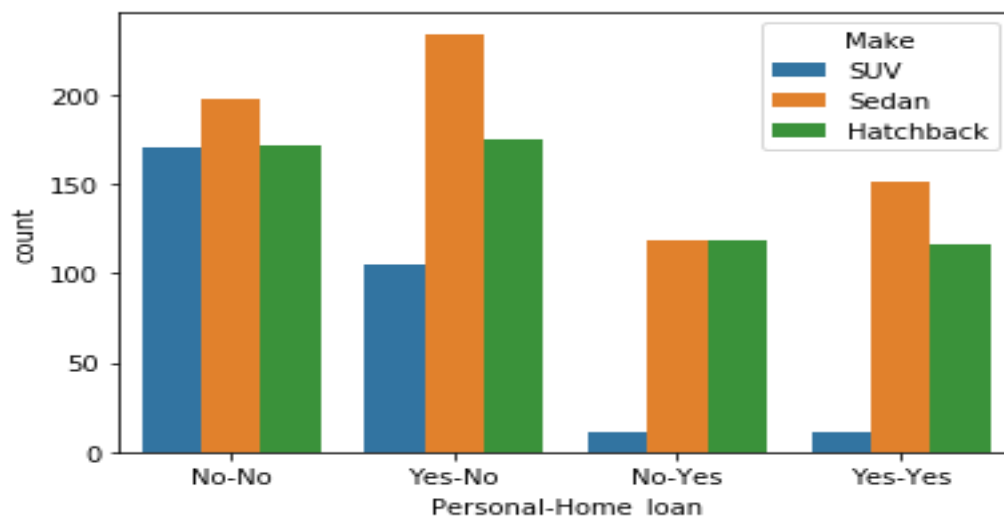


NOTE: In both graphs the feature: no of dependants is used.

- Population with no dependants have least contribution in revenue generation.
- Customers with 4 dependants have less contribution in car purchase where we can find business for the company in them.

## 3. Loans V/S Make.

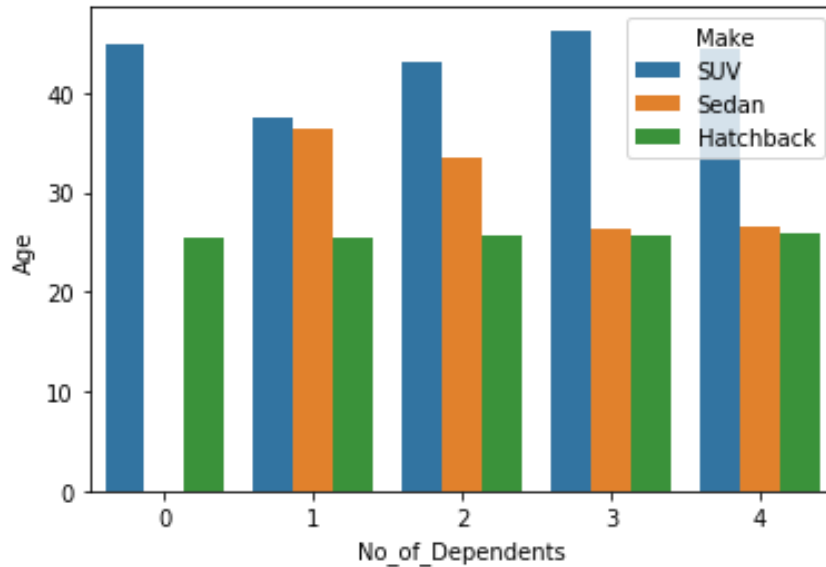
Considered loan to be a primary factor from customer view in purchasing cars.



1. With no loans, possibility in increasing the sale of SUV & Hatchback is more.
2. With loans, make customers to prefer Hatchback as it is a low-end car also.

#### 4. Age V/S No of Dependants V/S Make.

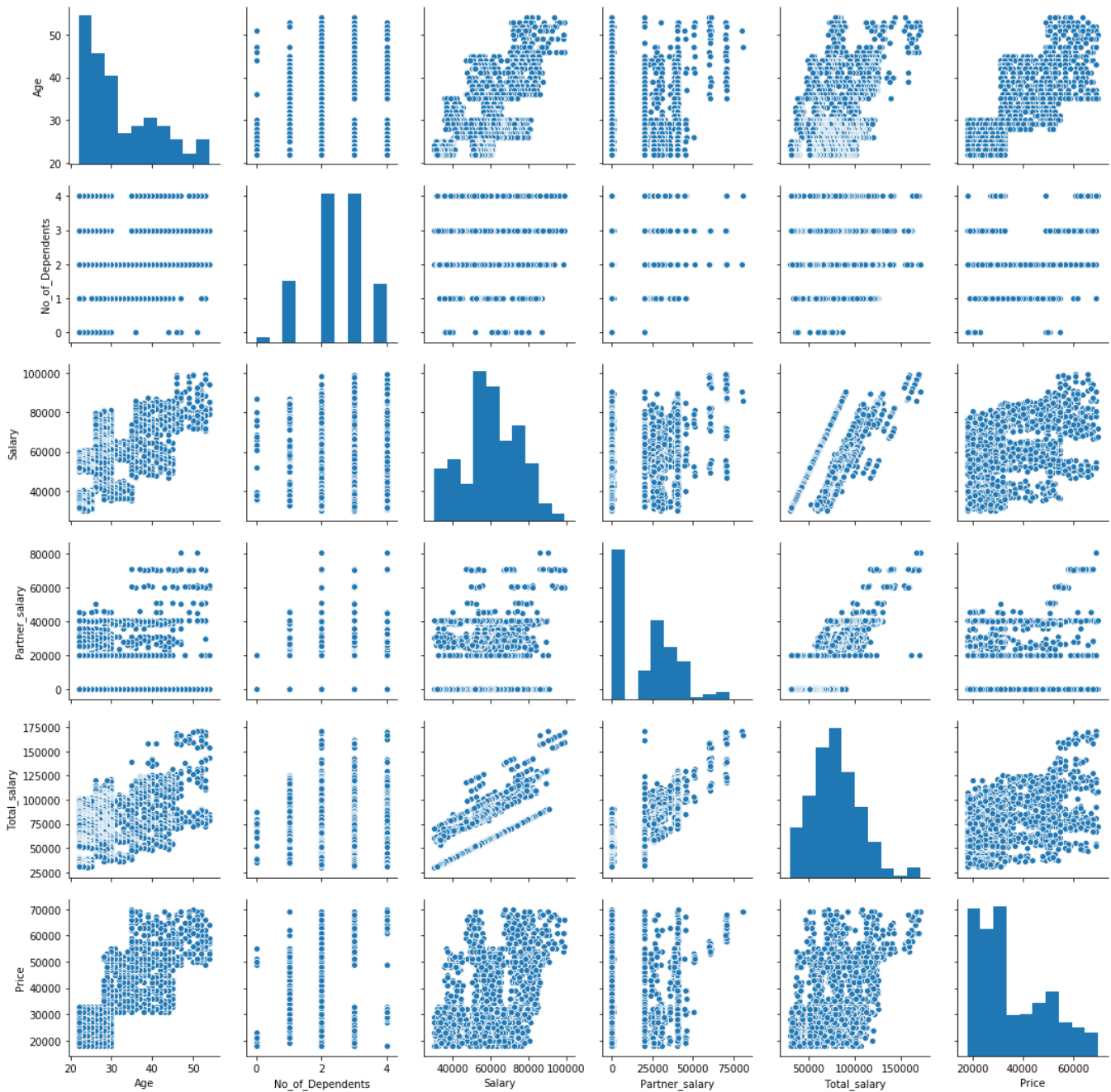
Customers choice of product can be varied on the count of dependants based on age.



#### Insights:

- Elder people are buying high price car i.e. SUV. However, not Sedan & Hatchback.
- Customers with no dependants are not buying sedan cars. As the Sedan is one of the solutions to have more boot space and lesser price than SUV.

## 5. Few More insights:



- With all the shown graphs, found there is positive correlation of both 'Price', 'Total\_salary' with Age.

E. Employees working on the existing campaign have made the following remarks. Based on the data and you analysis state whether you agree or disagree with the observations. Justify your answer Based on the data available?

**E1) Steve Roger says “Men prefer SUV by a large margin, compared to the women”**

As per the below table, count of SUV’s sold to female is high.

Gender	Female	Male
Make		
Hatchback	15	567
SUV	173	124
Sedan	141	561

Steve Roger’s statement is false.

**E2) Ned Stark believes that a salaried person is more likely to buy a Sedan.**

Below table infers, Sedan is sold more to a salaried person.

Profession	Business	Salaried
Make		
Hatchback	290	292
SUV	89	208
Sedan	306	396

Ned Stark’s statement is correct.

**E3) Sheldon Cooper does not believe any of them; he claims that a salaried male is an easier target for a SUV sale over a Sedan Sale.**

Table infers, count of SUV cars sold to salaried male is less as compared to Sedan.

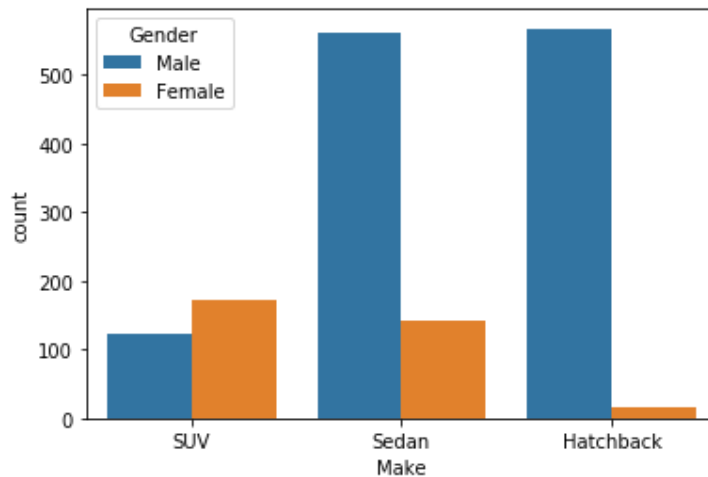
Make	Profession	Gender	Count
Hatchback	Business	Male	290
		Female	15
	Salaried	Male	277
SUV	Business	Female	55
		Male	34
	Salaried	Female	118
		Male	90
Sedan	Business	Male	256
		Female	50
	Salaried	Male	305
		Female	91

Sheldon Cooper’s statement is false.

**F. From the given data, comment on the amount spent on purchasing automobiles across the following categories. Comment on how a business can utilize the results from the exercise. Give Justification along with presenting metrics/charts used for arriving at the**

**F1) Gender:**

As per the graph, females have purchased less Hatchbacks in count and in males it is SUVs.

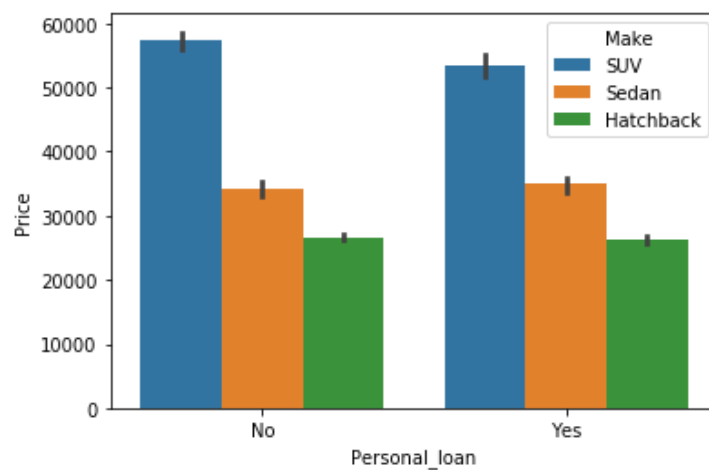


Below metrics infers, revenue generated by female is less in Hatchbacks and males have least count in SUV.

Gender	Make	Revenue
Female	Hatchback	4,12,000
	SUV	92,52,000
	Sedan	60,31,000
Male	Hatchback	1,49,59,000
	SUV	70,31,000
	Sedan	1,73,58,000

**F2) Personal\_loan:** Below graph and table can give us some insights with respect to Make.

Personal_loan	Make	Count
No	Hatchback	291
	SUV	181
	Sedan	317
Yes	Hatchback	291
	SUV	116
	Sedan	385



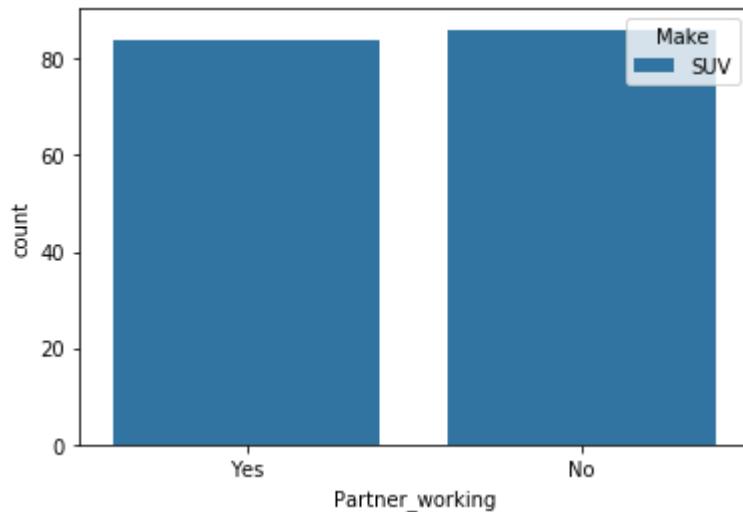
### Insights

- Customers are buying more Sedan make model with Personal loans.
- There is no difference in Hatchback cars.
- Observed more difference in SUV models.

**G. From the current data set comment if having a working partner leads to the purchase of a higher-priced car**

As per the given data, SUVs are the high-priced. So, considering cars more than 55000 in price.

Note: On considering uniqueness of the Price values, greater than (>)55000 can be considered as high-priced cars.



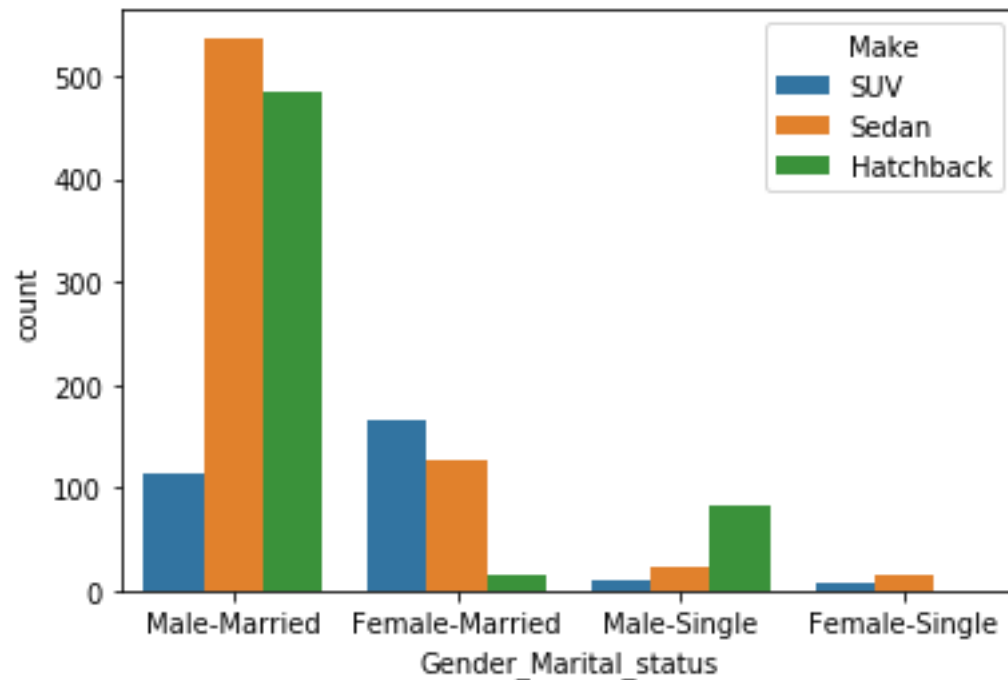
- Much variation cannot be seen whether Partner is working or not.

Having a working partner cannot be considered as more chances to buy a higher priced car.



**H. The main objective of this analysis is to devise an improved marketing strategy to send targeted information to different groups of potential buyers present in the data. For the current analysis use the Gender and Marital Status – Fields to arrive at Groups with similar purchase history**

Grouped 'Gender' with 'Marital status' fields to get more insights.



- Female-singles are not purchasing hatchbacks.
- Male married can buy more SUVs assuming increase in no of dependents.

Business Report

# GODGIT BANK



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## 1. Problem-2



# PROBLEM 2

**\*\*\*Framing An Analytics Problem\*\*\* Analyse the dataset and list down the top 5 important variables, along with the business justifications.**

GODIGT Bank has a set of customers who were given credit cards based on risk policy and customer category class but due to huge competition in the credit card market, the bank is observing high attrition in credit card spending. The bank makes money only if customers spend more on credit cards. Given the attrition, the Bank wants to revisit its credit card policy and make sure that the card given to the customer is the right credit card. The bank will make a profit only through the customers that show higher intent towards a recommended credit card. (Higher intent means consumers would want to use the card and hence not be attrite.)

## **Intro:**

Data has 8448 customers of the GODIGT bank , and 28 Features defines each customer of Credit Card (CC).

To find the 5 important variables, have deducted few features that does not affect Attrition of CC.

Below are the features with reasons.

- 1.userid - each user has unique IDs, no affect to Attrition.
- 2.card No - Card no does not affect the Attrition, as it is not connected to money.
- 3.card source date - Customers will not disable CC with source date, as whatever the date it is fine to use the card.
- 4.active 30\_60\_90 - Customers activity in salary/current/savings account do not relate to CC.

5.hotlist flag - Customers who are in hotlist flag group are less than 1% of total customer and losing a card, does not means disable the card. As the bank sources new card immediately.

6.Widget\_products, Engagement\_products - Here no information about CC in the count of widget or Engagement products.

7.T+1 & T+2 Month Activity not required as we are using avg spend of last 3 months.

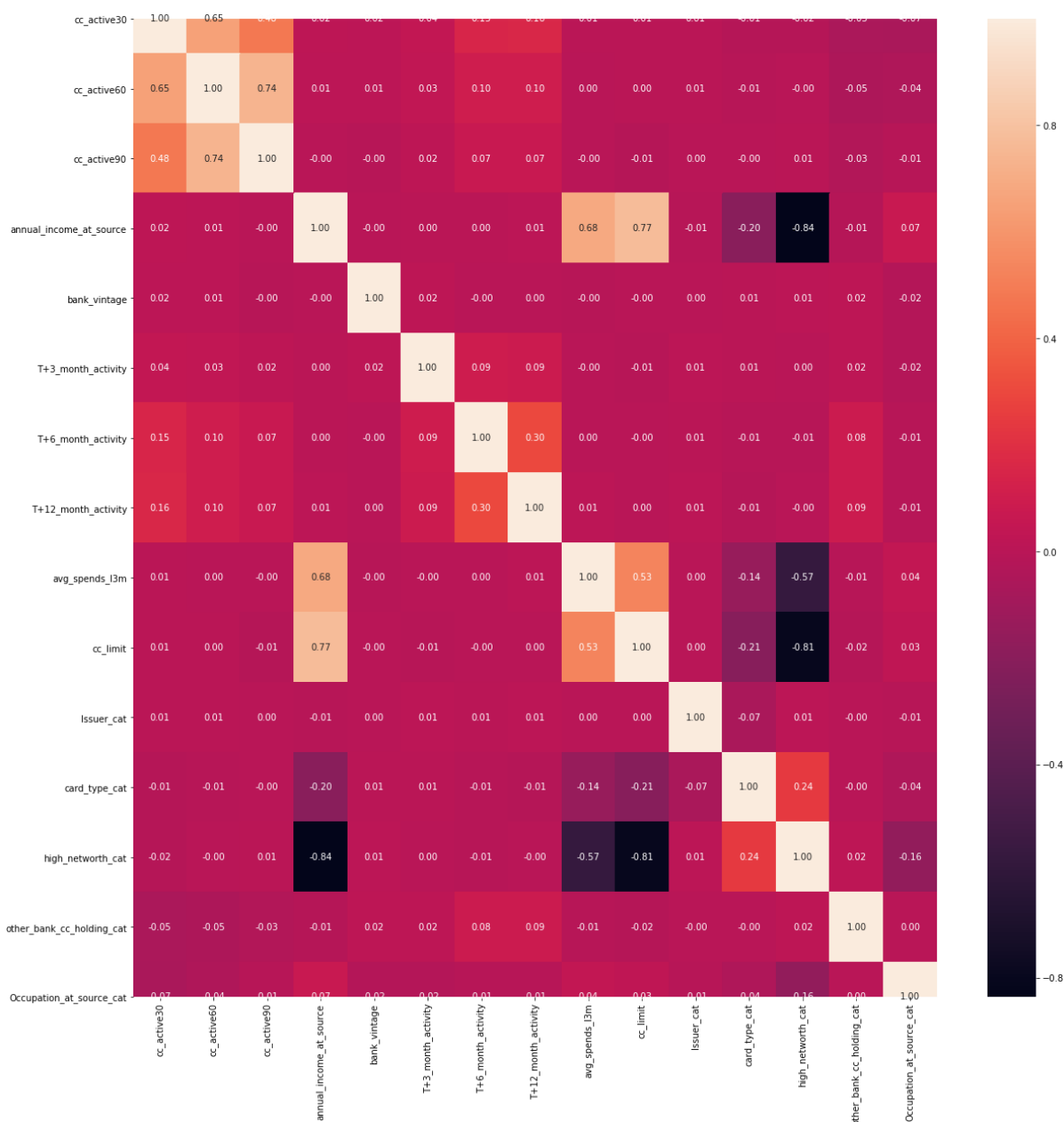
8. Transactor\_revolver - Transactor will pay every month so no Attrition concern, revolvers cannot disable the card - so Attrition not affected.

Now in the remaining variables, differentiating them based on dependent and independent based on CC attrition.

Dependent	Independent
card_type	other_bank_cc_holding
high_networth	avg_spends_l3m
cc_active30	Occupation_at_source
cc_active60	cc_limit
cc_active90	annual_income_at_source
T+3_month_activity	
T+6_month_activity	
T+12_month_activity	

➤ Outliers of the numerical features are not Anomalies, so no need to treat them.

On Considering negative correlation values in the below graphs, higher the negativity in relation higher the affect to CC attrition.



- There is a least correlation observed between few fields. 'high\_networth\_cat' shows less related with 'annual\_income\_ar\_source', 'avg\_spends\_l3m', 'cc\_limit' and after these 'CC\_limit' shows less correlation with card\_type\_cat.

### Insights:

- CC Limit – If limit does not satisfy the customer, he/she will think about other options.
- Annual Income – Though the Annual Income and giving less limit will affect Attrition.

- Avg Spend in last 3 months – High net worth customers might not be satisfied with CC limit.
- High Net worth – Categorisation is in correct, in terms of card type distribution.
- CC type – Customers are not satisfied with their type of card they are using in view of offers or redeem points values.

Therefore, top 5 features affecting Credit card Attrition are

1. cc\_limit
2. annual\_income\_at\_source
3. avg\_spends\_l3m
4. high\_networth
5. card\_type