AUSTO MOTOR COMPANY

EFFECTIVE MARKETING CAMPAIGN

CONTENT

PROBLEM :1 AUSTO MOTOR COMPANY

This case study focus on efficiency of Marketing Campaign to increase the sales and Revenue Generation in Austo Motor Company.

- The dataset contain details about 1581 customers with 14 specific variables.
- Dependent Variables : Price , Make.

DATA INFORMATION :

VARIABLES	CATEGORY OF VARIABLES	DESCRIPTION
AGE	NUMERICAL	AGE OF THE CUSTOMER
GENDER	CATEGORICAL	GENDER OF THE CUSTOMER
PROFESSION	CATEGORICAL	WHETHER CUSTOMER DOING BUSINESS OR SALARIED PERSON
EDUCATION	CATEGORICAL	QUALIFICATION OF CUSTOMER
MARITAL STATUS	CATEGORICAL	WHETHER MARRIED OR SINGLE
NO. OF DEPENDENT	NUMERICAL	NO.OF PERSON DEPENDS ON CUSTOMER'S SALARY
PERSONAL LOAN	CATEGORICAL	CUSTOMER HAVING PERSONAL LOAN OR NOT
HOUSE LOAN	CATEGORICAL	CUSTOMER HAVING HOUSING LOAN OR NOT
PARTNER WORKING	CATEGORICAL	CUSTOMER'S PARTNER WORKING OR NOT
SALARY	NUMERICAL	SALARY OF CUSTOMER
PARTNER SALARY	NUMERICAL	CUSTOMER'S PARTNER SALARY
TOTAL SALARY	NUMERICAL	TOTAL INCOME OF THE FAMILY
PRICE	NUMERICAL	PRICE OF THE CAR WHICH THE CUSTOMER BOUGHT
MAKE	CATEGORICAL	MODEL OF CAR WHICH THEY BOUGHT

PRELIMINARY DATA ANALYSIS :

- DUPLICATES :

  No Duplicates in Dataset.

- MISSING VALUES :

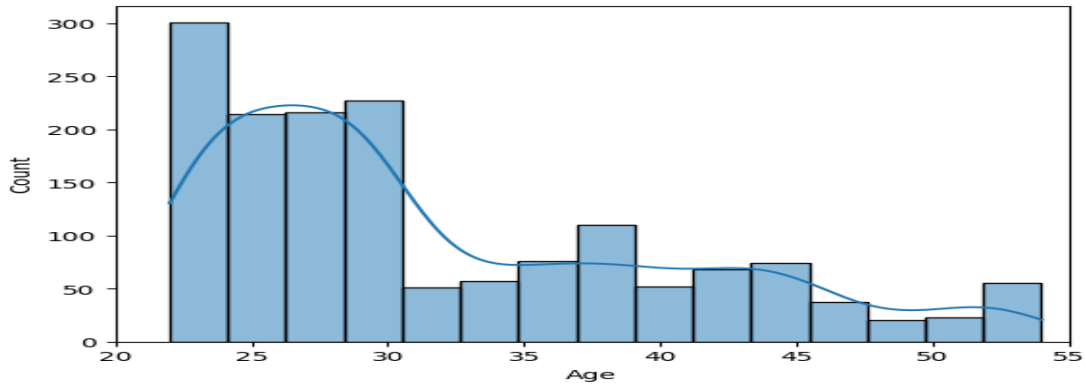
  - Here 53 values missing in Gender variable , to resolve this we have to replace it with MODE values .
  - 106 values missing in Partner salary variable, to resolve this we have to replace it with MEDIAN.

- OUTLIERS :

  Only Total salary variable has outlier , to treat it we are using BOXPLOT method. Then convert its range within Rs.30,000 to 1,49,000.

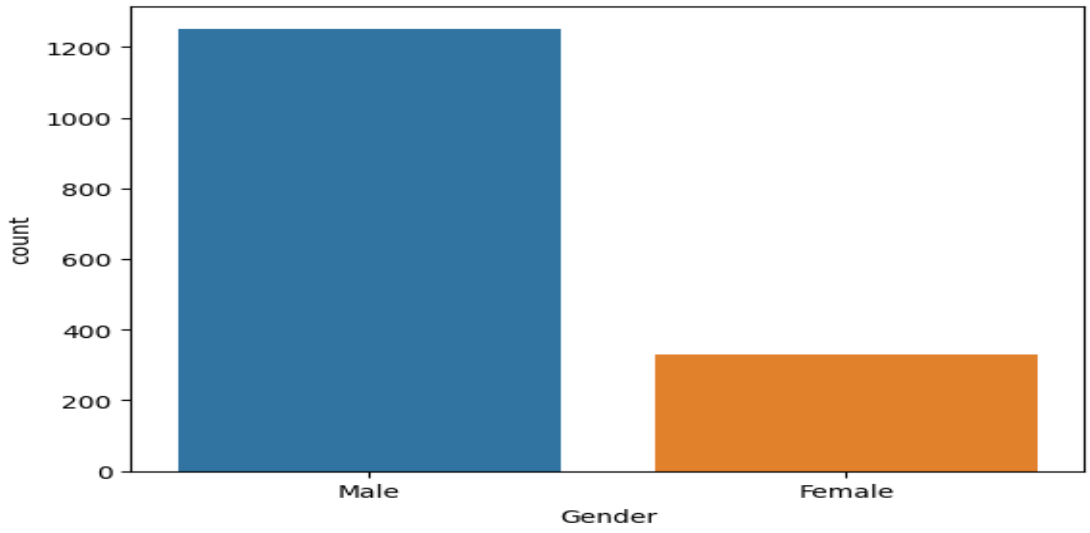
DATA VISUALIZATION :

✓ AGE :



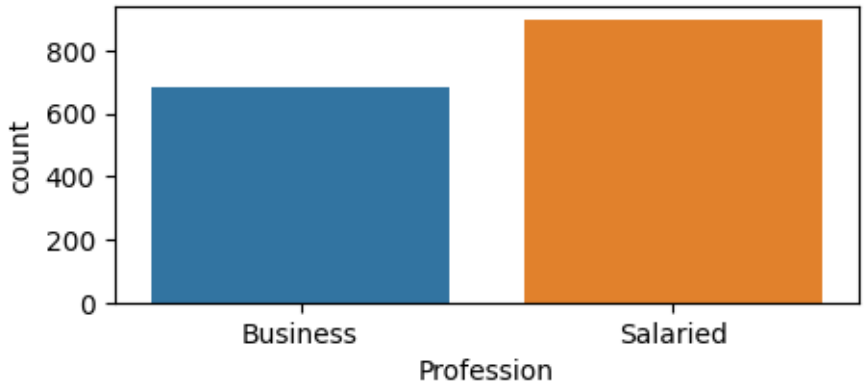
Premium customers are in the age group of 20 to 30 .

✓ **GENDER :**



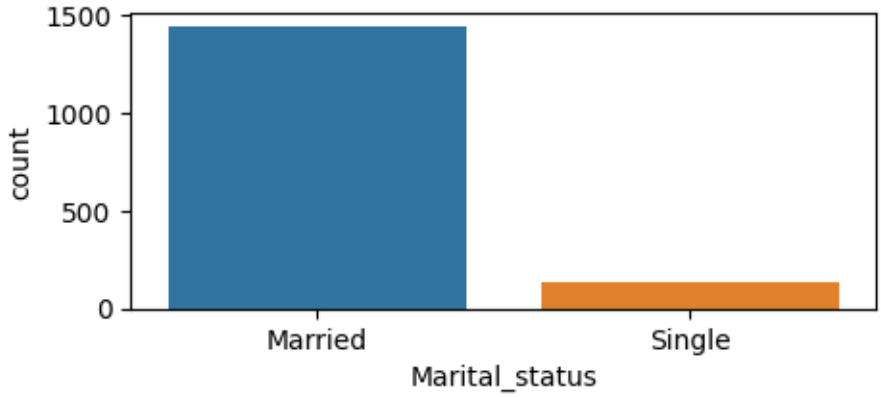
There are 1252 Male & 329 Female customer. So we can say Maximum customers are Males.

✓ **PROFESSION :**



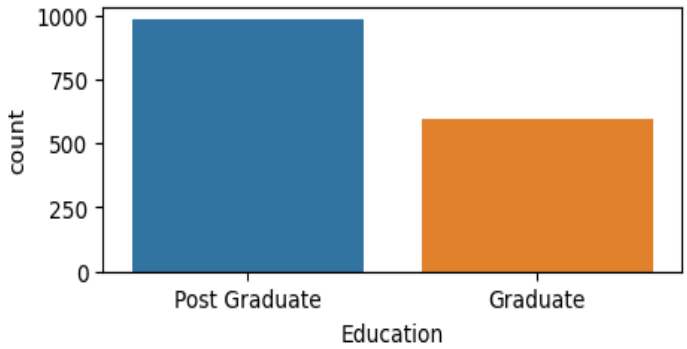
685 Business and 896 salaried customers are there. So we can say that maximum customers are Salaried persons.

✓ MARITAL STATUS :



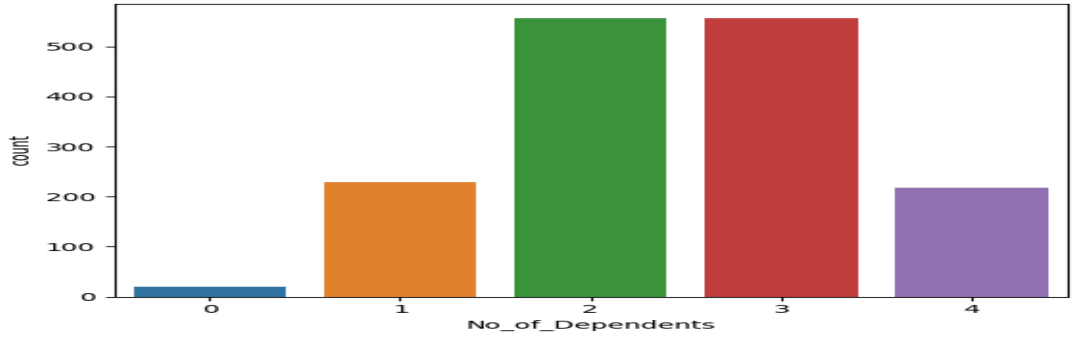
There are 1443 Married and 138 Single customers. So we can say that Married persons are more willing to buy cars.

✓ EDUCATION :



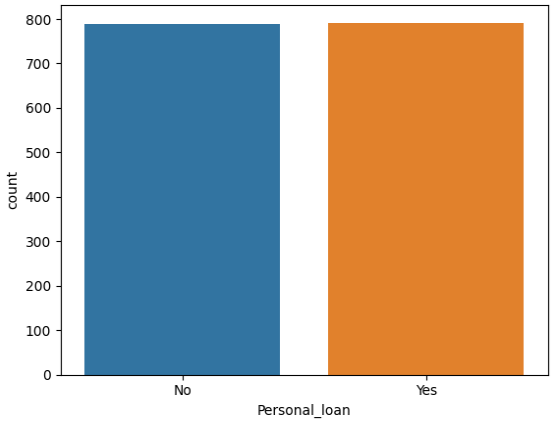
There are 985 Post Graduates and 596 Graduates. So we can say maximum customers are Post Graduates.

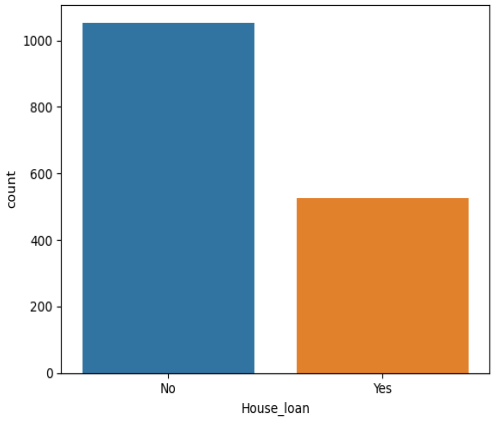
✓ NO. OF DEPENDENTS :



There are more customers with 2 to 3 Number of dependents who prefer cars.

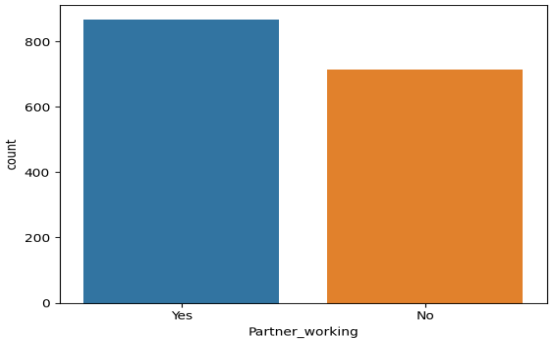
✓ PERSONAL LOAN & HOUSE LOAN :





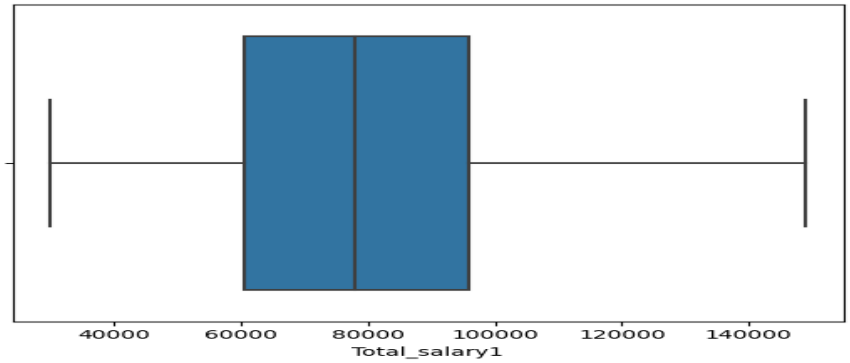
There are 514 customers with Personal loan and 249 customers with House loan and 278 customers with both the loans.A maximum of 540 customers are without any loans.

✓ WORKING PARTNER :



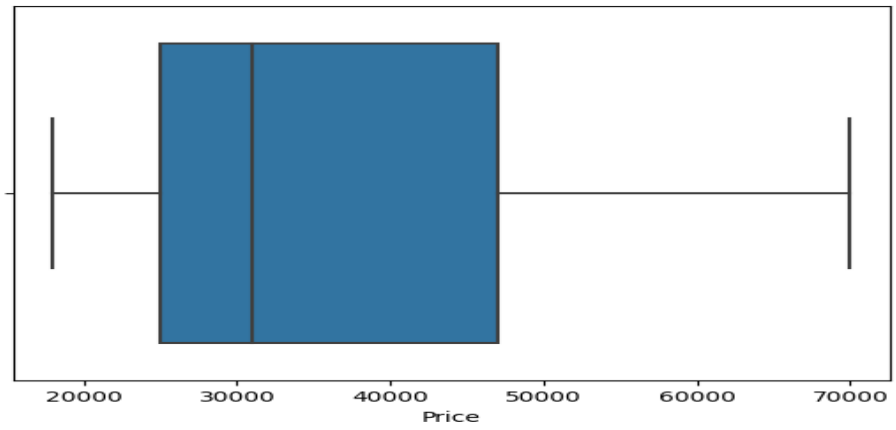
There are 868 customers having working partners.So we can say that customers with working partners prefer cars than others.

✓ TOTAL SALARY :

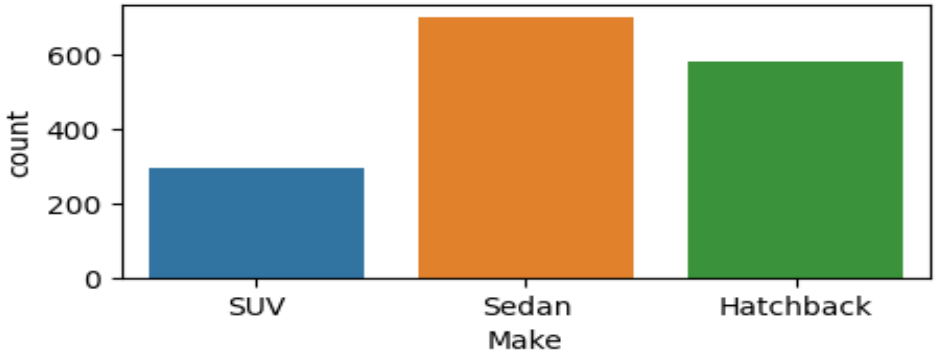


Total salary = customer's salary + partner's salary.we get Total_salary1 after treating outliers within Total salary.

✓ **PRICE RANGE OF CARS :**



✓ **CAR MODELS :**

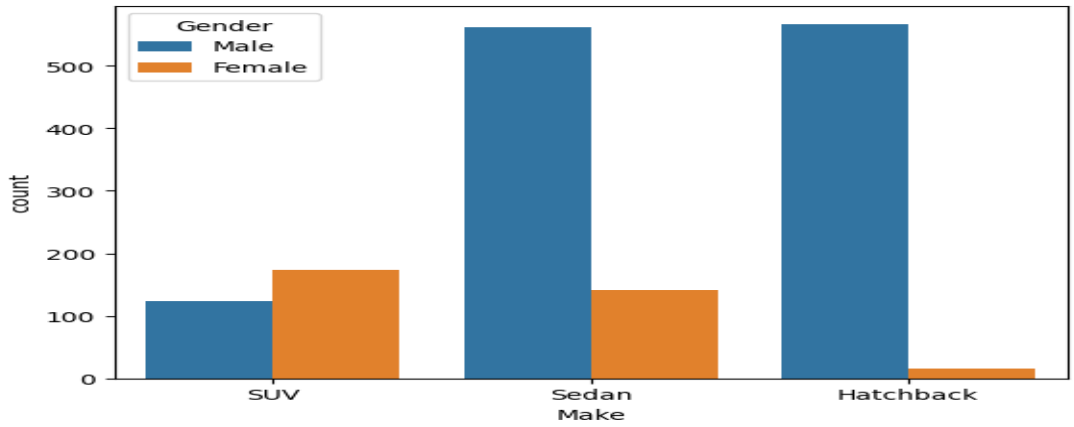


Here we know that SUV cars are more costlier than Sedan and Hatchback cars.Sedan cars sold the most.

RELATIONSHIP AMONG VARIABLES :

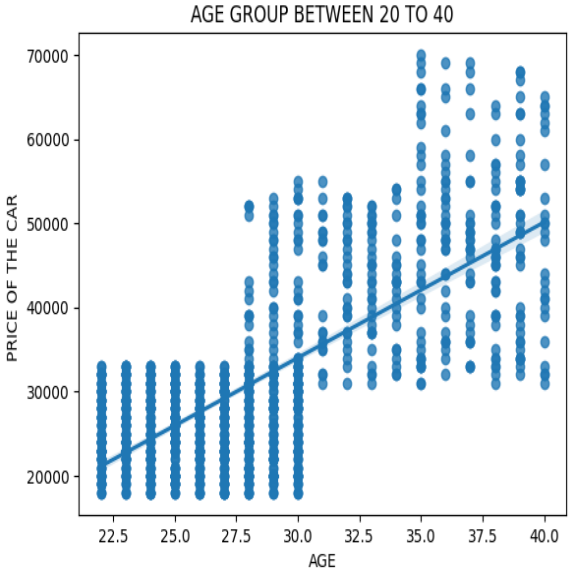
✓ **GENDER – MAKE :**

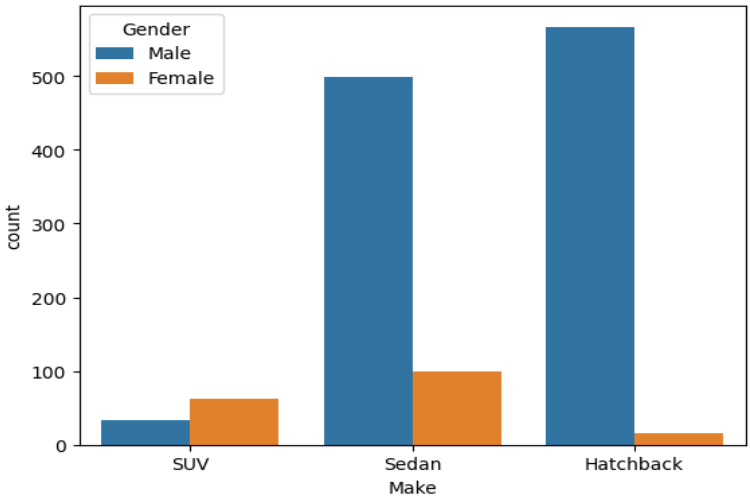
Seden and Hatchback models are popular among MALES whereas FEMALES prefer SUV.



✓ **AGE – PRICE - MAKE :**

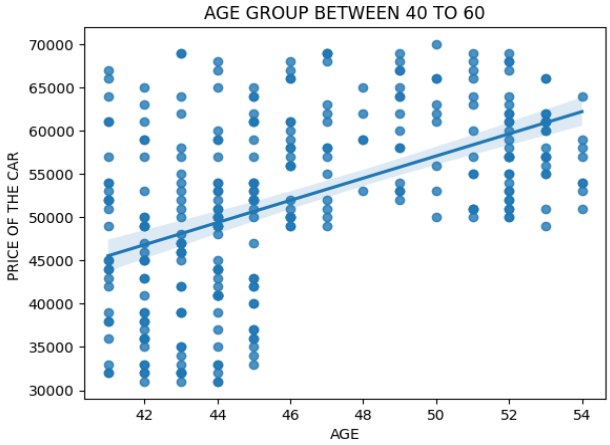
20 – 40 Age Group :

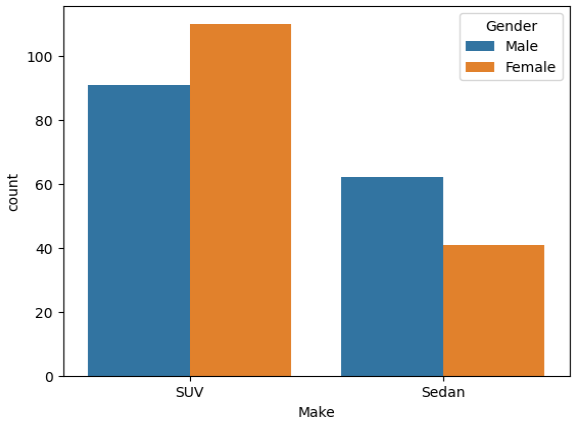




178 females - Sedan model cars.
1099 Males - Hatchback model cars

40 – 60 Age Group :





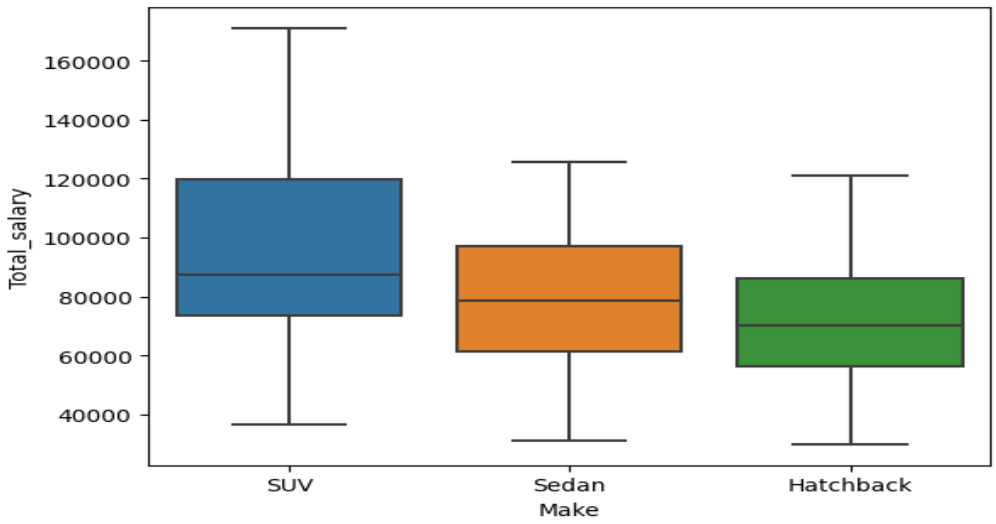
151 Females – SUV Cars

153 Males – SUV Cars

✓ TOTAL SALARY – PRICE OF THE CAR :

There is a positive correlation between Total salary and Price of the car.

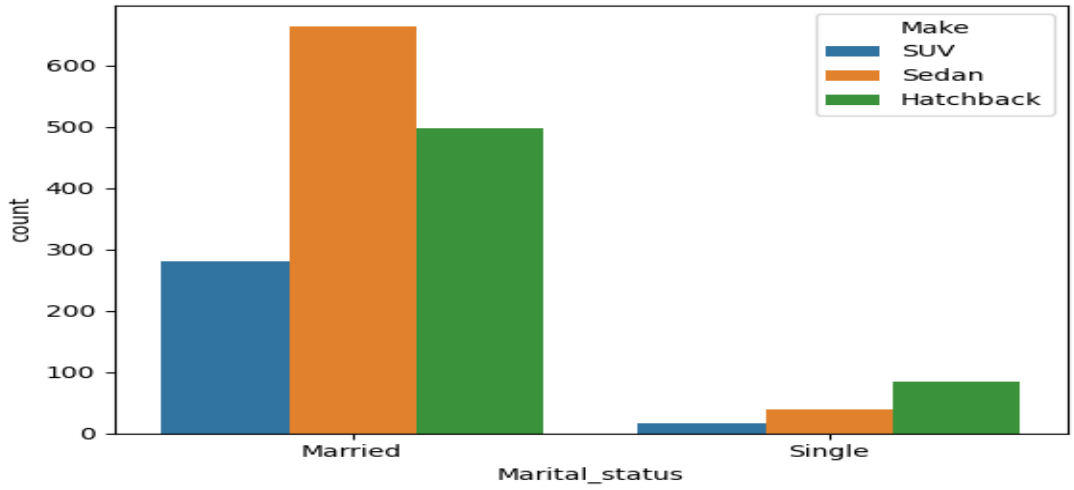
✓ TOTAL SALARY – MAKE :



If Total salary is high, the customer could buy costly car.

Costlier : SUV > SEDAN >HATCHBACK

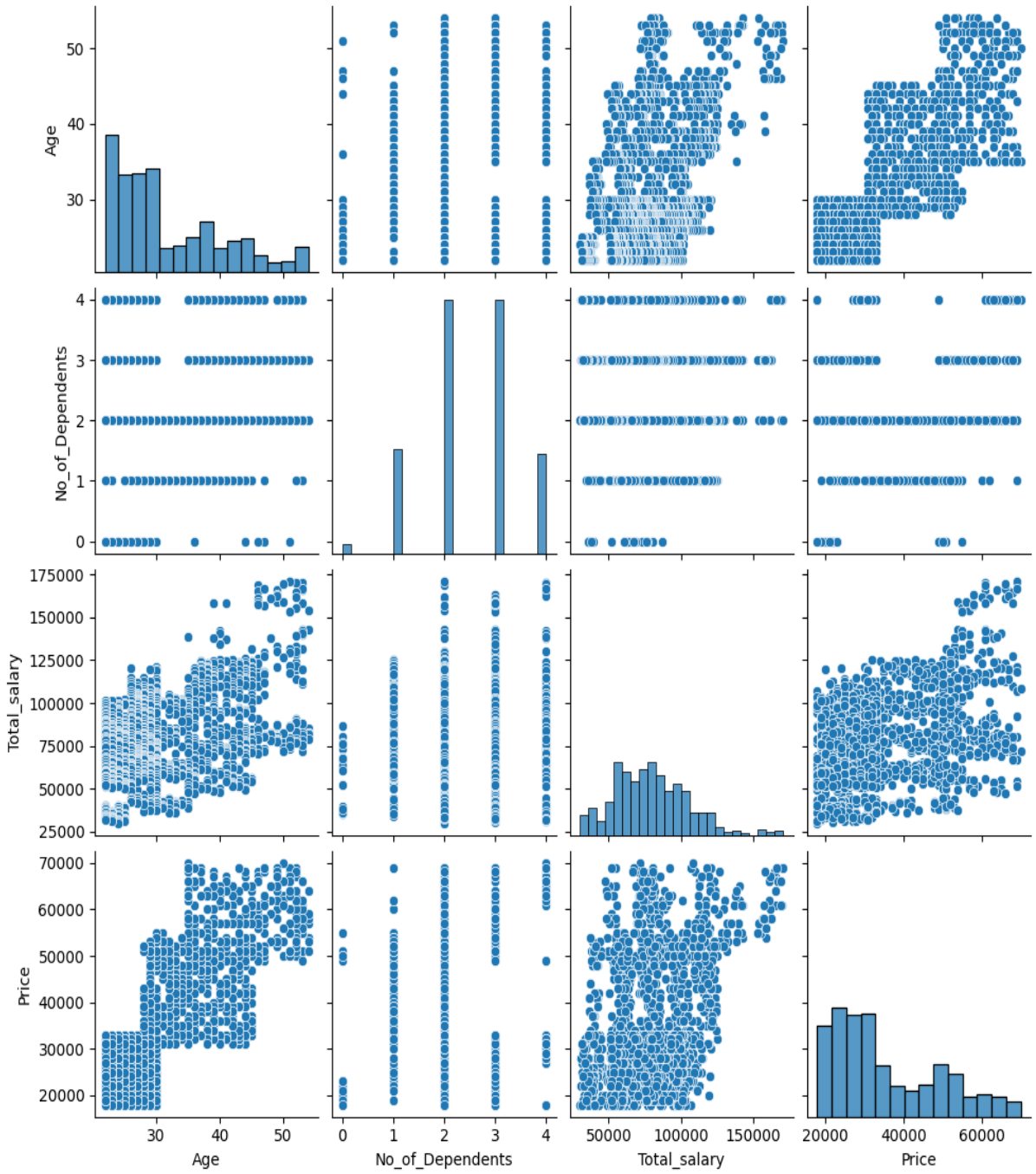
✓ MARITAL STATUS – MAKE :



Maximum customers - 1443 are Married – most of them prefer Sedan cars.

138 single marital status customer - most of them prefer Hatchback cars.

✓ RELATIONSHIP AMONG NUMERICAL VARIABLES:



REMARKS FROM EXISTING MARKETING CAMPAIGN :

E1) Steve Roger says "Men prefer SUV by a large margin, compared to the women". Agree or Disagree ?

GENDER	MAKE	COUNT
FEMALES	SUV	173
	SEDAN	141
	HATCHBACK	15
MALES	HATCHBACK	567
	SEDAN	561
	SUV	124

NO , because Females prefer SUV than Males.

173 Females prefer suv

124 Males prefer SUV

E2) Ned Stark believes that a salaried person is more likely to buy a Sedan.Agree or Disagree ?

```
Profession  Make
Business    Sedan        306
            Hatchback    290
            SUV           89
Salaried    Sedan        396
            Hatchback    292
            SUV          208
Name: Make, dtype: int64
```

YES , because 396 salaried persons prefer Sedan than 306 Business persons who prefer sedan.

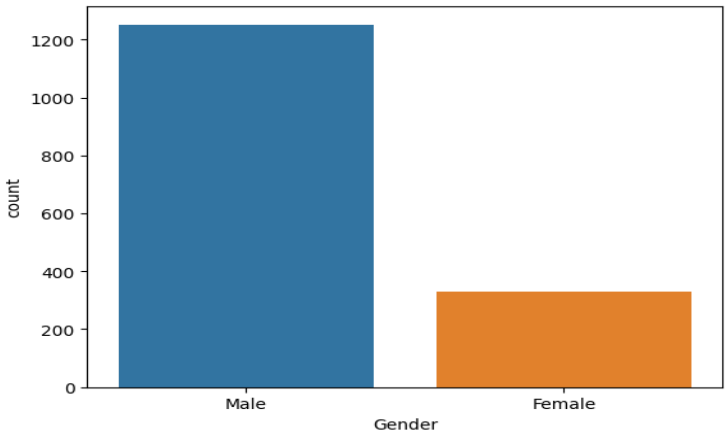
E3) Sheldon Cooper does not believe any of them; he claims that a salaried male is an easier target for a SUV sale over a Sedan Sale.Agree or Disagree ?

```
Profession  Gender  Make
Business    Female  SUV          55
                    Sedan        50
            Male    Hatchback   290
                    Sedan       256
                    SUV          34
Salaried    Female  SUV         118
                    Sedan        91
                    Hatchback    15
            Male    Sedan       305
                    Hatchback   277
                    SUV          90
Name: Make, dtype: int64
```

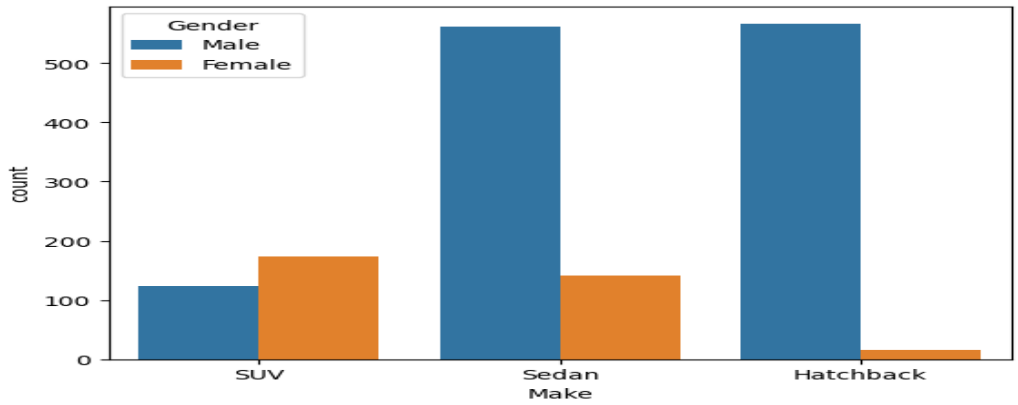
NO , Only 90 Salaried males prefer SUV but 305 salaried Males prefer sedan.So Salaried male is an easier target for Sedan sale.

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 this exercise. Give justification along with presenting metrics/charts used for arriving at the conclusions. Give justification along with presenting metrics/charts used for arriving at the conclusions.

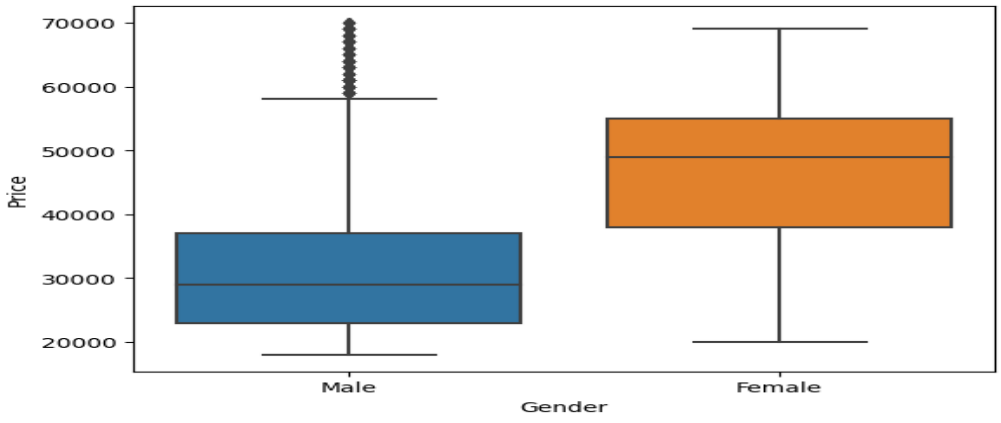
F1) Gender :



There are 1252 Male & 329 Female customers.



BOXPLOT :



Gender	count	mean	std	min	25%	50%	75%	max
Female	329.0	47705.167173	11244.836378	20000.0	38000.0	49000.0	55000.0	69000.0
Male	1252.0	32416.134185	12366.253107	18000.0	23000.0	29000.0	37000.0	70000.0

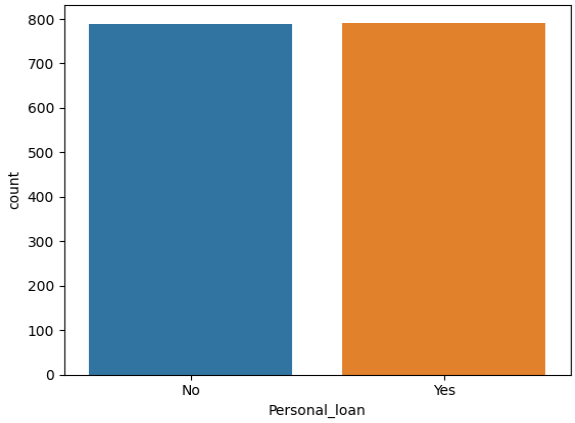
GENDER	NO.OF CUSTOMERS	PREFERRED CAR MODELS	TOTAL SPENDING	AVERAGE SPENDING
MALES	1252	SEDAN (561) HATCHBACK (567)	Rs.4,05,85,000 (4.05 Cr approx)	Rs.32,416
FEMALES	329	SUV (173)	Rs.1,56,95,000 (1.57 Cr approx)	Rs.47,705

Conclusion :

Number of Female customers are low (only 329 out of 1581) but their purchasing capacity (avg spending) is higher than Males. So to increase sales we have to focus on Female customers through effective Marketing Campaign.

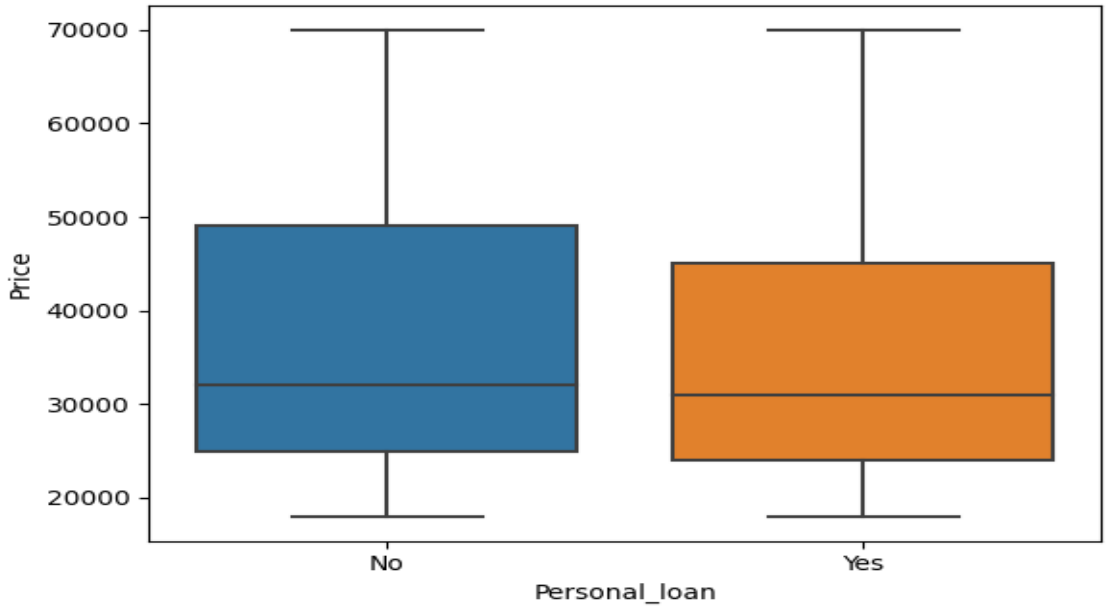
F2) PERSONAL LOAN :

Amount spent by customer with and without personal loan




```
Personal_loan
No     28990000
Yes    27290000
Name: Price, dtype: int64
```

BOXPLOT :



Personal_loan	count	mean	std	min	25%	50%	75%	max
No	789.0	36742.712294	14534.344526	18000.0	25000.0	32000.0	49000.0	70000.0
Yes	792.0	34457.070707	12578.780338	18000.0	24000.0	31000.0	45000.0	70000.0

PERSONAL LOAN	NO.OF CUSTOMERS	TOTAL SPENDING	AVERAGE SPENDING
NO	789	Rs. 2,89,90,000 (2.9 Cr approx.)	Rs. 36,742
YES	792	Rs. 2,72,90,000 (2.73 Cr approx.)	Rs. 34,457

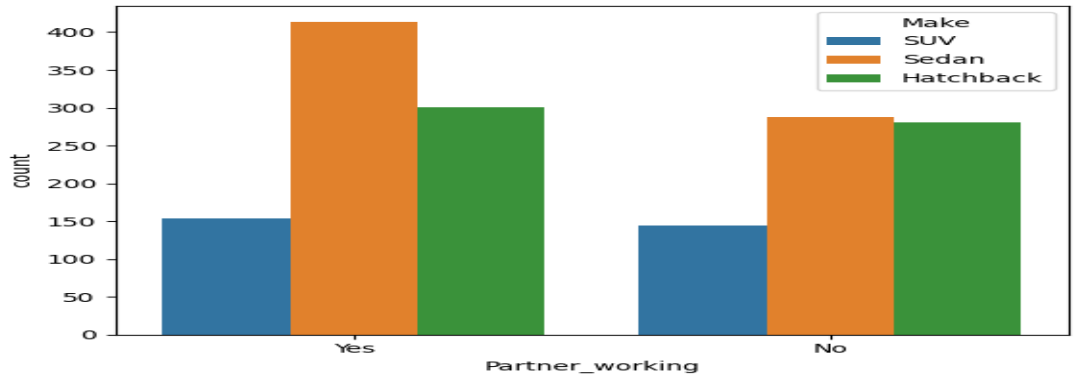
Conclusion :

So we conclude that customers without personal loan have more purchasing capacity than others. Hence we have to focus more on those persons to increase Sales through effective campaign.

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

SUV cars are more costlier than Sedan and Hatchback.

costlier : SUV > SEDAN > HATCHBACK



So we can say that having a working partner does not lead to purchase of higher priced SUV car. Most of them prefers only SEDAN cars which is less costlier than SUV**.**

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 Gender and Marital_status - fields to arrive at groups with similar purchase history.

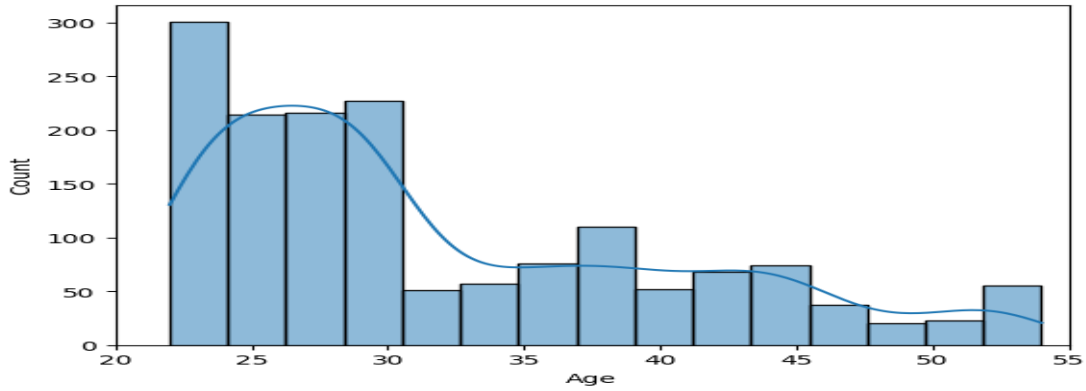
```
Gender  Marital_status  Make
Female  Married         SUV          166
                        Sedan        127
                        Hatchback     14
        Single          Sedan         14
                        SUV            7
                        Hatchback      1
Male    Married         Sedan        537
                        Hatchback    484
                        SUV          115
        Single          Hatchback     83
                        Sedan         24
                        SUV            9
Name: Make, dtype: int64
```

As per the above analysis , Female customers are very low (only 329 out of 1581 customers) particularly single Females .so we have to increase marketing campaign among them. Increase SUV marketing campaign among both married and single MALES and also among single Females to increase Revenue .

FRAMING AN ANALYTICS PROBLEM :

Analyse the dataset and list down the top 5 important variables, along with the business justifications.

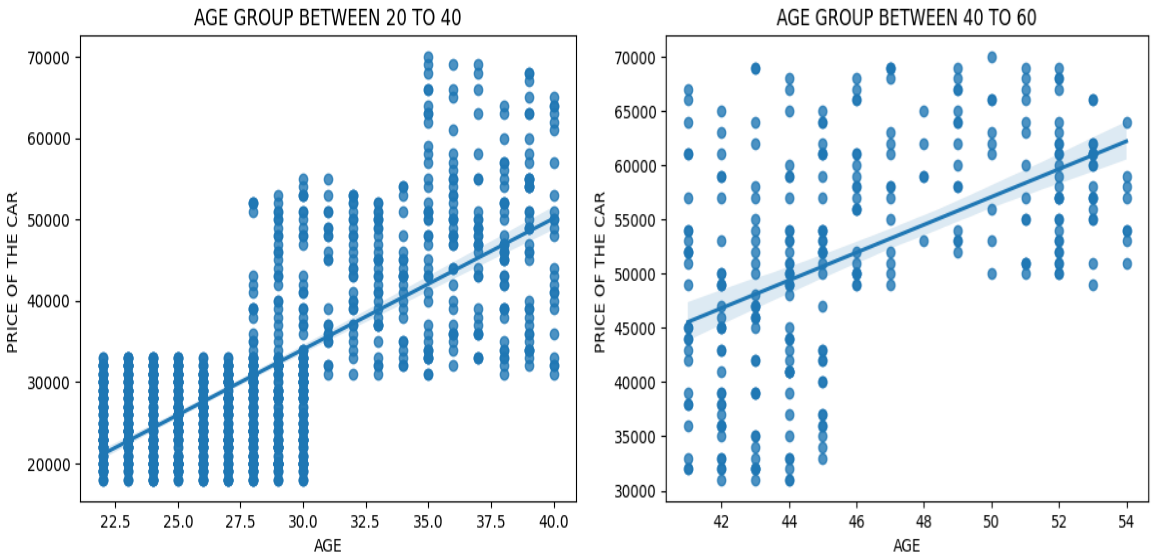
1) HOW DO I CLASSIFY PREMIUM CUSTOMERS ? (AGE)



The above histogram represents the age of the customers. This distribution shows that the premium customers lies between the age group of 20 to 30 .

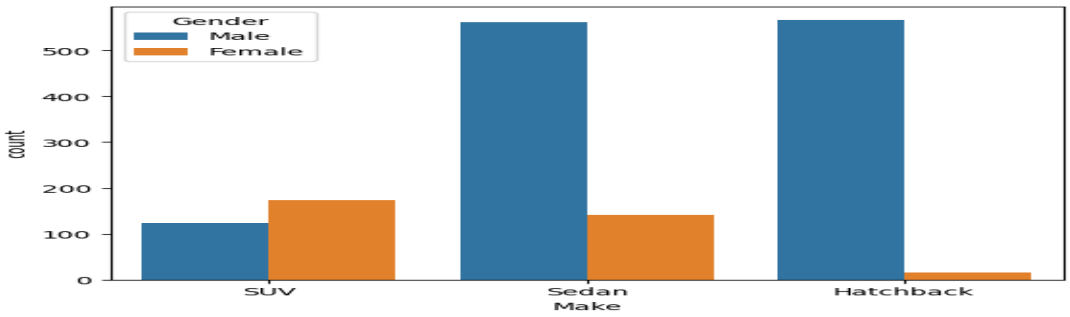
HOW CAN WE CATEGORIZE THE CUSTOMER ? WHICH CATEGORY OF CUSTOMER INCREASES THE SALES OF CAR ?

AGE GROUP	NO.OF CUSTOMERS	TOTAL SPENDING	AVERAGE SPENDING	CAR MODELS
20 - 40	1277	Rs.4,04,19,000	Rs.31652	MALES : HATCHBACK FEMALES : SEDAN
40 - 60	304	Rs.1,58,61,000	Rs.52174	MALES : SEDAN FEMALES : SUV



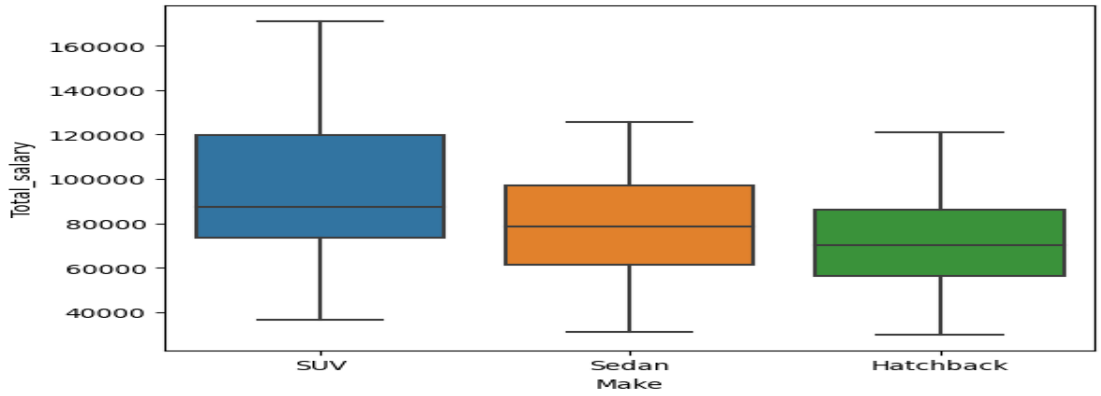
Here 20-40 age group customers are premium customers. 40-60 age group customers are less in number but their average spending is higher than others. So through Effective Marketing Campaign we have to increase sales among 40-60 age group peoples because AGED persons prefer SUV CARS which is costlier.

2) HOW GENDER IMPACT SALES OF CAR MODEL ? (GENDER)



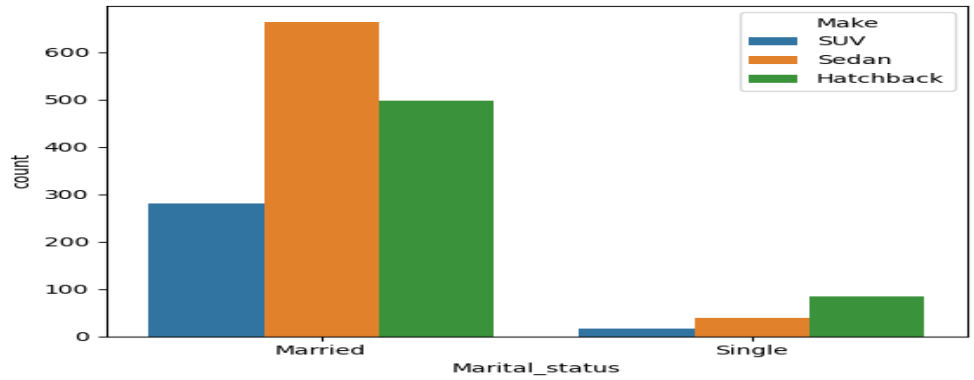
Females prefer SUV cars and Males prefer both Sedan and Hatchback cars . Females customers are low but their average spending is higher than Males. So we have to increase sales among Females through Marketing campaign.

3) HOW TOTAL SALARY OF THE CUSTOMER IMPACT THE SALES OF CAR MODELS ? (TOTAL SALARY)



HIGHER SALARIED (TOTAL_SALARY) person prefer SUV (Costliest) so Marketing campaign for SUV has to be improved among them.

4) DOES MARITAL STATUS AFFECT THE SALES OF CAR ? (MARITAL STATUS)



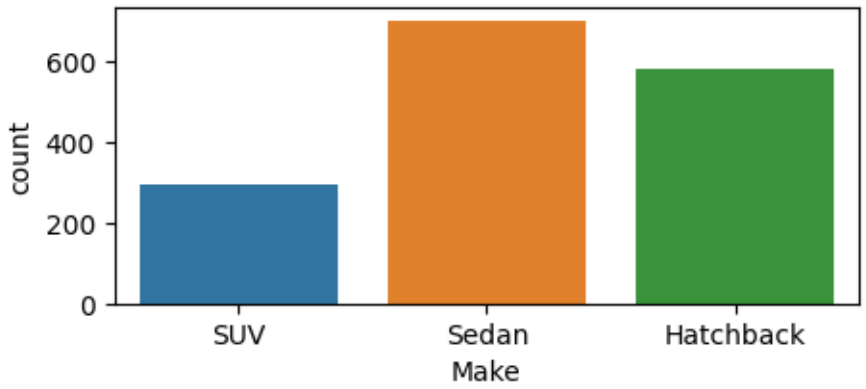
STATUS	NO.OF CUSTOMERS	PREFERENCES
MARRIED	1443	SEDAN CARS
SINGLE	138	HATCHBACK CARS

We have to increase Marketing campaign among **SINGLE Marital status** person to improve sales.

5) HOW PRICE AFFECT SALES OF CAR MODELS ? (PRICE)

Only 297 SUV cars are sold. Effective campaign has to be provided for increasing the sales of SUV CARS which yield high revenue.

Costlier : SUV > SEDAN > HATCHBACK

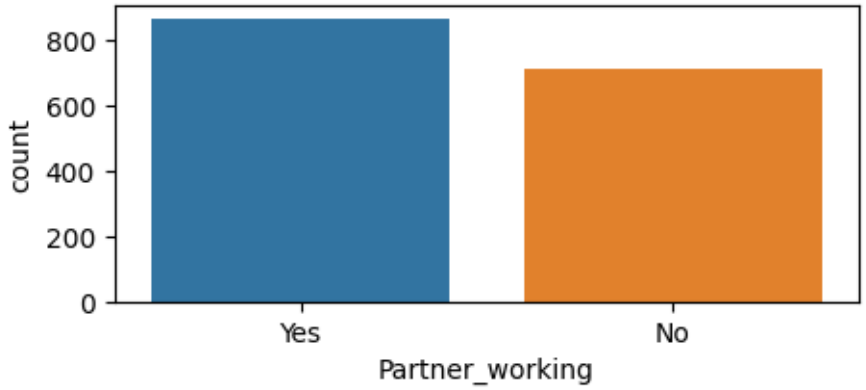


6) HOW LOAN AFFECT SALES ? (PERSONAL & HOUSE LOAN)

PERSON WITHOUT PERSONAL LOAN AND HOUSING LOAN (only 540 out of 1581) , have more purchasing capacity. So effective campaign should be provided among them to increase the sales.

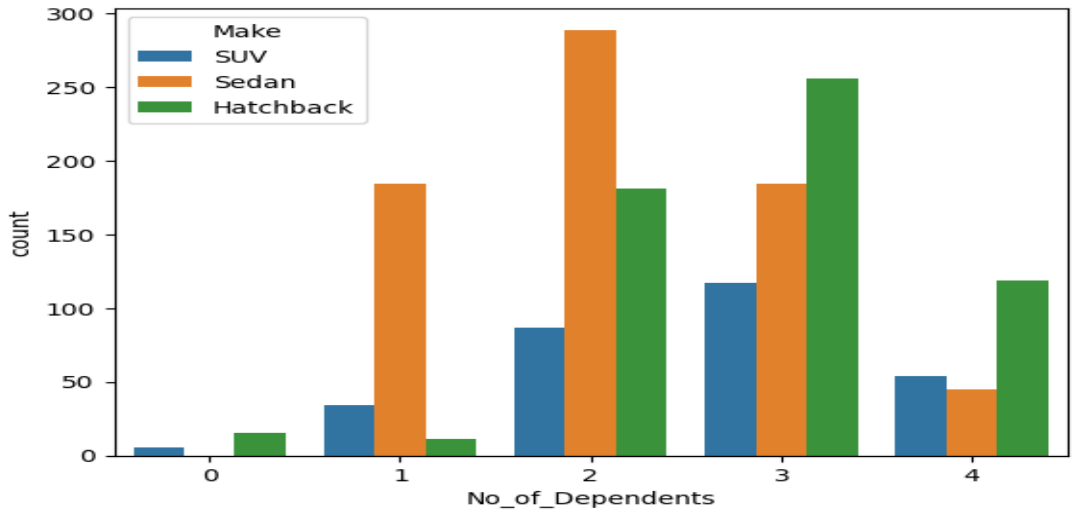
HOUSE LOAN	PERSONAL LOAN	NO OF CUSTOMERS
NO	**NO**	**540**
	YES	514
YES	NO	249
	YES	278

7) DOES CUSTOMER HAVING WORKING PARTNER IMPACT SALE S OF CAR ? (WORKING PARTNER)



Here Maximum customers (868) having working partner. So we have to focus on customers without working partner by giving Loans. This enhances the sales.

8) HOW NUMBER OF DEPENDENTS AFFECT PURCHASING CAPACITY OF CUSTOMER ? (NO.OF DEPENDENT)



If no. of dependent is greater than 2 , they prefer low cost Hatchback cars and sales among them gradually reduced. So have to focus on those customers by giving additional benefits such as Insurance cover etc. to increase sales.

OBSERVATIONS FROM ABOVE INSIGHTS :

- ✓ There are 1581 customers. Among them 329 are Females.

- ✓ Across all Age groups :
  - Males prefer both Sedan and Hatchback cars
  - Females prefer SUV cars.

- ✓ 20 to 40 age group:
  - Maximum 1277 customers.
  - Males prefer Hatchback cars
  - Females prefer Sedan cars

- ✓ 40 to 60 age group :
  - Only 304 customers
  - Both Males & Females prefer SUV cars.

- ✓ Aged people prefer SUV model which is costlier than others whereas Younger people prefer Sedan and Hatchback models which is less costlier than SUV.

- ✓ If Total salary is high, the customer could prefer costly car like SUV. (positive correlation)

- ✓ Maximum customers (1443) are Married and prefer Sedan cars.

- ✓ Maximum Customers having working partner & prefer Sedan cars.

- ✓ Person without housing loan and personal loan are willing to buy cars and if a person having housing loan , they are less willing to buy cars.

- ✓ If no. of dependent is greater than 2 , they prefer low cost Hatchback cars.

- ✓ Sedan cars are sold more & SUV cars are the costliest one.

RECOMMENDATIONS :

Have to enhance Maketing Campaign among below peoples to yield high Revenue .

- ✓ Among Females who have high purchasing capacity.
- ✓ 40-60 age group peoples because AGED persons prefer SUV CARS which is costlier but they are less in number.
- ✓ HIGHER SALARIED (TOTAL_SALARY) person.
- ✓ SINGLE Marital status person because they are few when compared to Married person.
- ✓ Person without both Personal and Housing Loan have higher purchasing capacity.
- ✓ Focus on customers without working partner by giving Loans.
- ✓ If no. of dependent more than 2 , they prefer low cost cars. We have to focus on those customers by giving additional benefits such as Insurance cover etc. to increase sales.
- ✓ Focus on sales of SUV cars to increase Revenue.

These are the inferences obtained from above Dataset to enhance the efficiency of Marketing Campaign to improve sales in Austo Motor Company.

GODIGT BANK

CREDIT CARD ASSESSMENT

CONTENT

PROBLEM 2 : GODIGT BANK

Analyse how effectively the customers use their credit cards and ways to improve their usage.

- There are 8448 customer details with 28 specific variables.

Dependent variables : Annual Income , Avg spends l3m (avg spending for last 3 months) , cc limit.

DATA INFORMATION :

- **Numerical variables :**
  - userid
  - card_bin_no
  - active_30
  - active_60
  - active_90
  - cc_active_30
  - cc_active_60
  - cc_active_90
  - widget_products
  - engagement_products
  - annual_income_at_source
  - bank_vintage
  - T+1_month_activity
  - T+2_month_activity
  - T+3_month_activity
  - T+6_month_activity
  - T+12_month_activity
  - Avg_spends_l3m
  - Cc_limit

- **Categorical variables:**
  - Card_no
  - Issuer
  - Card_type
  - high_networth
  - hotlist_flag
  - other_bank_cc_holding
  - Transactor_revolver
  - Occupation_at_source

- **Date Time Variable:**
  - Card_source_date

TASK AT HAND :

The Data Scientists in the team have to access this data and they need to figure out how the customers use their credit card effectively. With stronger understanding about the data we can find out the ways to improve the usage.

DATA ANALYSIS :

- DUPLICATES :
  - No Duplicates in given Dataset.

- Missing values :
  - There are 38 missing values in Transactor_revolver. For all the missing Transactor_revolver rows , Hotlist flag is Y which means their credit cards are blocked by bank due to some risk factors such as stolen, lost, cancel etc and for those cards there should be no average spending also. So it is better to drop all the

missing rows in Transactor_revolver to get desired results. So finally we get 8410 customer records.

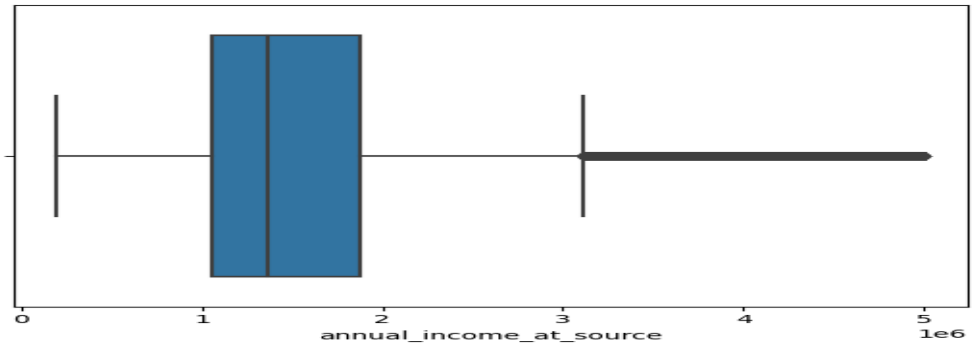
- To replace the 0'S present in occupation at source column (260 out of 8410), we have to use MODE because it is a categorical variable to get the data completeness.
  Here mode would be salaried (3908 customers).

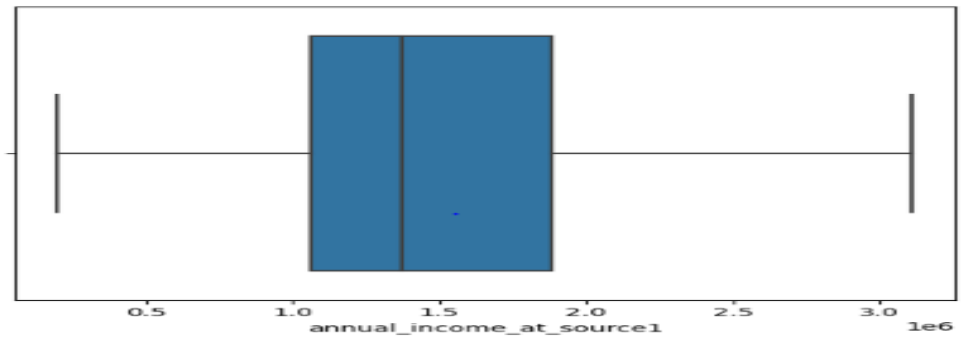
```
: Salaried         4168
  Self Employed    2170
  Retired          1067
  Student           621
  Housewife         384
  Name: Occupation_at_source, dtype: int64
```

Hence finally we got 4168 salaried customers.

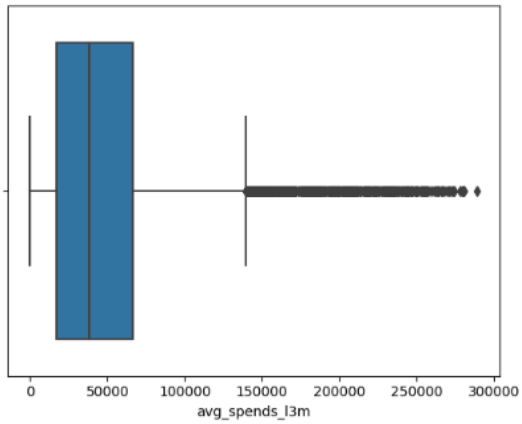
➢ OUTLIERS :

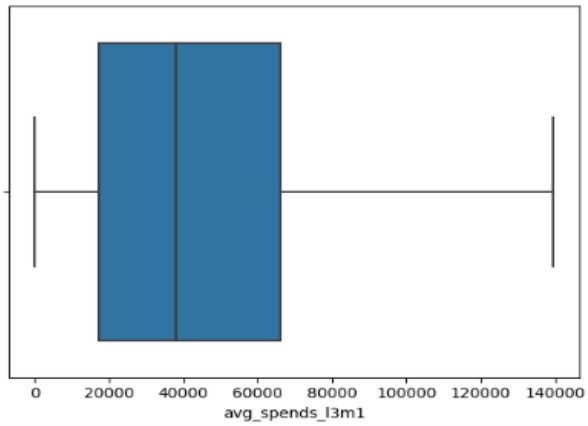
- There are outliers present in annual_income_at_source column so to treat it we have to use BOXPLOT.
- Finally we got the results within specified range.





- There are outliers present in avg_spends_l3m column so to treat it we have to use BOXPLOT.





➢ TRANSFORMATION :

Using Root of 10 method to get normal distribution.

- SKEWNESS :

```
skewness of annual_income_at_source is : -0.130564625977137
```

- KURTOSIS:

```
kurtosis of annual_income_at_source is: 0.4194707991779927
```

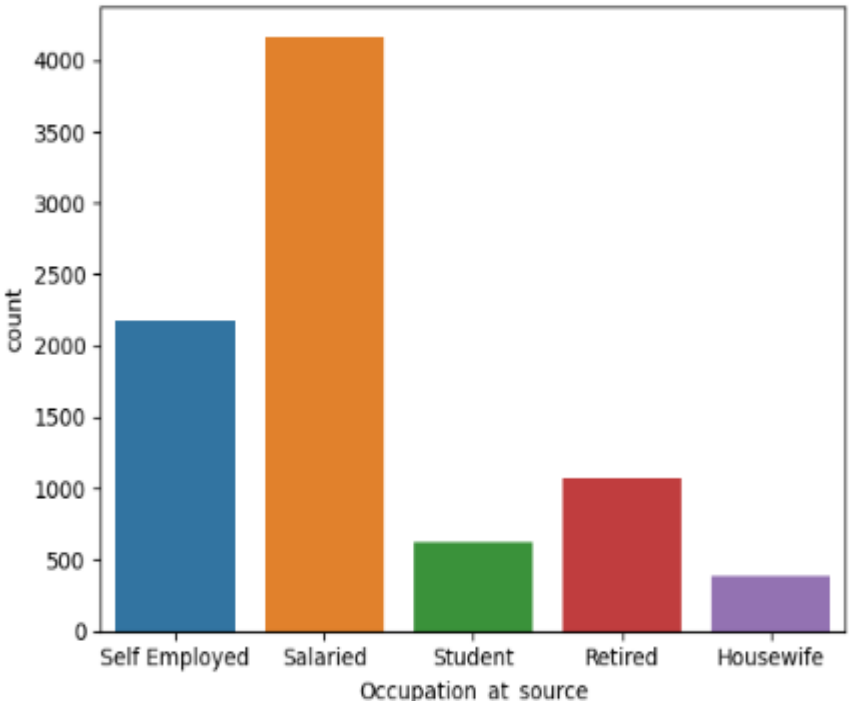
Here skewness & kurtosis are between -1 to +1 so we can able to say that they are normally distributed (symmetrical).

Questions raised initially that can act as a starting point to analyse the dataset :

1) People from which occupation having credit card the most ?
2) What are the types of credit card issued by Godigt bank and its count ?
3) How credit cards are distributed based on occupation ?
4) How many persons having other bank credit cards ?
5) What is the Annual income and credit card limit for persons under different occupation ?
6) How long different category people uses credit card (in terms of number of months)?
7) What is the Average spending of different categorical people for last 3 months ?
8) How many customer pays off their balance in every full month ?
9) How many customers did not use their credit cards effectively ?

FRAMING AN ANALYTICAL PROBLEM :

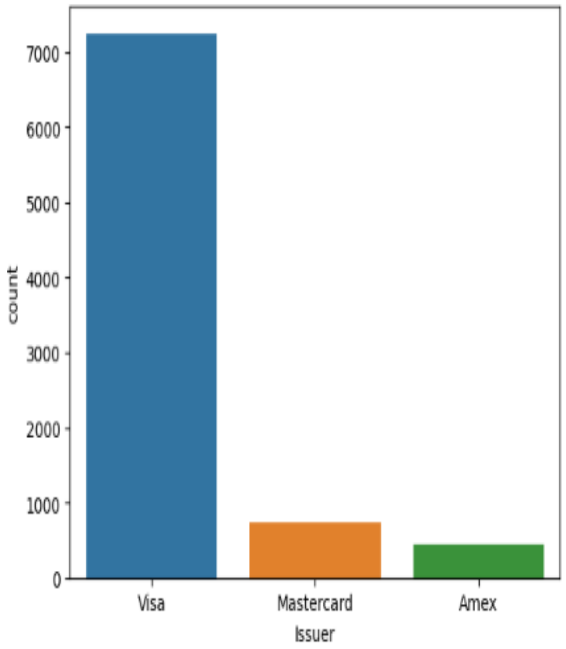
1) PEOPLE FROM WHICH OCCUPATION HAVING CREDIT CARD THE MOST ?



Maximum credit card holders are SALARIED persons (4168 out of 8410).

2) WHAT ARE THE TYPES OF CREDIT CARD GIVEN BY GODIGT BANK AND ITS COUNT ?

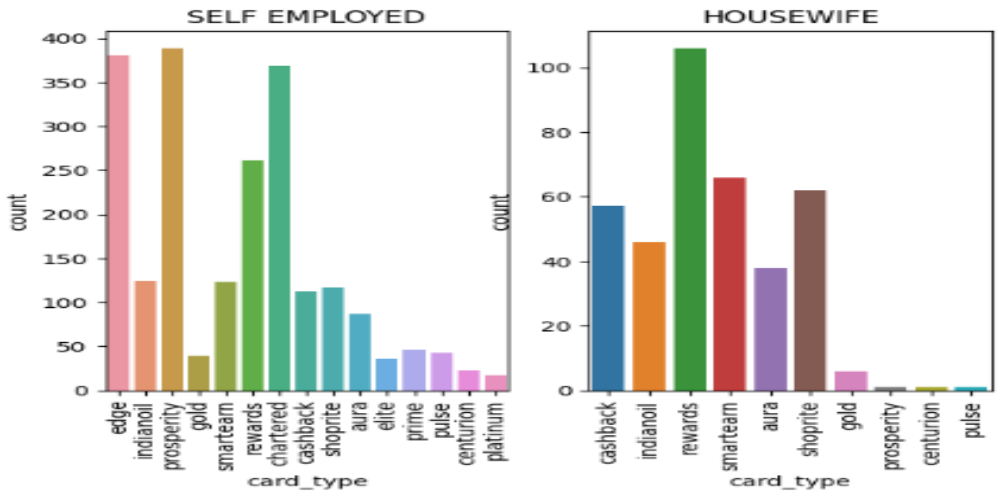
Maximum credit cards issued by Godigt Bank is VISA (7245).

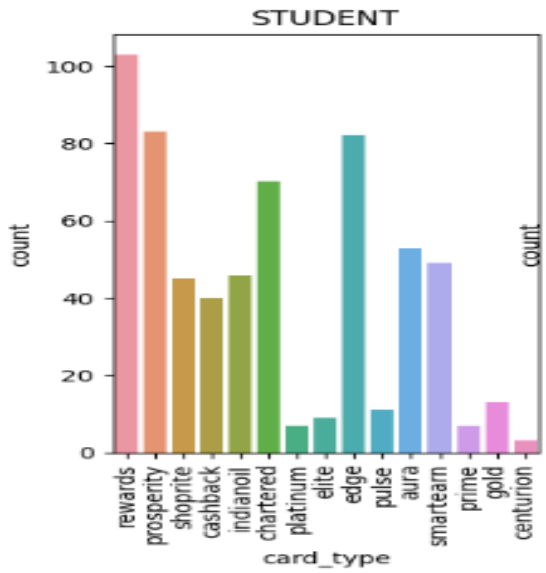


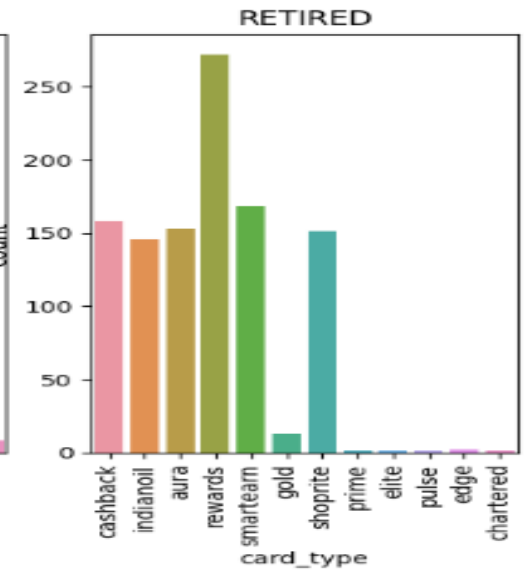
Issuer	card_type	
Amex	gold	144
	rewards	87
	smartearn	86
	centurion	62
	platinum	59
Mastercard	rewards	122
	prime	111
	pulse	101
	elite	96
	indianoil	65
	cashback	63
	shoprite	60
	aura	58
	smartearn	51
Visa	rewards	1284
	prosperity	1003
	edge	975
	chartered	916
	shoprite	626
	smartearn	623
	cashback	613
	indianoil	612
	aura	592
	prime	1

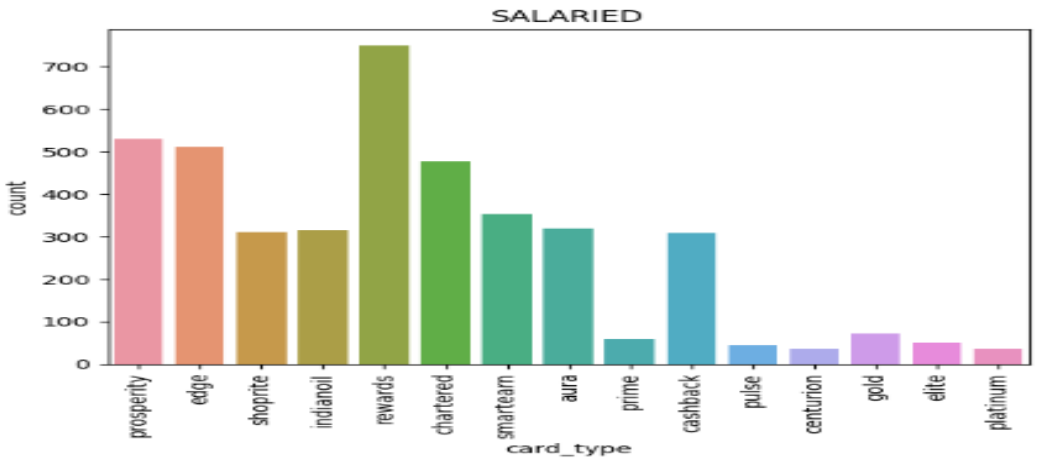
Name: card_type, dtype: int64

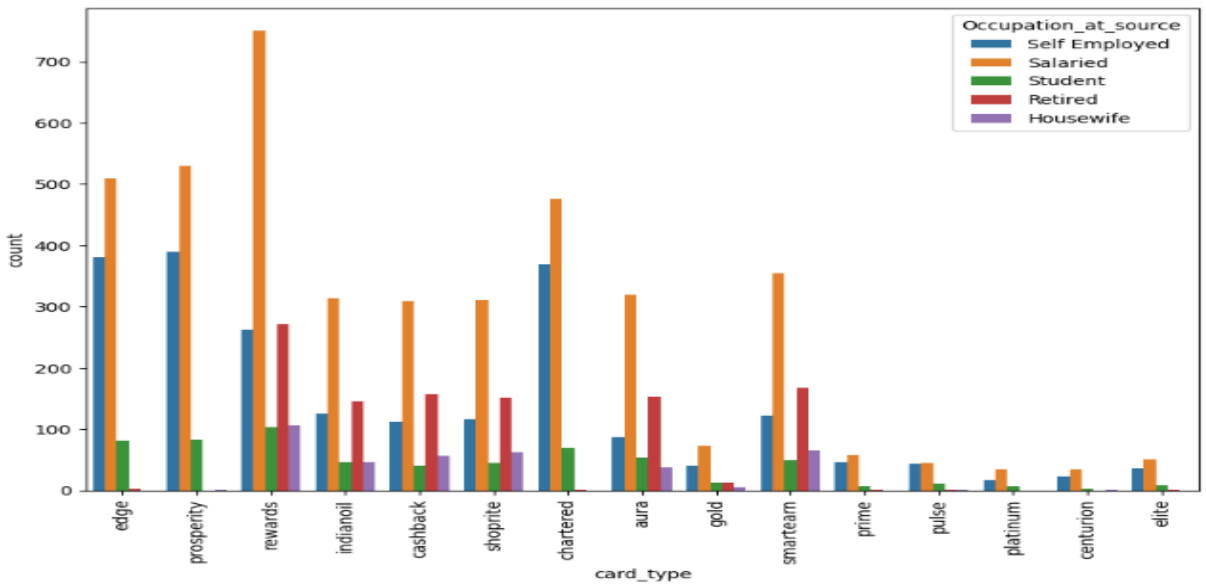
3) HOW CREDIT CARDS DISTRIBUTED BASED ON OCCUPATION ?




STUDENT
count
card_type
rewards
prosperity
shoprite
cashback
indianoil
chartered
platinum
elite
edge
pulse
aura
smarteam
prime
gold
centurion


RETIRED
count
card_type
cashback
indianoil
aura
rewards
smarteam
gold
shoprite
prime
elite
pulse
edge
chartered

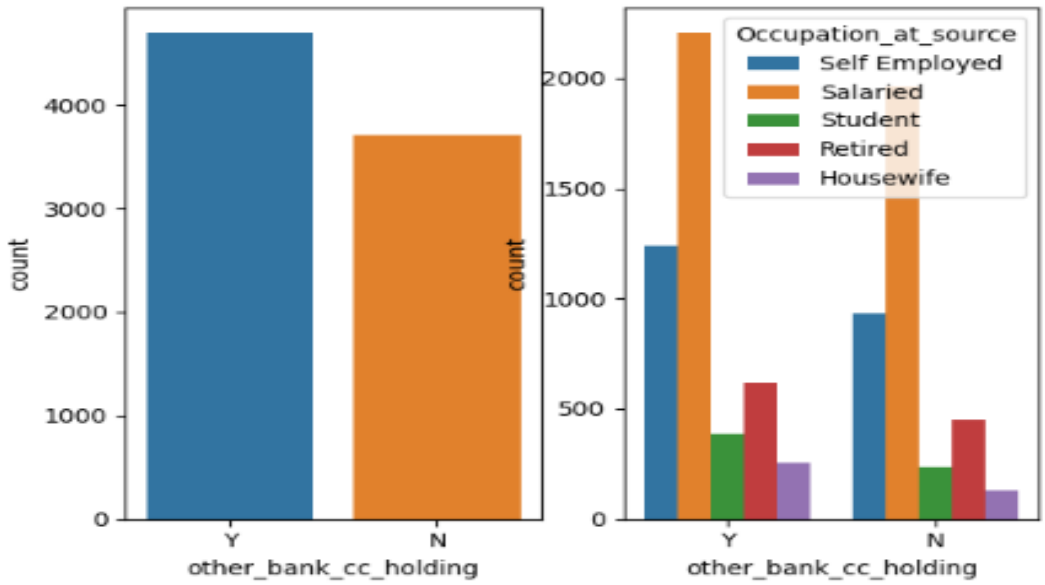

SALARIED
count
card_type
prosperity
edge
shoprite
indianoil
rewards
chartered
smarteam
aura
prime
cashback
pulse
centurion
gold
elite
platinum


Occupation_at_source
Self Employed
Salaried
Student
Retired
Housewife
count
card_type
edge
prosperity
rewards
indianoil
cashback
shoprite
chartered
aura
gold
smarteam
prime
pulse
platinum
centurion
elite

From the chart , we can say that

- Salaried person , Student , Housewife , Retired person use Rewards card the most.
- Self employed person uses Prosperity card the most.

4) HOW MANY PERSONS HAVING OTHER BANK CREDIT CARDS ?



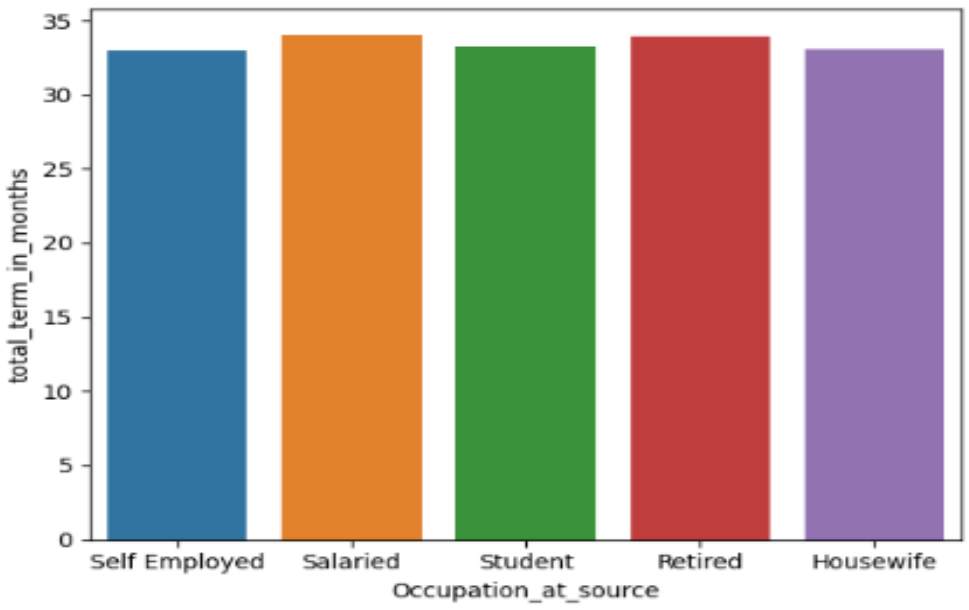
There are 4703 customers holding other bank credit cards. Among them , Salaried person holds the most.

5) WHAT IS THE ANNUAL INCOME AND CREDIT CARD LIMIT OF PERSONS UNDER DIFFERENT OCCUPATION ?

OCCUPATION	NO.OF CUSTOMERS	ANNUAL INCOME	CREDIT CARD LIMIT
HOUSEWIFE	384	Rs. 2.02 lakhs to 18.87 lakhs	Rs. 20000 to 1.5 lakhs
RETIRED	1067	Rs.2.045 lakhs to 19.72 lakhs	Rs.20000 to 1.5 lakhs
SALARIED	4168	Rs.2 lakhs to 31.11 lakhs	Rs.20000 to 9.9 lakhs
SELF EMPLOYED	2170	Rs. 2.05 lakhs to 31.11 lakhs	Rs.20000 to 9.9 lakhs
STUDENT	621	Rs. 2.025 lakhs to 31.11 lakhs	Rs.20000 to 9.8 lakhs

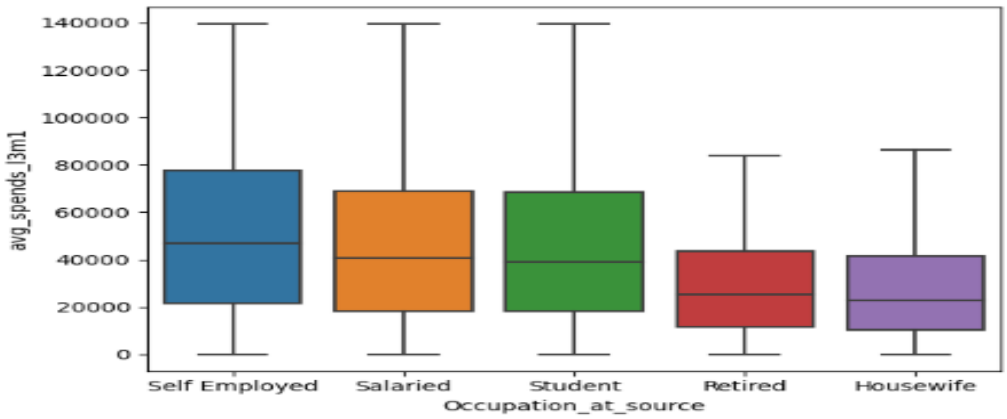
6) HOW LONG DIFFERENT CATEGORY PEOPLE USES CREDIT CARD (IN TERMS OF NUMBER OF MONTHS) ?

```
Occupation_at_source
Housewife         33.049479
Retired           33.978444
Salaried          34.072697
Self Employed     32.935023
Student           33.275362
Name: total_term_in_months, dtype: float64
```



On an average , Salaried and Retired person uses credit card the most in terms of number of months.

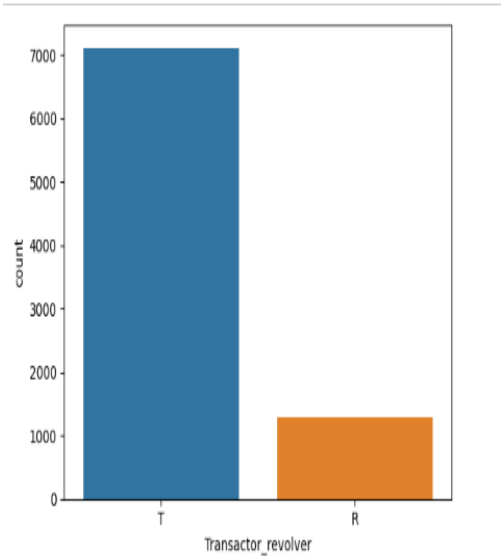
7) WHAT IS THE AVERAGE SPENDING OF DIFFERENT CATEGORICAL PEOPLE FOR LAST 3 MONTHS ?

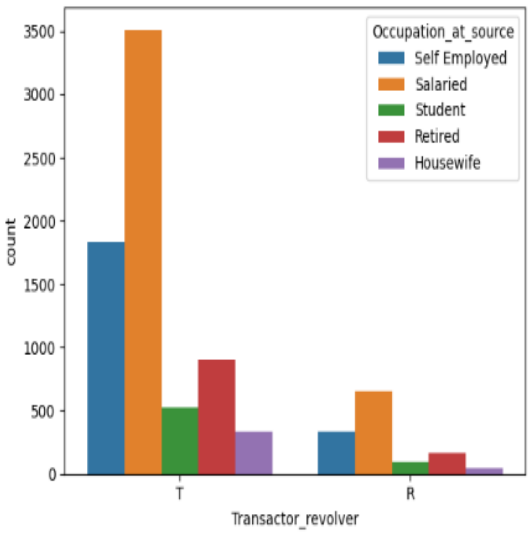



```
Occupation_at_source
Housewife          27425.973958
Retired            29164.032802
Salaried           49037.837932
Self Employed      54899.652304
Student            47118.824879
Name: avg_spends_l3m1, dtype: float64
```

On an average , the average spending for last 3 months was maximum among SELF EMPLOYED person.

8) HOW MANY CUSTOMER PAYS OFF THEIR BALANCE IN EVERY FULL MONTH ?





	OCCUPATION	NO.OF CUSTOMERS
TRANSACTOR (7115)	HOUSEWIFE	337
	RETIRED	906
	SALARIED	3512
	SELF EMPLOYED	1833
	STUDENT	527
REVOLVER (1295)	HOUSEWIFE	47
	RETIRED	161
	SALARIED	609
	SELF EMPLOYED	337
	STUDENT	94

9) HOW EFFECTIVELY THE CUSTOMER USES THEIR CREDIT CARDS ?

Method 1 :

Here we take median of average spending for last 3 months based on respective occupation.

```
No. of customers with avg spending for last 3 months <= 22781 & Occupation_at_source is Housewife : 192
No. of customers with avg spending for last 3 months <= 47087 & Occupation_at_source is Self employed : 1085
No. of customers with avg spending for last 3 months <= 38824 & Occupation_at_source is Student : 311
No. of customers with avg spending for last 3 months <= 25392 & Occupation_at_source is Retired : 534
No. of customers with avg spending for last 3 months <= 40615 & Occupation_at_source is Salaried : 2084
```

CUSTOMERS	COUNT
HOUSEWIFE	192
STUDENT	311
RETIRED	534
SELF EMPLOYED	1085
SALARIED	2084
TOTAL	4204

Method 2 :

- Usage percentage =

  ((Avg spending for last 3 months)/(cc_limit))*100

- Take median for usage percentage and compare it with usage percentage data.

```
NO. OF CUSTOMERS WHO DIDNOT USED THEIR CREDIT CARDS EFFECTIVELY : 4204
```

Finally we came to know that there are 4204 the customers who didn't use their credit cards effectively.

TOP 5 IMPORTANT VARIABLES :

1) OCCUPATION :

Maximum credit card holders are SALARIED persons (4168 out of 8410).

2) CC_LIMIT :

On an average maximum cc_limit available for Salaried , Self employed , Student category people

3) Transactor_Revolver :

There are 38 missing values in Transactor_revolver. For all the missing Transactor_revolver rows , Hotlist flag is Y which means their credit cards are blocked by bank due to some risk factors such as stolen, lost, cancel etc and for those cards there should be no average spending also. So it is better to drop all the missing rows in Transactor_revolver to get desired results. So finally we get 8410 customer records.

So finally There are 7115 Transactor and 1295 Revolver.

4) ANNUAL INCOME :

Depends upon annual income , we came to know which type of cards the customer required and how he can repay the amount.

5) AVERAGE SPENDING FOR LAST 3 MONTHS :

Through which we can understood how effectively the customer spends amount using credit cards.

OBSERVATIONS FROM INSIGHTS :

- Maximum credit card holders are SALARIED persons (4168 out of 8410).

- Maximum credit cards issued by Godigt Bank is VISA (7245).

- Salaried person , Student , Housewife , Retired person use Rewards card the most.

  Self employed person uses Prosperity card the most.

- There are 4703 customers holding other bank credit cards. Among them , Salaried person holds the most.

- ANNUAL INCOME & CC LIMIT :

OCCUPATION	NO OF CUSTOMERS	ANNUAL INCOME	CREDIT CARD LIMIT
HOUSEWIFE	384	Rs. 2.02 lakhs to 18.87 lakhs	Rs. 20000 to 1.5 lakhs
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STUDENT	621	Rs. 2.025 lakhs to 31.11 lakhs	Rs.20000 to 9.8 lakhs

- On an average , Salaried and Retired person uses credit card the most in terms of number of months.

- On an average , the average spending for last 3 months was maximum among SELF EMPLOYED person.

- There are 7115 Transactor and 1295 Revolver.

- There are 4204 (out of 8410) customers who didn't use their credit cards effectively.

RECOMMENDATIONS :

- To increase the usage of credit cards , the bank has to provide additional benefits to its customers who pays their balances every full month (Transactor).

- Because of Revolver the bank earn profit , but their participation is low. So have to increase focus on those customers by reducing the interest rate .

- Have to increase focus upon Student and Housewife customers because they are few in numbers.

THANK YOU