

# FWD Interview test

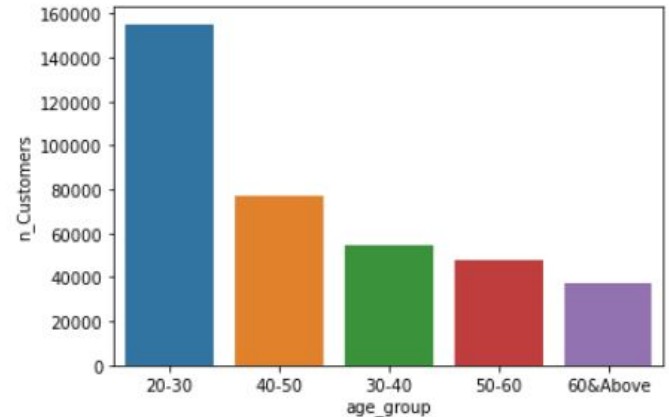
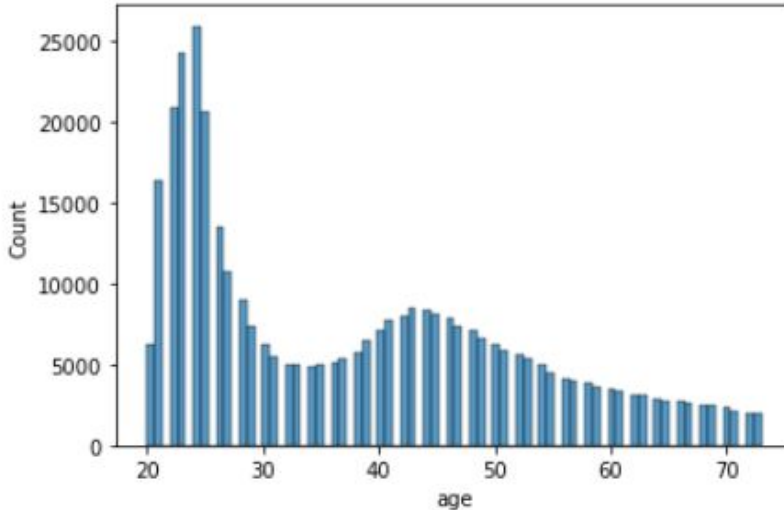
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# EDA - Exploratory Analysis - Age

We have double hump in our customer's age profiles, and hence we converted age information to categorical variable to capture **non-linearity** of the dataset.

```
In [12]: sns.histplot(data=data, x="age")
```

```
Out[12]: <AxesSubplot:xlabel='age', ylabel='Count'>
```



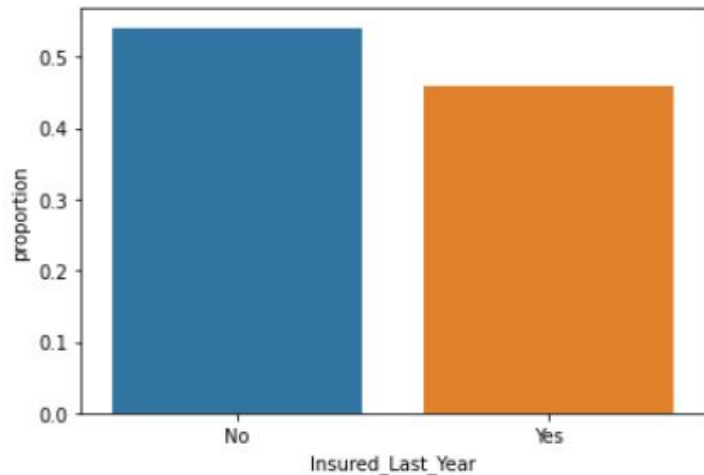
# EDA - Exploratory Analysis - Insured Last Year

Only 46% (171K) of the customers were insured last year. Of those who were insured last year, only 157 are willing to renew.

For the customers who weren't insured, more of them expressed their interest to renew. For the 45,906 customers, it seems weird this group of customers would like to renew? They were not insured with us last year, correct?

Nonetheless, for the rest of the modelling, I only looked at customers who were insured last year.

```
In [20]: ax = sns.barplot(x="Insured_Last_Year", y="proportion", data=aggData)
```



Insured_Last_Year	No willing to renew	Willing to renew
Insured_LY_No	154854	45906
Insured_LY_Yes	170802	157

# Insights from modelling

Only looked at customers who were insured last year

## Negative Signal

- Female are more likely to attrite (not renewing policy)
- Customers of age group 20 - 30 and 50 & Above are more likely to attrite
- Customers through sales channel of Affinity are more likely to attrite
- Customers with more driving experience, are more likely to attrite
- Customers with older vehicle age, are more likely to attrite

## Positive Signal

- Customers who made claims before are more likely to renew
- Customers with higher engine capacity, are more likely to renew
- Customers who purchased from affiliated agency force, are more likely to renew

	feature	coef_prev_ins_cust
0	any_claim_num	3.131287
1	30-40	0.661827
2	40-50	0.387579
3	capacity_num	0.170622
4	Affiliate	0.149648
5	North East	0.079239
6	Central	0.000000
7	Email	0.000000
8	Website	-0.010344
9	East	-0.016687
10	North	-0.077789
11	Driving_Exp	-0.145174
12	gender_num	-0.250202
13	Vehicle_Age	-0.398045
14	West	-0.483739
15	20-30	-0.731745
16	60&Above	-0.802679
17	50-60	-1.705272
18	Affinity	-5.825674

# Recommendation

- **Customers who purchased from affiliated agency force are more ‘sticky’.** For customers who bought from digital channel, it would be best to pair them up with agency force, so that they can get more human touch.
- Customers of age group 20 - 30 are more likely to attrite maybe because they are more price sensitive (the younger generation who will compare price online and less loyal to a particular brand), **we should always entice them with more product to increase ‘stickiness’.** **Cross-sell & upsell with rewards, could be a strategy for this group.**

# Additional Data

- Customers with higher engine capacity is a proxy information of affluence, as seen from the study, more affluent customers are more likely to renew. Additional data about customers' financial information, will be helpful for more robust analysis.
- Customers who made claims before are more risk-averse. Hence, if we can get leads data from car repairing workshop, for new customers who had experienced car accident. This will be helpful in the study of new business. Rather than just retent, we can be more aggressive in creating new business.