**CAR INSURANCE CLAIM PREDICTION INSIGHTS**

**PROBLEEM STATEMENT:** To predict whether the particular car gets the insurance claim or not.

**SUMMARY STATISTICS:**

1. Cars using petrol and CNG are nearly same numbers, while diesel cars are little less compared to the former two.
2. Most of the cars have two air bags.
3. Cars with drum brake types are more compared to those with disc brakes.
4. Manual transmission cars are higher than automatic.
5. Cars with five gear vehicles are significantly more than six gears.
6. Cars with Manual steering type is very low. Mostly, people prefer power steering vehicles and then electric steering types.
7. Out of 58592 vehicles applied for claim, only 3748 insurances had got claimed.

**DATA VISUALISATION:**

1. Mostly people preferred the policy tenure for < 0.20 and there is a normal distribution from 0.95 to 1.25 of policy tenure period.
2. Claimed insurances were considerably high in the policy tenure of 0.95 to 1.25 when compared with those of other tenure period.
3. Count of the cars decreases with its age.
4. Count of M1 model cars were high, but its use rapidly decreased after 0.07 period of time.
5. Number of Policy holders decreases with their age.
6. Area cluster C8 has the highest number of cars.
7. Make 1 of cars were high i.e., it is higher than the total sum of all other make.
8. Although cars with Make 1 are high, it is used for the least time when compared to others.
9. Most of the cars have preferred four cylinders over three cylinders.
10. Four cylinder cars are used for long time.
11. Cars with automatic transmission types are used for long time.
12. Maximum cars are installed with Speed alert, power steering, central locking, power door locks, ecw.
13. Tyre pressure Monitoring System (tpms) is not a concern in most of the vehicles.
14. Cars that are used only for short period of time have 0 ncap rating.

**DATA EXPLORATION:**

1. If the age of the car is greater than or equal to 0.36, then insurance cannot be claimed.
2. If the age of the policy holder is greater than or equal to 0.96, then insurance cannot be claimed.
3. Cars with highest ncap ratings were used for long time and if the rating decreases then, correspondingly the usage time also decreases.
4. Even though cars with five ncap ratings are used for long duration of time, the count of those cars are the least among others.
5. 1.5 Turbocharged Revotron engine type is used in 363 cars and all those cars have ncap rating as five.

**MODEL BUILDING:**

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| **ML MODEL** | **ACCURACY** | **F1-SCORE** |
| Random Forest | 0.936 | 0.967 |
| XgbTree | 0.937 | 0.967 |