



# Car insurance

CAR INSURANCE

## CAR INSURANCE CLAIMS CLASSIFICATION

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FINAL REPORT  
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## **INTRODUCTION:**

IN THE EVENT OF AN ACCIDENT TO THE INSURED MOTOR VEHICLE, THE COMPANY WILL REIMBURSE THE INSURED FOR THE ACCIDENTAL DAMAGES SUSTAINED BY THE INSURED VEHICLE, THIRD PARTY'S VEHICLE INVOLVED IN THE ACCIDENT, HIS PROPERTY AND BODILY INJURIES SUFFERED OR DEATH IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE INSURANCE POLICY

## **DESIGN:**

THE DATASETS WE USED IN THIS PROJECT IS TAKEN FROM KAGGLE WEBSITE.

## **DATA DESCRIPTION:**

A MODEL PERFORMANCE DEPENDS HEAVILY ON THE DATA IT WAS TRAINED ON . TO ACQUIRE THE DATA, WE USED DATA FORM KAGGLE AND PREDEFINED DATA AS A DATA FRAME. MOREOVER, THE DATA SET CONTAINS MULTIPLE FIELDS WITH DIFFERENT DATA TYPES.

*THE DATASET HAS 21 COLUMNS AND WE SELECT 6 HIGH SCORE FEATURES THAT IMPACT ON OUR DATA AS FOLLOWING:*

1-AGE

2-DRIVING EXPERIENCE

3-VEHICLE OWNERSHIP

4-SPEEDING VIOLATIONS

5-DUIS ( DRIVING UNDER THE INFLUENCE OF ALCOHOL )

6-PAST ACCIDENT

## **TARGET:**

DID THE CUSTOMER HAS CLAIMED HIS/HER LOAN OR NOT.

## **WORKFLOW:**

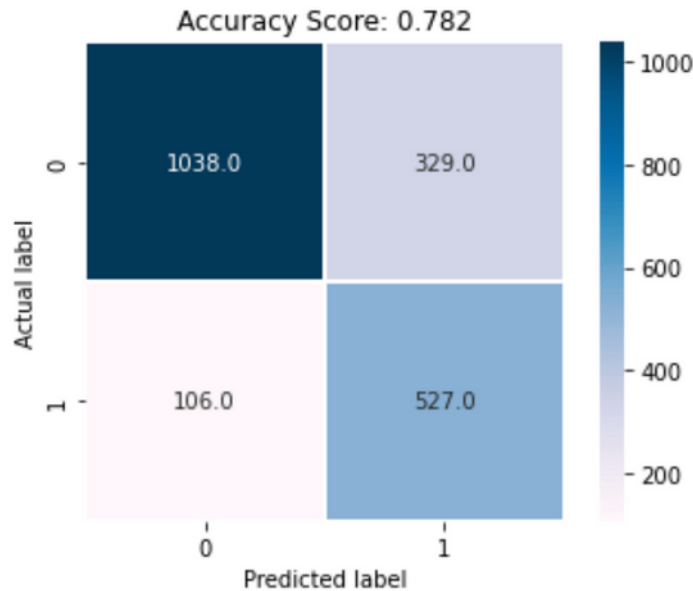
AFTER LOADING THE DATA FROM KAGGLE WE START EXPLORING AND CLEANING THE DATA BY USING ALL FUNCTIONS LIKE INFO AND DESCRIBE. THEN CLEANING THE DATA BY REMOVING NULL VALUES, DUPLICATES AND REMOVING ANY IRRELEVANT DATA. AFTER THAT, PLOT THE GRAPHS USING MATPLOTLIB MODULE FROM PYTHON. FINALLY, FIND THE CORRELATION BETWEEN FEATURES AND FIT THE CLASSIFICATION MODEL IN ORDER TO FIND THE BEST MODEL THAT FITS OUR DATA.

*WE USE 9 MODELS TO SEE WHAT THE BEST FOR OUR DATASET:*

1. RANDOM FOREST
2. DECISION TREE
3. KNN
4. LOGISTIC REGRESSION
5. SVC
6. ADABOOST CLASSIFIER
7. XGB CLASSIFIER
8. GRADIENT BOOSTING CLASSIFIER
9. CATBOOST REGRESSOR

## CONCLUSION

Confusion Matrix for Logistic Regression Classifier



THE RESULTE SHOWED THAT THE LOGISTIC REGRESSION IS  
THE BEST MODEL WITH :  
TRAINING ACCURACY 78%  
TEST ACCURACY 78%  
F1 SCORE 70.7%

FUTURE WORK :  
EXPLORING MORE FEATURES SUCH AS GENDER AND CREDIT  
SCORE.