BEST ML ALGORITHMS TO PREDICT MOTOR INSURANCE CLAIMS

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MEET THE TEAM

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SIGNIFICANCE

THIS PROJECT IS CRUCIAL FOR OPTIMIZING INSURANCE OPERATIONS BY LEVERAGING DATA-DRIVEN STRATEGIES TO PREDICT MOTOR INSURANCE CLAIMS ACCURATELY

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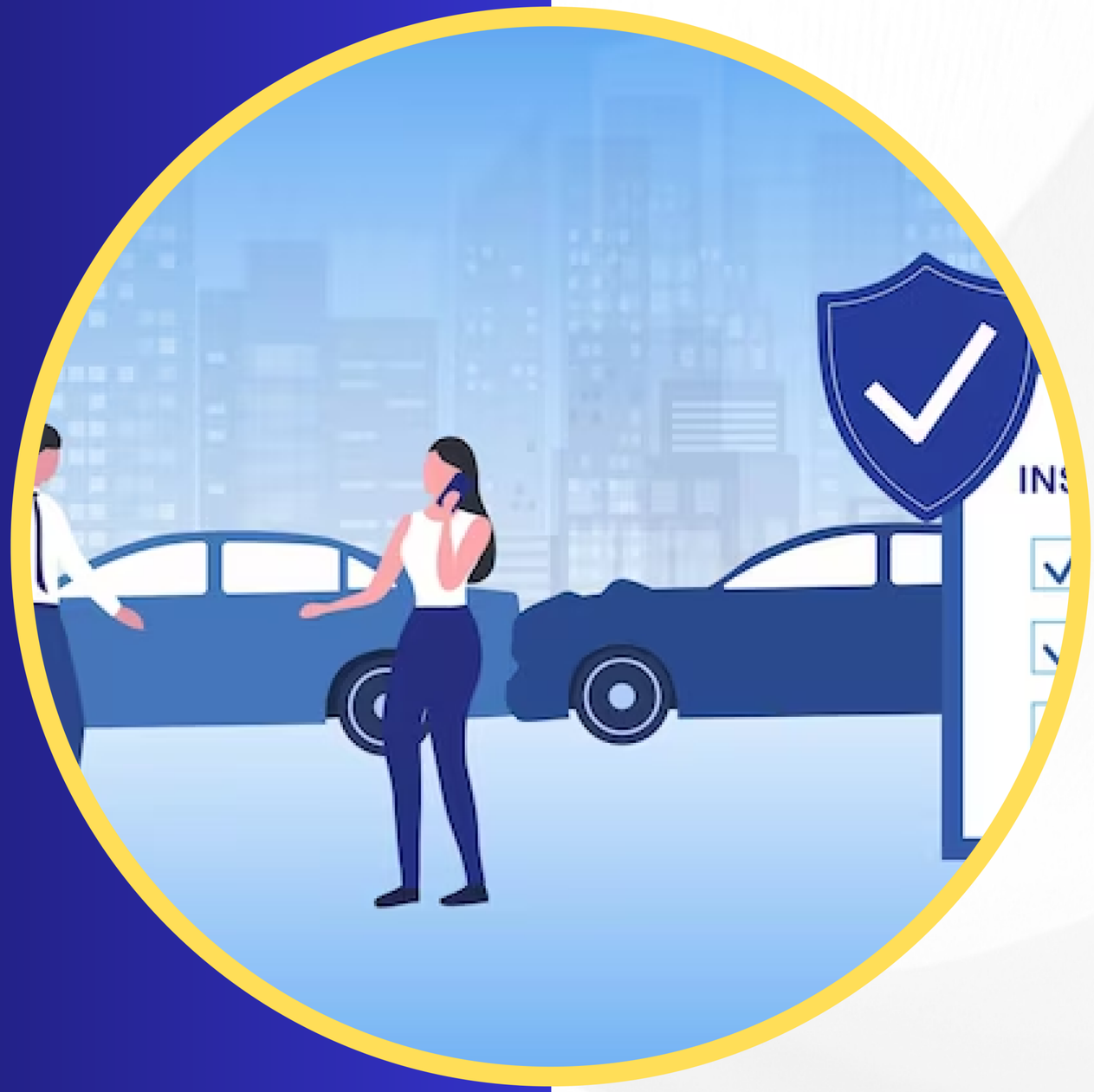
OUTLINE

PROJECT OVEVIEW

EDA

PRE-PROCESSING

FEATURE ENGENEERING



PROJECT OVERVIEW

1. compare various machine learning algorithms

2. Assess their performance and interpretability

3. Identify the most effective algorithm for enhancing existing insurance claim prediction models in production

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EXPLORATORY DATA ANALYSIS (EDA) ON THE MOBILITY DATASET

	vehicle_year	vehicle_age	sum_insured	excess	exposure	annual_claims
count	25519.000000	25519.000000	2.551900e+04	25519.000000	25519.000000	2.551900e+04
mean	2016.004154	6.065285	6.650507e+05	66036.699497	0.505176	8.691689e+03
std	5.964126	5.891118	6.849623e+05	68156.828771	0.329561	8.643850e+04
min	1972.000000	0.000000	2.000000e+03	2500.000000	0.083333	0.000000e+00
25%	2014.000000	2.000000	2.100000e+05	20691.000000	0.250000	0.000000e+00
50%	2018.000000	5.000000	3.406880e+05	33206.300000	0.333333	0.000000e+00
75%	2020.000000	9.000000	9.000240e+05	89276.000000	0.916666	0.000000e+00
max	2023.000000	51.000000	1.000000e+07	1000000.000000	1.000000	3.226904e+06

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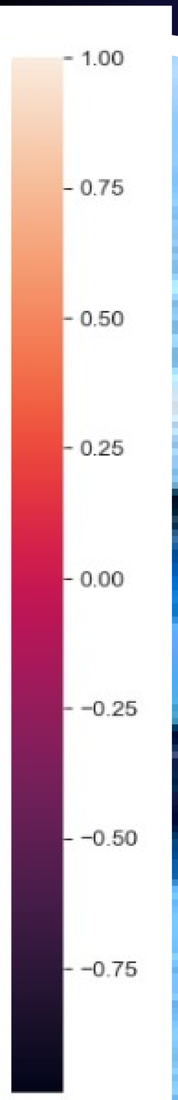
EDA - MOBILITY DATASET



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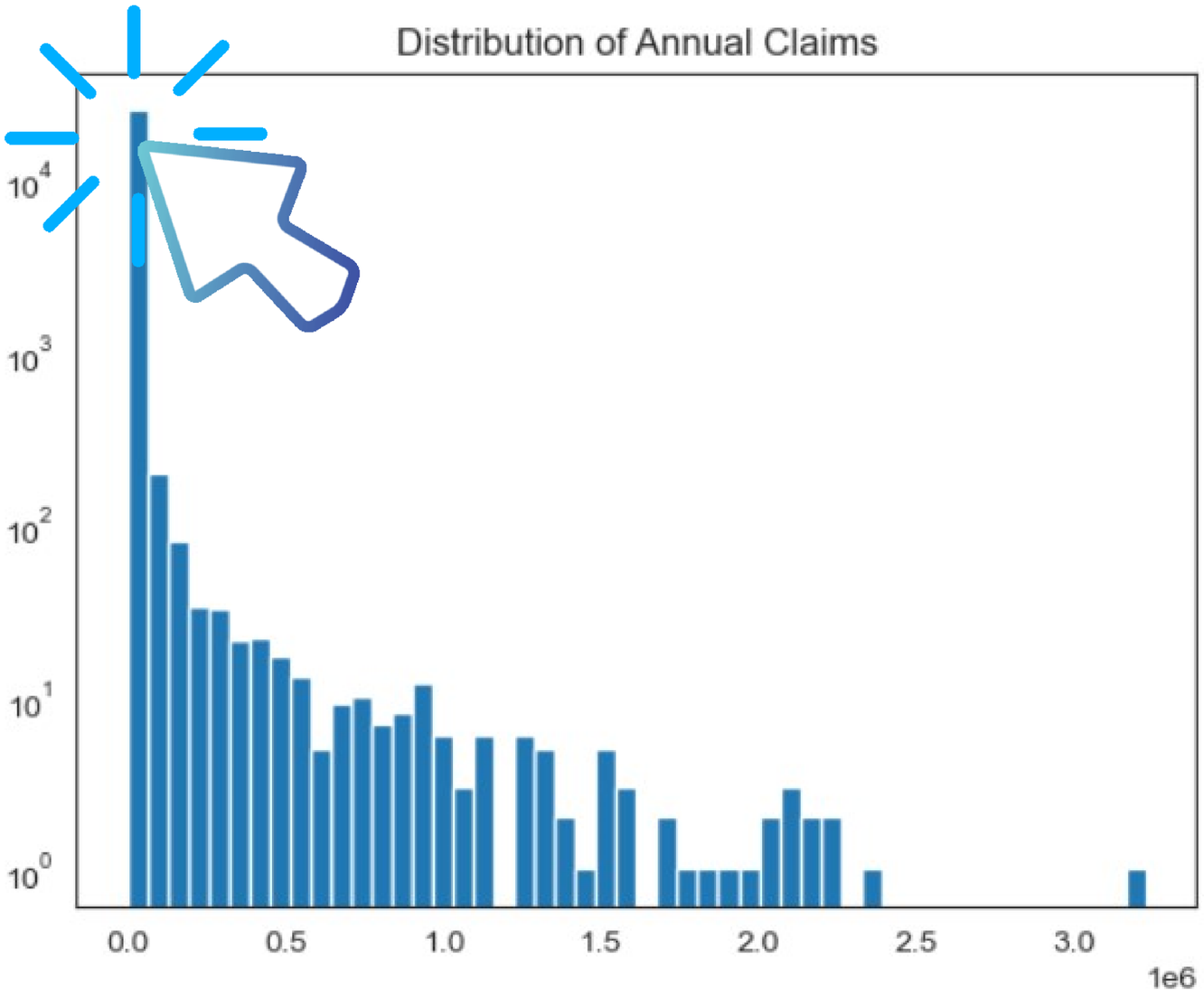
EDA - MOBILITY DATA SET



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EDA - MOBILITY DATASET

Cities with the highest distributions from the dataset	
Portelizabeth	Highest registered vehicles
Capetown	Highest Total Insurance Claim
Klerksdorp	Highest insured sum
Klerksdorp	Highest total excess
Mahikeng	Highest average age of vehicle

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EDA - MOBILITY DATASET

Vehicle types with the highest distributions from the dataset	
Bus	Highest Average age
Vehicles>3500kg	Highest total insurance claim
Trailers	Highest registered vehicle
Vehicles>3500kg	Hhighest excess insurance
Vehicles>3500kg	Highest sum insured

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EDA - PMD DATASET

	count	mean	std	min	25%	50%	75%	max
Kilowatts	129465.0	84.202819	31.655294	0.0	63.000000	74.0	97.0	426.0
VehicleYear	129465.0	2014.476414	3.653251	2004.0	2012.000000	2015.0	2017.0	2022.0
SumAssured	129465.0	157700.526397	72162.021462	30000.0	109100.000000	146700.0	189300.0	515000.0
TotalExcess	129465.0	24369.043502	12218.025355	0.0	19000.000000	25130.0	31770.0	90460.0
BaseExcess	129465.0	4480.361812	1980.984924	0.0	4000.000000	5000.0	5000.0	60000.0
PolicyHolderAgeYears	129465.0	38.158792	10.118095	18.0	30.000000	36.0	44.0	92.0
VehicleAgeYears	129465.0	5.599622	3.635835	0.0	3.000000	5.0	8.0	16.0
Exposure	129465.0	0.755729	0.319860	0.1	0.421918	1.0	1.0	1.0
AnnualClaims	129465.0	4309.076033	22902.575946	0.0	0.000000	0.0	0.0	475900.0

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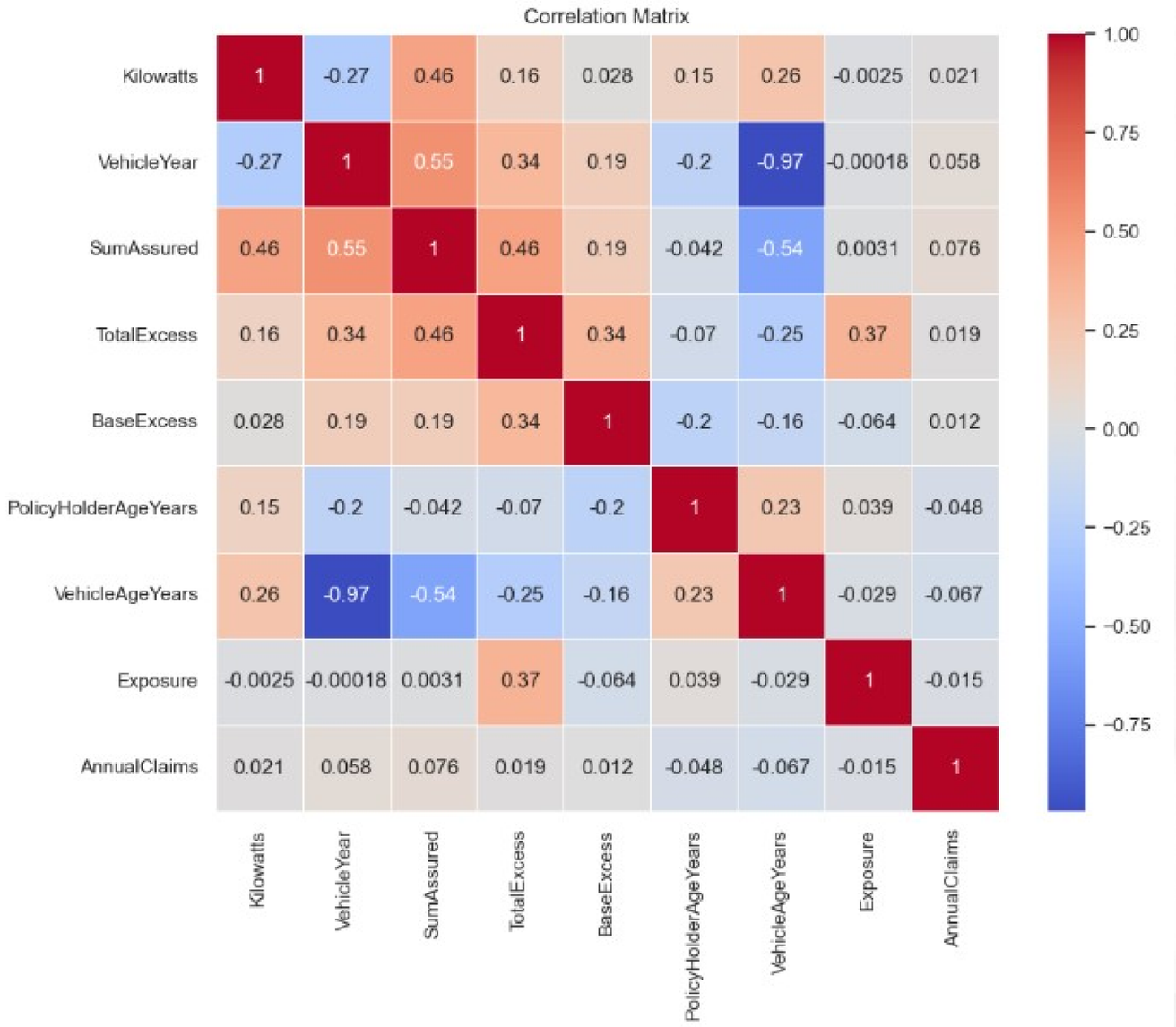
EDA - PMD DATASET



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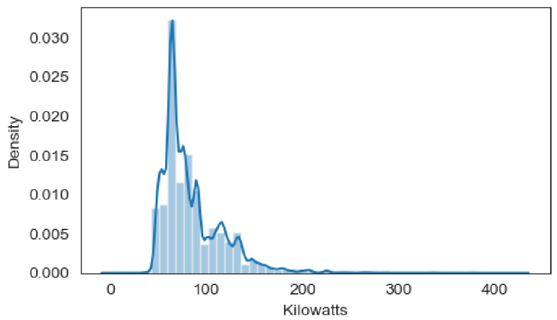
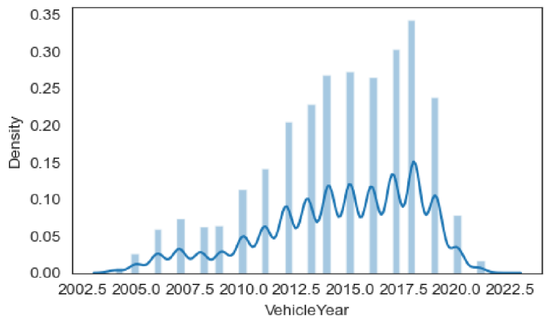
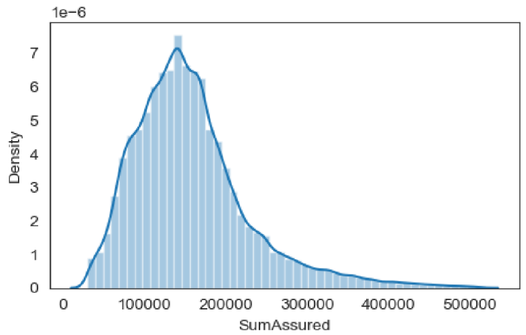
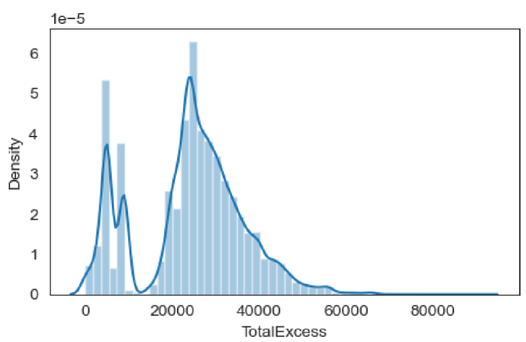
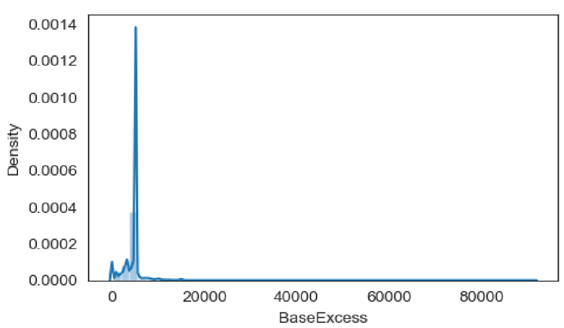
EDA - PMD DATASET

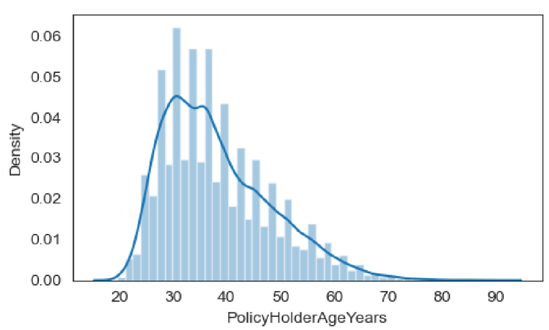


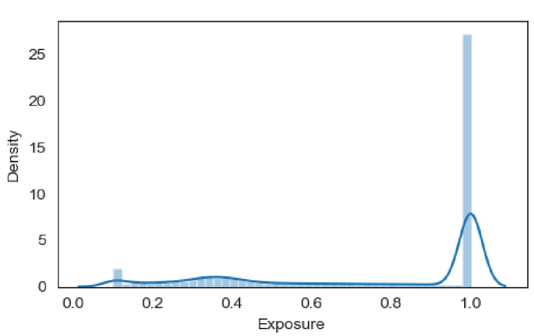


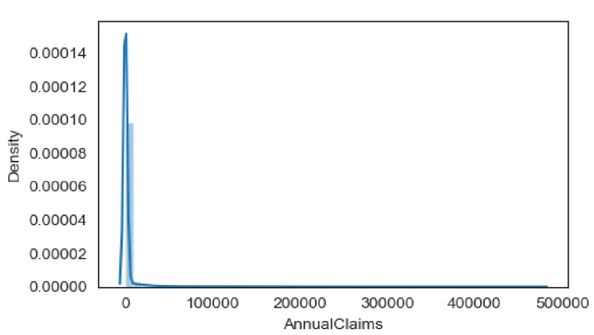












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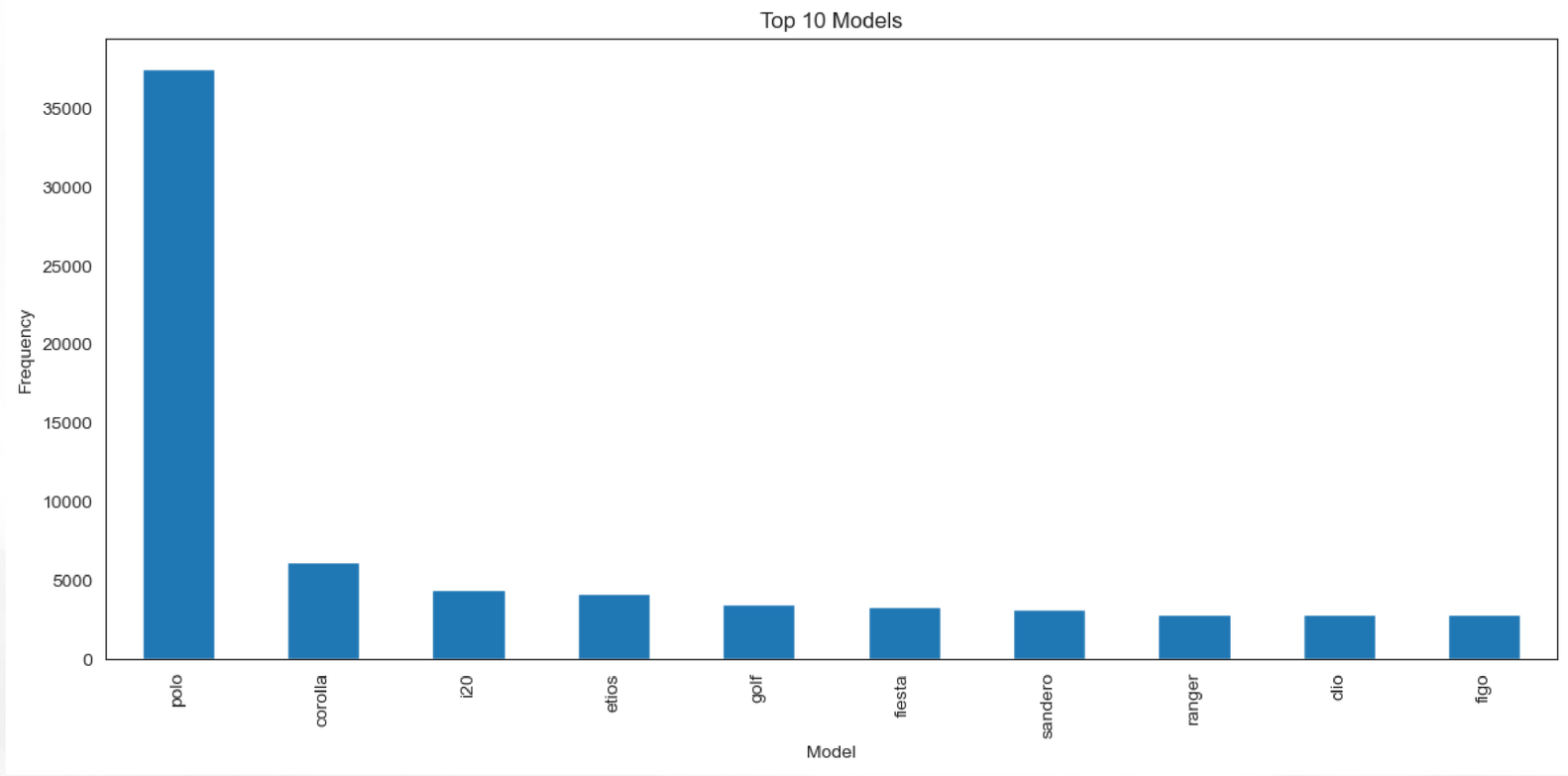
EDA - PMD DATASET



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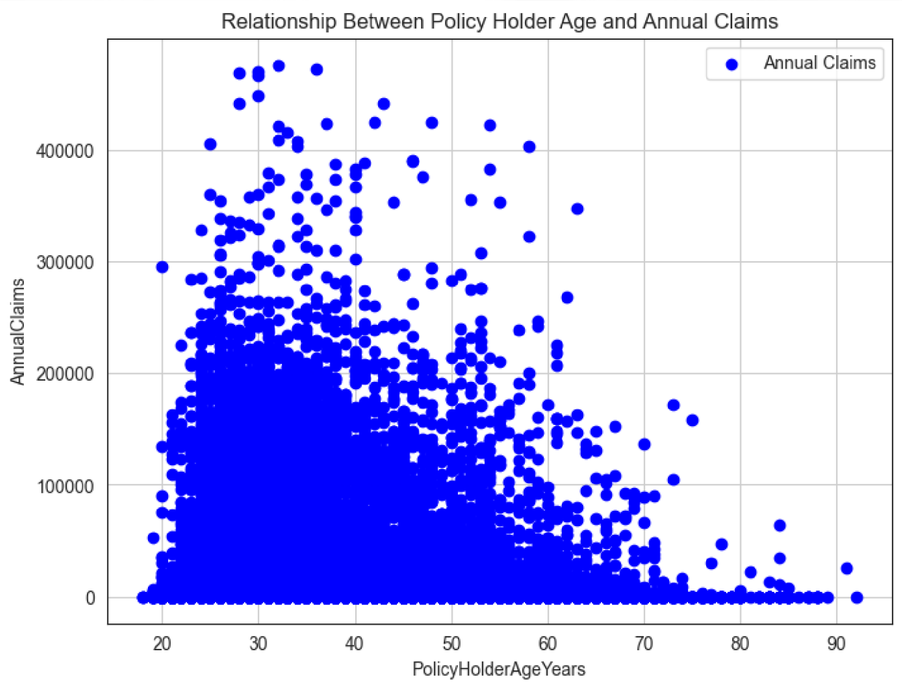

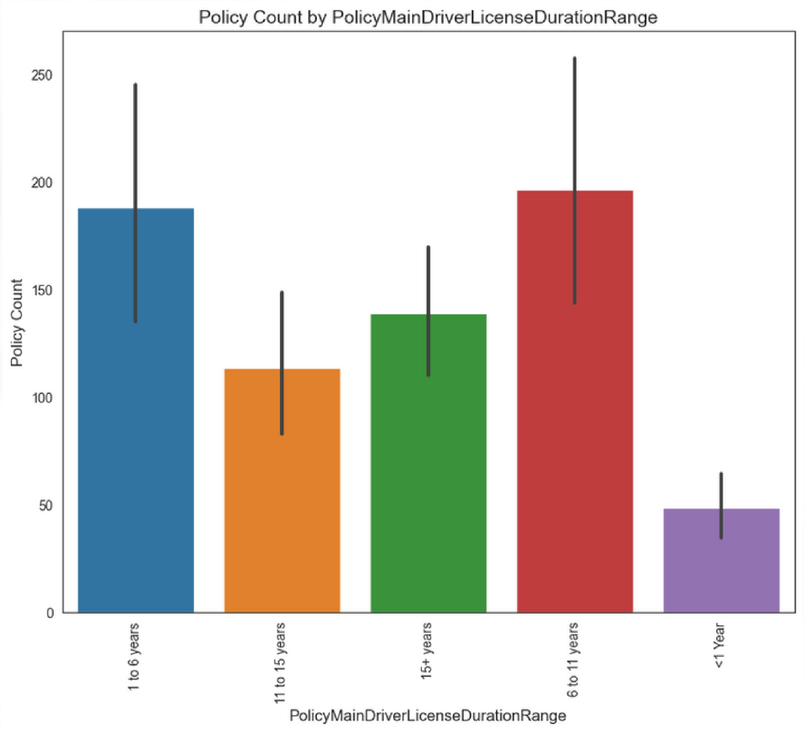

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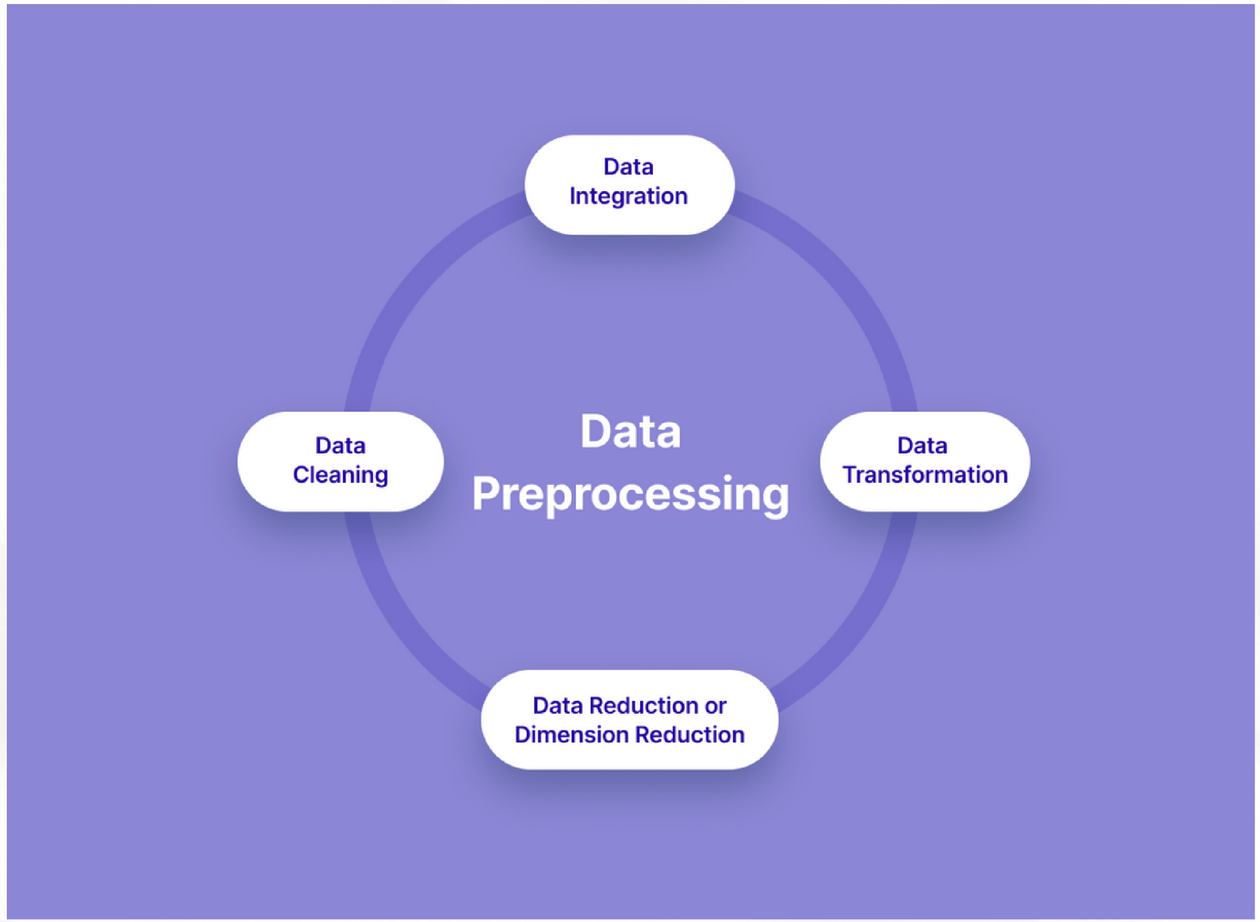
PREPROCESSING



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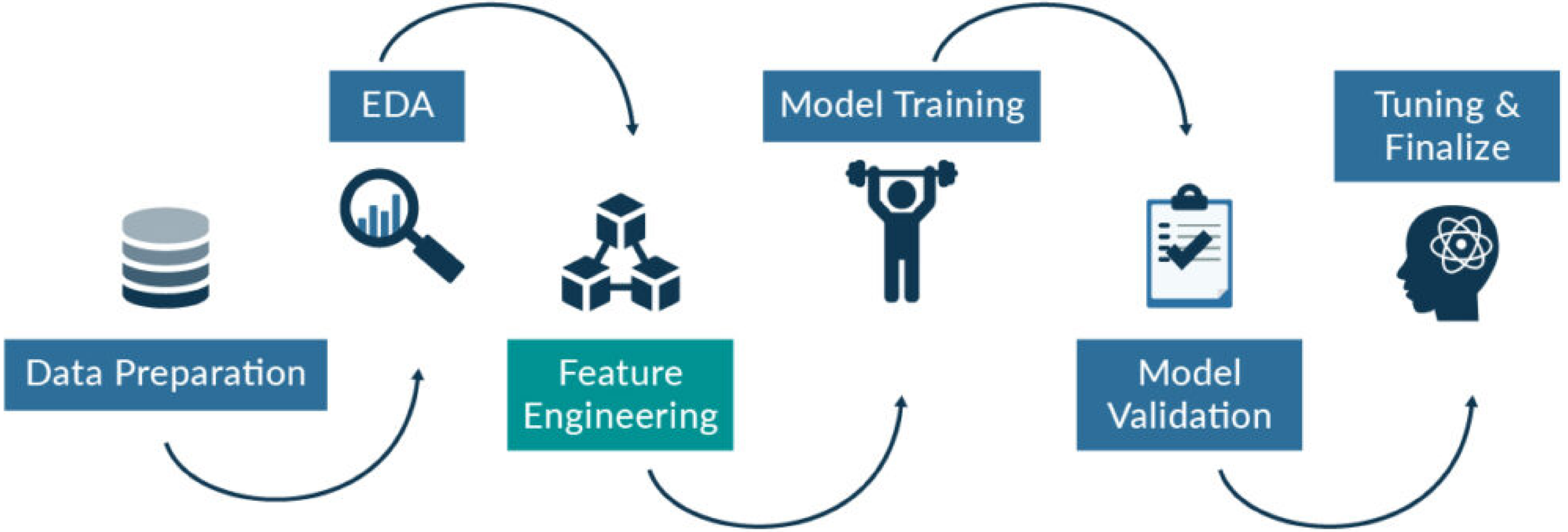
FEATURE ENGINEERING



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CONCLUSION

THANK YOU