

Sundus Yawar

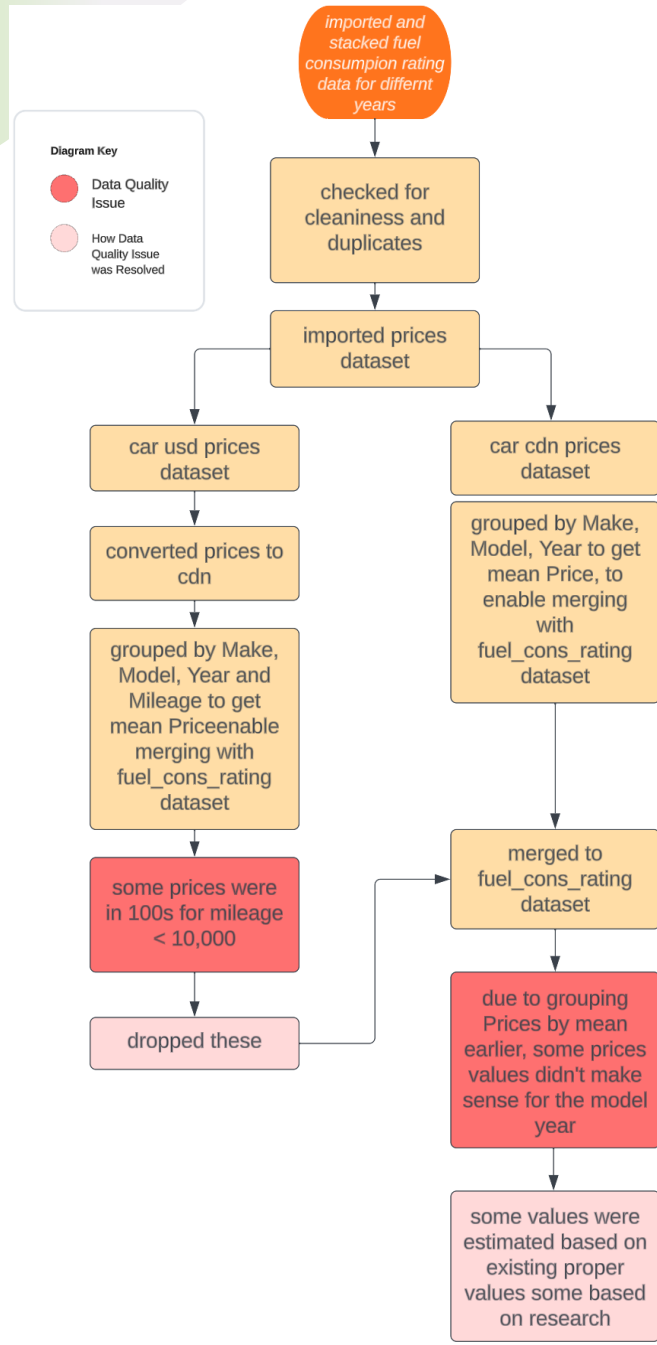
Budget and Environmentally Friendly Car Recommendation System

Non-Technical Overview & Potential Impact

- Opens doors to making environmentally responsible decision within a tight budget given the increased cost of living
 - environmentally friendly i.e. fuel efficient, low CO2 emissions, best smog rating
 - cost efficient i.e. within budget for purchase & fuel efficiency



Overview of the Dataset & Preprocessing Procedures



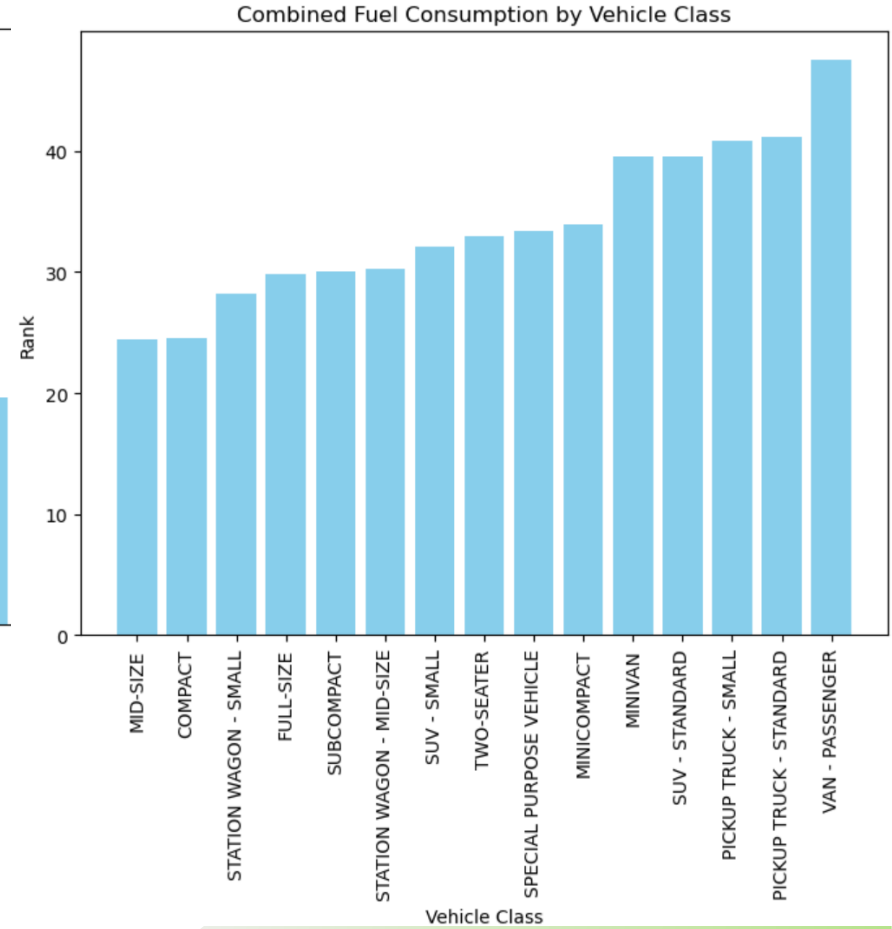
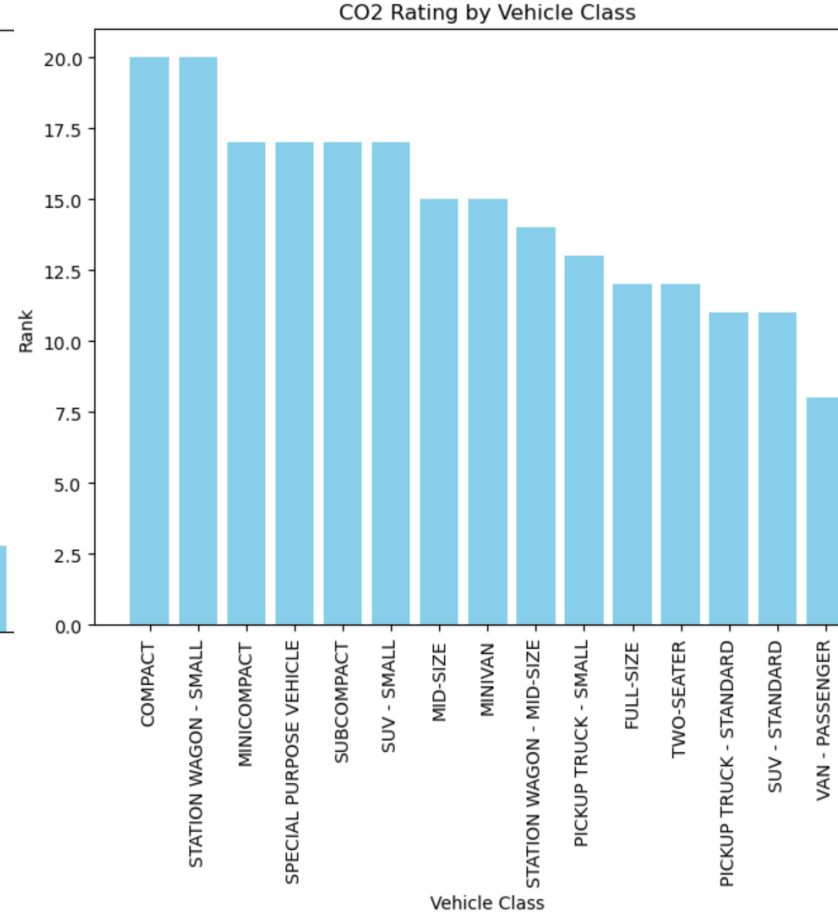
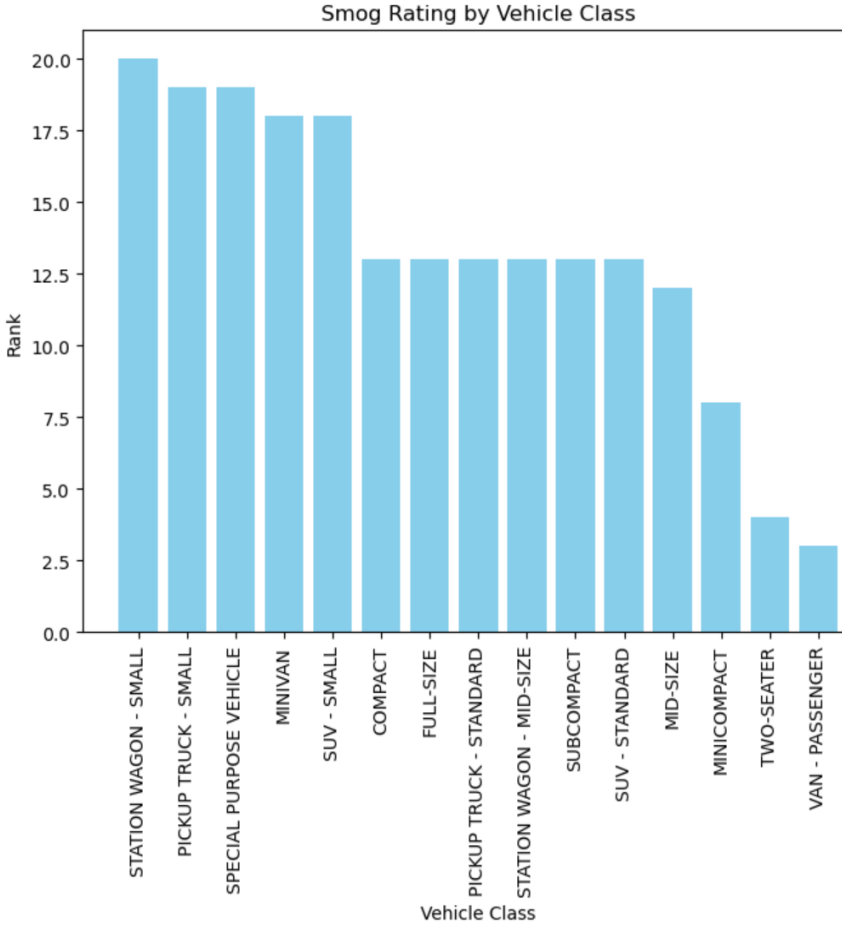
6,951 rows and 8 columns, after initial feature selection initially

Feature Selection

- Chi2 test (Model & Vehicle Class)
- Domain Knowledge & Correlation Matrix
- VIF Analysis for multicollinear columns
- Backward Feature Selection

→ Final Features Selected via Backward Feature Selection

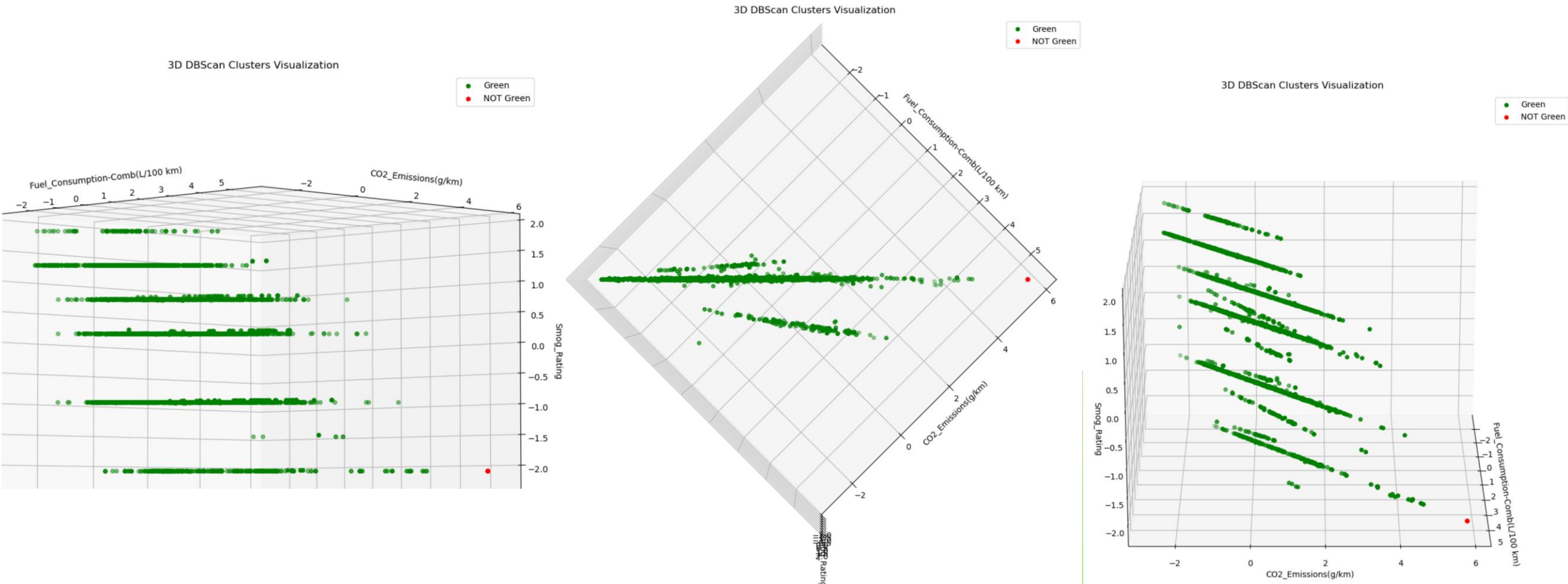
→ Fuel_Consumption_Comb, CO2_Emissions, Smog Rating



**Few Important Findings
from EDA**

Model Comparison & Interpretations

Best	KMeans	DBScan	DBScan_v2
# of features	18 after 1 hot encoding	18 after 1 hot encoding	3
Clusters formed	420	2	2
Silhouette Score	0.60303	0.5395	0.72877



Demo

Demo Link: <https://green-vehicle-recommender-system.streamlit.app/>

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Green Vehicle Recommender System

Please Select Price Range and Vehicle Class for Tailored Recommendation 😊

Price_start

20000

Price_end

30000

Vehicle Type

SUV - SMALL

	Model_Year	Make	Model	Vehicle_Class	Engine_Size(L)	Cylinders	Transmission	Fuel_Type	Fuel_Consumption-City(L/100 km)	Fuel_Consumption-Hwy(L/100 km)	Fuel_Consumption-Comb(L/100 km)	Price
1561	2018	HONDA	CR-V	SUV - SMALL	1.500000	4	AV	Regular gasoline	8.400000	7.000000	7.800000	25951.152400
704	2017	MAZDA	CX-5	SUV - SMALL	2.000000	4	M6	Regular gasoline	9.400000	7.400000	8.500000	27150.000000
705	2017	MAZDA	CX-5	SUV - SMALL	2.500000	4	AS6	Regular gasoline	9.800000	7.700000	8.600000	27150.000000
524	2017	HYUNDAI	TUCSON	SUV - SMALL	2.000000	4	AS6	Regular gasoline	10.100000	7.800000	9.000000	26156.000000
1601	2018	HYUNDAI	TUCSON	SUV - SMALL	2.000000	4	AS6	Regular gasoline	10.100000	7.800000	9.000000	28156.000000
523	2017	HYUNDAI	TUCSON	SUV - SMALL	1.600000	4	AM7	Regular gasoline	9.900000	8.500000	9.300000	26156.000000
3181	2019	VOLKSWAGEN	TIGUAN	SUV - SMALL	2.000000	4	AS8	Regular gasoline	10.700000	8.000000	9.500000	24900.000000
1645	2018	JEEP	CHEROKEE	SUV - SMALL	3.200000	6	A9	Regular gasoline	11.400000	8.300000	10.000000	25750.000000