

AI-Powered Fleet Performance & Delivery Efficiency Dashboard -Power BI

1. Data Cleaning & Modeling:

- Fix missing fuel consumption values (use mean imputation).

Query Editor screenshot showing the formula bar with the DAX formula: `= List.Average(#"Changed Type"[Fuel_Consumed_L])`. The formula bar also shows the result: 91.882978723404264.

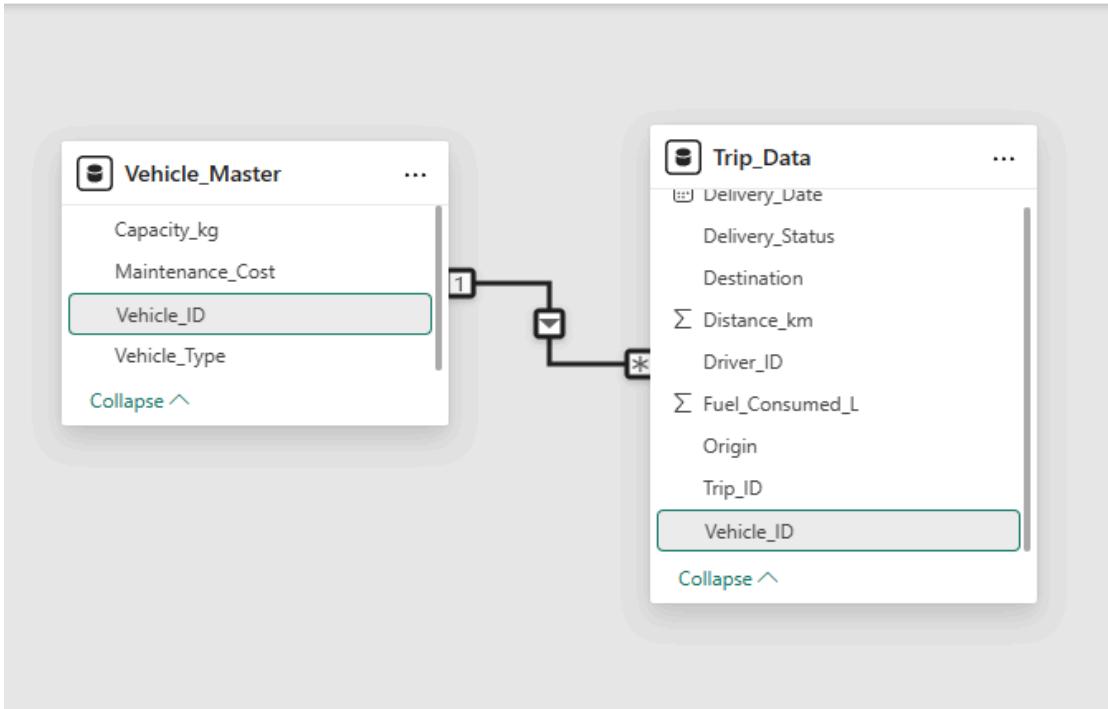
The right pane shows the Query Settings and Applied Steps. The Applied Steps section includes steps for Source, Navigation, Promoted Headers, Changed Type, and a step for Calculated Average, which has been replaced by Replaced mean.

Query Editor screenshot showing the formula bar with the DAX formula: `= Table.ReplaceValue(#"Changed Type", null, 91.882978723404264, Replacer.ReplaceValue, {"Fuel_Consumed_L"})`.

The right pane shows the Query Settings and Applied Steps. The Applied Steps section includes steps for Source, Navigation, Promoted Headers, Changed Type, and a step for Replaced mean Value, which has been rounded off. A tooltip message is displayed: "I have imputed the average instead of null values in fuel consumption column".

Origin	Destination	Distance_km	Fuel_Consumed_L	Delivery_Status
Delhi	Pune	1173	108.42	On-Time
Mumbai	Bangalore	1727	161.33	On-Time
Mumbai	Pune	1459	154.7	On-Time
Hyderabad	Pune	382	26.6	On-Time
Pune	Mumbai	398	33.2	On-Time
Chennai	Mumbai	1275	85.04	Late
Chennai	Kolkata	752	58.08	On-Time
Delhi	Pune	74	5.24	On-Time
Delhi	Hyderabad	186	16.22	On-Time
Bangalore	Hyderabad	1375	105.21	Late
Kolkata	Hyderabad	419		
Kolkata	Delhi	751	51.77	On-Time
Kolkata	Chennai	1571	188.52	Late
Hyderabad	Bangalore	1524	104.51	On-Time
Kolkata	Mumbai	1956	179.88	On-Time
Bangalore	Mumbai	858	91.88297872	Late
Pune	Kolkata	1269	102.91	On-Time
Pune	Delhi	1565	107.23	On-Time
Hyderabad	Pune	1796	155.52	On-Time
Mumbai	Bangalore	1640	148.87	On-Time
Delhi	Mumbai	446	31.98	Late
Hyderabad	Delhi	100	11.11	On-Time

2. Create a relationship using Vehicle_ID between Trip_Data and the Vehicle Master table.



2. DAX Measures:

1. Fuel Efficiency = Distance / Fuel Consumed (Fuel Efficiency = DIVIDE(Trip_Data[Distance_km], Trip_Data[Fuel_Consumed_L]))

ID	Vehicle_ID	Driver_ID	Origin	Destination	Distance_km	Fuel_Consumed_L	Delivery_Status	Delivery_Date	Fuel Efficiency
V04	D01	Delhi	Pune		1173	108.42	On-Time	27 January 2023	1081.90%
V06	D08	Mumbai	Bangalore		1727	161.33	On-Time	21 February 2023	1070.48%
V06	D08	Mumbai	Pune		1459	154.7	On-Time	17 February 2023	943.12%
V04	D09	Hyderabad	Pune		382	26.6	On-Time	18 February 2023	1436.09%
V06	D08	Pune	Mumbai		398	33.2	On-Time	15 February 2023	1198.80%
V06	D07	Chennai	Mumbai		1275	85.04	Late	25 February 2023	1499.29%
V07	D03	Chennai	Kolkata		752	58.08	On-Time	19 January 2023	1294.77%
V02	D10	Delhi	Pune		74	5.24	On-Time	01 January 2023	1412.21%
V02	D07	Delhi	Hyderabad		186	16.22	On-Time	23 February 2023	1146.73%
V02	D02	Bangalore	Hyderabad		1375	105.21	Late	02 February 2023	1306.91%
V06	D03	Kolkata	Hyderabad		419	31.17	On-Time	21 January 2023	1344.24%
V06	D01	Kolkata	Delhi		751	51.77	On-Time	15 February 2023	1450.65%
V05	D04	Kolkata	Chennai		1571	188.52	Late	02 February 2023	833.33%
V05	D05	Hyderabad	Bangalore		1524	104.51	On-Time	16 February 2023	1458.23%
V05	D06	Kolkata	Mumbai		1956	179.88	On-Time	21 January 2023	1087.39%
V05	D06	Bangalore	Mumbai		858	91.88	Late	18 January 2023	933.83%
V07	D07	Pune	Kolkata		1269	102.91	On-Time	16 January 2023	1233.12%
V07	D10	Pune	Delhi		1565	107.23	On-Time	12 February 2023	1459.48%
V07	D10	Hyderabad	Pune		1796	155.52	On-Time	28 February 2023	1154.84%
V04	D02	Mumbai	Bangalore		1640	148.87	On-Time	06 January 2023	1101.63%
V07	D07	Delhi	Mumbai		446	31.98	Late	11 January 2023	1394.62%
V07	D09	Hyderabad	Delhi		140	11.44	On-Time	07 February 2023	1223.78%

The screenshot shows a Power BI report interface. The main area displays a table with 20 rows of trip data. The columns include ID, Vehicle_ID, Driver_ID, Origin, Destination, Distance_km, Fuel_Consumed_L, Delivery_Status, Delivery_Date, and Fuel Efficiency. The Fuel Efficiency column is highlighted with a green border. The right side of the screen features a Data pane containing the schema for both the Trip_Data and Vehicle_Master tables, along with a search bar and a list of measures and columns.

2. On-Time Delivery % = On-Time Trips / Total Trips: On-Time Delivery % =

$$\text{DIVIDE}(\text{CALCULATE}(\text{COUNTA}(\text{Trip_Data}[\text{Delivery_Status}]), \text{Trip_Data}[\text{Delivery_Status}] = "On-Time"), \text{COUNTA}(\text{Trip_Data}[\text{Delivery_Status}]))$$

1 On-Time Delivery % = CALCULATE(COUNTA(Trip_Data[Delivery_Status]), Trip_Data[Delivery_Status] = "On-Time")/COUNTA(Trip_Data[Delivery_Status])

Vehicle_ID	Driver_ID	Origin	Destination	Distance_km	Fuel_Consumed_L	Delivery_Status	Delivery_Date
V04	D01	Delhi	Pune	1173	108.42	On-Time	27 January 2023
V06	D08	Mumbai	Bangalore	1727	161.33	On-Time	21 February 2023
V06	D08	Mumbai	Pune	1459	154.7	On-Time	17 February 2023
V04	D09	Hyderabad	Pune	382	26.6	On-Time	18 February 2023
V06	D08	Pune	Mumbai	398	33.2	On-Time	15 February 2023
V06	D07	Chennai	Mumbai	1275	85.04	Late	25 February 2023
V07	D03	Chennai	Kolkata	752	58.08	On-Time	19 January 2023
V02	D10	Delhi	Pune	74	5.24	On-Time	01 January 2023
V02	D07	Delhi	Hyderabad	186	16.22	On-Time	23 February 2023
V02	D02	Bangalore	Hyderabad	1375	105.21	Late	02 February 2023
V06	D03	Kolkata	Hyderabad	419	31.17	On-Time	21 January 2023
V06	D01	Kolkata	Delhi	751	51.77	On-Time	15 February 2023
V05	D04	Kolkata	Chennai	1571	188.52	Late	02 February 2023
V05	D05	Hyderabad	Bangalore	1524	104.51	On-Time	16 February 2023
V05	D06	Kolkata	Mumbai	1956	179.88	On-Time	21 January 2023
V05	D06	Bangalore	Mumbai	858	91.88	Late	18 January 2023
V07	D07	Pune	Kolkata	1269	102.91	On-Time	16 January 2023
V07	D10	Pune	Delhi	1565	107.23	On-Time	12 February 2023

Data

Search

Trip_Data
Delivery_Status
Destination
Distance_km
Driver_ID
Fuel_Efficiency
Fuel_Consumed_L
On-Time_Delivery %
Origin
Trip_ID
Vehicle_ID
Vehicle_Master

3. Cost per km = (fuel cost + Maintenance Cost) / Distance: Cost Per Km =

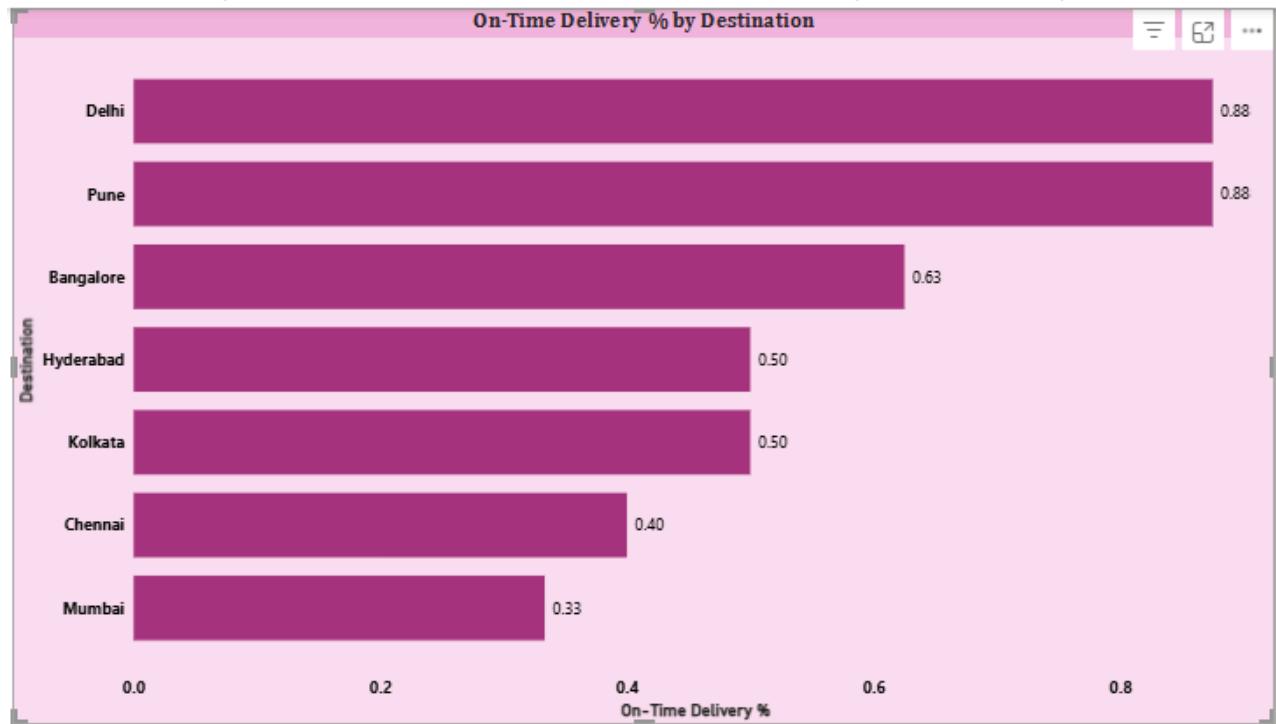
$$\text{DIVIDE}((\text{Trip_Data}[\text{Fuel_Consumed_L}]*100) + (\text{RELATED}(\text{Vehicle_Master}[\text{Maintenance_Cost}])), \text{Trip_Data}[\text{Distance_km}])$$

1 Cost Per Km = DIVIDE((Trip_Data[Fuel_Consumed_L]*100)+(RELATED(Vehicle_Master[Maintenance_Cost])),Trip_Data[Distance_km])

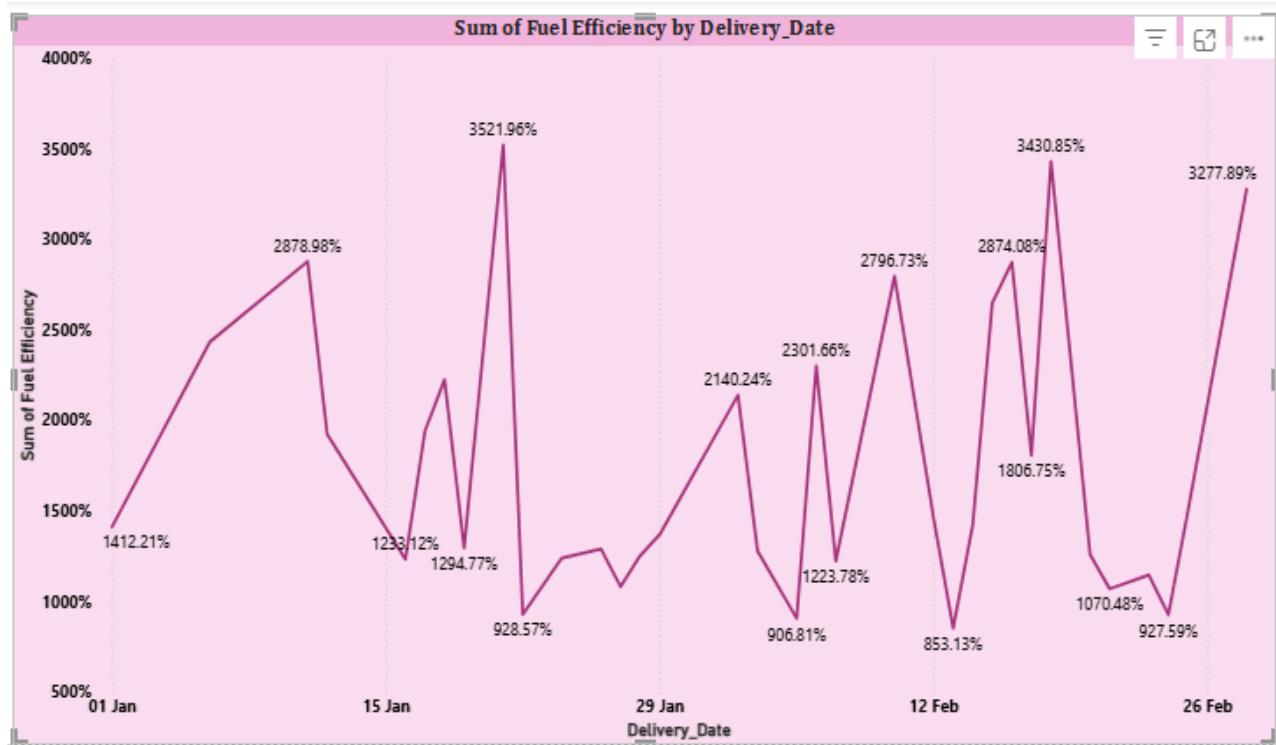
Vehicle_ID	Driver_ID	Origin	Destination	Distance_km	Fuel_Consumed_L	Delivery_Status	Delivery_Date	Fuel Efficiency	Cost Per Km
V04	D01	Delhi	Pune	1173	108.42	On-Time	27 January 2023	1081.90%	\$16.94
V06	D08	Mumbai	Bangalore	1727	161.33	On-Time	21 February 2023	1070.48%	\$12.77
V06	D08	Mumbai	Pune	1459	154.7	On-Time	17 February 2023	943.12%	\$14.66
V04	D09	Hyderabad	Pune	382	26.6	On-Time	18 February 2023	1436.09%	\$30.61
V06	D08	Pune	Mumbai	398	33.2	On-Time	15 February 2023	1198.80%	\$23.20
V06	D07	Chennai	Mumbai	1275	85.04	Late	25 February 2023	1499.29%	\$11.31
V07	D03	Chennai	Kolkata	752	58.08	On-Time	19 January 2023	1294.77%	\$24.79
V02	D10	Delhi	Pune	74	5.24	On-Time	01 January 2023	1412.21%	\$98.65
V02	D07	Delhi	Hyderabad	186	16.22	On-Time	23 February 2023	1146.73%	\$45.15
V02	D02	Bangalore	Hyderabad	1375	105.21	Late	02 February 2023	1306.91%	\$12.58
V06	D03	Kolkata	Hyderabad	419	31.17	On-Time	21 January 2023	1344.24%	\$21.55
V06	D01	Kolkata	Delhi	751	51.77	On-Time	15 February 2023	1450.65%	\$14.77
V05	D04	Kolkata	Chennai	1571	188.52	Late	02 February 2023	833.33%	\$23.30
V05	D05	Hyderabad	Bangalore	1524	104.51	On-Time	16 February 2023	1458.23%	\$18.51
V05	D06	Kolkata	Mumbai	1956	179.88	On-Time	21 January 2023	1087.39%	\$18.27
V05	D06	Bangalore	Mumbai	858	91.88	Late	18 January 2023	933.83%	\$31.40
V07	D07	Pune	Kolkata	1269	102.91	On-Time	16 January 2023	1233.12%	\$18.23
V07	D10	Pune	Delhi	1565	107.23	On-Time	12 February 2023	1459.48%	\$15.05
V07	D10	Hyderabad	Pune	1796	155.52	On-Time	28 February 2023	1154.84%	\$15.81
V04	D02	Mumbai	Bangalore	1640	148.87	On-Time	06 January 2023	1101.63%	\$14.59
V07	D07	Delhi	Mumbai	446	31.98	Late	11 January 2023	1394.62%	\$35.95
V07	D09	Hyderabad	Delhi	140	11.44	On-Time	07 February 2023	1223.78%	\$99.86

3. Visualization:

Bar chart: On-Time Delivery % by Destination.



Line chart: Fuel efficiency trend by delivery date.



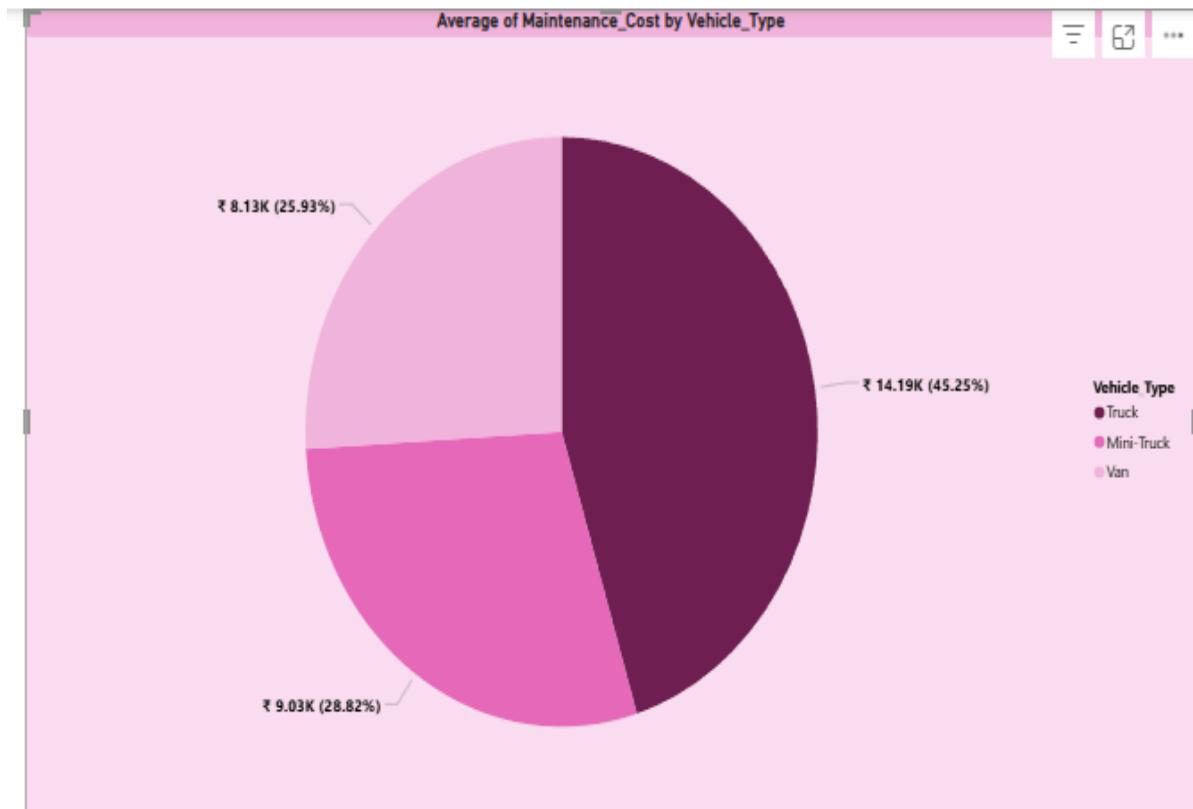
Cards visualization: 1. Avg. Delivery Time 2. Average cost per km

Average Delivery Time =

```
AVERAGEX('Trip_Data','Trip_Data'[Delivery_Date]-CALCULATE(MAX('Trip_Data'[Delivery_Date]),FILTER('Trip_Data','Trip_Data'[Delivery_Date]<EARLIER('Trip_Data'[Delivery_Date]))))
```

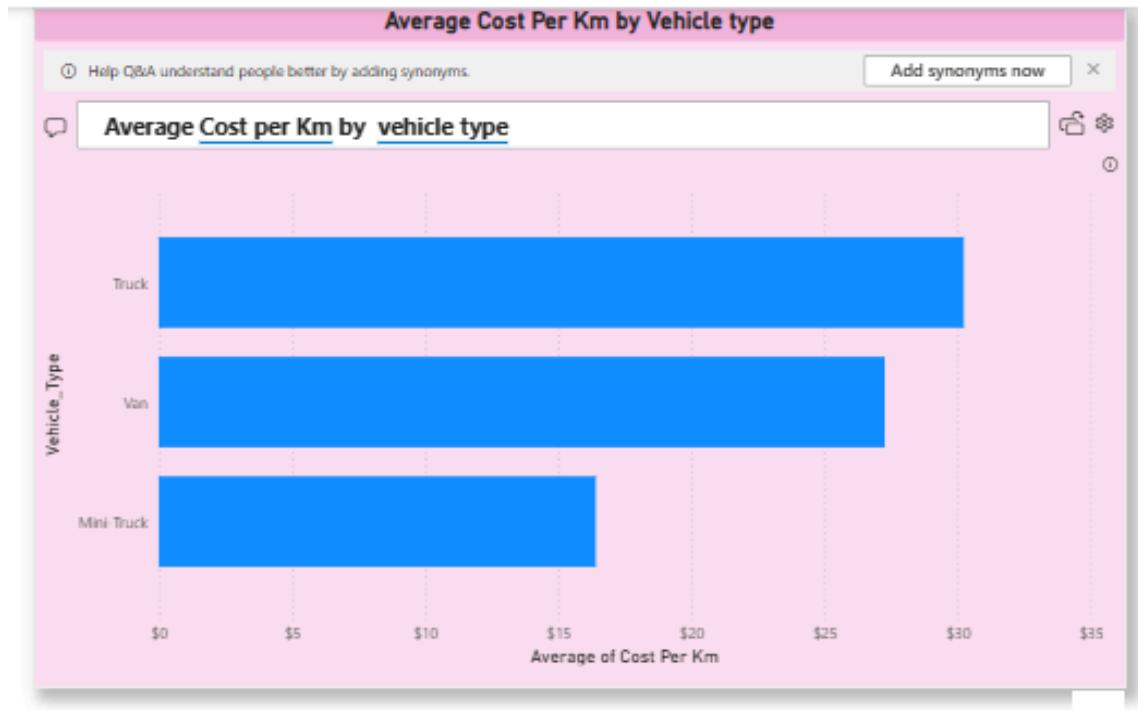


Pie chart: vehicle type vs Average maintenance cost

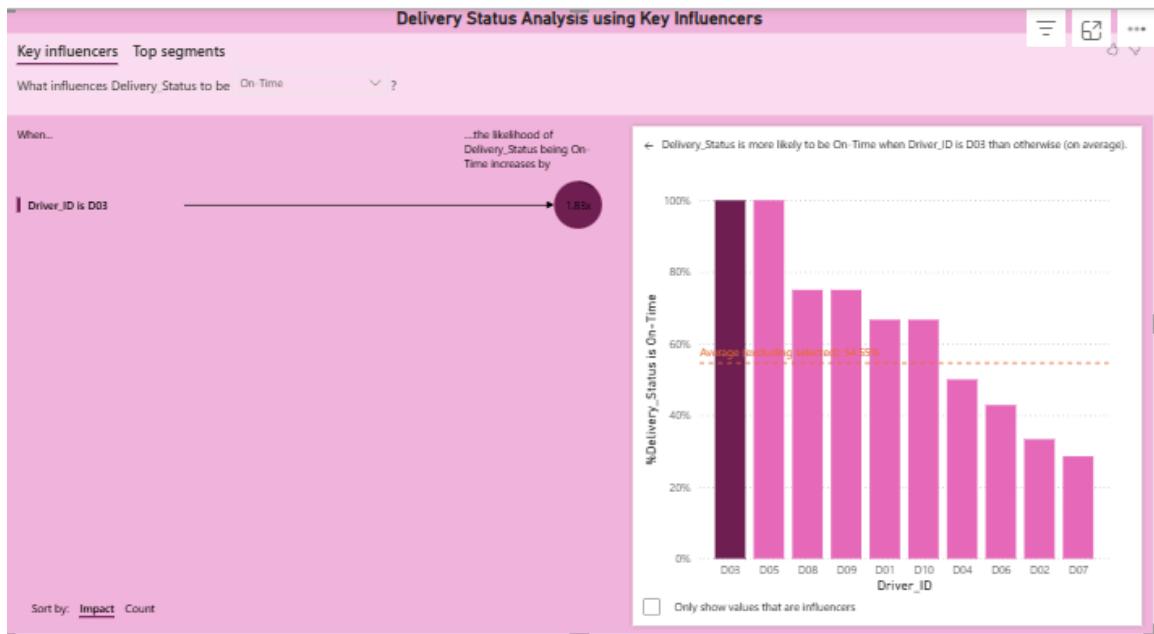


4. AI-Powered Visuals:

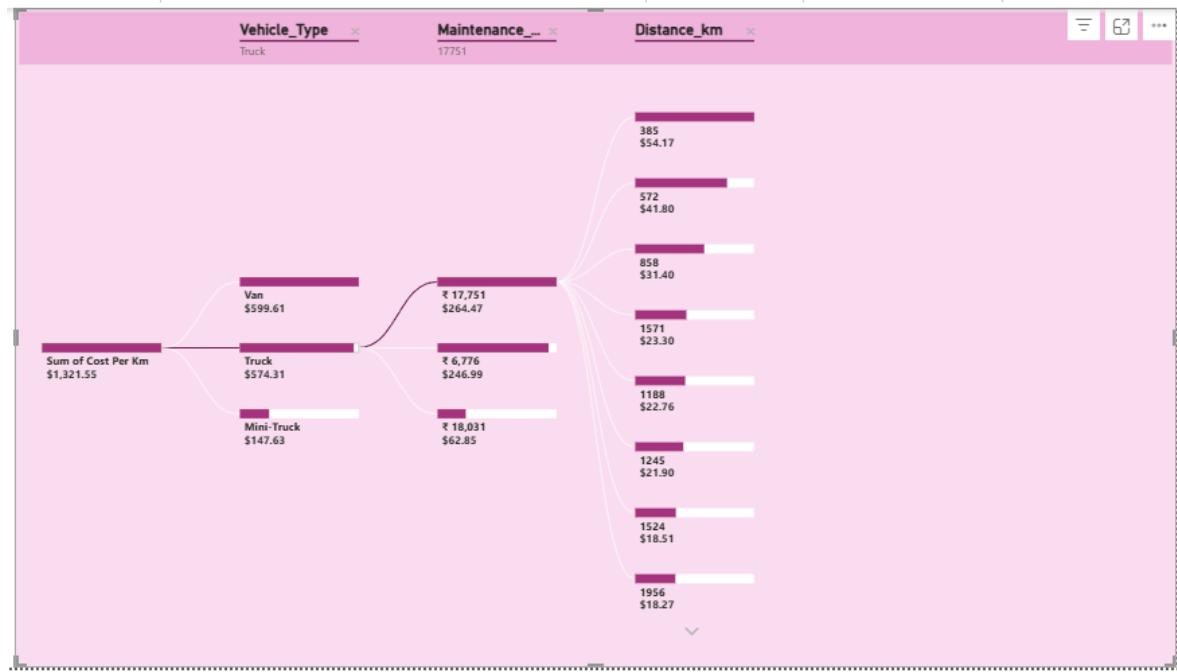
1.Q&A Visual: Add Q&A visual . Prompt: “Average Cost per km by vehicle type?”



2.Key Influencers Visual: Add Delivery Status in the Analyze and explain by -distance in km,vehicle_type, Driver_ID



3. Decomposition Tree (AI Visual): Analyze Cost per km . explained by Vehicle Type, Maintenance_cost, and Distance_km.



Expected Output: A transport operations dashboard to optimize routes and fleet usage.



