Fleet Management

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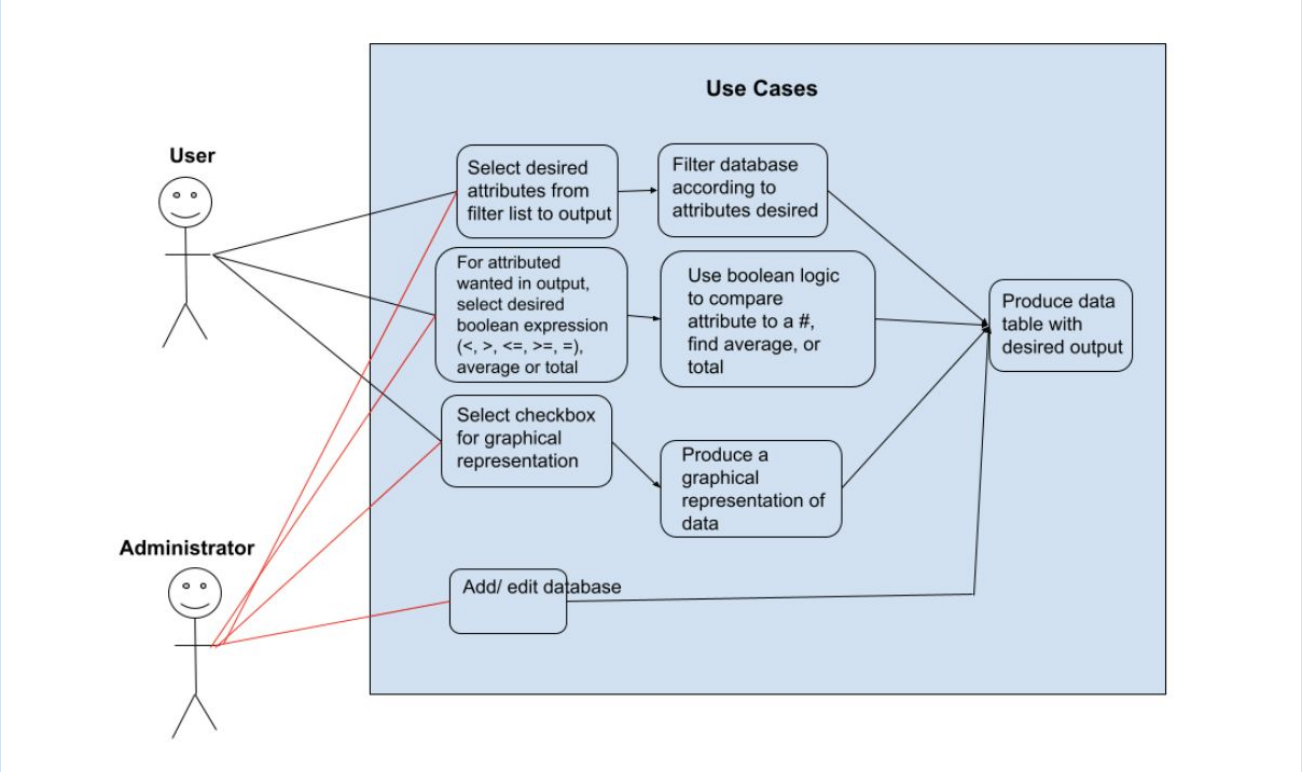
Goal of Our Database

- Improve TCNJ fleet financially and environmentally
- Identify current fleet metrics and outline potential future fleet combinations
- Answer various queries to aid understanding of TCNJ’s vehicle fleet

Questions our Database Should Answers

- What kind of fuel does each type of vehicle use and what are its emission?
- What are the financial costs of each type of vehicle?
- What are the specifications of each vehicle in terms of vehicle type, model, and usage?
- What is the age, department, and year of each vehicle currently in the fleet?
- What is the proposed and future course of action concerning each vehicle in the fleet?

User Cases


Use Cases
User
Select desired attributes from filter list to output
Filter database according to attributes desired
For attributed wanted in output, select desired boolean expression (<, >, <=, >=, =), average or total
Use boolean logic to compare attribute to a #, find average, or total
Produce data table with desired output
Select checkbox for graphical representation
Produce a graphical representation of data
Administrator
Add/ edit database

User Views

Input Screen

Output Filter

- Type of Vehicle Emission (Current)
  - Compare
    - User inputs type of vehicle emissions they want to compare
- Type of Vehicle Emission (Proposed)
  - Compare
    - User inputs type of vehicle emissions they want to compare
- Type of Vehicle (Current)
  - Compare
    - User inputs type of vehicles they want to compare
- Type of Vehicle (Proposed)
  - Compare
    - User inputs type of vehicles they want to compare
- Graph Output

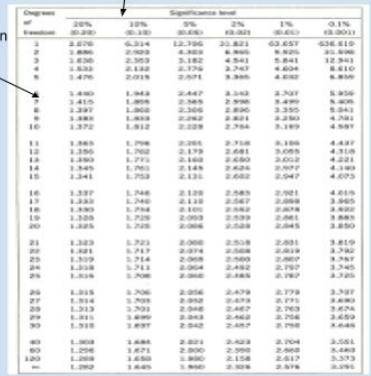
Boolean Expressions

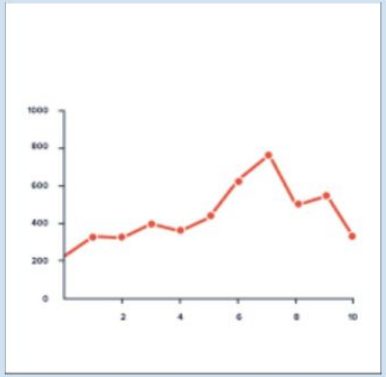
Maintenance Cost	< > = >= <= Total Average	User can input value to compare attribute to	
Year	< > = >= <= Total Average	User can input value to compare attribute to	
Initial Capital Cost	< > = >= <= Total Average	User can input value to compare attribute to	
Annual Emissions, GHG	< > = >= <= Total Average	User can input value to compare attribute to	
Annual Cost of Ownership	< > = >= <= Total Average	User can input value to compare attribute to	
Fleet Age	< > = >= <= Total Average	User can input value to compare attribute to	
Annual Emissions, Pollutants	< > = >= <= Total Average	User can input value to compare attribute to	
Fuel Cost	< > = >= <= Total Average	User can input value to compare attribute to	

Attributes selected in Output filter and or used in a boolean are displayed

onditioned by boolean sions displayed

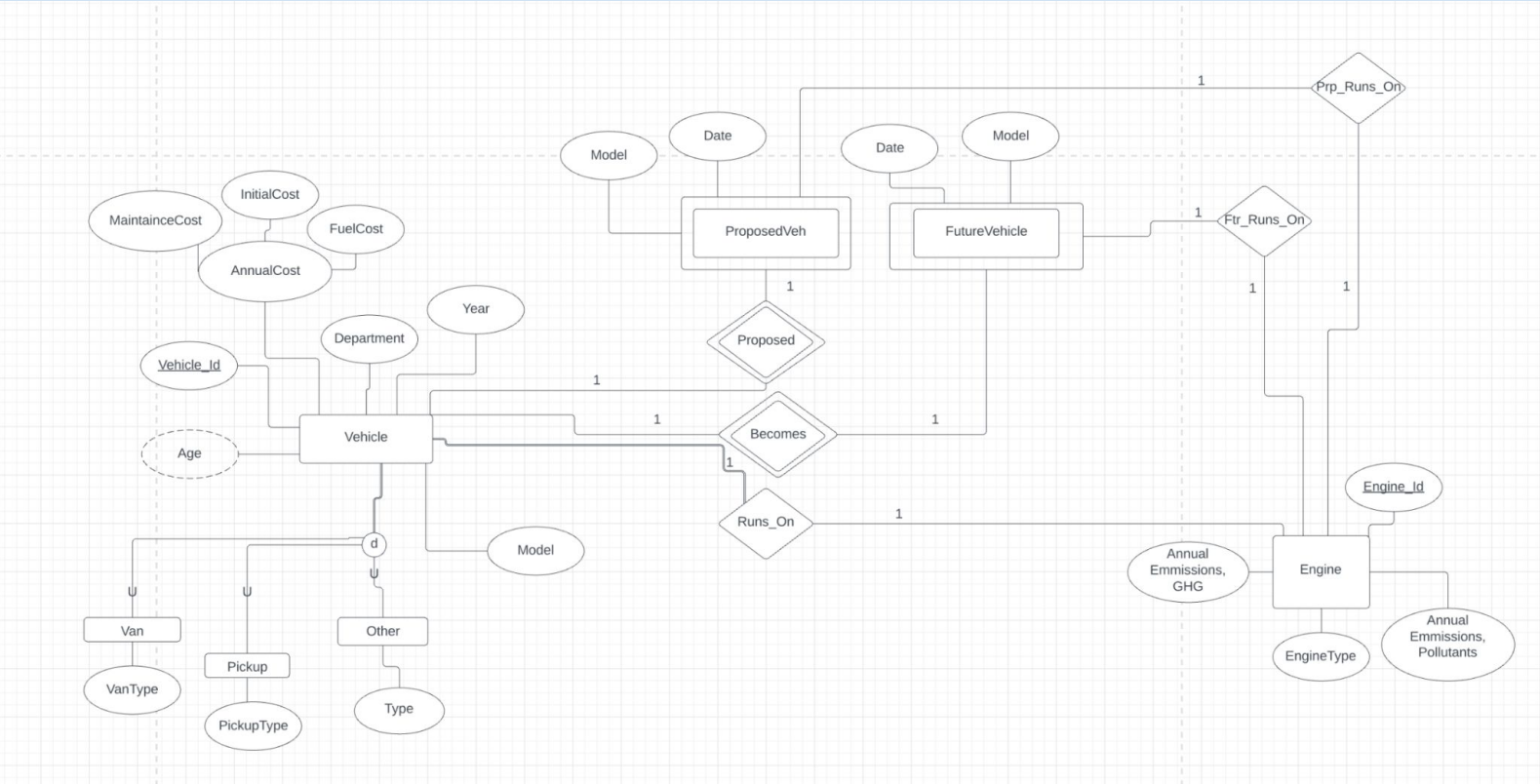
Output Screen



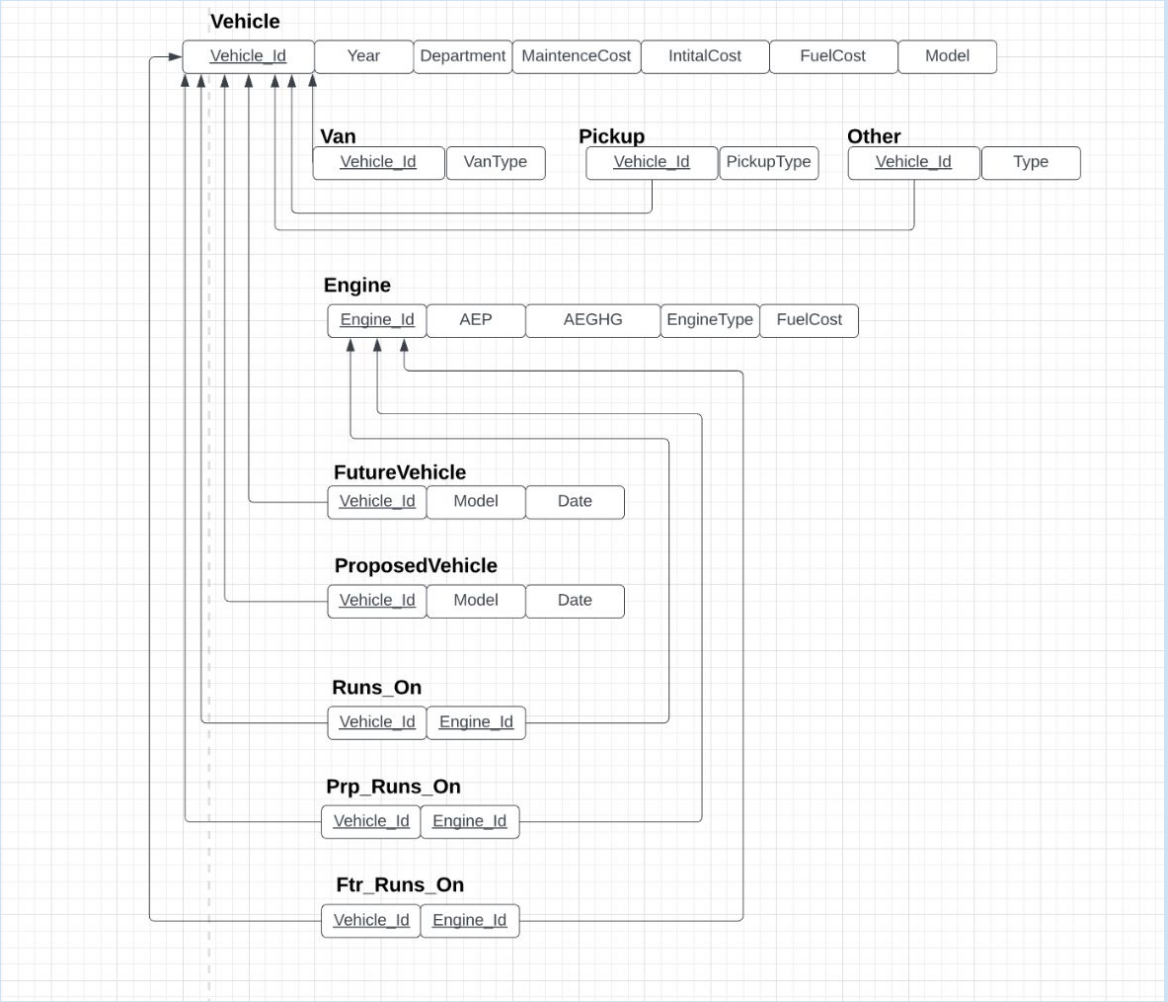


This output screen would display a table based on the user's input. A graph would also be provided if applicable and requested by the user.

ER Diagram


Prp_Runs_On
1
Model
Date
Date
Model
InitialCost
MaintainceCost
FuelCost
AnnualCost
ProposedVeh
FutureVehicle
Ftr_Runs_On
1
1
1
Year
Department
Proposed
Vehicle_Id
1
1
1
Becomes
Age
Vehicle
1
Engine_Id
Runs_On
1
d
Model
Annual Emmissions, GHG
Engine
Van
Other
Pickup
VanType
Type
PickupType
EngineType
Annual Emmissions, Pollutants

Relational Schema



Database Details

- Our database should be able to support about 200 entries since there about 100 vehicles in TCNJ's fleet and some may go.

- Our types of queries would be select and action queries:
  - Select queries: focus on retrieving information from the database to answer a question the user may have
  - Action queries: an administrative user would be able to insert, delete, and update the data in our database
- An average of 5 searches daily.