TCNJ Vehicle Fleet

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Problem Statement

- Our group will be addressing the optimal composition of The College of New Jersey's (TCNJ) vehicle fleet.

- Problem: Age and fuel consumption on the current fleet makes the vehicles not environmentally efficient.
    - This segways into the financial problem of maintaining the "most environmental benign composition," resulting in the final problem of determining the best overall composition.

- Solution: developing analysis using fundamental accounting ideas to figure out the best way for the management of these vehicles with finance or environment being the top priorities.

Objective

We will analyze and answer the following questions:

- What are the operational costs to keep and maintain each vehicle?
- What is the average expected life span of these vehicles?
- Are there better options or alternatives that could save us money?
- What is the cost for fuel for each vehicle?
- Would it be cheaper to switch to a different fuel source?
- Some initial questions we have brought up, as we dive further into our research we anticipate to come up with more questions that will need to be answered

End Product and Development

- Evaluate the performance of all 9 vehicles types from both a economically and environmentally sustainability standpoint
- Identify vehicles that are not economically and/or environmentally sustainable
- Advise TCNJ to replace vehicles with poor performance grades
- Suggest replacement options and plan to allow TCNJ to be as economically and environmentally sustainable as possible in terms of vehicle fleet management
- Neatly compile all findings and raw data on a user-friendly application with an organized database

Importance

- Determining plausible solutions to address concerns regarding the sustainability of the vehicle fleet
  - Environmental concerns
  - Economic concerns
    - Importance of considering all factors: all-encompassing solution

Research Plan

Data available:

- From CAB fleet vehicle spreadsheet
  - Make, model, year
  - Cost of fuel
  - Types of fuel used (petroleum, electric, etc).
  - Cost of maintenance
  - Depreciation on vehicles
  - Anticipated service life

Research:

- Other data is necessary, including:
  - How long the fuel lasts in each vehicle
  - How often the vehicles are used
  - What they are used for
  - Alternatives that could be either more cost-effective or more eco-friendly
  - Other types of vehicles that can be added to the fleet

Similar Systems

- Similar systems perform analysis of cost or sustainability
  - Would have to use one system for cost and one for sustainability
- Our system performs analysis of both cost and sustainability
  - One system that can perform multiple analyses
- User will get a clearer sense of most optimal composition of TCNJ’s vehicle fleet
  - Economic and environmental analysis

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Need

- Consumers need a newly improved solution to the vehicle fleet that is cost-effective
- A more environmentally sustainable plan is needed to mitigate the carbon footprint of this campus

Approach

- Creating two solutions to address two different needs: economic sustainability and environmental sustainability
- Using current data and researching to find more data related to the improvement of the vehicle fleet
- Combining knowledge about databases and financial analysis to bring an elevated skill set to the problem

Benefit

- Stakeholders can benefit from a plan that has potential to be sustainable for a great length of time
- This plan encompasses many concerns, and it addresses concerns in the two main areas that are potential problem areas

Competition

- This plan has benefits that consider sustainability in the future
- Competition could stem from unwillingness to participate from other members of the TCNJ campus
- This plan's benefits outweigh those of the competition, as there are two distinct solutions that address prevalent concerns