**Data Visualization: Buying a Company Car**

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I was tasked with buying a company vehicle. The company’s criteria for deciding on a car were the safety features, price point, and maintenance cost. These were to be weighted at a 10, 7, and 5 respectively. My personal criteria were fuel economy, resale value, and insurance cost. The least important criterion of the three was the insurance cost so I weighted that as a 1. Resale value was twice as important so that was weighted at a 2, and fuel economy was weighted at 5.

**Company Criteria**

Consumer report has a list of 15 safety features available on 2019 vehicles (Consumer Report, 2021). These features include forward collision warning, automatic emergency braking (city), automatic emergency braking (highway), pedestrian protection, lane departure warning, lane assist keeping, blind spot warning, rear cross traffic warning, rear view camera, antilock brakes, traction control, stability control, daytime running lights, airbags, and head protection. Each vehicle had these safety features listed as standard, optional, or not available. The Hyundai was the only vehicle that had all 15 options as standard on the car.

Chart, bar chart

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The next criterion was the price point for each vehicle. The most expensive was the Honda CR-V (Edmunds, 2021). The Ford Escape was the cheapest of the four options.

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Maintenance costs on the vehicles was similar. With the Toyota having the highest cost for maintenance over 5 years (Edmunds, 2021).

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I created a decision matrix with the appropriate weights for each of the three criteria. I based the score on the percentage of the total for all four cars in the category. I had to consider the fact that more safety features were better, where lower price on the car and maintenance were preferrable. I weighted the criteria on a scale of -1 to 1, where the negative values indicate where it was best to have a lower number. The rankings were as follows: 1-Hyundai Santa Fe, 2-Toyota Rav4, 3- Ford Escape, and 4- Honda CRV.

**Personal Criteria**

Graphical user interface, application

Description automatically generated with medium confidence Fuel economy was the most important factor in my decision. The Toyota had the best combined and highway mile per gallon rate (US Department of Energy, 2021). The Honda did do slightly better for city mileage.

The cars all hold their value fairly well over 5 years (Edmunds, 2021). The Honda CRV has the highest resale value of the cars.

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Graphical user interface

Description automatically generated with low confidenceGraphical user interface, text, application

Description automatically generatedInsurance costs ranged from $3,971 to $4,269 (Edmunds, 2021). The Santa Fe was the most expensive for insurance.

Rankings for personal criteria were different than the company rankings: 1-Honda CRV, 2- Toyota Rav4, 3- Ford Escape, and 4- Hyundai Santa Fe.

**Overall Decision**

Based on the results of the two decision matrices, I would recommend going with the Toyota Rav4. In both decision matrices, it came in second place. It seems to be a good compromise.

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The presentation would follow closely with the order I have presented here. I begin with the criteria that the company had requested. I would be sure to highlight how the RAV4 has 13/15 of the safety features standard, but the two it does not include are optional (Edmunds, 2021). Safety features was the most important criterion for the company. Then I would note how closely the Santa Fe and Rav4 are on the other company criteria. I would then present the company rankings based on the weights. Following that, I would explain my personal criteria and the weighting I assigned to each. The graphs illustrate how far above the Rav4 exceeds the Santa Fe in those rankings. I would point out that the Santa Fe is more costly both in insurance and fuel expenses. The graphs really tell the story of how I arrived at the decision. I would end with the personal and company weighted graphs to show how, even though the Toyota Rav4 was not first place in either ranking, it is by far the best balance between all of the criteria.

**Chart, scatter chart

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