ECE 411-Team 11

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Analytical Hierarchy Process (AHP) for Electric Vehicles

1. The Selection Criteria

    a) Price

    b) Safety

    c) Appearance

    d) Comfort

2. The Criteria Weightings

	Price	Safety	Appearance	Comfort	Mean	Weight
Price	1	1	3	1/3	1.3	0.23
Safety	1	1	5	5	2.2	0.39
Appearance	1/3	1/5	1	1/5	0.4	0.07
Comfort	3	1/5	5	1	1.7	0.31

3. Identify Alternatives

    a) Tesla model X

    b) Jaguar I-Pace

    c) Audi E-tron

4. Rate alternatives relative to the criteria

    a) Price

Price	min{Price} / Price

Tesla model X	$79,990	0.82
Jaguar I-Pace	$69,850	0.94
Audi E-tron	$65,900	1

	Tesla model X	Jaguar I-Pace	Audi E-tron
Rating	0.30	0.34	0.36

b) Safety

Safety Score (Top at 5)	
Tesla model X	5
Jaguar I-Pace	4.9
Audi E-tron	4.9

	Tesla model X	Jaguar I-Pace	Audi E-tron
Rating	0.34	0.33	0.33

c) Appearance

	Tesla model X	Jaguar I-Pace	Audi E-tron	Mean	Design Rating
Tesla model X	1	3	1/2	1.1	0.31
Jaguar I-Pace	1/3	1	1/5	0.4	0.11
Audi E-tron	2	5	1	2.2	0.58

d) Comfort

	Tesla model X	Jaguar I-Pace	Audi E-tron	Mean	Design Rating
Tesla model X	1	3	2	1.8	0.53
Jaguar I-Pace	1/3	1	1/2	0.6	0.18
Audi E-tron	1/2	2	1	1	0.29

5. Compute scores for the alternatives

		Tesla model X	Jaguar I-Pace	Audi E-tron
Price	0.23	0.30	0.34	0.36
Safety	0.39	0.34	0.33	0.33
Appearance	0.07	0.31	0.11	0.58
Comfortable	0.31	0.53	0.18	0.29
Score		0.39	0.27	0.34

6. Review the decision

In conclusion when weighing the criteria we decided on which were the most important ones. The most important was safety, followed by comfortability, appearance and price. Our top criteria was safety and comfortability and the Tesla model X came on top making it a top contender. In all, the Tesla earned an overall score of 0.39. Even though its price is higher, its excellence in comfort makes it have a good score. Jaguar a score of 0.27(lowest). It has the lowest price, but its value for money is not as good as the other two cars, so it is not recommended. Audi with a score of 0.34. It has a very nice appearance, but appearance doesn't account for much of the score. Thus the best and recommended car came to be the Tesla Model X.