Exercises - Section 4: Lecture 11 - Notation Subscripts Summations – Part 2

Suppose we have the following notation for a rental car fleet planning model:

ENGLISH	MATH	GUROBIPY
Car types: $i=1$ (small), $i=2$ (midsize), $i=3$ (luxury), $i=4$ (SUV), $i=5$ (minivan)	i	i
Forecasted rental demand for car type i (forecasted data)	D_i	D = {i: d for i in range(1, 6)}
Cost per car for car type i (known data)	C_i	C = {i: c for i in range(1, 6)}
Number of cars of type i to purchase (variable)	x_i	x = model.addVars(range(1, 6), name="x")

Fill in the table below, using the notation above to describe each of the following quantities mathematically and in Python.

QUESTION	MATH	GUROBIPY
1. Forecasted rental demand for luxury cars		
2. Forecasted rental demand for SUVs		
3. Cost per SUV		
4. Number of small cars to purchase		
5. Forecasted demand for midsize cars and minivans		
6. Forecasted rental demand for cars (not SUVs or minivans)		
7. Total cars to purchase above midsize		
8. Total vehicles to purchase		
9. Cost of midsize cars purchased		
10. Cost of SUVs purchased		
11. Cost of midsize cars and minivans purchased		
12. Cost of SUVs and minivans		

13. Cost of all cars (not SUVs or minivans) purchased		
14. Cost of all vehicles purchased		
15. Forecasted purchase cost per rental of SUVs		
16. Forecasted purchase cost per rental of minivans		
17. Average purchase cost over all SUVs and minivans		
18. Average purchase cost of all cars (not SUVs or minivans)		
19. Forecasted purchase cost per rental over all cars (not SUVs or minivans)		
20. Forecasted purchase cost per rental over all vehicles		

NOTES: