As per the instructions, a few assumptions were made in areas not explicitly defined. These are documented below to clarify the design choices and simulation logic:

1. Vehicle Selection and Distribution

Assumption:
We randomly selected 20 vehicles across 5 companies using a uniform distribution, meaning each company has an equal probability of being selected for each vehicle.

Why:
The instruction stated a random number of each type, but not a weighted distribution. A uniform approach ensures fairness and consistent variability across simulations.

2. Simulation Timeline

Assumption:
The simulation stops strictly at 3.0 hours. Any flight or charge that would exceed the time limit is not scheduled or executed.

Why:
To satisfy the hard cutoff condition: “You will simulate using these vehicles for 3 hours,” and ensure accurate boundary control in event scheduling.

3. Charger Queue Logic

Assumption:
Vehicles wait in a FIFO queue for available chargers. Once a charger is free, the vehicle at the front of the queue uses it. Only 3 chargers are used concurrently at any time.

Why:
This models real-world fairness and queuing mechanics and ensures strict adherence to “a single charger can only be used by one vehicle at a time.