Guesstimate in Action: Estimating the Number of Cars in Delhi

Step 1: Defining the Problem & Structuring the Approach (Applying IDEAL & MECE)

This step directly corresponds to the **'I' (Identify)** and **'D' (Define)** stages of the IDEAL framework. We need to be **S (Specific)** and set clear boundaries.

- **Problem:** Estimate the total number of *private cars* in Delhi.
- **Clarifications:**
  - We are excluding commercial vehicles (taxis, buses, auto-rickshaws, trucks).
  - "In Delhi" refers to cars owned by the residents of the city.
- **Approach Selection:** We will use the **Demand-Side Approach**. It is generally easier to estimate population and ownership habits than it is to estimate the total supply from car dealerships, year over year.

Our core structure will be to break down the problem into smaller, manageable parts using the **MECE (Mutually Exclusive, Collectively Exhaustive)** principle.

1. Start with the total population of Delhi.
2. Divide the population into households.
3. Segment these households by income level (a MECE approach, as a household belongs to only one income bracket, and all households are covered).
4. Estimate car ownership for each segment.
5. Sum the results.

Our Formula: *Total Cars = Σ (Number of Households in Income Segment) x (Avg. Cars per Household in that Segment)*

Step 2: Making Assumptions & Calculating (The Core Estimation)

This is the **'E' (Explore)** part of IDEAL, where we explore possibilities based on logical assumptions.

1. **Population of Delhi:** Let's assume the population is approximately **2 Crore** people (200 Lakhs).
2. **Average Household Size:** A reasonable average for a metro city in India is **4 people** per household.
3. **Total Households in Delhi:**
   - *Calculation:* `200 Lakh people` / `4 people per household` = `50 Lakh households`.

Now, we apply our **MECE segmentation** to these 50 Lakh households:

- **Low-Income Households (50%):**
  - *Number of Households:* `50 Lakh * 0.50 = 25 Lakh households`.
  - *Assumption:* Car ownership is very low. Perhaps 1 in 20 households owns a car, so the average is **0.05 cars/household**.
  - *Car Calculation:* `25 Lakh * 0.05 = 1.25 Lakh cars`.
- **Middle-Income Households (30%):**
  - *Number of Households:* `50 Lakh * 0.30 = 15 Lakh households`.
  - *Assumption:* Car ownership is common but not universal. Many have one car, some have none. Let's average this to **0.8 cars/household**.
  - *Car Calculation:* `15 Lakh * 0.8 = 12 Lakh cars`.
- **High-Income Households (20%):**
  - *Number of Households:* `50 Lakh * 0.20 = 10 Lakh households`.
  - *Assumption:* Car ownership is high, with many families owning more than one car. We'll estimate an average of **1.5 cars/household**.
  - *Car Calculation:* `10 Lakh * 1.5 = 15 Lakh cars`.

Step 3: Action & Look Back (Final Calculation & Sanity Check)

This final step represents the **'A' (Action)** and **'L' (Look Back)** of the IDEAL framework. We act by synthesizing our data and then look back to evaluate if our answer makes sense.

Action: Summing the totals from our MECE segments:

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  1.25 Lakhs (from Low-Income)
+ 12.00 Lakhs (from Middle-Income)
+ 15.00 Lakhs (from High-Income)
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= 28.25 Lakhs
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Our final estimate is approximately 28.25 Lakh private cars in Delhi.

Look Back (Sanity Check):

- Is this number plausible? A population of 2 Crore with ~28 Lakh private cars means there is roughly 1 car for every 7 people (`200 Lakh people` / `28.25 Lakh cars` ≈ `7.08`).
- This ratio seems very reasonable for a major Indian metropolis where public transport is prevalent but car ownership is also a strong marker of middle and upper-class status. The number is significant but not unbelievably high.
- Our logical, structured process, based on the **MECE** and **Demand-Side** principles, has produced a defensible estimate.