

1. Problem Definition

We solve the persistent and costly problem of inaccurate vehicle pricing. Setting the optimal selling price is immensely complex because it's determined by a non-linear combination of scores (like condition), time-decay factors (like odometer), and volatile external indices (like MMR). The human mind simply cannot track the correlations across over half a million data points.

2. What is the problem? Dealers rely on outdated methods to price inventory, often missing the optimal price point due to data complexity.

3. Relevance to Theme: It applies Artificial Intelligence (Machine Learning Regression) to turn unstructured and high-dimensional vehicle data into a single, highly reliable financial output, automating a critical decision.

4. Benefit: The solution maximises profitability by guiding optimal pricing and minimises acquisition risk for finance and dealership professionals.

5. Machine Learning Approach

We employ the Random Forest Regressor, a robust Ensemble Technique under Supervised Learning. This is highly appropriate for complex, non-linear problems like pricing because it averages multiple predictions, enhancing accuracy and stability over any single model.