Case Study: Insights into Residual Value of Used 2W Vehicles

**Objective**

The primary objective of this case study is to develop a comprehensive analysis and provide next steps for a predictive model that accurately forecasts the residual value (RV) of used 2W vehicles. The case study will involve creating and testing hypotheses, conducting statistical analysis, and performing exploratory data analysis (EDA) using the provided dataset.

**Scope**

* **Data Collection and Preprocessing**: Utilize the provided cleaned data.
* **Statistical Analysis**: Identify correlations between various factors and the residual value.
* **Hypothesis Development**: Formulate and test hypotheses on factors affecting the RV.
* **Model Development**: Provide steps for model development.

**Data Provided**

The dataset includes the following variables:

* **Mileage Run**: Total kilometres driven.
* **Run Profile**: Daily kilometres run based on mileage/(number of years \* 300 days).
* **Brand**: Manufacturer (e.g., Brand 1, 2, 3).
* **Model**: Specific model (e.g., Model 1, 2, 3, 4).
* **Ownership**: Number of previous owners.
* **City**: Primary usage location of the vehicle.
* **Age**: Vehicle age in years.
* **On-Road Price**: Initial purchase price of the vehicle.

**Tasks**

1. **Exploratory Data Analysis (EDA)**
   * Carry out different types of exploratory data analysis techniques to provide correlation or distribution of variables including their impact on the RV of the vehicle.
2. **Hypothesis Testing**
   * Create multiple hypothesis for multiple variables and test the hypothesis. This needs to be a descriptive view.
3. **Model Development**
   * Provide next steps for building a predictive model
4. **Deliverables**
   * **Detailed Report**: Include data preprocessing steps, summary of statistical analysis, hypothesis testing results, and insights.
   * **Predictive Model**: Provide next steps for model creation.
   * **Visualizations**: Supply plots and charts to illustrate relationships between variables and RV.