

# Predicting Car Price Based on age using simple linear Regression

## Objective

To predict the price of a car using its age (in years), helping buyers and sellers estimate value using data analysis.

We use simple linear regression to model the relationship between car age and its price.

## Dataset Description

The dataset was taken from a real-world car listing platform. It contains various details about used cars including:

- Price
- Year of manufacturing
- Kilometers driven
- Fuel type

For this project, we focus only of the year to calculate age and price columns.

## Data Cleaning and Preparation

We cleaned the dataset by:

- Removing rows with missing values or “Ask for Price”
- Removing non-numeric values in the price and kms\_driven columns
- Calculating Car Age as:  $2025 - \text{Year}$
- Keeping only: Car\_Age and Price columns for analysis

## Data Visualization

We used a **scatter plot** to visualize how **car price** decreases as the car gets older.

A **negative linear trend** was clearly visible-confirming linear trend was clearly visible confirming the usefulness of linear regression.

## Model Building

We used Simple Linear Regression from sklearn.

- $X = \text{Car\_Age}$
- $Y = \text{Price}$

Trend the model with:

Python

`Model=Linear Regression()`

`Model.fit(X, Y)`

Regression Equation

$\text{Price} = m \times \text{Car\_Age} + c$

Where”

- $m$  is the slope price decrease per year
- $c$  is the intercept price of a new car (age=0)

Example:

$\text{Price} = -42150 \times \text{Age} + 545000$

## Prediction Result

We predicted the price of a brand-new car (age=0):

Approximately 5.45 lakh

## Conclusion

- Car Age is a strong predictor of used car price.
- Linear regression fits this problem well.
- We learned how to clean data, visualize it, apply regression, and make predictions.
- This model can help car sellers/buyers make **data-based decisions**.