

Supervised ML (Assignment1)

Assignment Project

Problem Statement

A real estate company **HomeVista Properties** operates across multiple cities and handles thousands of residential property sales every year. The company wants to automate its house pricing process.

They want to use **Machine Learning** to build an intelligent system that can **predict the market price of a house automatically** based on its physical features, location, and condition.

You are hired as a **Machine Learning Engineer** to build a regression model that can accurately predict the house price using historical property data.

Your task is to analyse the dataset, perform data preprocessing, train a **Linear Regression model**, and evaluate its performance.

Dataset Description

Each row represents one residential house and its physical, location, and construction details.

| Feature | Description |
|---------------------|---|
| Id | Unique identification number for each house |
| MSSubClass | Type of dwelling involved in the sale (numerical code representing building class such as 20 = 1-Story, 60 = 2-Story, etc.) |
| MSZoning | General zoning classification of the sale (Residential Low Density, Medium Density, etc.) |
| LotArea | Lot size in square feet |
| LotConfig | Lot configuration (Inside, Corner, Cul-de-sac, etc.) |
| BldgType | Type of dwelling (1Fam, 2Fam, Duplex, Townhouse, etc.) |
| OverallCond | Overall condition rating of the house (scale 1-10) |
| YearBuilt | Original construction year |
| YearRemodAdd | Year the house was remodeled or additions were made |
| Exterior1st | Exterior covering on house (VinylSd, MetalSd, HdBoard, etc.) |

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| Feature | Description |
|-------------------------------|---|
| BsmtFinSF2 | Type 2 finished square feet of basement |
| TotalBsmtSF | Total square feet of basement area |
| SalePrice (Target) | Final selling price of the house |