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**Regression in Machine Learning**

* Finds correlations between dependent and independent variables.
* Helps predict continuous variables like house prices, market trends, weather patterns, oil and gas prices.
* Finds mapping function to map input variable to output variable.

**Regression Analysis in Machine Learning**

* Fundamental concept in supervised learning.
* Algorithm trained with input features and output labels.
* Establishes variable relationships by estimating their impact.

**Regression Metrics**

* Variance:
  + Defines the change in the target function's estimate based on different training data.
  + The target function establishes the relationship between input and output variables.
  + To avoid false predictions, the variance should be low.
  + The model should be generalized to accept unseen features of temperature data.
* Bias:
  + Indicates the algorithm's tendency to consistently learn the wrong thing.
  + Low bias is necessary for model accuracy.
  + High bias can lead to incorrect predictions.
* Accuracy and Error:
  + Error is the difference between actual and predicted values.
  + Accuracy is the fraction of predictions the model correctly made.

**Types of Regression**

* Decision Tree Regression:
  + Divides dataset into smaller subsets for plotting data points.
* Principal Components Regression:
  + Widely used for multicollinear data.
* Polynomial Regression:
  + Fits non-linear equations using independent variable polynomial functions.
* Random Forest Regression:
  + Uses multiple decision trees to predict output.
* Simple Linear Regression:
  + The least complicated form with continuous dependent variable.
* Support Vector Regression:
  + Solves both linear and non-linear models using non-linear kernel functions.

GitHub Repository Link: [Real Estate Price Prediction Model](https://github.com/M-Amman-C/House-price-prediction-model)