The Art of Analytics

EXPLORING VALUE FROM DATA

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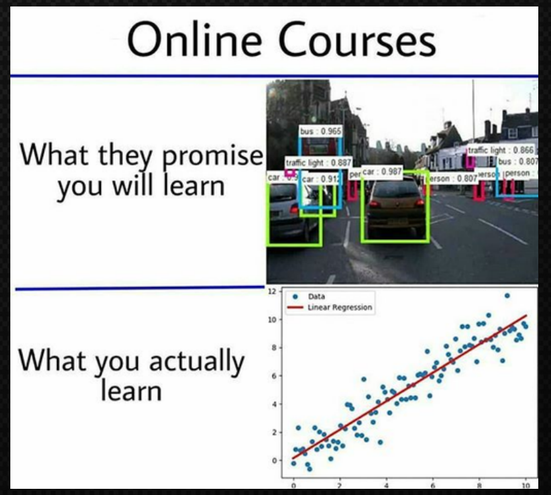
Lecture#10

linear regression

Linear regression is a statistical modeling technique used to understand and predict the relationship between a dependent variable (the outcome or target variable) and one or more independent variables (predictor variables). It assumes a linear relationship between the variables, where the dependent variable can be estimated as a linear combination of the independent variables.

The primary goal of linear regression is to develop a mathematical model that accurately represents the relationship between variables and can be used for prediction, inference, and understanding

Linear regression has various applications across different fields, such as economics (predicting market trends), social sciences (analyzing survey data), and healthcare (studying the impact of factors on patient outcomes)



Regression model
Predicts numbers
Infinitely many possible outputs

Supervised learning model
Data has "right answers"

Classification model
Predicts categories
Small number of possible outputs

Difference b/w linear regression and multiple regression

Simple linear regression involves predicting the value of a dependent variable based on a single independent variable. It can be visualized as fitting a straight line to a scatter plot of data points.

Multiple linear regression incorporates two or more independent variables to predict the dependent variable. It allows for modeling more complex relationships and capturing the effects of multiple predictors simultaneously

Example use

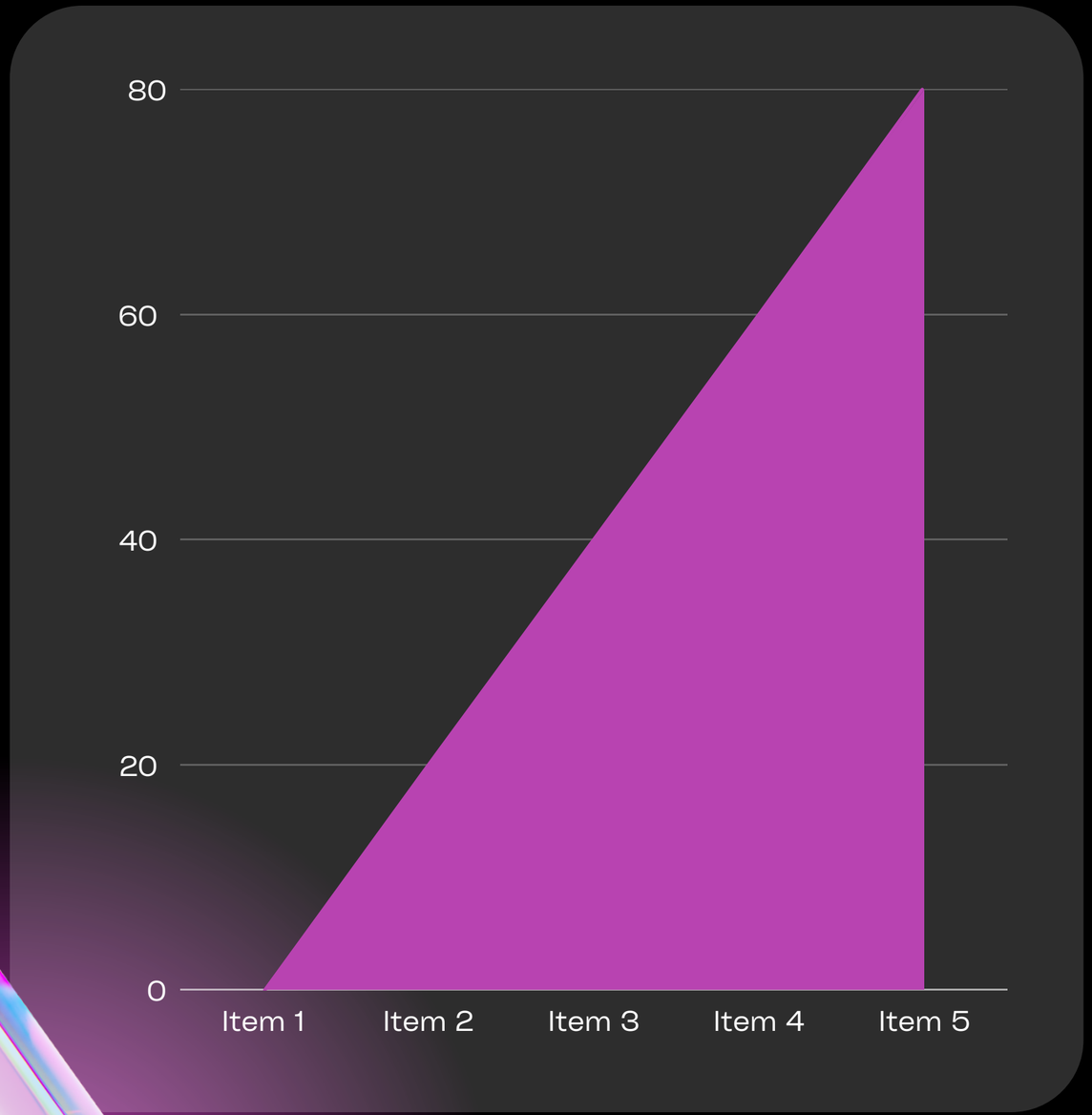
Predicting housing prices based on features like area, number of bedrooms, and location

Analyzing sales data to determine the impact of advertising expenditure, price, and other factors on sales

Estimating crop yields based on factors such as rainfall, temperature, and fertilizer usage

Simple LR

In simple linear regression, we examine the relationship between a dependent variable (Y) and a single independent variable (X). We start by visualizing the data using a scatter plot, which helps us understand the nature of the relationship. If the points on the plot roughly form a straight line, it suggests a linear relationship



Video 1

ML#1

Video 2

ML#2

Thank You

IN CASE OF ANY DOUBT, FEEL FREE TO ASK ME

Our Team

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Quant

"Quant" refers to quantitative finance or analysis, involving the use of mathematical and statistical models to analyze financial markets and develop trading strategies

- Intellectual challenge
- High earning potential
- Access to cutting-edge technology
- Strong career prospects
- Continuous learning and development