Linear Regression in Machine Learning

In statistics, linear regression is an approach to modeling the linear relationship between y and x.

Regression is a method used to determine the relationship between one variable (y) and other variables (x).

In statistics, linear regression is an approach to modeling the linear relationship between y and x.

In Machine Learning, linear regression is a supervised Machine Learning algorithm.

Scatter plot

This is a scatter plot (from the previous article):

For example:

```
const xArray = [50,60,70,80,90,100,110,120,130,140,150]; const yArray = [7,8,8,9,
```

Predict the value

Given the scattered data above, how can we predict future prices?

1. Use hand-drawn linear graphs.
2. Modeling linear relationships
3. Linear regression modeling

Linear graph

This is a linear price prediction graph based on the lowest and highest prices:

For example:

```
const xArray = [50,60,70,80,90,100,110,120,130,140,150]; const yArray = [7,8,8,9,
```

From the previous chapter

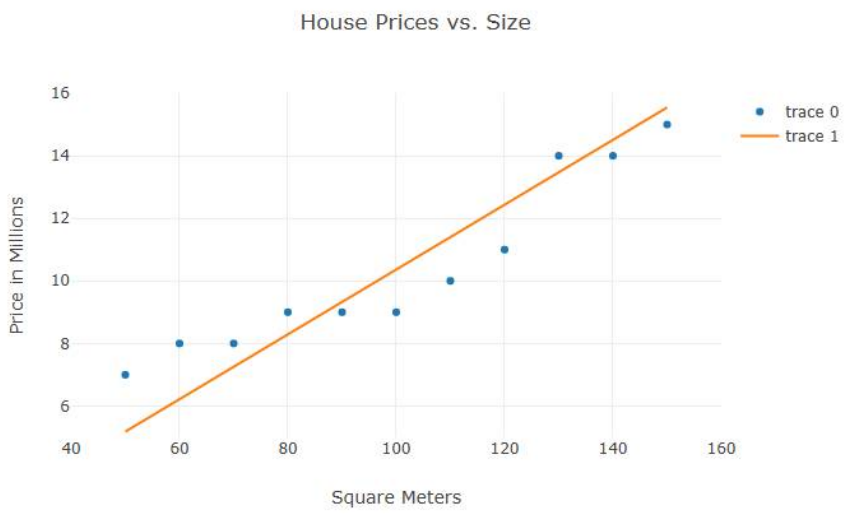
A linear graph can be written as y = ax + b

In there:

1. y is the price we want to predict.
2. a is the slope of the line
3. x are the input values
4. b is the point where it intersects the y-axis.

Linear relationship

This model predicts price by using the linear relationship between price and size:



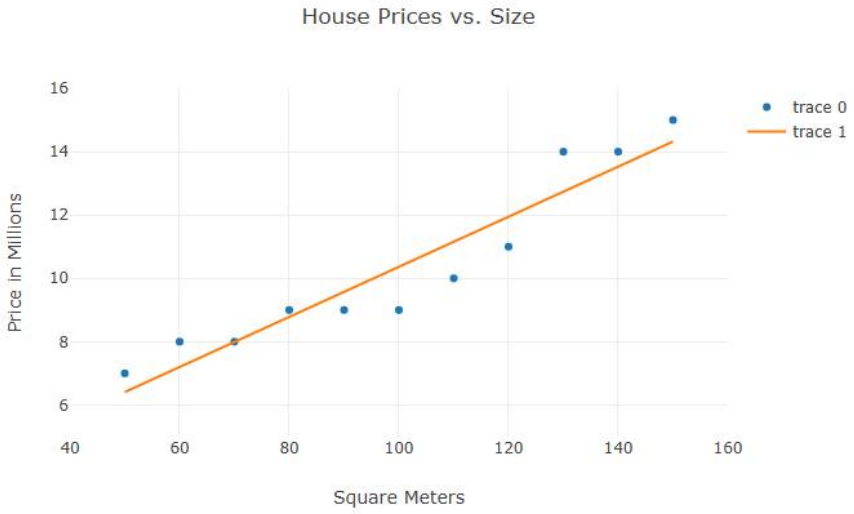
For example:

```
const xArray = [50,60,70,80,90,100,110,120,130,140,150]; const yArray = [7,8,8,9,
```

In the example above, the slope coefficient is the calculated average value and the intercept is 0.

Using linear regression function

This model predicts prices using a linear regression function:



For example:

```
const xArray = [50,60,70,80,90,100,110,120,130,140,150]; const yArray = [7,8,8,9,
```

Polynomial Regression

If the data points are scattered and do not fit linear regression (a straight line passing through the points), the data may fit polynomial regression.

Polynomial regression, like linear regression, uses the relationship between the variables x and y to find the best way to draw a straight line through the data points.