AI Course

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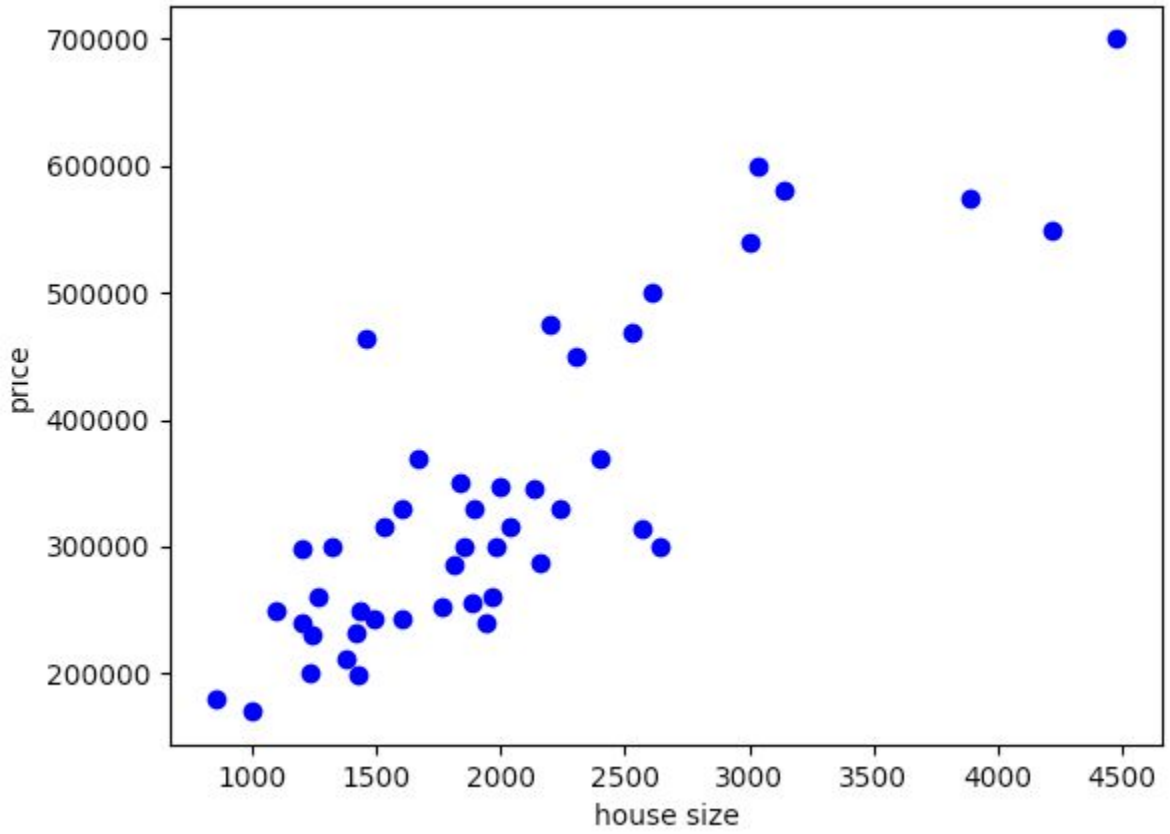
How Regression Works?

Regression- *Linear Regression*

House price prediction



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Hypothesis

First of all we need to define what our hypothesis function looks like because we will be using this hypothesis for calculating the cost later on. We know for linear regression our hypothesis is:

$$h\theta(x) = \theta 0 + \theta 1x1 + \theta 2x2 + \theta 3x3 + \ldots.. + \theta nxn$$

Our dataset however has only 2 features, so for our current problem the hypothesis is:

$$h\theta(x) = \theta 0 + \theta 1x1 + \theta 2x2$$

Regression- *Linear Regression*

Cost Function

To evaluate the quality of our model we make use of the cost function.

$$J(\theta_1) = \frac{1}{2m} \sum_{i=1}^{m} \left(h_\theta(x^{(i)}) - y^{(i)} \right)^2$$

Regression- *Linear Regression*

Gradient Descent

Gradient descent in our context is an optimization algorithm that aims to adjust the parameters in order to minimize the cost function.

The main update step for gradient descent is:

$$\theta_j := \theta_j - \alpha \frac{\partial}{\partial \theta_j} J(\theta_0, \theta_1) \qquad (\text{for } j = 0 \text{ and } j = 1)$$

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