

What I learned at school, Grandma

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Linear Regression

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Let's talk about the question you care about a lot:

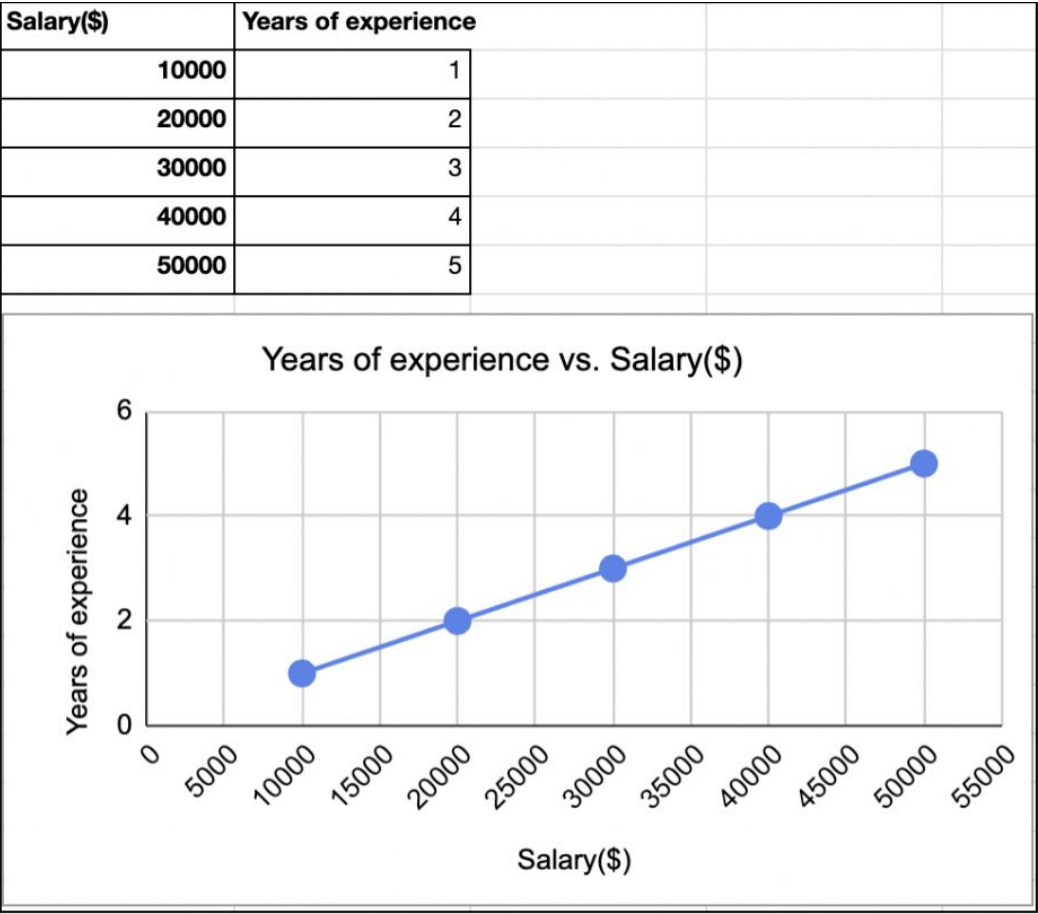
WHEN WOULD I GET MARRIED? So I thought why not explain it based on a very interesting topic I learnt at school.

Grandma an age old fact that everyone knows is that salary ~ years of experience.

$$\text{salary} = \beta_0 + \beta_1(\text{years of exp})$$

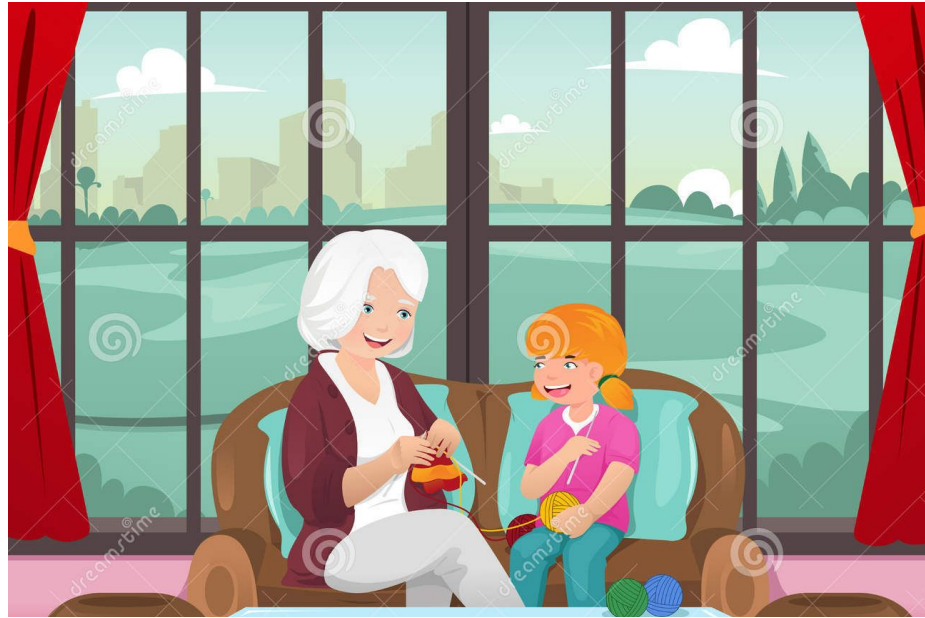
Simple Linear Regression

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But do you know what concept was behind this?

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Linear Regression ! How does it relate to this topic?

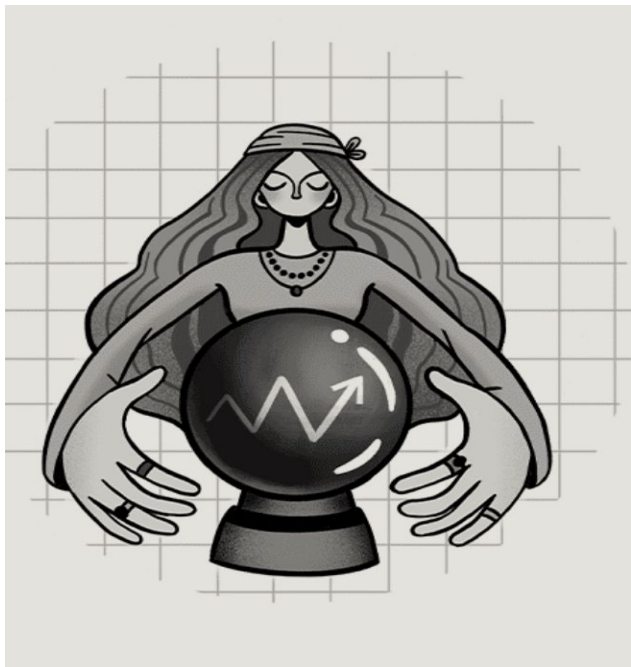
Simple
Linear
Regression

$$y = b_0 + b_1 * x_1$$

Multiple
Linear
Regression

$$y = b_0 + b_1 * x_1 + b_2 * x_2 + \dots + b_n * x_n$$

What is MLR ???



Multiple Linear Regression (MLR)

['mæl-tə-pəl 'li-nē-ər ri-'gre-shən]

A statistical technique that uses several explanatory variables to predict the outcome of a response variable.

What does a Multiple Regression Model looks like?

Multiple Regression Model

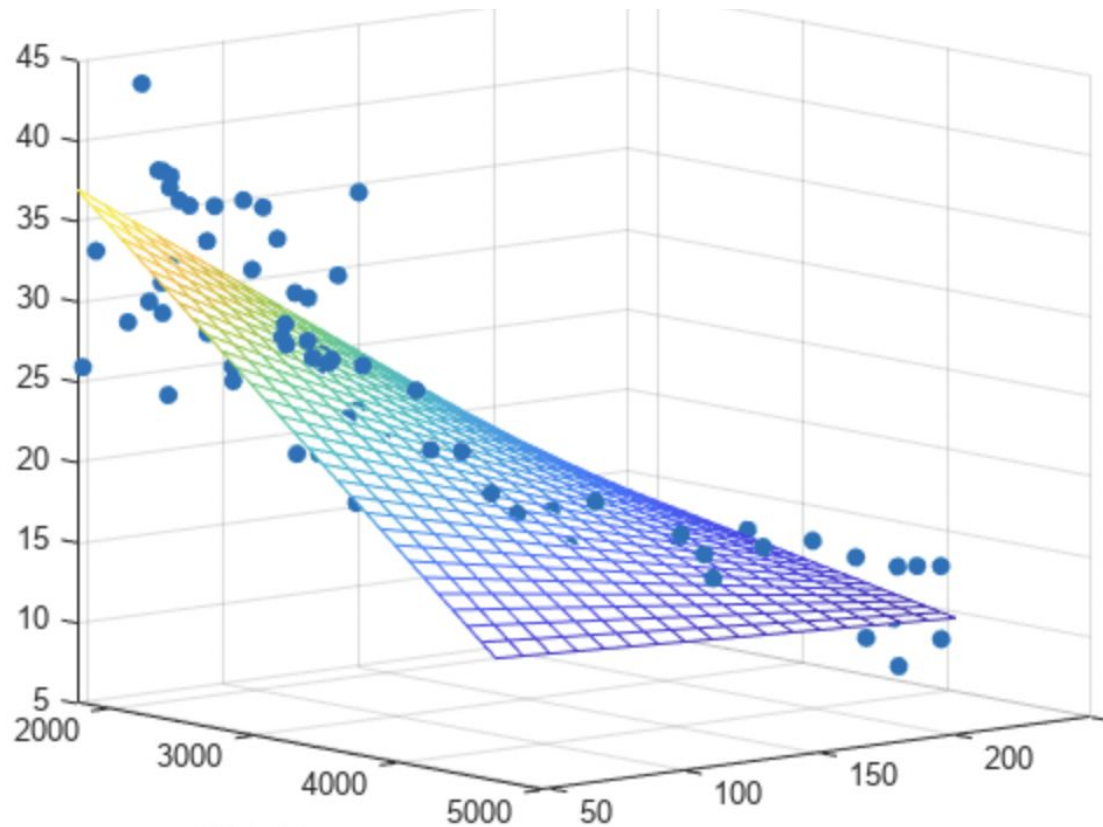
$$Y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_{p-1} X_{i,p-1} + \varepsilon_i$$

- Y_i is the value of the response variable for the i^{th} case
- β_0 is the intercept
- $\beta_1, \beta_2, \dots, \beta_{p-1}$ are the regression coefficients for the explanatory variables

Apparently, I can create a MLR model about marriage age

$$\begin{aligned}\text{Marriage_age} = & b_0 + b_1 \cdot \text{education_level} \\ & + b_2 \cdot \text{salary} \\ & + b_3 \cdot \text{race} \\ & + b_4 \cdot \text{parents_marriage_age} \\ & + b_5 \cdot \text{COVID} \\ & + b_6 \cdot \text{region} \\ & + b_7 \cdot \text{friends_marriage_age} + e_i\end{aligned}$$

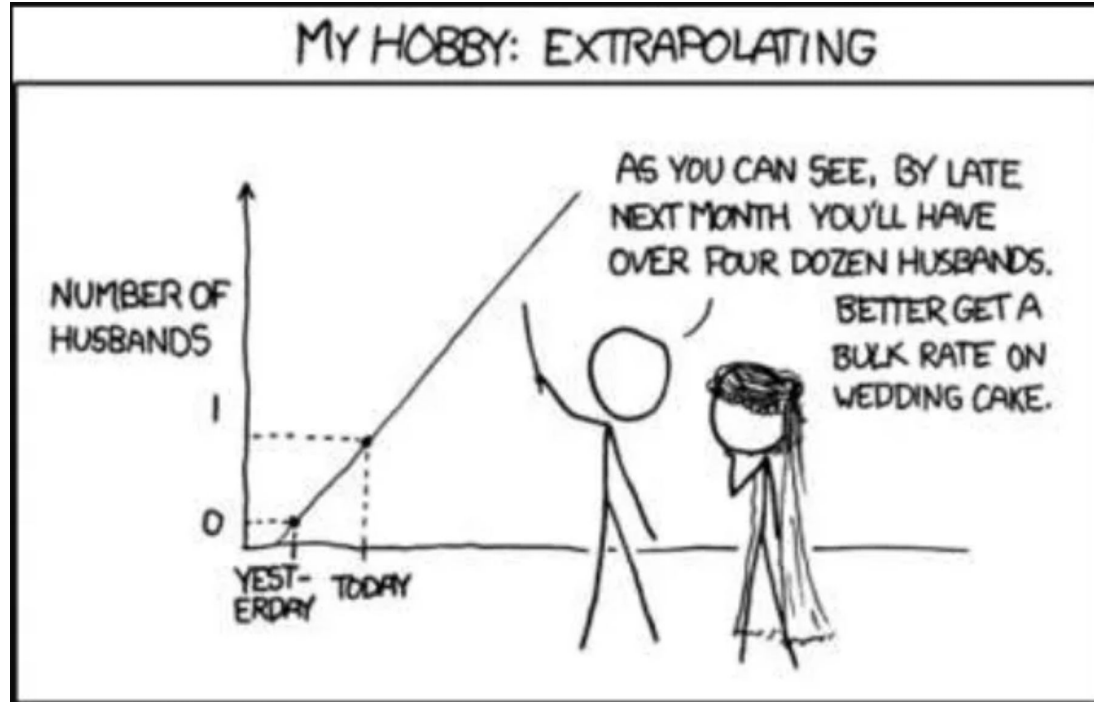
2 variables Linear Regression



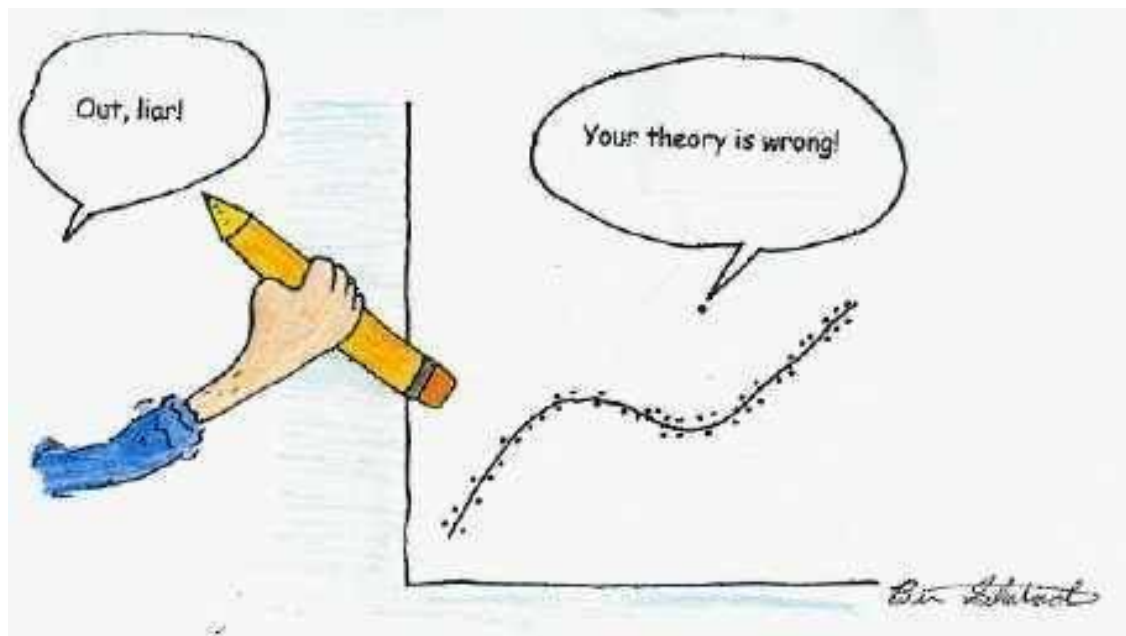
Some Issues with Regression



If she loves you more each and every day,
by linear regression she hated you before you met.

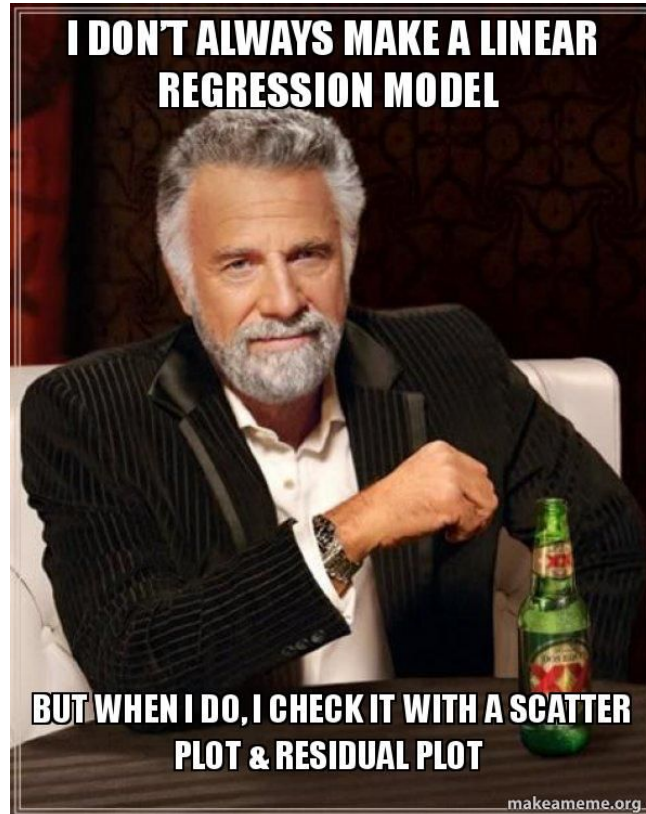


Contd.



Why is such an old model still used?

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SAY LINEAR REGRESSION



ONE MORE TIME

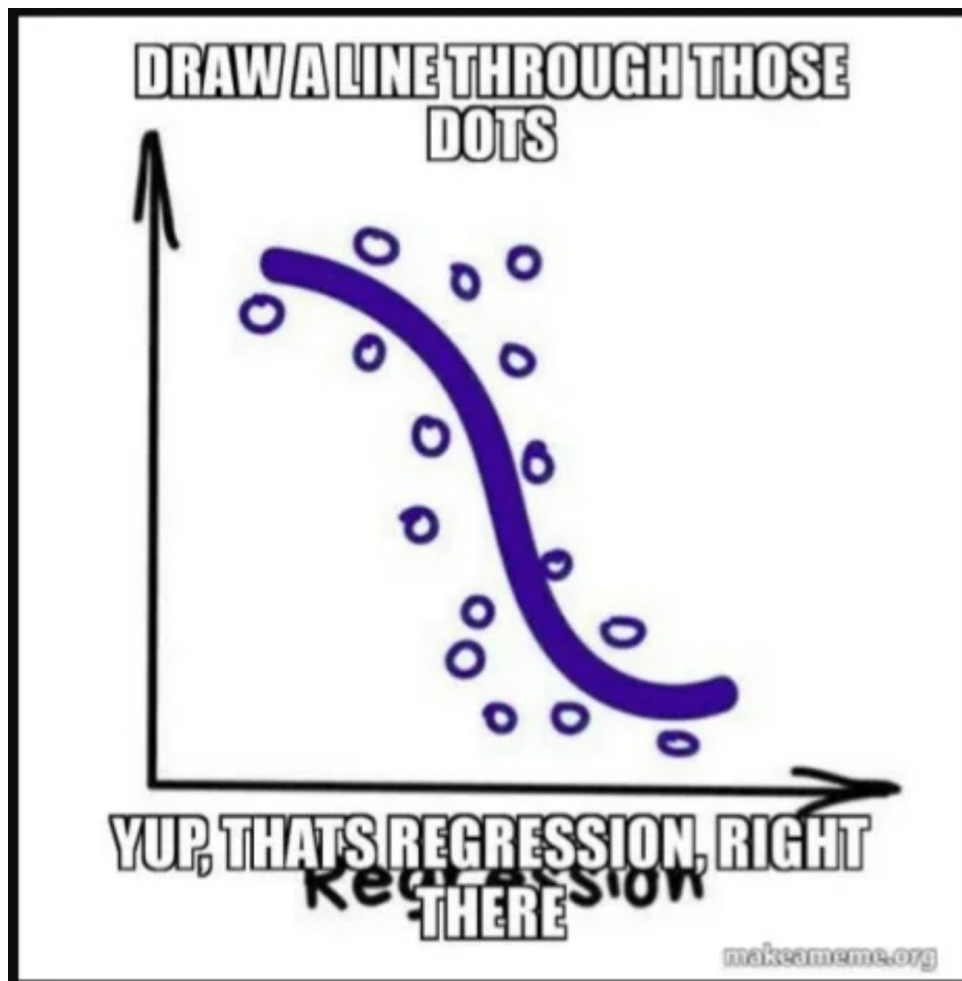
Advanced Meme Alert

ft. Sir Andrew Ng



don't worry about it if you don't
understand

Basically



References

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- <https://www.statology.org/linear-regression-real-life-examples/>
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