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.
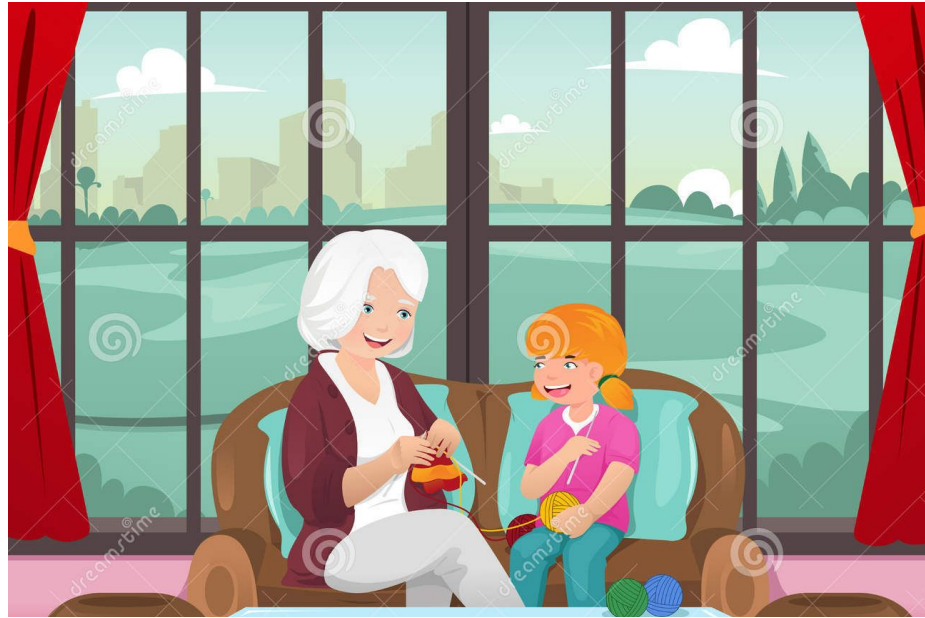
Simple Linear Regression

Salary($)	Years of experience
10000	1
20000	2
30000	3
40000	4
50000	5

Years of experience vs. Salary($)
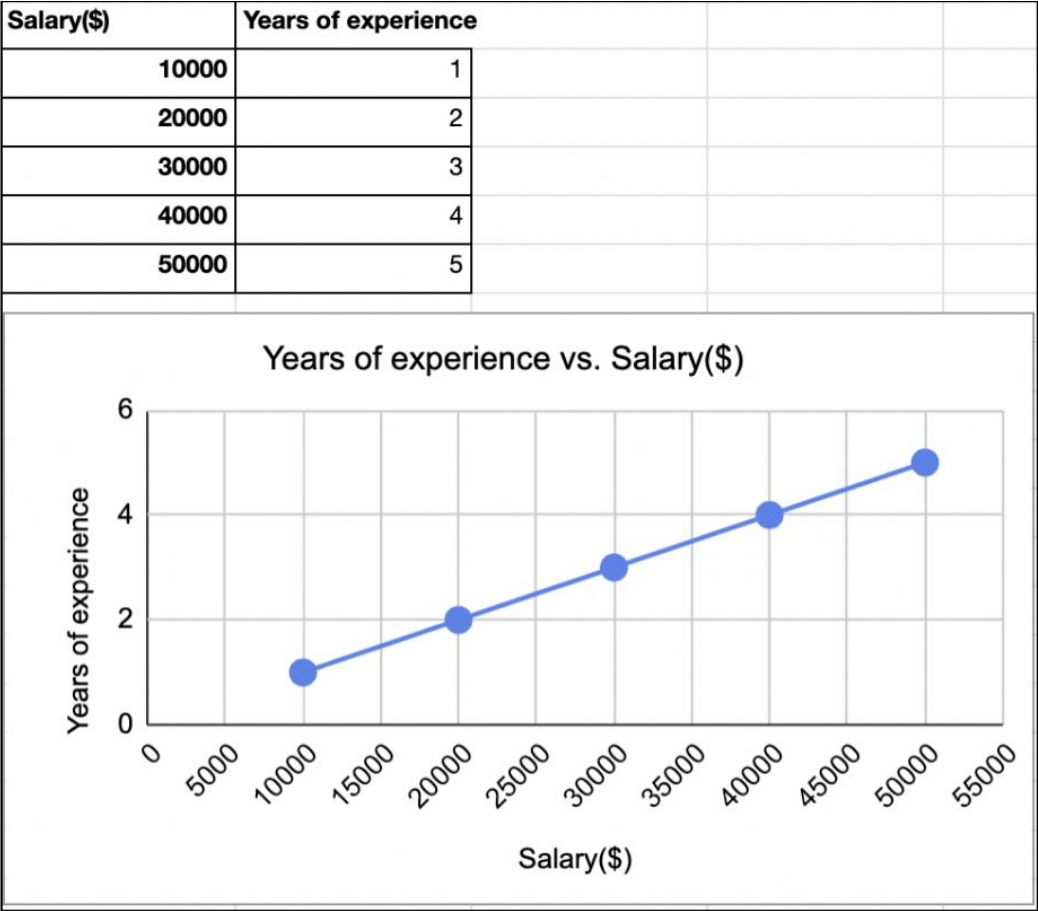
salary = $\beta_0 + \beta_1$(years of exp)

But do you know what concept was behind this? ___
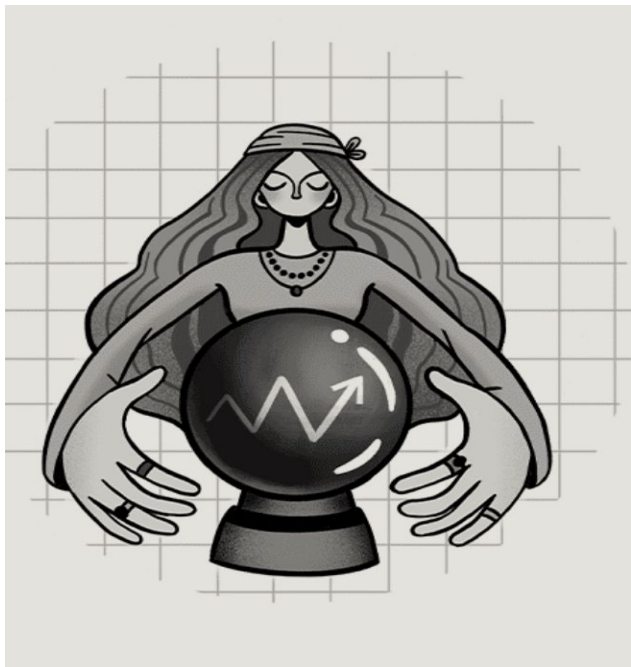
Linear Regression ! How does it relate to this topic?

Simple Linear Regression

$$y = b_0 + b_1 * x_1$$

Multiple Linear Regression

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

What is MLR ???

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Multiple Linear Regression (MLR)

[ˈməl-tə-pəl ˈli-nē-ər ri-ˈgre-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

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

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

Apparently, I can create a MLR model about marriage age

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Marriage_age = b0 + b1*education_level

                    + b2*salary

                    + b3*race

                    + b4*parents_marriage_age

                    + b5*COVID

                    + b6*region

                    + b7*friends_marriage_age + ei
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2 variables Linear Regression
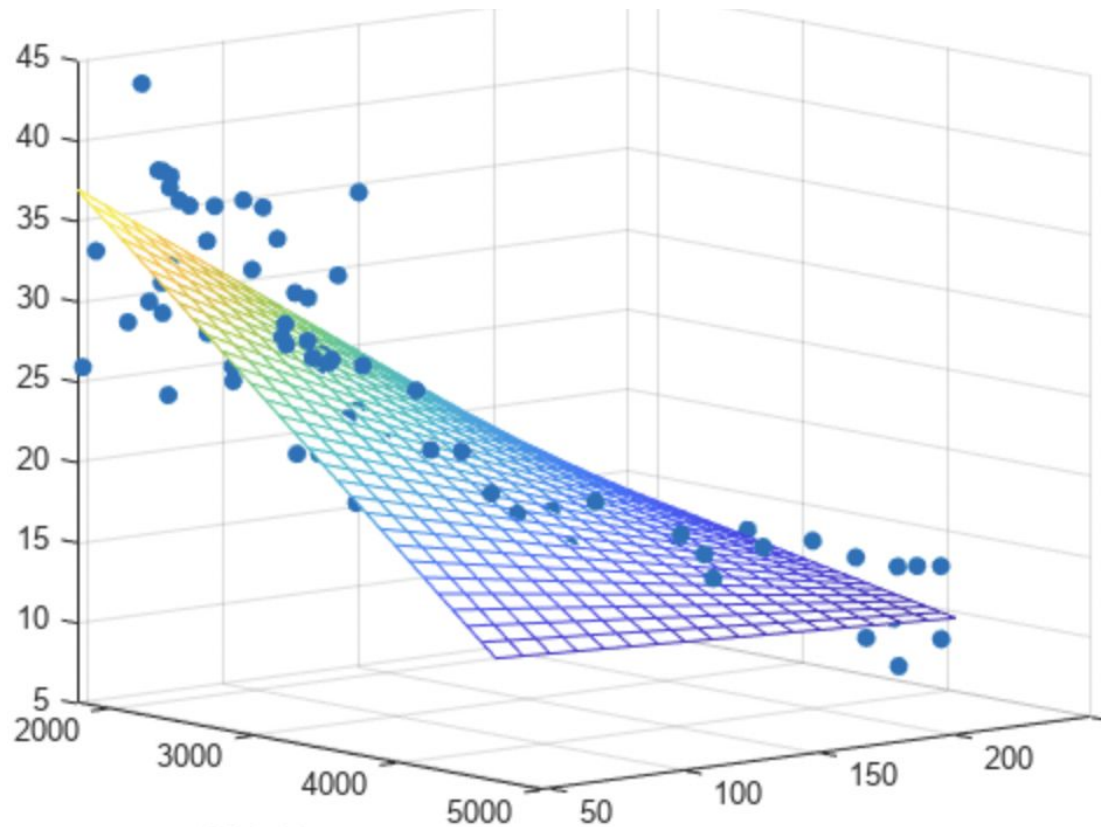
Some Issues with Regression

WHY IS THAT WOMAN SCOWLING AT ME? DO I KNOW HER?

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

MY HOBBY: EXTRAPOLATING

NUMBER OF HUSBANDS

AS YOU CAN SEE, BY LATE NEXT MONTH YOU'LL HAVE OVER FOUR DOZEN HUSBANDS. BETTER GET A BULK RATE ON WEDDING CAKE.

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YEST-ERDAY   TODAY
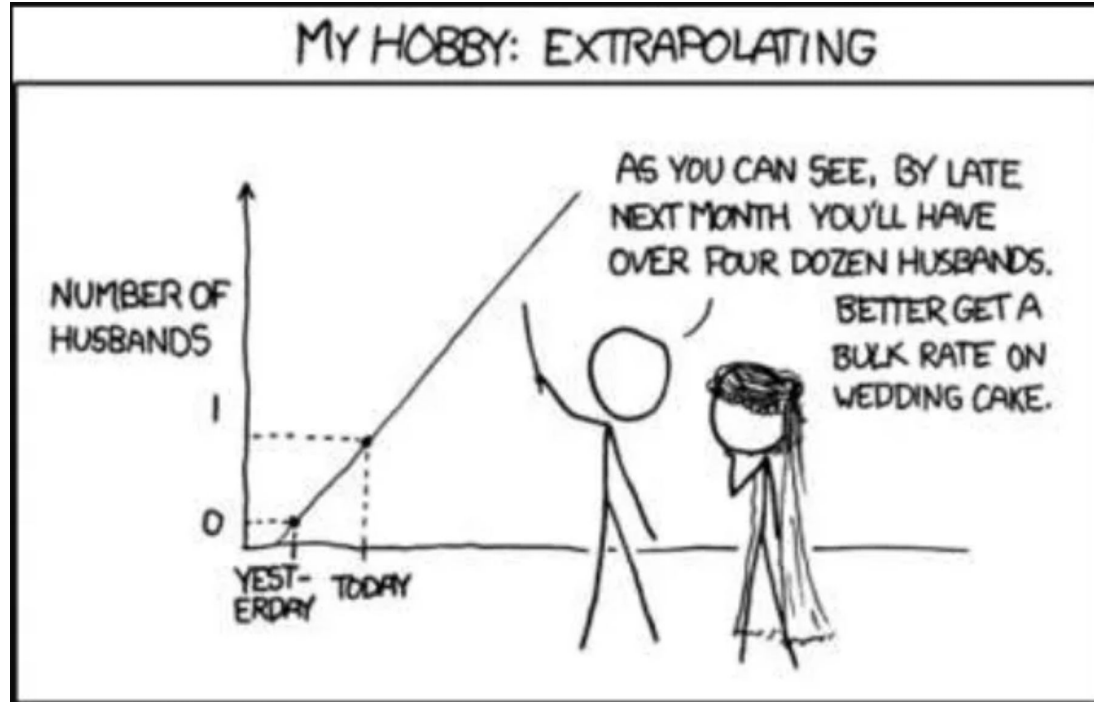
Contd.

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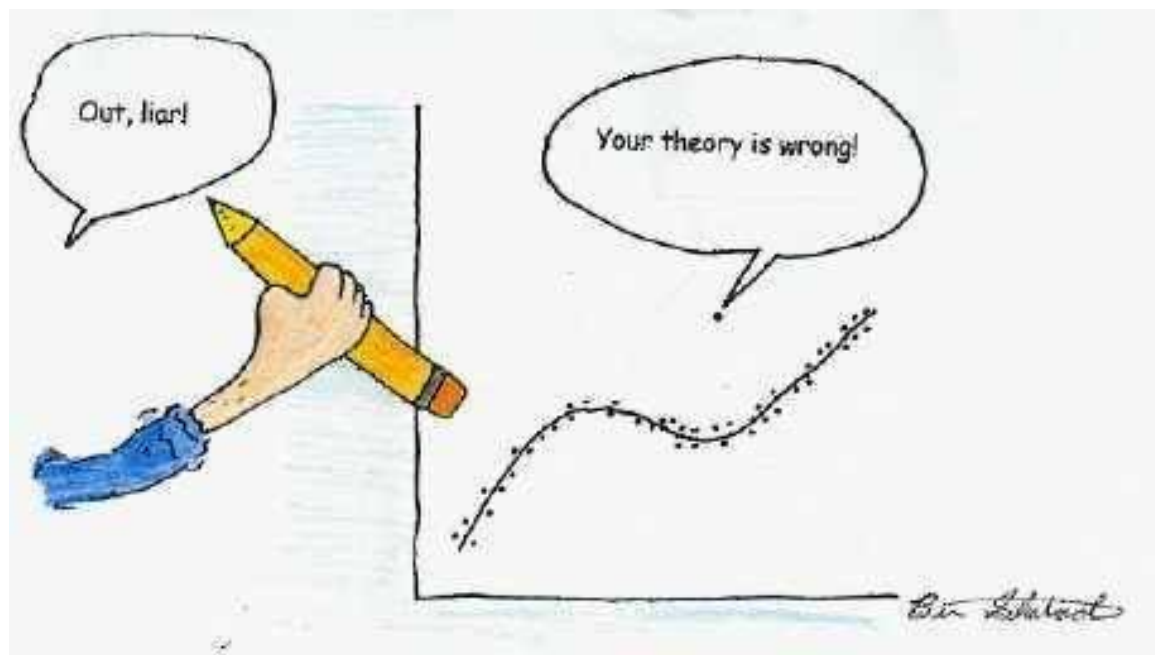
Why is such an old model still used?

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I DON'T ALWAYS MAKE A LINEAR REGRESSION MODEL

BUT WHEN I DO, I CHECK IT WITH A SCATTER PLOT & RESIDUAL PLOT

makeameme.org
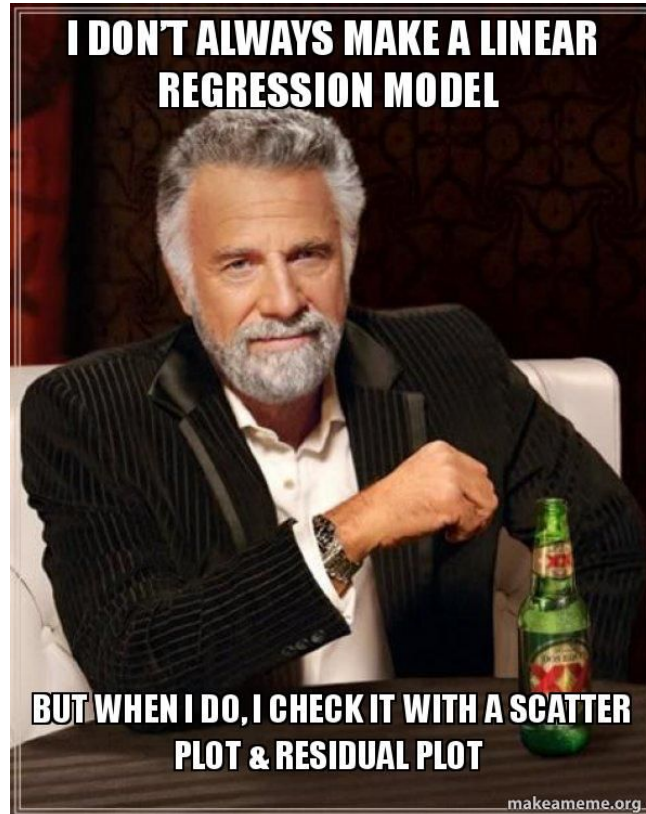
SAY LINEAR REGRESSION

ONE MORE TIME

memegenerator.net

Basically

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References

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