Linear Regression

A guide by Mike Moschos

A History

It was first used by Sir Francis Galton for the study of hereditary characteristics of sweet peas.

1. What he did

“In 1875, Galton had distributed packets of sweet pea seeds to seven friends; each friend received seeds of uniform weight (also see Galton 1894), but there was substantial variation across different packets. Galton's friends harvested seeds from the new generations of plants and returned them to him. Galton plotted the weights of the daughter seeds against the weights of the mother seeds. Galton realized that the median weights of daughter seeds from a particular size of mother seed approximately described a straight line with positive slope less than “

Galton, Pearson, and the Peas: A Brief History of Linear Regression for Statistics Instructors

Jeffrey M. Stanton

SOME TYPES:

- Simple Linear Regression: Only one explanatory variable

- Multiple Linear Regression: Multiple explanatory variables

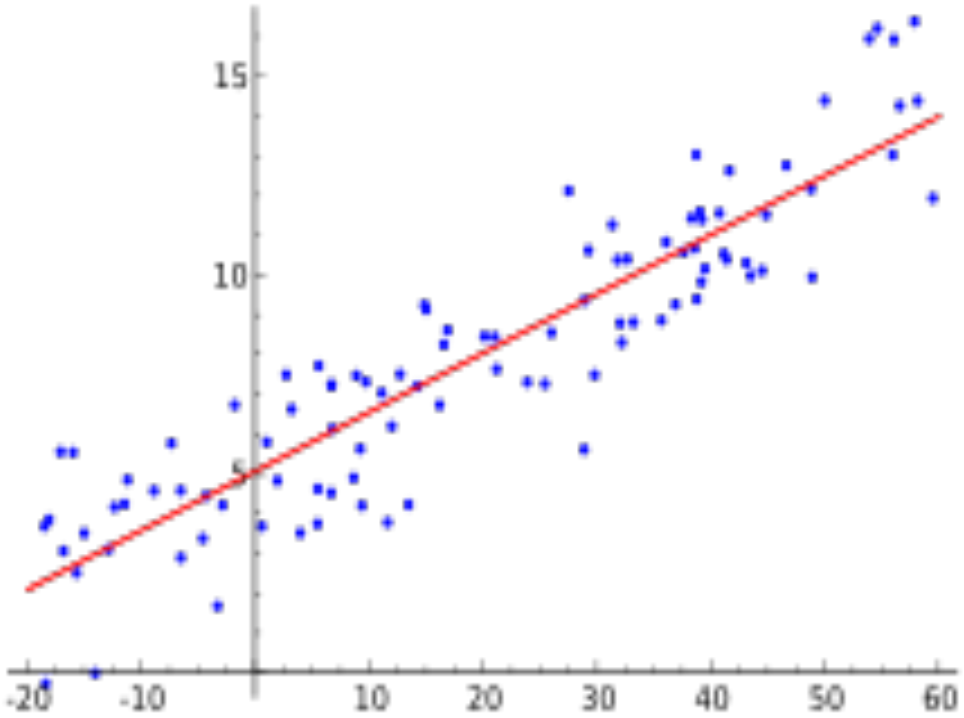
- Hierarchical linear models (multi level regression): A regresses off B and C regresses off B.

Target Variable

The target variable, or depending variable, is something you Are measuring which will be affected by another variable.

independent variables

These are inputs or causes which may have an effect on the Target variable.

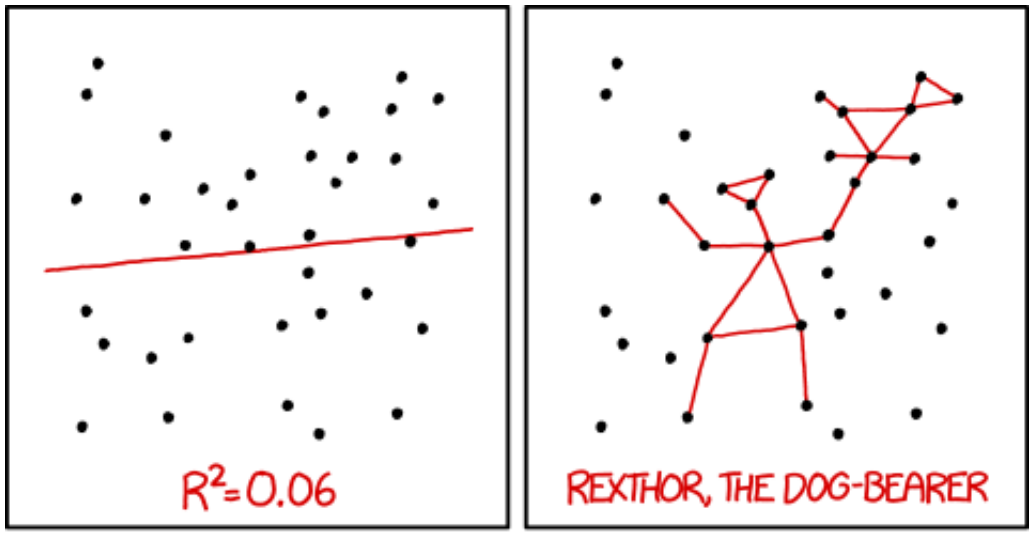


An example

2. Examples

- **Grades**
  Test scores, the target variable, may be influenced by study time, the independent variable.

- **Spending**
  Personal consumption, the target variable, levels may be influenced by income, the independent variable.



It doesnts always work

Sometimes its better to do thing like classification.