USING REGRESSION ANALYSIS TO ESTIMATE TIME EQUATIONS

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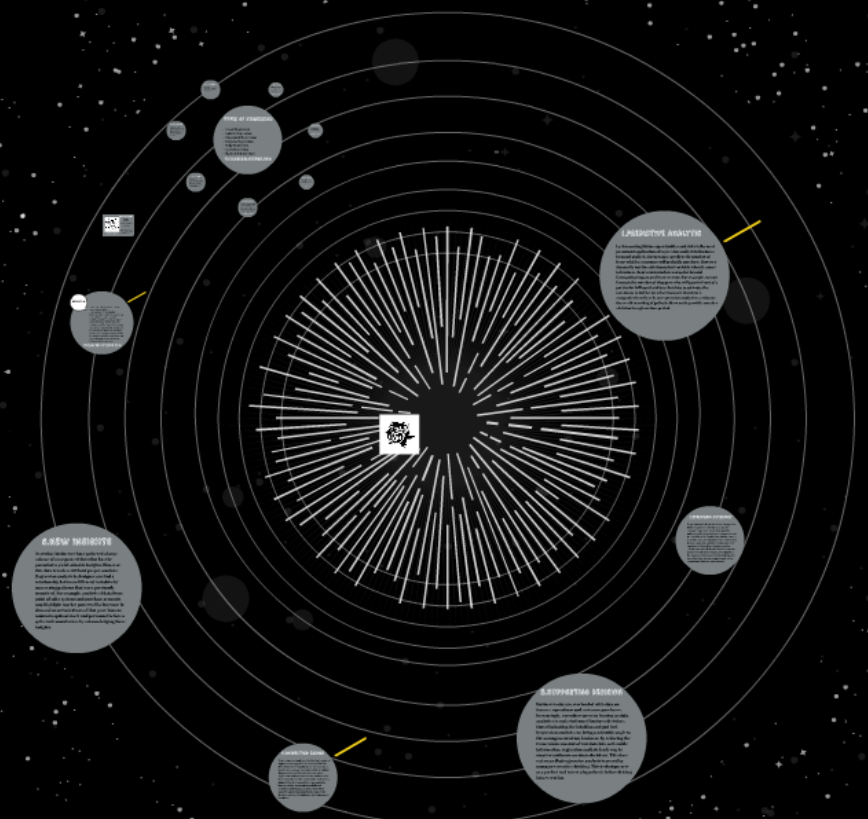

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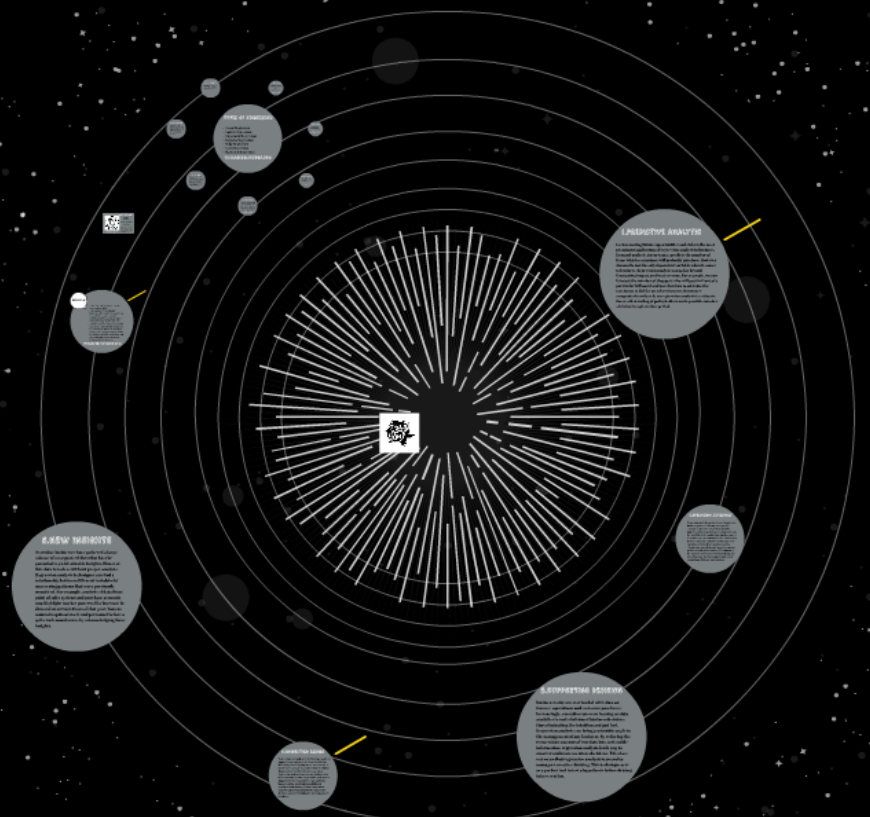

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REGRESSION

CIA

BUSINESS MATHEMATICS
&
STATISTICS

REPORT: YOHAN & CHETHAN
PRESENTATION: FEBY & PRIYA
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REGRESSION

- A return to a former or lesser developed state.
- A measure of the relation between the mean value of one variable (e.g. output) and corresponding values of other variables (e.g. time and cost).
- A technique for determining the statistical relationship between two or more variables where a change in a dependent variable is associated with, and depends on, a change in one or more independent variables.

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TYPES OF REGRESSION

- Linear Regression
- Logistic Regression
- Polynomial Regression
- Stepwise Regression
- Ridge Regression
- Lasso Regression
- ElasticNet Regression

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1. LINEAR REGRESSION

It is the simplest form of regressn. It is a technique in which the dependent is variable is countinous in natur. The relationship between the dependent variable and independent variables is assumed to be linear in nature. We can observe that the given plot represents a somehow linear relationship between the mileage and displacement of cars. The green pointa are the actual observations while he black line fitted is the line of regression.

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2.LOGISTIC REGRESSION

Logistic regression is used to find the probability of event=Success and event=Failure. We shiuld use logistic regression when the dependent variable is binary (0/1, True/False, Yes/No) in nature.

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3.POLYNOMIAL REGRESSION

A regression equation is a polynomial regression equation if the power of independent variable is more than 1. The equation below represent a polynomial equation:

$$y=a+b*x^2$$

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4.STEPWISE REGRESSION

This fromof regression is used when we deal with multiple independent variables. In this technique, the selection of independent variables is done with the help of an automati process, which involves no human intervention. this feat is achieved by observing statical values like R-square, t-stats and AIC metric to discern significant variables. Stepwise regression basically fits the regression model by adding/dropping co-variates one at a time based on a specific crierion. The aim of this modeling technique is to maximize the prediction power with minimum number of prediction variables. It is one of the method to handle higher dimesionality of data set.

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