THE SCOPE OF TOOLS AND TECHNIQUES

K.M.Eazhil
Assistant Professor
Department of Mechanical Engineering
SNS College of Engineering
Coimbatore

REGRESSION ANALYSIS

Regression Analysis is a tool to establish the 'best fit' relationship between two variables.

Two Common Methods are

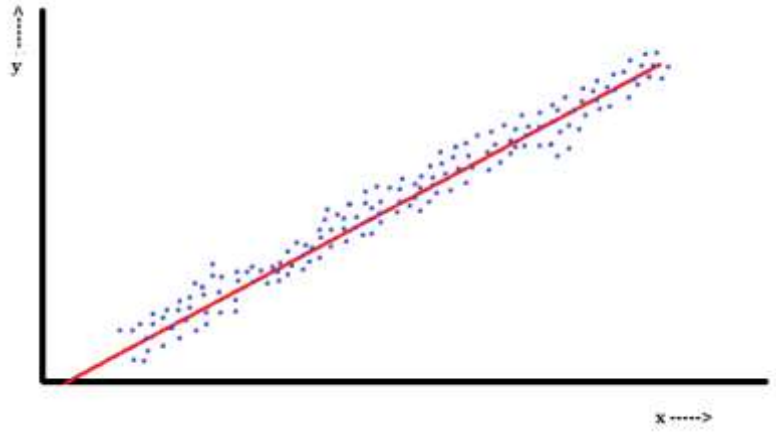
- Method of intercept & slope
- Method of least square

What does a Regression analysis do?

$$y = b_0 + b_1 x + e$$

Where:

- *y: Output variable*
- *x: Input or Predictor Variable*
- *b0: Intercept or constant*
- *b1: Slope*
- *e: Error or Residual value*



Regression Plot

HOW TO PERFORM A REGRESSION ANALYSIS?

1. Identify the relevant input variables and collect data on all the input variables and output variable.
2. Select the suitable regression model (Simple Regression, Multiple Regression etc)
3. Calculate r2 value. Now a days a lot of software packages, add-ins are available to perform the entire calculation and analysis.
4. Assess the p value for each of the input variables (p-value less than the confidence level considered indicates that the variable is a useful predictor). Remove any variables with p-value > confidence level.
5. Test the variables for Multicollinearity and remove duplicate variables.
6. Develop the predictor equation with significant and shortlisted variables only.

ACTIVITY

Cause and Effect Diagram is not known as!

a. Ishikawa Diagram

b. 4-M

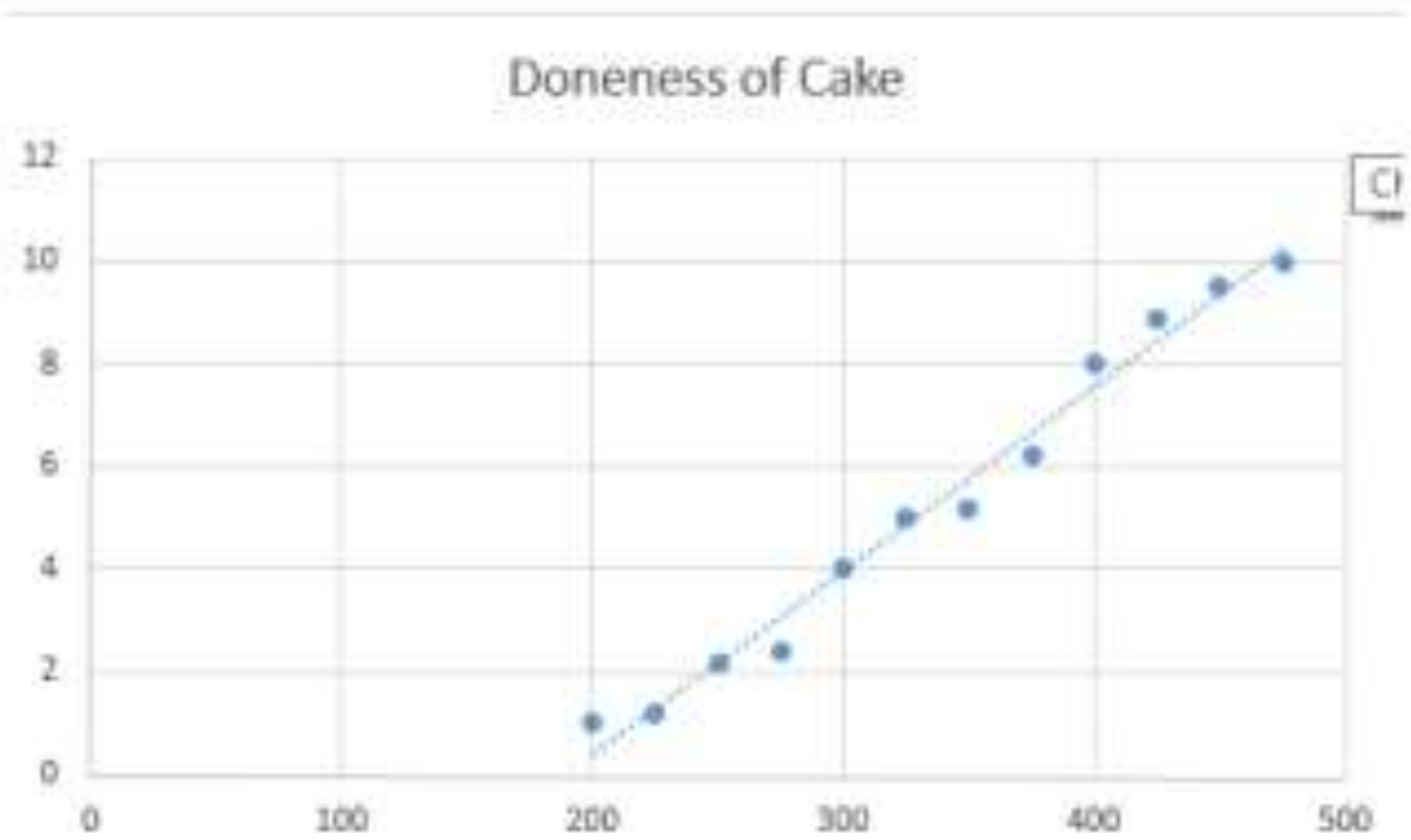
c. **Affinity Diagram**

d. None of the above

EXAMPLE

Oven Temperature	Doneness of Cake
200	1
225	1.2
250	2.2
275	2.4
300	4
325	5
350	5.2
375	6.2
400	8
425	8.9
450	9.5
475	10

EXAMPLE



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THANK YOU