

6. REGRESSION

Fall 2017

Regression Analysis

- Regression analysis:
 - usually falls under statistics and mathematical modeling
 - is a form of statistical analysis used in forecasting
 - estimates the relationship between variables
 - Allows predictions
- During regression analysis, we need to fit functions to data.
 - What function best describes this data?

Regression Analysis

- Trendlines are used to graphically display trends in data and to analyze problems of prediction.
- Draw a line that best fits the data.
- Regression analysis allows you to extend a trendline in a chart beyond the actual data to predict values
- Place the line such that the distance from each data point to the line is minimized.

Regression Analysis

- There are many types of regression models, the most common is linear regression
- In linear regression, we try to find a straight line that best fits our data.
 - Plot data using Excel's XY or scatter chart.
 - Add the trendline to the chart

P6.1

- Using Excel, create the following worksheet

	A	B
1	X	Y
2	10	100
3	20	200
4	30	300
5		
6		

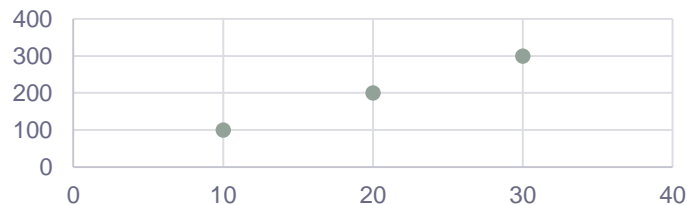
- Select both columns of data

- Select the Insert tab

- Select the ScatterPlot



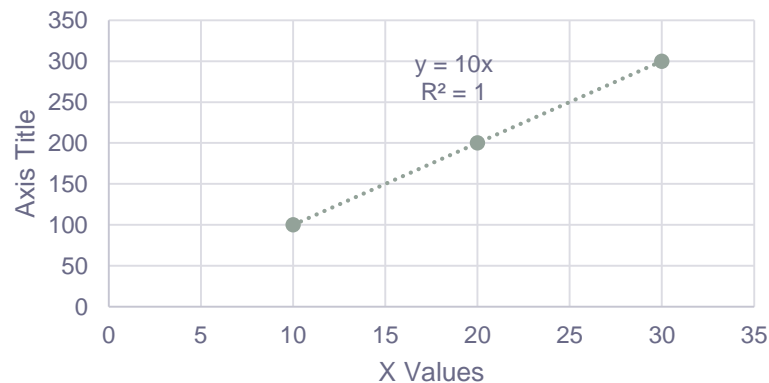
- Results



Add Trendline & Equation

- Dress up the graph using the Layout tab
 - Click on graph, select Design ribbon, then Add Chart Element
 - Select Axes Titles to label the x & y-axis
 - Click on one point of the graph, then right-click, then select **add trendline** and select **Linear** with **Display Equation on chart** and **Display R-squared value on chart** options selected

X versus Y Graph



- Change the Y value in your table from 200 to 150. What do you notice?

P6.2

- In the CS130 Public folder is a file called CandyBars.xlsx. Copy this file to your Desktop, open it and do the following.
 - Create a ScatterPlot of the data Calories and Sugars. What goes on the x-axis? Why?
 - Add a trendline to your chart, display the function or equation, and display the R^2 value
 - Is the function a good predictor? Why or Why not?
 - What is the amount of Calories (in grams) that we can expect from a candy bar with 60 grams of sugar?
 - Add an empty column after name. In that column, place an asterisk for foods that have a sugar count of 20 grams or higher and a calorie count of 200 or higher.
 - Turn on the AutoFilter and find out the number of M&M/Mars candy that fits these criteria.