Chapter 10: Bivariate Analysis

Bivariate analysis is concerned with relationships with pairs of variables (x, y) in a data set.

Exp LEANING TOWER OF PISA
- the lean is in 10ths of a mm past 2.9

YEAR	1975	76	77	78	79	80	81	82	83	84
LEAN	642	644	656	667	673	688	696	698	713	717

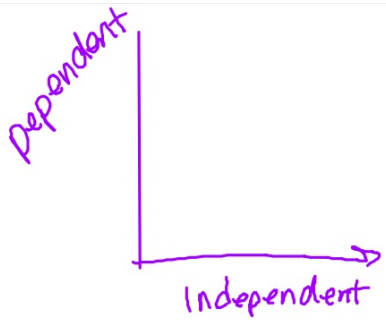
lean 2.9717mm

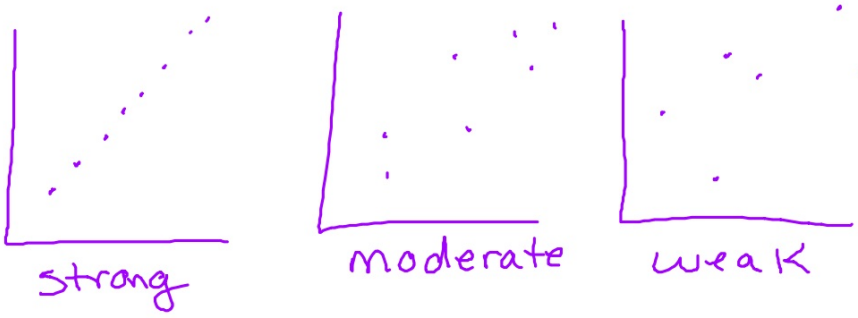
YEAR	85	86	87
LEAN	725	742	757

Can we calculate lean?
Can we predict future lean?

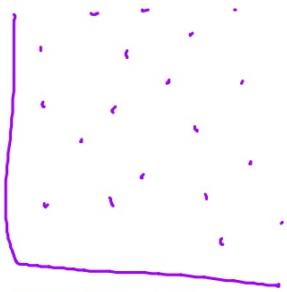
- SCATTER DIAGRAM (SCATTER PLOT) IS USED TO INVESTIGATE THE POSSIBLE RELATIONSHIPS BETWEEN TWO VARIABLES.

- THE RELATIONSHIP IS CALLED CORRELATION

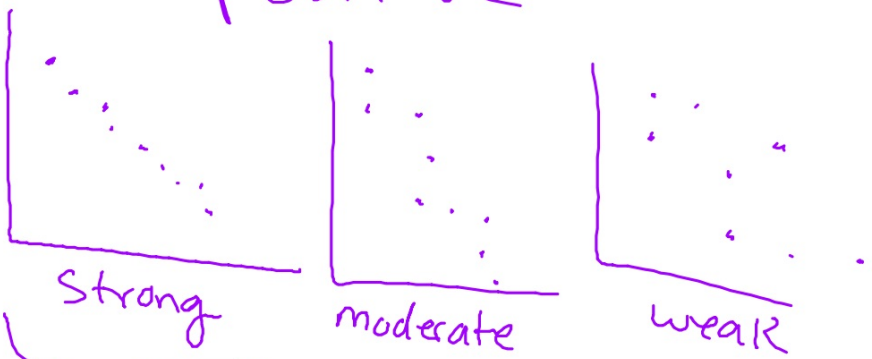




positive



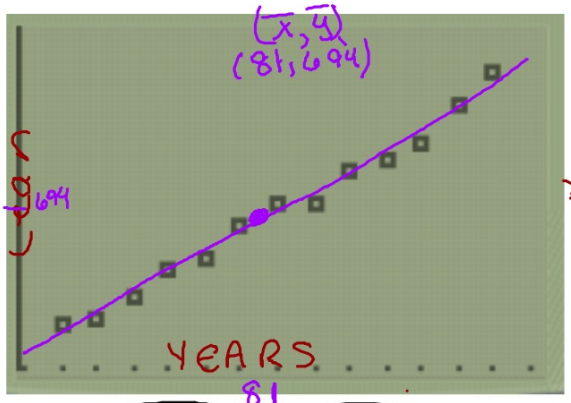
NONE



Negative

HW 10A p.338
1-5

BACK TO PISA:



HW 10B p.341 #2, 3!

✓a) draw a Scatterplot
b) describe correlation strong positive
c) what happens to the lean as yrs ↑? both increasing
d) what are the dangers of extrapolation?

* Extrapolation - means estimating something at a value outside the data we have (we are assuming the trend will continue)
- there may be events in the future whereby the trend is different
- we could guess wrong!

10.2 The line of best fit (called regression line)

- a line drawn on a scatterplot
- used to make predictions

* to draw by eye, ½ the points above line, ½ below
* can use a mean point to be more accurate (avg of x, avg of y)