

Correlation

①

intelligence

and

②
academic achievement

Bivariate : < Two variables.

Correlation \neq cause and effect.

Regression

→ Predict the value of a variable on the basis of another variable

Multivariate

— more than two variables.

Correlation

→ magnitude and direction

positive

negative.

====> positive

<==== positive

====< negative

^ | negative

^^ positive

Stress and adjustment. $\downarrow \downarrow$ Positive.
 $\uparrow \downarrow$ Negative

magnitude = $[-1 \text{ to } +1]$

-1 = there is a perfect negative correlation

$+1$ = There is a perfect positive correlation

0 = there is zero correlation

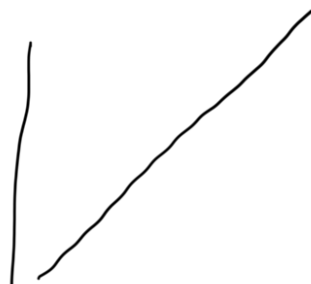
0.57 0.92 0.02 -0.32

2.78 X

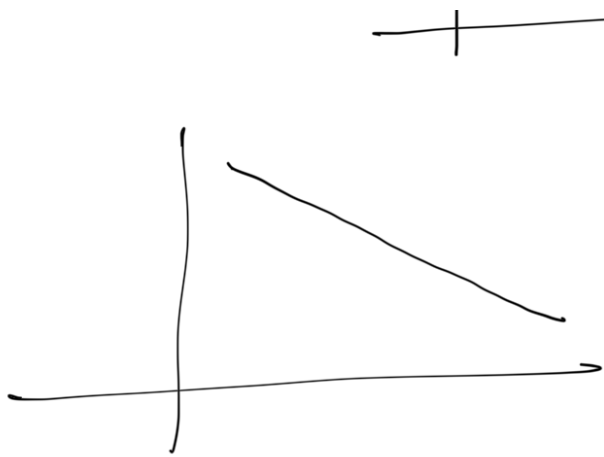
correlation = magnitude and direction of the two variables.

Types

a) linear or non linear.



Positive



Linear correlation,
Negative.



Nonlinear

Age and
Hair growth



②

positive or negative

- Negative
+ Positive.



} movement
or
Direction of
the two
variables.

(C) Simple and multiple X
 Bivariate and multivariate.

Properties

(1) Study hours and marks of the college students.
 you cannot say the same for another country or even another school :

(2) Cause and effect X

(3) cannot predict values.

Height and weight.

Correlation X

Regression X

(4) Random data = works when come random data.

daily mood and weather

5	10
10	20
15 = 20	30
20	40

Correlations

(5) Affected by sampling errors.

Top performing students
 Study hours and marks
 correlation will be much more higher.
 mixed group of → lower.

0.85 → 10 → 0.60

SE = Standard error.

SE small → values are close
 more reliable.

SE large; values vary a lot.
 less reliable.

0.70
 0.68, 0.72, 0.75, 0.85

Variation: Sampling error
 Spread: Standard error.