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Scatterplots and the "r" value



SPEAKER: MICHAEL J. MAHOMETA, Ph.D.

Galton's first idea of showing a relationship between bivariate data, with his "scattergraph," was pretty close to what

we call a scatterplot today.

He had counts that

► 0:00 / 6:13

► 1.0x



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Comprehension Check

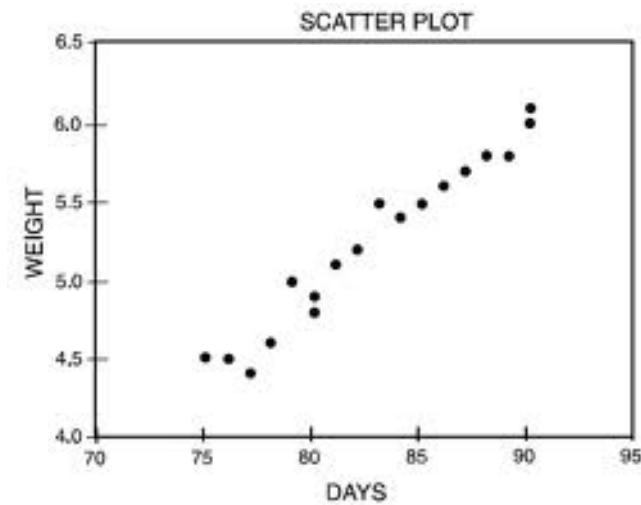
A researcher plotted the weights of each of his lab mice against their age (in days). This produced the following scatterplot:

Lab due Mar 15, 2016
at 18:00 UTC

Problem Set

Problem Set due Mar
15, 2016 at 18:00 UTC

- ▶ Week 4:
Bivariate
Distributions
(Categorical
Data)



(4/4 points)

How would you describe the direction of the relationship shown in this scatterplot?

☒ Positive ✓

☐ Negative

☐ There is no relationship

How would you describe the strength of the relationship in this scatterplot?

☐ Weak (the data points are widely scattered)

☐ Moderately strong (there is a clear pattern, but there are a few significant outliers)

☒ Very strong (nearly all the data points sit on or near the linear trend line) ✓

☐ None (there is no visible relationship)

Which of the following best describes the relationship between these two variables?

- ☐ As mice age, their growth rate slows down.
- ☒ The mice get heavier as they age. ✓
- ☐ The mice do not appear to grow much during the first month of life.

Which would be the most likely value of the Pearson correlation coefficient, r , for this relationship between age and weight?

- ☐ -0.87
- ☐ 0.56
- ☒ 0.93 ✓
- ☐ 1.00

Below is a table of Pearson correlations (called a ***correlation matrix***) for income, amount of education, age, and intelligence.

	Education	Age	IQ
Income	0.65	0.41	0.27
Education		0.11	0.38
Age			-0.02

(2/3 points)

Which variables have the strongest relationship?

- ☒ Age and Income ✗
- ☐ Age and IQ

☐ Education and Income

☐ Education and IQ

Which variables appear to have almost no relationship at all?

☐ Age and Education

☒ Age and IQ ✓

☐ IQ and Income

☐ There are no variables that are not related.

What would be the correlation of Education with Education?

☐ 0.00

☐ 0.50

☒ 1.00 ✓

☐ Cannot be answered

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