

STATISTICS 5: QUIZ SOLUTIONS

Question 1

A city urban planning team in the USA collected data across 12 tech hubs on the number of public EV fast-charging stations (x) and the number of electric vehicles registered per 1 000 residents (y). The linear correlation coefficient between these two variables was found to be 0,90.

Interpret this correlation coefficient.

Solution

The association between the number of public EV fast-charging stations (x) and the number of electric vehicles registered per 1 000 residents (y) is strong and positive.

This means that larger values of x are strongly associated with larger values of y .

Values of x may confidently be used to estimate values of y , provided that the x -values lie within the range of the observed data.

Question 2

An educational research institute surveyed 12 remote software engineering students to measure daily time spent on AI coding assistants in hours (x) against their weekly project completion score out of 100 (y). The linear correlation coefficient between these two variables was found to be 0,52.

Interpret this correlation coefficient.

Solution

The association between the daily time spent on AI coding assistants in hours (x) and project completion score out of 100 (y) is moderate and positive.

This means that larger values of x are moderately associated with larger values of y .

Values of x may cautiously be used to estimate values of y , provided that the x -values lie within the range of the observed data.

Question 3

A wellness app tracked 12 adult users over a month to observe the relationship between weekly coffee consumption in cups (x) and average daily step count in thousands (y). The linear correlation coefficient between these two variables was found to be 0,10.

Interpret this correlation coefficient.

Solution

The association between the weekly coffee consumption in cups (x) and average daily step count in thousands (y) is weak but positive.

This means that larger values of x are only slightly associated with larger values of y .

Values of x should not be used to estimate values of y .

Question 4

A sleep health laboratory monitored 12 young adults by tracking their daily screen time on social media in hours (x) and their hours of deep sleep logged via smart watch (y). The linear correlation coefficient between these two variables was found to be -0,60.

Interpret this correlation coefficient.

Solution

The association between the daily screen time on social media in hours (x) and their hours of deep sleep logged via smart watch (y) is moderate and negative.

This means that larger values of x are moderately associated with smaller values of y .

Values of x may cautiously be used to estimate values of y , provided that the x -values lie within the range of the observed data.

Question 5

A technology researcher tested 12 electric delivery vehicles of similar model years to see how total battery charge cycles in hundreds (x) affects the remaining usable battery state-of-health percentage (y). The linear correlation coefficient between these two variables was found to be -0,93.

Interpret this correlation coefficient.

Solution

The association between the total battery charge cycles in hundreds (x) and the remaining usable battery state-of-health percentage (y) is strong and negative.

This means that larger values of x are strongly associated with smaller values of y .

Values of x may confidently be used to estimate values of y , provided that the x -values lie within the range of the observed data.