what are some example of Bivariate Data ?

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1. Sales and advertising expenses refer to the costs incurred by a company in order to promote and sell its products or services. This includes expenses such as advertising campaigns, sales staff salaries, marketing materials, and other related costs. These expenses are essential for the growth and success of a company, as they help attract potential customers and drive sales.

2. Age and income of individuals in a population are important demographic factors that provide insight into the characteristics and behaviors of a particular group. Age can indicate the stage of life an individual is in, while income can provide information on their financial status. These factors are often used to understand consumer behavior, market trends, and make strategic business decisions.

3. The height and weight of students in a classroom are physical attributes that can provide valuable information about their overall health and well-being. These measurements are often used to track growth and development, identify potential health issues, and inform nutrition and fitness programs.

4. Temperature and humidity levels in a city over time are important data points for understanding the climate and weather patterns of a particular location. These measurements can provide insight into the environmental conditions that can impact various industries such as agriculture, tourism, and construction.

5. Education level and job satisfaction of employees in a company are key factors that can impact the overall performance and success of a business. Education level can indicate the knowledge and skills of employees, while job satisfaction can affect their motivation and productivity. Understanding these factors can help companies make informed decisions about hiring, training, and employee engagement.

5 Examples of Bivariate Data in Real Life

Bivariate data refers to a dataset that contains exactly two variables.

This type of data occurs all the time in real-world situations and we typically use the following methods to analyze this type of data:

Scatterplots

Correlation Coefficients

Simple Linear Regression

The following examples show different scenarios where bivariate data appears in real life.

Example 1: Business

Businesses often collect bivariate data about total money spent on advertising and total revenue.

For example, a business may collect the following data for 12 consecutive sales quarters:

Advertising Spend	Total Revenue
$14,500	$59,000
$19,000	$64,000
$22,400	$89,000
$28,900	$86,000
$30,000	$94,000
$32,000	$104,000
$29,000	$89,000
$28,000	$82,000
$32,000	$88,000
$35,000	$103,000
$29,000	$94,000
$38,000	$140,000

This is an example of bivariate data because it contains information on exactly two variables: advertising spend and total revenue.

The business may decide to fit a to this dataset and find the following fitted model:

Total Revenue = 14,942.75 + 2.70*(Advertising Spend)

This tells the business that for each additional dollar spent on advertising, total revenue increases by an average of $2.70.

Example 2: Medical

Medical researchers often collect bivariate data to gain a better understanding of the relationship between variables related to health.

For example, a researcher may collect the following data about age and resting heart rate for 15 individuals:

Age	Resting Heart Rate
18	51
20	57
24	59
28	55
29	67
30	68
36	64
39	71
45	67
49	72
53	70
56	75
68	71
71	69
75	79

The researcher may then decide to calculate the correlation between the two variables and find it to be 0.812.

Related:

Example 3: Academics

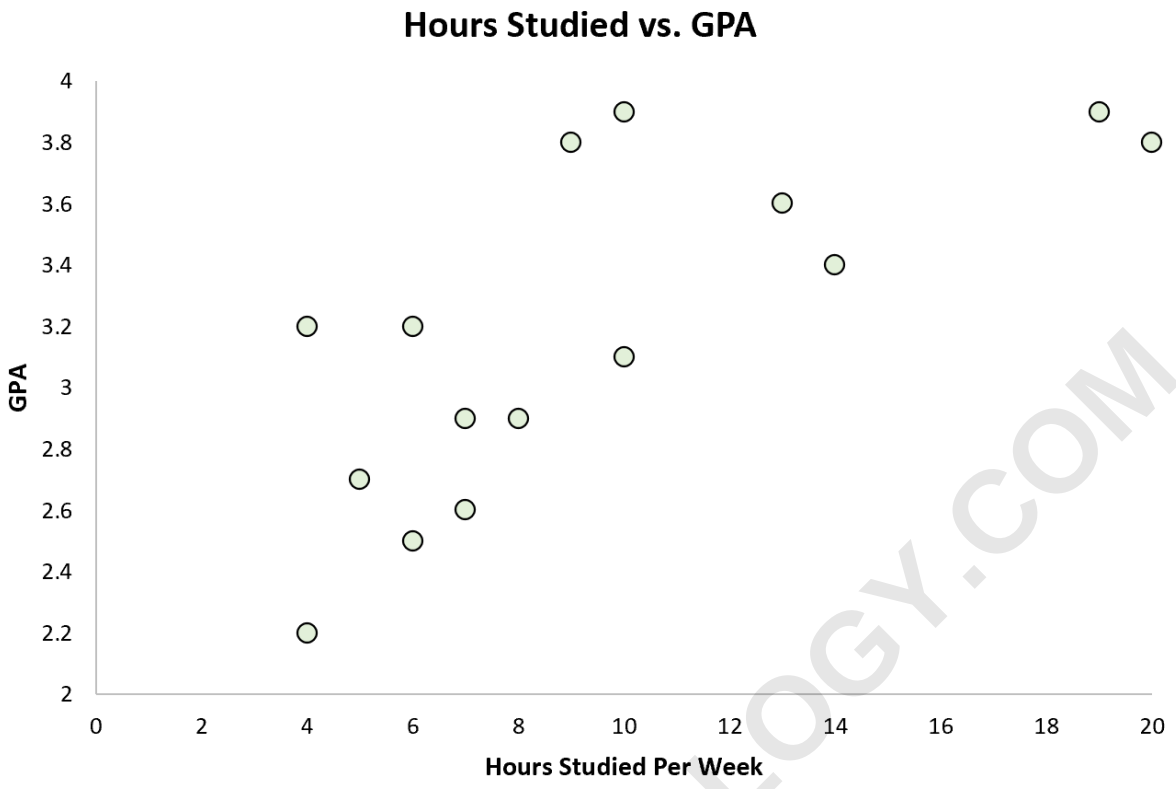
Researchers often collect bivariate data to understand what variables affect the performance of university students.

For example, a researcher may collect data on the

number of hours studied per week and the corresponding GPA for students in a certain class:

Hours	GPA
6	3.2
9	3.8
10	3.9
13	3.6
6	2.5
5	2.7
7	2.9
19	3.9
20	3.8
14	3.4
10	3.1
7	2.6
4	2.2
8	2.9
4	3.2

She may then create a simple scatterplot to visualize the relationship between these two variables:



Clearly there is a positive association between the two variables: As the number of hours studied per week increases, the GPA of the student tends to increase as well.

Example 4: Economics

Economists often collect bivariate data to understand the relationship between two socioeconomic variables.

For example, an economist may collect data on the total years of schooling and total annual income among individuals in a certain city:

Years of Schooling	Annual Income
12	$36,000
11	$32,000
16	$58,000
16	$65,000
16	$76,000
18	$89,000
17	$45,000
20	$84,000
17	$125,000
...	...

He may then decide to fit the following simple linear regression model:

Annual Income = -45,353 + 7,120*(Years of Schooling)

This tells the economist that for each additional year of schooling, annual income increases by $7,120 on average.

Example 5: Biology

Biologists often collect bivariate data to understand how two variables are related among plants or animals.

For example, a biologist may collect data on total rainfall and total number of plants in different regions:

Total Rainfall (inches)	Total Number of Plants
14	450
12	413
20	490
22	566
24	576
29	640
13	340
6	130
11	190
...	...

The biologist may then decide to calculate the correlation between the two variables and find it to be 0.926.

This indicates that there is a strong positive correlation between the two variables.

That is, higher rainfall is closely associated with an increased number of plants in a region.

Additional Resources

The following tutorials provide additional information about bivariate data and how to analyze it.