

Statistical Business Analysis – Week 7

Overview: Descriptive statistics, hypothesis testing, correlation, confidence intervals, and regression on business data.

Descriptive Statistics

Date	Product	Quantity	Price	Customer_ID	Region	Total_Sales	
count	100	100	100.0	100.0	100	100	100.0
unique	100	5	nan	nan	100	4	nan
top	2024-01-01	Tablet	nan	nan	CUST001	North	nan
freq	1	26	nan	nan	1	28	nan
mean	nan	nan	4.78	25808.51	nan	nan	123650.48

Correlation Analysis

Quantity Price Total_Sales
Quantity 1.000 0.008 0.688
Price 0.008 1.000 0.646
Total_Sales 0.688 0.646 1.000

Hypothesis Testing

One-sample t-test (Sales vs mean): statistic=0.0000, p-value=1
Two-sample t-test (Quantity vs Price): statistic=-18.5403, p-value=5.704e-34
ANOVA (Quantity, Price, Total_Sales): statistic=124.8156, p-value=4.536e-40

Confidence Interval (95%)

Mean Total_Sales: 123650.48, CI: [103776.35, 143524.61]

Regression

R-squared: 0.884