

# 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
unique	100		5	nan	nan	100	4
top		2024-01-01	Tablet	nan	nan	CUST001	North
freq	1		26	nan	nan	1	28
mean	nan		nan	4.78	25808.51	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