# P04 Instructor & Reference Guide – Pivot Tables

## Theory Brief

Pivot tables allow dynamic summarisation of large datasets. They enable users to rearrange, filter, and aggregate data quickly without altering the original dataset. Grouping dates and adding calculated fields enhances analytical insight.

## Worked Example

Below is a snapshot of the first few rows of the synthetic dataset and summary statistics:

Date Product Region Sales Quantity  
2025-01-01 Phone West 31545.19 3.0  
 NaT Accessory East 60022.20 1.0  
2025-01-03 Tablet East 55725.84 19.0  
 NaT Phone West 44842.87 11.0  
2025-01-05 Laptop North 48935.16 16.0

### Basic Statistics

* Sales\_mean: 50006.95
* Sales\_median: 50869.32
* Sales\_mode: 31545.19
* Sales\_var: 130207078.35
* Sales\_std: 11410.83
* Quantity\_mean: 10.21
* Quantity\_median: 11.00
* Quantity\_mode: 7.00
* Quantity\_var: 30.84
* Quantity\_std: 5.55

### Correlation Matrix

Sales Quantity  
Sales 1.00000 0.08301  
Quantity 0.08301 1.00000

### Visualisations

An example plot is saved in the results folder as P04\_plot1.png.

## Evaluation Rubric

* Correctness and completeness of pivot table (40%)- Effective grouping and sorting (30%)- Proper calculated field (20%)- Report clarity (10%)

## Common Pitfalls

Using wrong aggregation (sum vs average), failing to refresh pivot after data changes, or misinterpreting grouped date fields.