Market Basket Analysis

Discovering which products, services or behaviours tend to occur together — and where those patterns can support better commercial decisions.

THE BUSINESS PROBLEM

Customers rarely make decisions one item at a time. Market basket analysis identifies combinations that occur together and helps distinguish useful cross-sell signals from patterns driven mainly by popularity.

Three questions guide the analysis

01

What occurs together?

Find items or actions that appear in the same basket or event.

02

Is it meaningful?

Separate informative associations from combinations driven by popularity.

03

How could it be used?

Translate patterns into recommendations, bundles or cross-sell tests.

What transaction evidence could we use?

Basket	Customer	Item	Category	Qty
B001	C014	Coffee	Drinks	1
B001	C014	Croissant	Bakery	2
B002	C207	Pasta	Grocery	1
B002	C207	Tomato sauce	Grocery	1

Illustrative data only. The essential structure is a basket, order, session or other meaningful event containing multiple items or actions.

How market basket analysis works

1

Define the basket

What event represents a combination?

2

Find co-occurrence

Which items appear together?

3

Measure association

How frequent and informative is it?

4

Prioritise patterns

Which rules merit investigation?

5

Test the action

Does using the rule improve outcomes?

Core measures

Support	How often the combination occurs.
Confidence	How often B occurs when A occurs.
Lift	Whether A and B occur together more than expected.

Association is not causation. A strong rule can identify a useful pattern, but it does not prove that one item causes the other to be selected.

From Associations to Commercial Action

The strongest pattern is not automatically the best business opportunity. Frequency, relevance, economics and testability all matter.

WORKED EXAMPLE

The illustrative rules below show why support, confidence and lift should be interpreted together before deciding whether an association deserves commercial testing.

Illustrative association rules

RULE	SUPPORT	CONF.	LIFT	INTERPRETATION
Coffee → Croissant	12.4%	41%	1.8	Frequent and more common together than expected.
Pasta → Tomato sauce	8.7%	56%	2.3	Strong directional relationship; suitable for testing.
Bread → Milk	18.9%	32%	1.1	Common, but lift suggests limited extra information.
Phone → Case	4.1%	63%	3.4	Less frequent but highly distinctive cross-sell signal.

Illustrative results only. High support may favour obvious combinations; very high lift can occur on patterns too rare to be commercially useful.

Potential business applications

RECOMMENDATIONS
Suggest complementary products or services.

BUNDLING
Design commercially sensible bundles.

MERCHANDISING
Inform placement, navigation or adjacency.

CROSS-SELL
Prioritise relevant next-product tests.

How success should be measured

Conversion / attach rate	Did exposed customers add the complementary item more often?
Basket value / margin	Did the action improve value without uneconomic discounting?
Incrementality	Would the additional purchase have happened anyway? Test where feasible.

DELIVERABLES
Association rules · Prioritised opportunities · Business interpretation · Test recommendations

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