Type of joins and examples

Let's imagine that we have a bike company and we have in our data warehouse two tables: One with a list of products and price and another one with a list of products that we have in stock. We have in stock more products than those we manufactured ourselves and this list contains the entire list of products in stock. Here is how the tables look like:

Owned manufactured products

TABLE A

ProductI	ProductName	Date	Amount
10010	Touring Bike	12/15/201	32,555
10030	Mountain Bike	12/15/201	22,752
10045	Gravel Bike	12/15/201	34,147
10050	Cyclocross Bike	12/15/201	19,733
10060	Road Bike	12/15/201	33,438
10062	Children Bike	12/15/201	31,686
10070	City Bike	12/15/201	45,876

Stock all products

TABLE B

Produc	ProductName	StockLocation
10025	Clothing	EMEA
10030	Mountain Bike	AMER
10040	Shoes	EMEA
10050	Cyclocross Bikes	ASIA
10063	Backpack	EMEA
11000	Tents	AMER

The green rows represent the rows that match on both tables.

Let's join those tables using the different combinations of joins available in Power BI:

Left Outer join

Let's say that somebody in manufacturing wants to know which bikes we have in stock. In that case we would do a left outer.

When we do a Left Outer, we are taking all the rows from A and the matching ones from table B. Left outer will return from table B only the products that are present in table A.

ProductID	ProductName	Date	Amount	ProductID.1	ProductName.1	StockLocation
10070	City Bike	2015-12-15	45,876			
10045	Gravel Bike	2015-12-15	34,147			
10050	Cyclocross Bike	2015-12-15	19,733	10050	Cyclocross Bikes	ASIA
10030	Mountain Bike	2015-12-15	22,752	10030	Mountain Bike	AMER
10062	Children Bike	2015-12-15	31,686			
10060	Road Bike	2015-12-15	33,438			
10010	Touring Bike	2015-12-15	32,555			

Right Outer Join

Now, somebody working at the warehouse wants to know which products we manufacture ourselves. In that case we would do a right outer.

When we do a Right Outer, we are taking all the rows from table B and the matching ones from table A. Right outer will return from table A only the products that are present in table B.

ProductID	ProductName	Date	Amount	ProductID.1	ProductName.1	StockLocation
				10025	Clothing	EMEA
10030	Mountain Bike	2015-12-15	22,752	10030	Mountain Bike	AMER
				10040	Shoes	EMEA
10050	Cyclocross Bike	2015-12-15	19,733	10050	Cyclocross Bikes	ASIA
				10063	Backpack	EMEA
				11000	Tents	AMER

Full outer Join

Product management department asked you for **a list of all products available for sale**. In this case, you will do a Full Outer.

When we do a Full Outer, we are taking all the rows from table A and all rows from table B. Full outer will return a table with all records, matching the ones that are available on both tables.

Product	ProductName	Date	Amou	ProductID	ProductName.1	StockLocatio
10010	Touring Bike	2015-12-15	32,555			
10030	Mountain Bike	2015-12-15	22,752	10030	Mountain Bike	AMER
10045	Gravel Bike	2015-12-15	34,147			
10050	Cyclocross Bike	2015-12-15	19,733	10050	Cyclocross Bikes	ASIA
10060	Road Bike	2015-12-15	33,438			
10062	Children Bike	2015-12-15	31,686			
10070	City Bike	2015-12-15	45,876			
				10040	Shoes	EMEA
				10025	Clothing	EMEA
				11000	Tents	AMER
				10063	Backpack	EMEA

Inner Join

The planning department asked you for **a list of products that are in stock**. They don't want to see any other products as they are not supposed to be in stock. In this case, you will do a Inner join.

When we do a Inner join, we are taking only the matching rows from table A and table B. Inner join will return a table with all matching records, excluding everything else.

ProductID	ProductName	Date	Amount	ProductID.1	ProductName.1	StockLocation
10030	Mountain Bike	2015-12-15	22,752	10030	Mountain Bike	AMER
10050	Cyclocross Bike	2015-12-15	19,733	10050	Cyclocross Bikes	ASIA

Left Anti Join

Product management called you again, this time they want a list of products that are not in stock to review their strategy. No problem, in this case Left Anti is all you need.

When we do a Left Anti, we are taking all the rows from A that **do not have a match** in table B. Left anti will return all rows from table A that do not have a match on table B.

ProductID	ProductName	Date	Amount	ProductID.1	ProductName.1	StockLocation
10010	Touring Bike	2015-12-15	32,555			
10045	Gravel Bike	2015-12-15	34,147			
10060	Road Bike	2015-12-15	33,438			
10062	Children Bike	2015-12-15	31,686			
10070	City Bike	2015-12-15	45,876			

Right Anti Join

The logistics department want a list of products that are in stock but we don't manufacture ourselves.. This time, Right Anti will do it.

When we do a Right Anti, we are taking all the rows from B that **do not have a match** in table A. Right anti will return all rows from table B that do not have a match on table A.

ProductID	ProductName	Date	Amount	ProductID.1	ProductName.1	StockLocation
				10025	Clothing	EMEA
				10040	Shoes	EMEA
				10063	Backpack	EMEA
				11000	Tents	AMER