

AMAZON AIR CONDITIONER DATASET: CLEANING, ANALYSIS, AND VISUALIZATION WITH POWER QUERY

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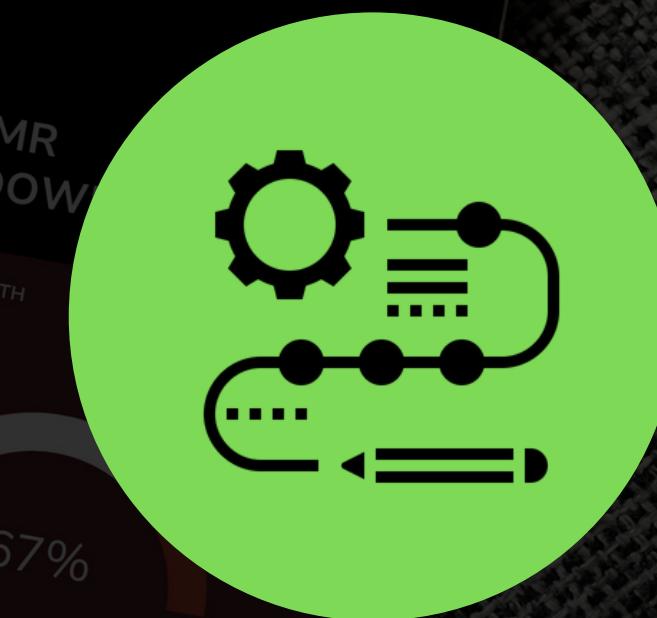
TOOLS AND LIBRARIES:
POWER QUERY & POWER BI

INTRODUCTION TO THE PROBLEM



GOAL

Amazon Conditioner cleaning, and visualization with Power Query & Power BI



METHOD

- Null Cleanup
- Value Replacement
- Delete Columns
- Convert Data
- Simplify Columns
- Analyze Data
- Get Charts

TOOLS USED

DATA SOURCE: AIR CONDITIONERS.CSV

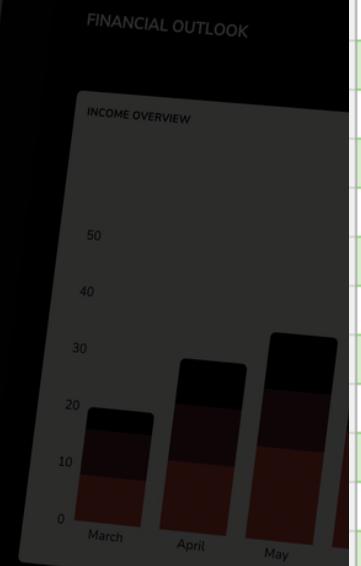
- **Excel:** Data preparation (importing raw file, organizing columns, replacing missing values using averages by total).
 - **Power Query:** Data cleaning (removing nulls, filtering erroneous rows, ensuring consistency).
 - **Power BI:** Visualization and analysis of the cleaned dataset.

DATA EXPLORATION AND STRUCTURE

READING HISTORICAL DATA:

Historical data is loaded, the dataset contains:

- Name
- Main Category
- Sub Category
- Image
- Link
- Ratings
- No of Ratings
- Discount price
- Actual Price



There are empty fields in many columns, so we'll search for matches to fill in the missing values.

There are also several columns that are unnecessary for analysis, such as main category, subcategory, image, and link.

A	B	C	D	E	F	G	H	I
name	main_category	sub_category	image	link	ratings	no_of_ratin	discount_price	actual_price
Lloyd 1.5 Ton 3 Star Inv appliances	Air Conditioners	https://m.media https://www.ama	42	2,255	₹32,999	₹58,990		
LG 1.5 Ton 5 Star AI DU appliances	Air Conditioners	https://m.media https://www.ama	42	2,948	₹46,490	₹75,990		
LG 1 Ton 4 Star Ai Dual appliances	Air Conditioners	https://m.media https://www.ama	42	1,206	₹34,490	₹61,990		
LG 1.5 Ton 3 Star AI DU appliances	Air Conditioners	https://m.media https://www.ama	40	69	₹37,990	₹68,990		
Carrier 1.5 Ton 3 Star I appliances	Air Conditioners	https://m.media https://www.ama	41	630	₹34,490	₹67,790		
Voltas 1.4 Ton 3 Star In appliances	Air Conditioners	https://m.media https://www.ama	40	1,666	₹31,990	₹70,990		
Lloyd 1.0 Ton 3 Star Inv appliances	Air Conditioners	https://m.media https://www.ama	42	1,097	₹29,999	₹49,990		
Lloyd 1.5 Ton 5 Star Inv appliances	Air Conditioners	https://m.media https://www.ama	43	1,494	₹39,990	₹67,990		
Carrier 1 Ton 3 Star AI f appliances	Air Conditioners	https://m.media https://www.ama	41	674	₹30,990	₹58,190		
Voltas 1.5 Ton, 5 Star, l appliances	Air Conditioners	https://m.media https://www.ama	40	801	₹37,999	₹73,990		
Daikin 1 Ton 3 Star Inve appliances	Air Conditioners	https://m.media https://www.ama	42	558	₹32,990	₹48,200		
Daikin 1.5 Ton 5 Star In appliances	Air Conditioners	https://m.media https://www.ama	41	730	₹44,990	₹67,200		
Panasonic 1.5 Ton 5 St appliances	Air Conditioners	https://m.media https://www.ama	43	5,073	₹45,990	₹63,400		
Carrier 1.5 Ton 5 Star A appliances	Air Conditioners	https://m.media https://www.ama	40	568	₹41,999	₹78,490		
Whirlpool 1.5 Ton 3 Sta appliances	Air Conditioners	https://m.media https://www.ama	39	3,67	₹31,990	₹62,000		
Samsung 1.5 Ton 3 Sta appliances	Air Conditioners	https://m.media https://www.ama	38	312	₹35,499	₹60,990		
Lloyd 1.0 Ton 5 Star Inv appliances	Air Conditioners	https://m.media https://www.ama	41	88	₹34,000	₹57,990		
Godrej 1.5 Ton 5 Star 5 appliances	Air Conditioners	https://m.media https://www.ama	41	432	₹37,490	₹54,900		
Godrej 1 Ton 3 Star Inv appliances	Air Conditioners	https://m.media https://www.ama	39	268	₹29,490	₹42,900		
Daikin 1.5 Ton 3 Star In appliances	Air Conditioners	https://m.media https://www.ama	35	2	₹39,499	₹58,400		
Blue Star 1.5 Ton 3 Sta appliances	Air Conditioners	https://m.media https://www.ama	39	700	₹35,990	₹62,250		
LG 1.5 Ton 2 Star DUAL appliances	Air Conditioners	https://m.media https://www.ama	40	540	₹33,490	₹62,990		
LG 1.5 Ton 4 Star AI DU appliances	Air Conditioners	https://m.media https://www.ama	40	258	₹42,490	₹71,990		
Panasonic 1 Ton 5 Star appliances	Air Conditioners	https://m.media https://www.ama	43	2,178	₹39,990	₹54,600		
Lloyd 1.5 Ton 3 Star Fix appliances	Air Conditioners	https://m.media https://www.amazon.in/Lloyd-Window-Cop	₹27,440		₹47,990			
Samsung 1.5 Ton 5 Sta appliances	Air Conditioners	https://m.media https://www.ama	41	1,444	₹43,599	₹72,990		
Voltas 1.5 Ton 5 Star, l appliances	Air Conditioners	https://m.media https://www.ama	38	360	₹36,700	₹49,990		

= Table.TransformColumnTypes(#"Personalizada agregada1",{{"discount_perc", Percentage.Type}})

ABC name	ABC Brand	1.2 Rating	1.2 no_of_ratings	1.2 previous_price	ABC 123	original_price	1.2 discount_price	1.2 actual_price	% discount_perc
Valid Error Empty	Valid Error Empty	Valid Error Empty	Valid Error Empty	Valid Error Empty	Valid Error Empty	Valid Error Empty	Valid Error Empty	Valid Error Empty	Valid Error Empty
100 % 0 % 0 %	100 % 0 % 0 %	100 % 0 % 0 %	100 % 0 % 0 %	100 % 0 % 0 %	100 % 0 % 0 %	100 % 0 % 0 %	100 % 0 % 0 %	100 % 0 % 0 %	100 % 0 % 0 %
676 distinct, 666 unique	114 distinct, 62 unique	30 distinct, 3 unique	186 distinct, 131 unique	447 distinct, 413 unique			288 distinct, 220 unique	279 distinct, 197 unique	439 distinct, 431 unique
1 Hitachi Split Ac - 1.5 Ton Kiyora 52...	Hitachi		5	1	114,14	114,14	42,24		71,9 37,01 %
2 Panasonic 2 Ton 5 Star Wi-Fi Invert...	Panasonic		5	1	154,89	154,89	66,99		87,9 43,25 %
3 Panasonic 1.5 Ton 3 Star Hot and C...	Panasonic		5	2	105,39	105,39	43,99		61,4 41,74 %
4 Voltas 2 Ton 5 Star Inverter Split A...	Voltas		5	5	143,88	143,88	58,89		84,99 40,93 %
5 Voltas 1 Ton 5 Star, Inverter Split A...	Voltas		5	1	82,28	82,28	37,29		44,99 45,32 %
6 ONIDA 1.5 Ton 3 Star Inverter Split...	ONIDA		5	1	77,89	77,89	33,99		43,9 43,64 %
7 AC Stand/Heavy Duty Air Condитio...	AC		5	2	1598	1598	599		999 37,48 %
8 Carrier 1.5 Ton 5 Star Smart AI Flex...	Carrier		5	1	125,88	125,88	45,99		79,89 36,53 %
9 Daikin 1.8 Ton 5 Star Inverter Split...	Daikin		5	4	146,15	146,15	62,25		83,9 42,59 %
10 O-General 1 Ton 5 Star EFFICIENT...	O-General		5	2	104,69	104,69	48,9		55,79 46,71 %

CHECK FOR NULL VALUES AND UNNECESSARY COLUMNS

After reviewing the data, null values were detected in the discount price column, so those empty fields were filled with zero.

Unnecessary colon columns were also removed: main category, sub category, image, and link.

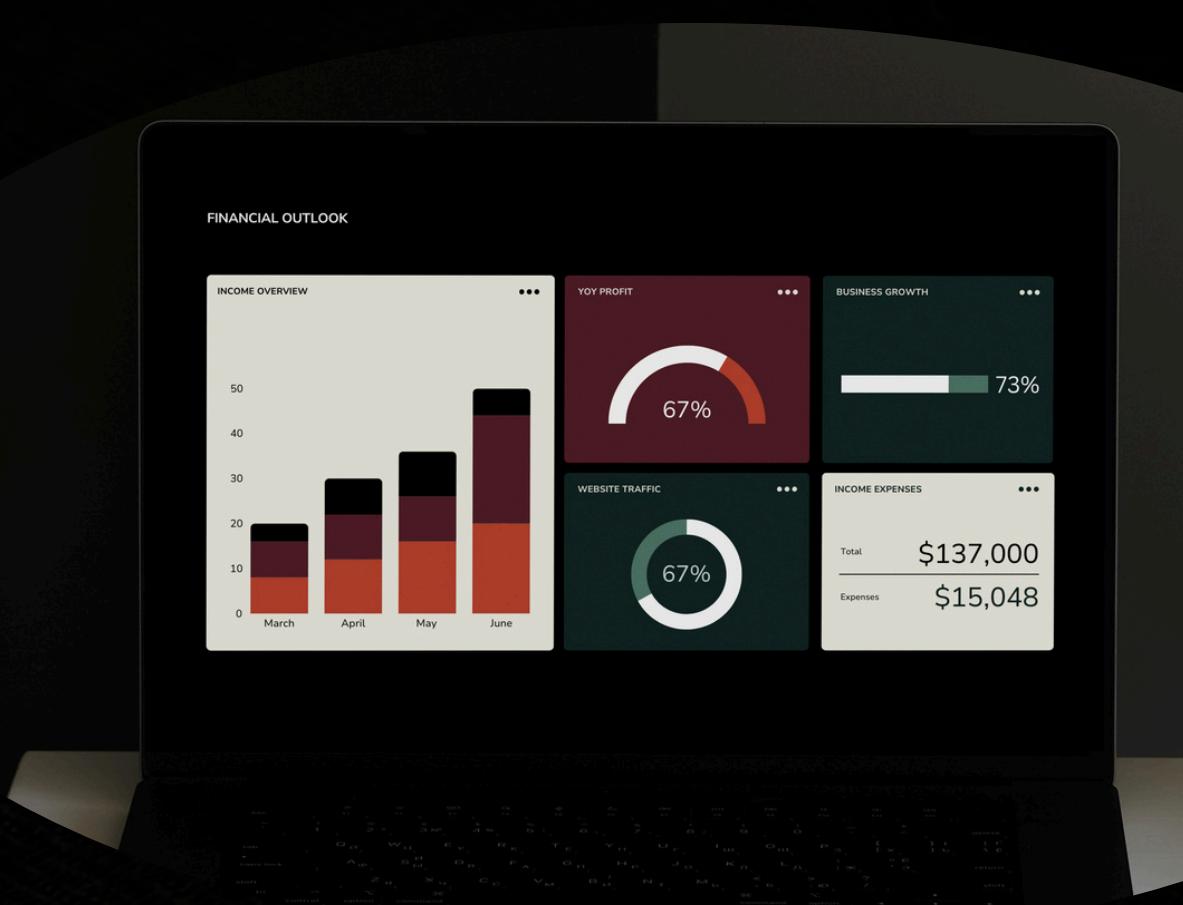
NEW COLUMNS

Two new columns were added: one was the brand that was obtained from the first word of the name and the second column added was the original price, which is the sum of the actual price plus the discount price, both columns necessary for the subsequent analysis.



NEW TABLE - PRICE RANGE

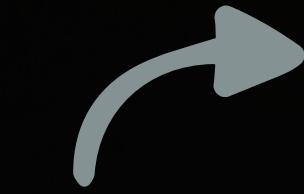
Additionally, we created a new table to be able to know the actual price range for this product. To do this, the Brand column is selected and three different columns were created: one with the maximum price values per brand, another with the minimum price value per brand, and a third column with the price range between the maximum and minimum in order to be able to know the variation that exists between each of the brands.



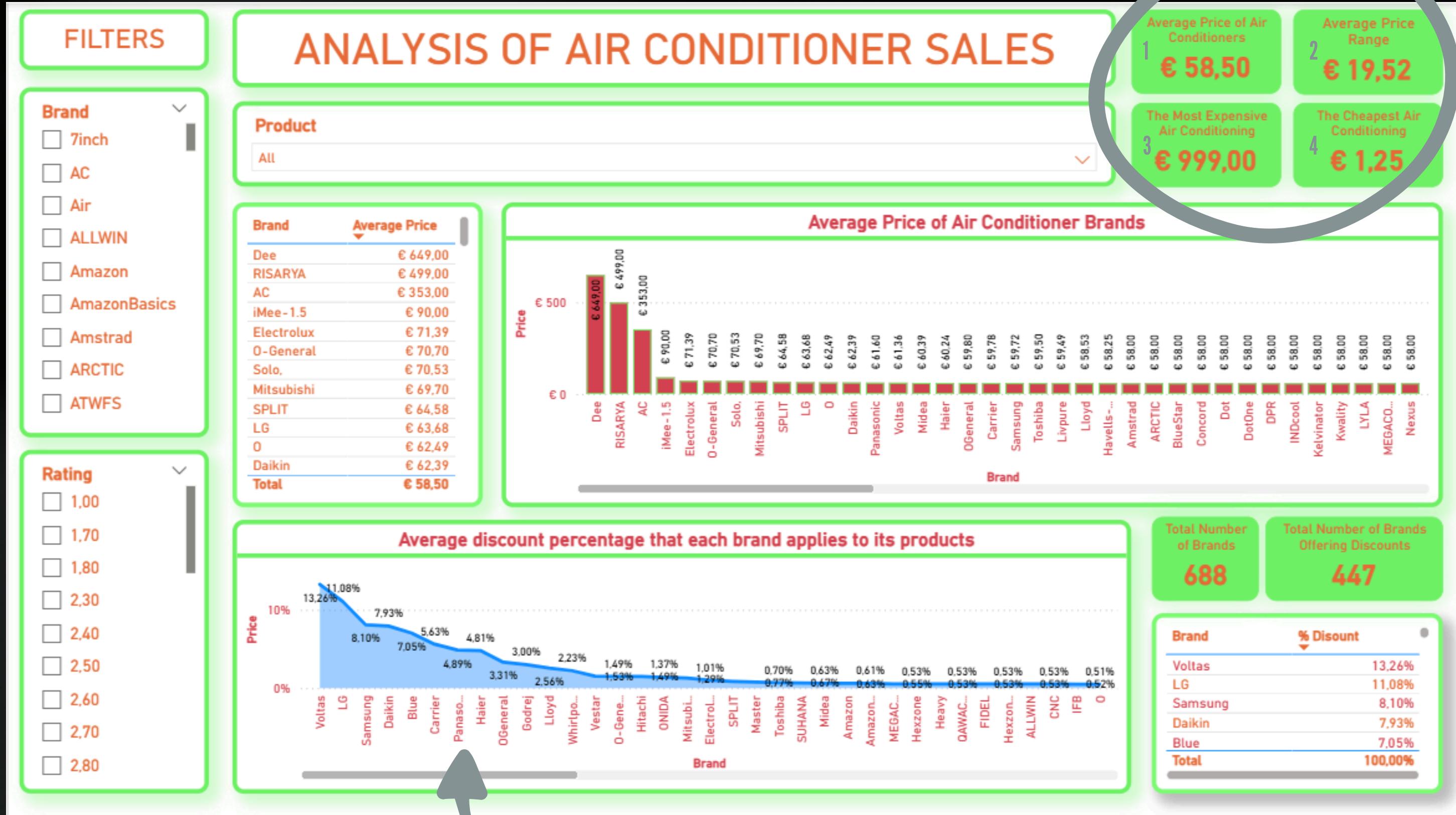
A ^B _C	Brand	1.2 Max_price	1.2 Min_price	1.2 Range
	● Valid ● Error ● Empty	100 % 0 % 0 %	100 % 0 % 0 %	100 % 0 % 0 %
		114 distinct, 114 unique	76 distinct, 70 unique	81 distinct, 75 unique
1	Hitachi	75,4	43,8	31,6
2	Panasonic	87,9	44,49	43,41
3	Voltas	98,1	29,49	68,61
4	ONIDA	43,9	40,9	3
5	AC	999	1,999	997,001
6	Carrier	91,69	39,09	52,6
7	Daikin	92,2	45	47,2
8	O-General	89,47	55,79	33,68
9	Haier	88,99	31,49	57,5
10	O	85,26	44,21	41,05
11	Godrej	73,9	40,99	32,91
12	Midea	66,99	56,19	10,8
13	LG	89,99	36,99	53
14	OGeneral	63,16	44,21	18,95
15	SUHANA	55,956	49,088	6,868
16	Electrolux	83,99	58,99	25
17	Hyundai	54,99	54,99	0
18	Whirlpool	78,2	37,9	40,3
19	OGENERAL	85,26	30,52	54,74
20	Toshiba	41,999	41,999	0
21	Oneiric	58	58	0

DATA ANALYSIS

INSIGHTS THE DASHBOARD PROVIDES:



The filters section allows you to customize the view based on your needs. You'll find it on each dashboard sheet.



What discounts do brands apply to their products?

The discount range is between zero and 15%. As can be seen in the graph, very few brands include discounts on their products, but the average discount value is still low.

Which brands have the highest prices?

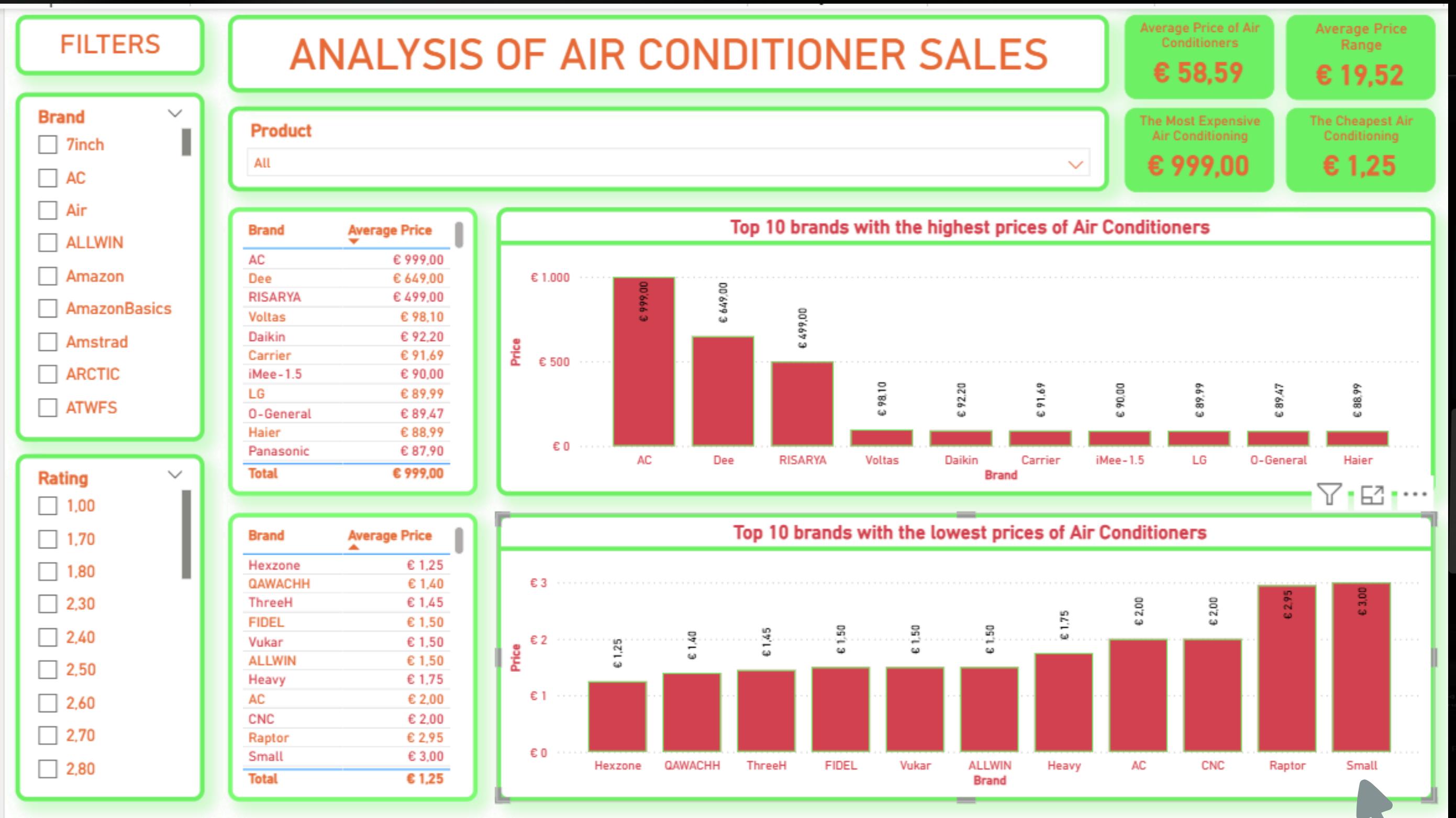
As can be seen in the graph on the left, there are three brands that have prices well above the rest, which are Dee, Risarya and AC.

Dee with an average price of 649 euros, Risarya with an average price of 499 euros and AC with an average price of 353 euros, unlike most brands whose average prices for air conditioners vary between 90 and 30 euros.

Within these cards, we can see the existing brands and those offering discounts, showing that 64.97% of them include discounts.

DATA ANALYSIS

INSIGHTS THE DASHBOARD PROVIDES:



What are the 10 most expensive brands?

This graph displays the ten brands with the highest air conditioning prices; the list of the top 10 is shown below.

1. AC: 999 euros
2. Dee: 649 euros
3. Risarya: 499 euros
4. Voltas: 98.10 euros
5. Daikin: 92.20 euros
6. Carrier: 91.69 euros
7. iMee - 1.5: 90 euros
8. LG: 89.99 euros
9. O-General: 89.99 euros
10. Haier: 88.99 euros

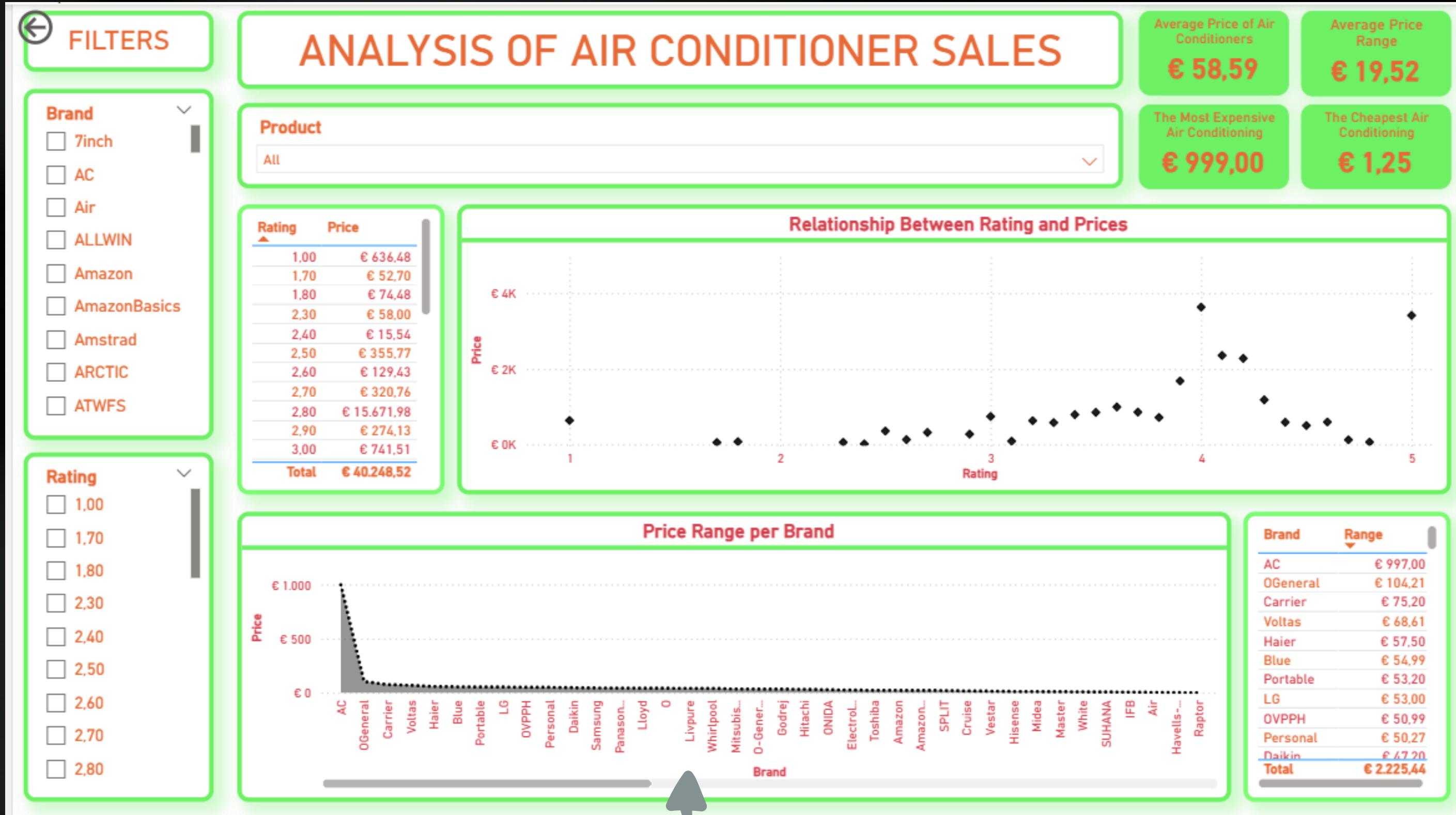
What are the 10 most economical brands?

This graph displays the ten brands with most economical air conditioning prices; the list of the top 10 is shown below.

1. Hexzone: 1.25 euros
2. Qawachh: 1.40 euros
3. Threeh: 1.45 euros
4. Fidel: 1.50 euros
5. Vukar: 1.50 euros
6. Allwin: 1.50 euros
7. Heavy: 1.75 euros
8. AC: 2 euros
9. CNC: 2 euros
10. Raptor: 2.95 euros

DATA ANALYSIS

INSIGHTS THE DASHBOARD PROVIDES:

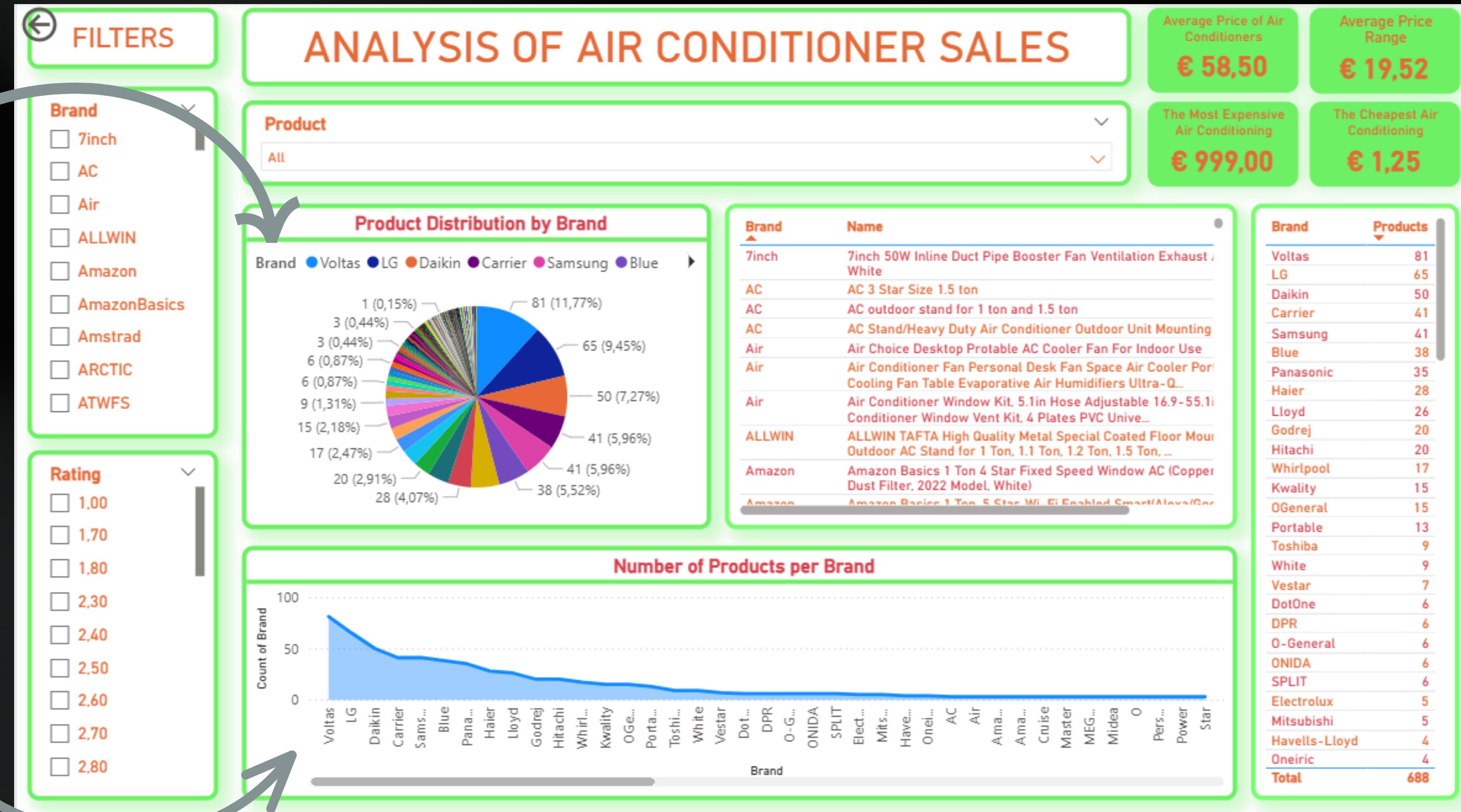


DATA ANALYSIS

INSIGHTS THE DASHBOARD PROVIDES:

Voltas leads the market share in the dataset with 11.79% (81 products).

The line graph reveals that over half of the brands have only one product, while the remaining brands range from 10 to 50 units.



GROUND

THE INDUSTRY'S HISTORY

I WANT TO SAY

THANK YOU

FOR YOUR ATTENTION

