

# ZARA Retail Analysis Project Report

## 1. Project Overview

This project presents a comprehensive retail analysis of the global fashion brand ZARA, using a dataset of over 20,000 individual product records. It leverages MS Excel, Python (Pandas), SQL, and Power BI to extract and visualize key insights. The primary objective is to assess overall business performance, evaluate product-level outcomes, analyze seasonal sales trends, and examine supply chain conditions with a focus on material sourcing.

## 2. Dataset Summary

- Rows:20252.
- Columns:15.
- File Type: Raw wide format CSV file.
- Initial Data Columns: (Product ID, Product Position, Promotion, Product Category, Seasonal, Sales Volume, Brand, url, name, description, price, currency, terms, section, season, material, origin).
- Missing Values: 1 missing value in names column and 2 missing values in description column.
- Initial Dataset:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Product ID	Product Position	Promotion	Product Category	Seasonal	Sales Volume	brand	url	name	description	price	currency	terms	section	season	material	origin		
2	185102	Aisle	Yes	clothing	Yes	1243	Zara	https://www.zara.com/us/en/basic-puffer-jacket-p06985450.html	BASIC PUFFER JACKET	Puffer jacket made of tear-resistant ripstop fabric. High collar and adjust									
3	188771	Aisle	Yes	clothing	No	1429	Zara	https://www.zara.com/us/en/tuxedo-jacket-p08896675.html	TUXEDO JACKET	Straight fit blazer. Pointed lapel collar and long sleeves with buttoned cuffs. Welt poc									
4	180176	End-cap	Yes	clothing	Yes	1168	Zara	https://www.zara.com/us/en/slim-fit-suit-jacket-p01564520.html	SLIM FIT SUIT JACKET	Slim fit jacket. Notched lapel collar. Long sleeves with buttoned cuffs. V									
5	112917	Aisle	Yes	clothing	No	1348	Zara	https://www.zara.com/us/en/stretch-suit-jacket-p01564300.html	STRETCH SUIT JACKET	Slim fit jacket made of viscose blend fabric. Notched lapel collar. Long sle									
6	192936	End-cap	Yes	clothing	Yes	1282	Zara	https://www.zara.com/us/en/double-faced-jacket-p08281477.html	DOUBLE FACED JACKET	Jacket made of faux leather faux shearling with fleece interior. Tab									
7	117590	End-cap	Yes	clothing	Yes	1282	Zara	https://www.zara.com/us/en/contrasting-collar-jacket-p06987331.html	CONTRASTING COLLAR JACKET	Relaxed fit jacket. Contrasting lapel collar and long sle									
8	189118	Front of Store	No	clothing	No	688	Zara	https://www.zara.com/us/en/faux-leather-puffer-jacket-p08281420.html	FAUX LEATHER PUFFER JACKET	Faux leather puffer jacket. High collar and long sle									
9	182157	Aisle	Yes	clothing	Yes	1711	Zara	https://www.zara.com/us/en/suit-jacket-in-100-linen-p04307408.html	SUIT JACKET IN 100% LINEN	Straight fit blazer made of linen. Notched lapel collar and long									
10	141861	Aisle	No	clothing	Yes	857	Zara	https://www.zara.com/us/en/100-wool-suit-jacket-p05955218.html	100% WOOL SUIT JACKET	Jacket made of Italian wool. Pointed lapel collar and long sleeves with									
11	137121	Aisle	No	clothing	No	769	Zara	https://www.zara.com/us/en/100-leather-fill-puffer-jacket-p04302305.html	100% FEATHER FILL PUFFER JACKET	Puffer jacket made of shiny finish technical fabric. Fil									
12	113143	Aisle	Yes	clothing	Yes	1696	Zara	https://www.zara.com/us/en/herringbone-textured-jacket-p08491401.html	HERRINGBONE TEXTURED JACKET	Jacket made of wool blend fabric. Lapel collar and lc									
13	140028	Aisle	Yes	clothing	No	1538	Zara	https://www.zara.com/us/en/oversized-cropped-jacket-limited-edition-p04304672.html	OVERSIZED CROPPED JACKET LIMITED EDITION	Oversized cropped jacket. I									
14	134693	Aisle	No	clothing	Yes	822	Zara	https://www.zara.com/us/en/leather-biker-jacket-p05833412.html	LEATHER BIKER JACKET	Jacket with lapel collar and snap button details. Long sleeves with zip cut									
15	151396	Front of Store	No	clothing	No	840	Zara	https://www.zara.com/us/en/cropped-leather-jacket-p02521104.html	CROPPED LEATHER JACKET	Leather jacket. Cropped length. Lapel collar and long sle									
16	132889	Aisle	Yes	clothing	Yes	1569	Zara	https://www.zara.com/us/en/faux-leather-boy-fit-jacket-p08281654.html	FAUX LEATHER BOXY FIT JACKET	Boxy fit jacket. Lapel collar and long sleeves with butt									
17	152174	End-cap	No	clothing	Yes	952	Zara	https://www.zara.com/us/en/faux-leather-jacket-p03427320.html	FAUX LEATHER JACKET	Jacket made of faux leather fabric. Lapel collar with snap button details									
18	129906	Aisle	No	clothing	Yes	915	Zara	https://www.zara.com/us/en/faux-suede-bomber-jacket-p06318600.html	FAUX SUEDE BOMBER JACKET	Jacket made of faux suede fabric. Ribbed elastic high collar									
19	195679	Front of Store	Yes	clothing	Yes	1522	Zara	https://www.zara.com/us/en/denim-bomber-jacket-p00621400.html	DENIM BOMBER JACKET	Jacket made of denim fabric with padded interior. Rib elasti									
20	155050	Aisle	Yes	clothing	Yes	1305	Zara	https://www.zara.com/us/en/boucle-textured-jacket-p08491402.html	BOUCLE TEXTURED JACKET	Cropped jacket made with wool blend fabric. High collar and t									
21	194410	End-cap	No	clothing	No	840	Zara	https://www.zara.com/us/en/suit-jacket-in-100-linen-p04307443.html	SUIT JACKET IN 100% LINEN	Straight fit blazer made of linen. Notched lapel collar and lon									
22	141904	End-cap	No	clothing	No	997	Zara	https://www.zara.com/us/en/jacquard-denim-jacket-p07627402.html	JACQUARD DENIM JACKET	Lapel collar jacket with long sleeves with buttoned cuffs. Patch j									
23	124981	Front of Store	No	clothing	Yes	857	Zara	https://www.zara.com/us/en/padded-denim-jacket-p01538413.html	PADDED DENIM JACKET	Cropped jacket with lightly quilted interior. Lapel collar and lo									
24	161909	Aisle	No	clothing	No	982	Zara	https://www.zara.com/us/en/leather-jacket-p05479400.html	LEATHER JACKET	Relaxed fit jacket in leather. Spread collar and long sleeves with slit cuffs with button c									
25	129152	End-cap	No	clothing	Yes	970	Zara	https://www.zara.com/us/en/lightweight-bomber-jacket-p08281315.html	LIGHTWEIGHT BOMBER JACKET	Lightweight jacket made of technical fabric. Round nec									
26	183243	Front of Store	Yes	clothing	No	1453	Zara	https://www.zara.com/us/en/suit-jacket-p04303266.html	SUIT JACKET	Straight fit jacket made of dense stretch fabric. Notched lapel collar and long sle									
27	198248	Front of Store	No	clothing	No	870	Zara	https://www.zara.com/us/en/faux-leather-bomber-jacket-p03918420.html	FAUX LEATHER BOMBER JACKET	Jacket made of faux leather fabric. High collar ar									
28	191230	End-cap	Yes	clothing	No	1533	Zara	https://www.zara.com/us/en/patch-bomber-jacket-p03918330.html	PATCH BOMBER JACKET	Varsity jacket made of faux suede fabric. Double welt pockets at hi									
29	187234	Front of Store	No	clothing	Yes	807	Zara	https://www.zara.com/us/en/stretch-pocket-overshirt-p07484478.html	STRETCH POCKET OVERSHIRT	Overshirt made of stretchy fabric. Lapel collar and lon									
30	148888	Front of Store	Yes	clothing	Yes	1604	Zara	https://www.zara.com/us/en/rib-collar-jacket-p08281410.html	RIB COLLAR JACKET	Jacket made of technical fabric with padded interior. Tonal elastic rib									
31	110805	Front of Store	Yes	clothing	Yes	1255	Zara	https://www.zara.com/us/en/faux-leather-oversized-jacket-limited-edition-p07380310.html	FAUX LEATHER OVERSIZED JACKET LIMITED EDITION	Oversize									
32	179801	Front of Store	Yes	clothing	Yes	1268	Zara	https://www.zara.com/us/en/contrasting-patches-bomber-jacket-p06318411.html	CONTRASTING PATCHES BOMBER JACKET	Varsity jacket with elastic col									
33	134927	Aisle	No	clothing	Yes	1047	Zara	https://www.zara.com/us/en/patch-bomber-jacket-p03833404.html	PATCH BOMBER JACKET	Varsity jacket with padded interior. Rib elastic collar and long sleeves									
34	123150	End-cap	No	clothing	Yes	744	Zara	https://www.zara.com/us/en/cropped-bomber-jacket-limited-edition-p08281600.html	CROPPED BOMBER JACKET LIMITED EDITION	Jacket with lightly padded in									

## 3. Basic Cleaning and Structuring Using MS Excel

The project began by structuring the csv file using MS Excel.

- Used Text-to-Columns functions to split wide format into separate columns.
- Used CTRL+T to structure data into a Proper Excel Table.
- Saved the cleaned data in a separate Excel file named “[Zara\\_Cleaned\\_Data.xlsx](#)”.

- Dataset after Structuring in Excel:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
	Product ID	Product Position	Promotion	Product Category	Seasonal	Sales Volume	brand	url	name	description	price	currency	terms	section	season	material	origin
1	185102	Aisle	Yes	clothing	Yes	1243	Zara	https://www.zara.com/us/en/basic-puffer-jacket-ma	BASIC PUFFER JACKET	Puffer jacket made of tear-resistant ripstop f...	78.99	USD	jackets	MAN	Winter	Polyester	Brazil
2	188771	Aisle	Yes	clothing	No	1429	Zara	https://www.zara.com/us/en/tuxedo-jacket-p0889...	TUXEDO JACKET	Straight fit blazer. Pointed lapel collar and ...	14.99	USD	jackets	MAN	Autumn	Cotton	Turkey
3	180176	End-cap	Yes	clothing	Yes	1168	Zara	https://www.zara.com/us/en/slim-fit-jacket-n	SLIM FIT SUIT JACKET	Slim fit jacket. Notched lapel collar. Long sl...	71.95	USD	jackets	WOMAN	Autumn	Polyester	Morocco
4	112917	Aisle	Yes	clothing	No	1348	Zara	https://www.zara.com/us/en/stretch-suit-jacket...	STRETCH SUIT JACKET	Slim fit jacket made of viscose blend fabric. ...	30.99	USD	jackets	MAN	Spring	Polyester	China
5	192936	End-cap	Yes	clothing	Yes	1602	Zara	https://www.zara.com/us/en/double-faced-jacket...	DOUBLE FACED JACKET	Jacket made of faux leather faux shearling wit...	22.99	USD	jackets	WOMAN	Winter	Wool Blend	China
6	117590	End-cap	Yes	clothing	Yes	1282	Zara	https://www.zara.com/us/en/contrasti-relaxed-fit-jack	CONTRASTI Relaxed fit jacket		25.95	USD	jackets	WOMAN	Autumn	Cotton	Turkey
7	189118	Front of Store	No	clothing	No	688	Zara	https://www.zara.com/us/en/faux-leather-puf	FAUX LEATHI Fau leather puf		87.99	USD	jackets	MAN	Winter	Acrylic	China
8	182157	Aisle	Yes	clothing	Yes	1711	Zara	https://www.zara.com/us/en/suit-jacket-straight-fit-blaze	SUIT JACKET Straight fit blaze		24	USD	jackets	WOMAN	Summer	Cotton	Portugal
9	141861	Aisle	No	clothing	Yes	857	Zara	https://www.zara.com/us/en/100%wool-jacket-made-of-f	100% WOOL Jacket made of f		32.95	USD	jackets	WOMAN	Winter	Wool	India
10	137121	Aisle	No	clothing	No	769	Zara	https://www.zara.com/us/en/100%feather-puffer-jacket-ma	100% FEAT Puffer jacket ma		39.95	USD	jackets	MAN	Autumn	Wool Blend	China
11	113143	Aisle	Yes	clothing	Yes	1696	Zara	https://www.zara.com/us/en/herring-jacket-made-of-v	HERRINGE Jacket made of v		22.99	USD	jackets	WOMAN	Winter	Wool	China
12	140028	Aisle	Yes	clothing	No	1538	Zara	https://www.zara.com/us/en/oversized-cropp	OVERSIZED Oversized cropp		15.95	USD	jackets	WOMAN	Autumn	Polyester	Portugal
13	134693	Aisle	No	clothing	Yes	822	Zara	https://www.zara.com/us/en/leather-jacket-with-lape	LEATHER J Jacket with lape		49.99	USD	jackets	MAN	Autumn	Cotton	Portugal
14	151396	Front of Store	No	clothing	No	840	Zara	https://www.zara.com/us/en/cropped-leather-jacket-c	CROPPED Leather jacket. c		69.99	USD	jackets	WOMAN	Autumn	Viscose	Bangladesh
15	132889	Aisle	Yes	clothing	Yes	1560	Zara	https://www.zara.com/us/en/faux-leath-bony-fit-jacket-l	FAUX LEATHI Bony fit jacket. L		28.99	USD	jackets	WOMAN	Spring	Polyester	China
16	152174	End-cap	No	clothing	Yes	952	Zara	https://www.zara.com/us/en/faux-leath-jacket-made-of-f	FAUX LEATHI Jacket made of f		29.99	USD	jackets	WOMAN	Spring	Wool Blend	India
17	129006	Aisle	No	clothing	Yes	915	Zara	https://www.zara.com/us/en/faux-suec-jacket-made-of-f	FAUX SUEC Jacket made of f		29.99	USD	jackets	WOMAN	Autumn	Cotton	Portugal
18	195679	Front of Store	Yes	clothing	Yes	1522	Zara	https://www.zara.com/us/en/denim-bo-jacket-made-of-c	DENIM BO Jacket made of c		25.99	USD	jackets	WOMAN	Autumn	Cotton	India
19	155050	Aisle	Yes	clothing	Yes	1305	Zara	https://www.zara.com/us/en/bouc-la-cropped-jacket	BOUC LA Cropped jacket		77.99	USD	jackets	MAN	Winter	Polyester	Morocco
20	194410	End-cap	No	clothing	No	840	Zara	https://www.zara.com/us/en/suit-jacket-straight-fit-blaze	SUIT JACKET Straight fit blaze		49.99	USD	jackets	WOMAN	Spring	Wool Blend	Bangladesh
21	141904	End-cap	No	clothing	No	997	Zara	https://www.zara.com/us/en/jacquard-lapel-collar-jack	JACQUARD Lapel collar jack		25.95	USD	jackets	WOMAN	Spring	Denim	China
22	124981	Front of Store	No	clothing	Yes	857	Zara	https://www.zara.com/us/en/padded-d-cropped-jacket	PADDED D Cropped jacket		79.99	USD	jackets	WOMAN	Autumn	Denim	Bangladesh
23	161909	Aisle	No	clothing	No	982	Zara	https://www.zara.com/us/en/leather-j-relaxed-fit-jack	LEATHER J Relaxed fit jack		39.99	USD	jackets	WOMAN	Spring	Wool Blend	Vietnam
24	129152	End-cap	No	clothing	Yes	970	Zara	https://www.zara.com/us/en/lightweight-jack	LIGHTWEIG Lightweight jack		19.95	USD	jackets	MAN	Autumn	Wool Blend	Spain
25	183243	Front of Store	Yes	clothing	No	1453	Zara	https://www.zara.com/us/en/suit-jacket-straight-fit-jack	SUIT JACKET Straight fit jack		39.99	USD	jackets	WOMAN	Autumn	Polyester	Brazil
26	196248	Front of Store	No	clothing	No	870	Zara	https://www.zara.com/us/en/faux-leath-jacket-made-of-f	FAUX LEATHI Jacket made of f		22.99	USD	jackets	MAN	Autumn	Polyester	India
27	191230	End-cap	Yes	clothing	No	1533	Zara	https://www.zara.com/us/en/patch-bo-variety-jacket-m	PATCH BO Variety jacket m		21.99	USD	jackets	WOMAN	Autumn	Cotton	Cambodia
28	197234	Front of Store	No	clothing	Yes	807	Zara	https://www.zara.com/us/en/stretch-j-relaxed-fit-jack	STRETCH J Relaxed fit jack		49.99	USD	jackets	WOMAN	Spring	Cotton	India
29	149888	Front of Store	Yes	clothing	Yes	1694	Zara	https://www.zara.com/us/en/rib-collar-jacket-made-of-f	RIB COLLAR Jacket made of f		24.95	USD	jackets	WOMAN	Autumn	Wool Blend	Bangladesh
30	110805	Front of Store	Yes	clothing	Yes	1255	Zara	https://www.zara.com/us/en/faux-leath-oversized-jack	FAUX LEATHI Oversized jack		21.99	USD	jackets	MAN	Autumn	Viscose	China
31	179801	Front of Store	Yes	clothing	Yes	1268	Zara	https://www.zara.com/us/en/contrasti-variety-jacket-wi	CONTRASTI Variety jacket wi		22.99	USD	jackets	MAN	Autumn	Cotton	China
32	134927	Aisle	No	clothing	Yes	1047	Zara	https://www.zara.com/us/en/patch-bo-variety-jacket-wi	PATCH BO Variety jacket wi		24	USD	jackets	WOMAN	Winter	Viscose	Bangladesh
33	123150	End-cap	No	clothing	Yes	744	Zara	https://www.zara.com/us/en/cropped-jacket-with-light	CROPPED Jacket with light		49.99	USD	jackets	MAN	Autumn	Polyester	Spain
34	159145	End-cap	Yes	clothing	Yes	1744	Zara	https://www.zara.com/us/en/faux-leath-fau leather jac	FAUX LEATHI Fau leather jac		32.99	USD	jackets	WOMAN	Winter	Wool	Turkey
35	172364	Aisle	Yes	clothing	Yes	1447	Zara	https://www.zara.com/us/en/faux-leath-jacket-made-of-f	FAUX LEATHI Jacket made of f		31.99	USD	jackets	WOMAN	Autumn	Viscose	India
36	176261	End-cap	No	clothing	No	911	Zara	https://www.zara.com/us/en/bomber-j-variety-jacket-h	BOMBER J Variety jacket. H		39.99	USD	jackets	WOMAN	Spring	Polyester	Vietnam
37	194339	End-cap	Yes	clothing	No	1575	Zara	https://www.zara.com/us/en/faux-suec-lapel-collar-jack	FAUX SUEC Lapel collar jack		16.99	USD	jackets	WOMAN	Autumn	Viscose	Cambodia
38	174412	Aisle	Yes	clothing	No	1440	Zara	https://www.zara.com/us/en/faux-suec-jacket-made-of-f	FAUX SUEC Jacket made of f		16.99	USD	jackets	WOMAN	Spring	Viscose	Spain
39	114877	Aisle	No	clothing	Yes	942	Zara	https://www.zara.com/us/en/suede-jacket-made-of-f	SUEDE JAC Jacket made of f		39.99	USD	jackets	WOMAN	Spring	Polyester	Brazil
40	140727	End-cap	No	clothing	No	972	Zara	https://www.zara.com/us/en/contrasti-jacket-with-light	CONTRASTI Jacket with light		21.99	USD	jackets	WOMAN	Winter	Viscose	Bangladesh

## 4. Exploratory Data Analysis Using Python

The next step involved data cleaning and feature engineering in python using Pandas.

- Data Loading:** Importing **pandas** and then the dataset in **Jupyter Notebook**.
- Exploration:** Used **df.head()**, **df.shape** and **df.info()** to get the general information.

Product ID	Product Position	Promotion	Seasonal	Sales Volume	brand	url	name	description	price	terms	section	season	material	origin
185102	Aisle	Yes	Yes	1243	Zara	https://www.zara.com/us/en/basic-puffer-jacket-ma	BASIC PUFFER JACKET	Puffer jacket made of tear-resistant ripstop f...	\$78.99	jackets	MAN	Winter	Polyester	Brazil
188771	Aisle	Yes	No	1429	Zara	https://www.zara.com/us/en/tuxedo-jacket-p0889...	TUXEDO JACKET	Straight fit blazer. Pointed lapel collar and ...	\$14.99	jackets	MAN	Autumn	Cotton	Turkey
180176	End-cap	Yes	Yes	1168	Zara	https://www.zara.com/us/en/slim-fit-suit-jacke...	SLIM FIT SUIT JACKET	Slim fit jacket. Notched lapel collar. Long sl...	\$71.95	jackets	WOMAN	Autumn	Polyester	Morocco
112917	Aisle	Yes	No	1348	Zara	https://www.zara.com/us/en/stretch-suit-jacket...	STRETCH SUIT JACKET	Slim fit jacket made of viscose blend fabric. ...	\$30.99	jackets	MAN	Spring	Polyester	China
192936	End-cap	Yes	Yes	1602	Zara	https://www.zara.com/us/en/double-faced-jacket...	DOUBLE FACED JACKET	Jacket made of faux leather faux shearling wit...	\$22.99	jackets	WOMAN	Winter	Wool Blend	China

(20252, 15)

```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 20252 entries, 0 to 20251
Data columns (total 15 columns):
#   Column                Non-Null Count  Dtype  
---  -
0   Product ID            20252 non-null  int64  
1   Product Position      20252 non-null  object  
2   Promotion              20252 non-null  object  
3   Seasonal              20252 non-null  object  
4   Sales Volume          20252 non-null  int64  
5   brand                 20252 non-null  object  
6   url                   20252 non-null  object  
7   name                  20251 non-null  object  
8   description            20250 non-null  object  
9   price                 20252 non-null  object  
10  terms                 20252 non-null  object  
11  section               20252 non-null  object  
12  season                20252 non-null  object  
13  material              20252 non-null  object  
14  origin                20252 non-null  object  
dtypes: int64(2), object(13)
memory usage: 2.3+ MB

```

- **Handling Missing Data:** Used `df.isnull().sum()` and `df[df.isnull().any(axis=1)]` to show missing values and deleted them using `df.dropna(how = "any", inplace = True)`. Finally, all the missing values were removed from the dataset.

```

Product ID            0
Product Position      0
Promotion              0
Seasonal              0
Sales Volume          0
brand                 0
url                   0
name                  0
description            0
price                 0
terms                 0
section               0
season                0
material              0
origin                0
dtype: int64

```

- **Summary Statistics:** Used `df.describe(include = "all")` to get the summary statistics.
- **Column Operations:** Removed `url` and `brand` columns to improve efficiency while making the product id as index. Also edited the column headings to `snake case` for better readability and changed the datatype of the price column into float.
- **Feature Engineering:** Created a `price_elasticity` column from division of `sales_volume` and `price`. Also created a `price_category` column using `lambda` function which categorizes the price into `low`, `medium` and `high` sections.

```
Index(['product_position', 'promotion', 'seasonal', 'sales_volume', 'name',
      'description', 'price', 'terms', 'section', 'season', 'material',
      'origin', 'price_elasticity', 'price_category'],
      dtype='object')
```

- **Cleaned Dataset after EDA:**

product_position	promotion	seasonal	sales_volume	name	description	price	terms	section	season	material	origin	price_elasticity	price_category
Aisle	Yes	Yes	1243	BASIC PUFFER JACKET	Puffer jacket made of tear-resistant ripstop f...	78.99	jackets	MAN	Winter	Polyester	Brazil	15.736169	High
Aisle	Yes	No	1429	TUXEDO JACKET	Straight fit blazer. Pointed lapel collar and ...	14.99	jackets	MAN	Autumn	Cotton	Turkey	95.330220	Low
End-cap	Yes	Yes	1168	SLIM FIT SUIT JACKET	Slim fit jacket. Notched lapel collar. Long sl...	71.95	jackets	WOMAN	Autumn	Polyester	Morocco	16.233495	High
Aisle	Yes	No	1348	STRETCH SUIT JACKET	Slim fit jacket made of viscose blend fabric. ...	30.99	jackets	MAN	Spring	Polyester	China	43.497903	Low
End-cap	Yes	Yes	1602	DOUBLE FACED JACKET	Jacket made of faux leather faux shearling wit...	22.99	jackets	WOMAN	Winter	Wool Blend	China	69.682471	Low

- **Database Integration:** Connected the python script to [MySQL](#) and imported the cleaned DataFrame into a Database named [ZARA](#) for further analysis.

## 5. Data Analysis Using SQL

Furthermore, the following queries relevant to real-life business questions were answered using MySQL.

- **Top 5 best-selling products by sales volume**

product_id	name	sales_volume
207486	SLIM BOXY FIT DENIM JACKET	1940
204480	TAILORED COLORBLOCK KNIT CROP SWEATER NAVY	1940
203961	KNIT DOUBLE FACED JACKET ECRU	1929
214554	RELAXED ZIPPERED JACKET IVORY	1926
209362	RIBBED 100% WOOL SUIT JACKET GREY	1917

- **Highest average sales volume by product positions**

product_position	average_sales_volume
Front of Store	1103.3612
End-cap	1100.5432
Aisle	1090.4274

- **Total revenue for each product**

product_id	name	revenue
216493	ASYMMETRICAL WOOL AND SILK BLEND SWEATER	165924.45
204107	PRINTED CROPPED FIT SHIRT LIMITED EDITION BL...	160348.41
199909	RIBBED KNIT T-SHIRT IVORY	155029.5
204369	RELAXED FAUX SUEDE OVERSHIRT BROWN	151746.45
209732	QUILTED JACQUARD DENIM JACKET IVORY	151546.65
213406	PUFFER JACKET WITH POUCH POCKET IVORY	150855.9
203189	TAILORED VINTAGE EFFECT LEATHER BOMBER JAC...	150641.9
214320	TASSEL LEATHER LOAFERS BEIGE #4	150467.46
208322	SLIM ABSTRACT JACQUARD SWEATER NAVY	149601.99
211631	BELTED 100% LINEN OVERSHIRT IVORY	148525.7
219503	CONTRAST INTERIOR SWEATER #3	147521.65
216890	KNIT TUXEDO JACKET KHAKI	146267.28
204309	LINEN RIBBED KNIT T-SHIRT CHARCOAL	146031.54

- Rank of top 10 products by revenue

product_id	name	revenue	revenue_rank
216493	ASYMMETRICAL WOOL AND SILK BLEND SWEATER	165924.45	1
204107	PRINTED CROPPED FIT SHIRT LIMITED EDITION BL...	160348.41	2
199909	RIBBED KNIT T-SHIRT IVORY	155029.5	3
204369	RELAXED FAUX SUEDE OVERSHIRT BROWN	151746.45	4
209732	QUILTED JACQUARD DENIM JACKET IVORY	151546.65	5
213406	PUFFER JACKET WITH POUCH POCKET IVORY	150855.9	6
203189	TAILORED VINTAGE EFFECT LEATHER BOMBER JAC...	150641.9	7
214320	TASSEL LEATHER LOAFERS BEIGE #4	150467.46	8
208322	SLIM ABSTRACT JACQUARD SWEATER NAVY	149601.99	9
211631	BELTED 100% LINEN OVERSHIRT IVORY	148525.7	10

- Average price elasticity across sections

section	Avg_price_elasticity
WOMAN	37.16
MAN	33.2

- Products that are both promoted and seasonal and have sales above the median

product_id	name	sales_volume
185102	BASIC PUFFER JACKET	1243
180176	SLIM FIT SUIT JACKET	1168
192936	DOUBLE FACED JACKET	1602
117590	CONTRASTING COLLAR JACKET	1282
182157	SUIT JACKET IN 100% LINEN	1711
113143	HERRINGBONE TEXTURED JACKET	1696
132889	FAUX LEATHER BOXY FIT JACKET	1569
195879	DENIM BOMBER JACKET	1522
155050	BOUCLÉ% TEXTURED JACKET	1305
148888	RIB COLLAR JACKET	1604
110805	FAUX LEATHER OVERSIZED JACKET LIMITED EDITION	1255
179801	CONTRASTING PATCHES BOMBER JACKET	1268
159145	FAUX LEATHER PUFFER JACKET	1744

- Highest total revenue across seasons

season	total_revenue
Autumn	308011343.98
Winter	250234572.06
Spring	183306628.13
Summer	143005200.55

- **80/20 Pareto analysis**

product_id	name	revenue	cum_revenue_pct
216493	ASYMMETRICAL WOOL AND SILK BLEND SWEATER	165924.45	0.00018757899186391976
204107	PRINTED CROPPED FIT SHIRT LIMITED EDITION BL...	160348.41	0.00036885422342130907
199909	RIBBED KNIT T-SHIRT IVORY	155029.5	0.0005441163823084866
204369	RELAXED FAUX SUEDE OVERSHIRT BROWN	151746.45	0.0007156670254471483
209732	QUILTED JACQUARD DENIM JACKET IVORY	151546.65	0.0008869917929986111
213406	PUFFER JACKET WITH POUCH POCKET IVORY	150855.9	0.0010575356618420775
203189	TAILORED VINTAGE EFFECT LEATHER BOMBER JAC...	150641.9	0.0012278376018784337
214320	TASSEL LEATHER LOAFERS BEIGE #4	150467.46	0.001397942336021742
208322	SLIM ABSTRACT JACQUARD SWEATER NAVY	149601.99	0.0015670686490216418
211631	BELTED 100% LINEN OVERSHIRT IVORY	148525.7	0.001734978207087876
219503	CONTRAST INTERIOR SWEATER #3	147521.65	0.001901752678150471
216890	KNIT TUXEDO JACKET KHAKI	146267.28	0.002067109073335615
204309	LINEN RIBBED KNIT T-SHIRT CHARCOAL	146031.54	0.0022321989624600673

- **Most common material used among fast-selling products (sales volume > 1000).**

material	material_count	use_rank
Cotton	1868	1
Wool	1861	2
Wool Blend	1702	3
Polyester	1300	4
Linen	1282	5
Viscose	471	6
Acrylic	466	7
Denim	463	8
Linen Blend	420	9
Satin	59	10
Silk	18	11

- **High-elasticity and low-priced products**

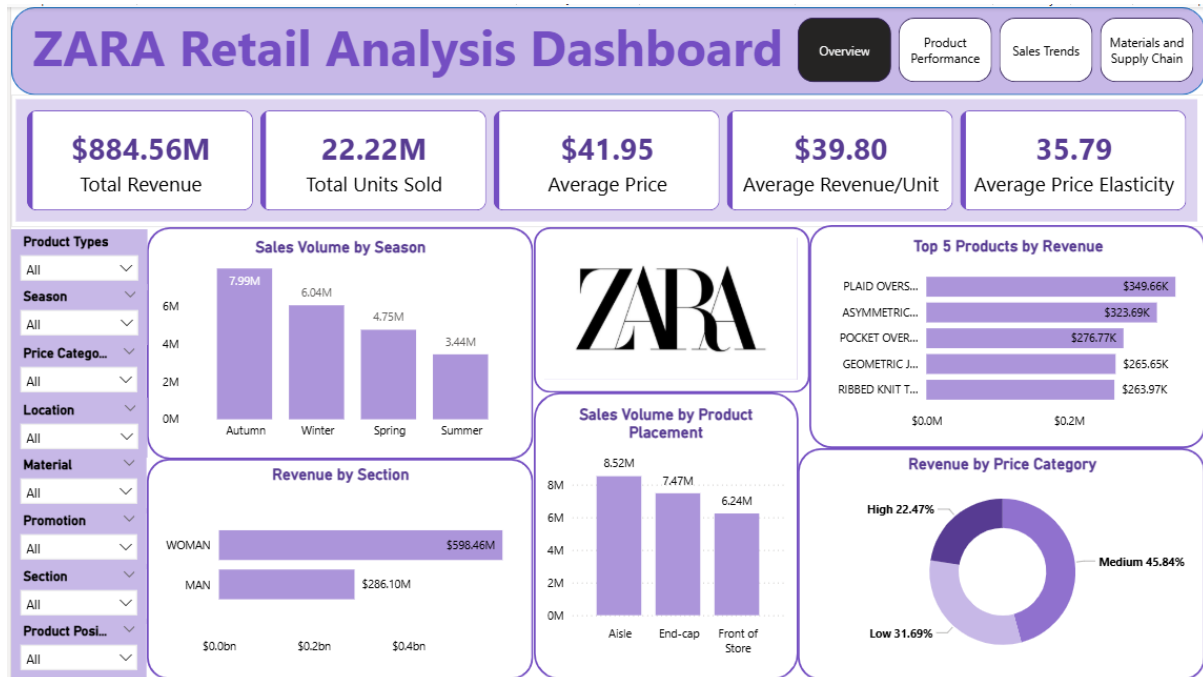
product_id	name	price_category	price_elasticity
214485	HIGH-WAIST CASHMERE BLEND KNIT SWEATER NAVY	Low	136.5
219500	LINEN STRIPED CROP KNIT SWEATER BURGUNDY #3	Low	135.54
203788	UTILITY METAL BEAD KNIT SWEATER BLACK	Low	135.34
199838	SLIM BASIC HEAVYWEIGHT T-SHIRT BURGUNDY	Low	133.54
201905	WOOL BLEND SUIT JACKET SAND	Low	131.31
200994	SLIM FIT SUIT JACKET CHARCOAL	Low	130.92
201404	TAILORED WOOL BLEND KNIT SWEATER GREY	Low	130.75
205339	LINEN STRIPED KNIT SWEATER BLACK	Low	130.39
215822	REGULAR HIKING BOOTS ECRU	Low	128.17
205691	TEXTURED HEART PRINT T-SHIRT BLACK	Low	128
218125	REGULAR POCKET OVERSHIRT CHARCOAL	Low	127.81
214036	TEXTURED PLEATED WIDE FIT JEANS KHAKI	Low	127.48
211618	TAILORED STRIPED CROP KNIT SWEATER STONE	Low	127.36



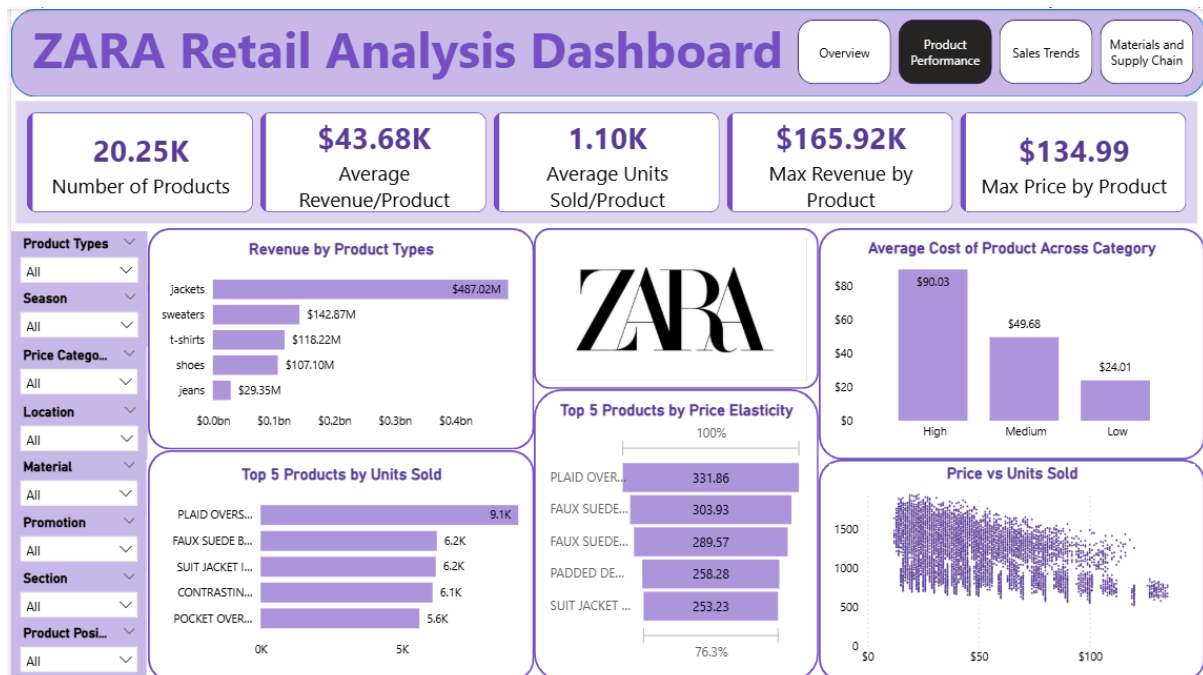
## 6. Final Dashboard in Power BI

The final stage involved developing interactive dashboards in Power BI, where key measures such as revenue were created using DAX. Each dashboard incorporates five KPIs along with supporting visualizations to deliver clear, actionable insights.

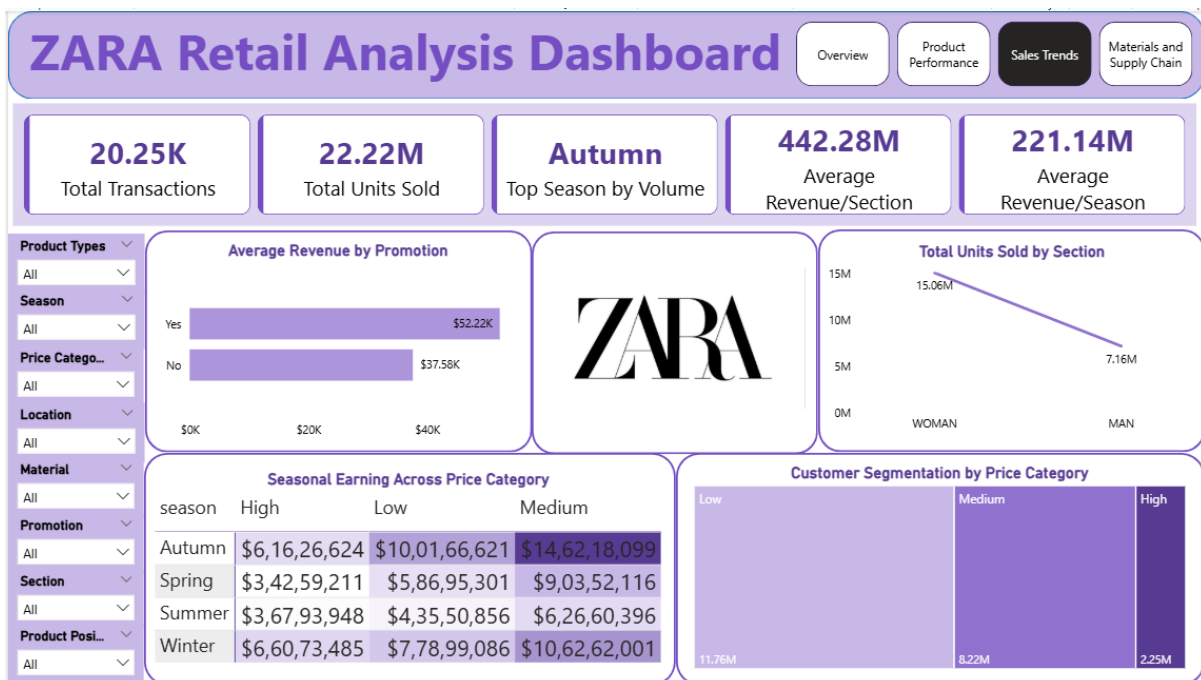
- **Overview:**



- **Product Performance:**



- Sales Trends



- Materials and Supply Chain



## 7. Business Insights

- Women are the key drivers of ZARA's revenue (\$598.46M, compared to \$286.1M for men).
- Jackets are the most in-demand product across all seasons (\$487.02M in revenue).
- Autumn is the peak season for ZARA as it has the highest sales volume (7.99M), especially for medium-priced products (\$146.21M in seasonal earnings).



- A small number of materials like wool, cotton, and wool blend dominate most of the production line of ZARA.
- The supply chain is greatly concentrated across China and Bangladesh.
- Aisle and End cap are the most impactful placements of products across ZARA stores.
- A few high-revenue, inelastic products generate strong demand even at premium pricing.

## 8. Recommendations

9. The promotional campaigns must be improved. The medium-priced segment must be targeted for discount campaigns, and limited-edition deals must be conducted on high-revenue inelastic products.
10. Inventory levels and buying windows must be increased by 15% during Autumn, and targeted campaigns must be done 4-6 weeks before the season to capture demand.
11. A/B tests must be conducted with women buyers on product placements and categories to further improve conversion into sales.
12. The supply chain of the top three most used materials must be diversified further to avoid geopolitical risks such as tariffs and political instability.