Myntra

Exploratory data analysis (EDA)-

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• Introduction- Myntra is a popular name among fashion enthusiasts, by fashion enthusiasts we mean quite everyone. Everyone wants to make a style statement and everyone wants to stand out. In this sort of environment, Myntra is a perfect destination for these people. It is a place that caters to a lot of demands in a single and simple setting. A single stop for all things fashion.



Importing Libraries-

In [8]:

- 1 import pandas as pd
- 2 import numpy as np
- 3 import matplotlib.pyplot as plt
- 4 import seaborn as sns
- 5 %matplotlib inline

In []:

data = pd.read_csv("Myntra Fasion Clothing.csv")

Observing the dataset-

In [213]:

1 data.head()

Out[213]:

	Product_id	Category	category_by_Gender	OriginalPrice (in Rs)	SizeOption	Ratings	Reviews	Brandsnew	INdi_category_New	Discounted_price	Disc
0	2296012	Bottom Wear	Men	1499.0	28, 30, 32, 34, 36	3.9	999.0	Roadster	jeans	824.0	
1	13780156	Bottom Wear	Men	1149.0	S, M, L, XL	4.0	999.0	Others	track-pants	517.0	
2	11895958	Topwear	Men	1399.0	38, 40, 42, 44, 46, 48	4.3	999.0	Roadster	shirts	629.0	
3	4335679	Lingerie & Sleep Wear	Women	1295.0	S, M, L, XL, XXL	4.2	999.0	Zivame	Others	893.0	
4	11690882	Western	Women	599.0	XS, S, M, L, XL	4.2	999.0	Roadster	tshirts	599.0	
<											>

```
In [11]:
 1 data.info()
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 526564 entries, 0 to 526563
Data columns (total 13 columns):
# Column
                         Non-Null Count
                                          Dtype
0
    URL
                          526564 non-null object
 1
    Product_id
                          526564 non-null int64
 2
    BrandName
                          526564 non-null
                          526564 non-null
    Category
                                         object
                          526564 non-null
    Individual_category
                                         object
                          526564 non-null object
    category_by_Gender
                          526564 non-null
 6
    Description
                                         object
    DiscountPrice (in Rs)
                          333406 non-null
                                         float64
 8
    OriginalPrice (in Rs) 526564 non-null float64
 9
    DiscountOffer
                          452258 non-null
                                         object
                          526564 non-null
 10 SizeOption
                                         object
                          190412 non-null
 11 Ratings
                                         float64
                          190412 non-null float64
 12 Reviews
dtypes: float64(4), int64(1), object(8)
memory usage: 52.2+ MB
In [15]:
 1 data.shape # rows 526564 - columns - 13
Out[15]:
(526564, 13)
In [16]:
 1 data.columns
Out[16]:
'OriginalPrice (in Rs)', 'DiscountOffer', 'SizeOption', 'Ratings',
       'Reviews'],
     dtype='object')
In [17]:
 1 data.isnull().sum()
Out[17]:
URL
                            0
Product_id
                            0
BrandName
                            0
Category
Individual_category
                            0
category_by_Gender
                            0
Description
DiscountPrice (in Rs)
                       193158
OriginalPrice (in Rs)
                            0
DiscountOffer
                        74306
SizeOption
                            0
Ratings
                       336152
Reviews
                       336152
dtype: int64
Handling Columns-
```

```
Column - "Product_id"
```

```
In [20]:
 1 df["Product_id"].value_counts()
Out[20]:
2296012
17821316
            1
17434400
            1
10552660
            1
10552704
            1
14444934
10906224
14367046
            1
11997768
            1
17856544
            1
Name: Product_id, Length: 526564, dtype: int64
- Everything looks ok.
Column - "BrandName"
In [154]:
 1 df["BrandName"].unique()
Out[154]:
array(['Roadster', 'LOCOMOTIVE', 'Zivame', ..., 'Doodlage', 'CHOZI',
       'STATUS MANTRA'], dtype=object)
In [22]:
 1 df["BrandName"].value_counts()
Out[22]:
Pothys
                         16005
Roadster
                         10935
KALINI
HERE&NOW
                          6515
HRX by Hrithik Roshan
                          5297
PIVOTO
PEONY SMART WORLD
OFFIRA TEX WORLD
Sztori Garfield
                             1
Geonaute By Decathlon
                             1
Name: BrandName, Length: 2088, dtype: int64
- We would be needing brands we more than 1000 products by categories. Therefore creating new column with follow Info.
In [155]:
 1 Brands = df["BrandName"].value_counts(ascending= False)
 2 brandslessthan1000 = Brands[Brands<1000]</pre>
In [156]:
 1 def handlingBrandName(value):
 2
        if value in brandslessthan1000:
 3
            return "Others"
 4
        else :
 5
            return value
 6 df["Brandsnew"] = df["BrandName"].apply(handlingBrandName)
    df["Brandsnew"].value_counts()
Out[156]:
Others
             257766
Pothys
              16005
Roadster
              10935
KALINI
               9589
HERE&NOW
               6515
MIMOSA
               1029
               1028
VASTRAMAY
               1026
FREESOUL
               1018
0kane
               1012
Name: Brandsnew, Length: 119, dtype: int64
```

```
In [157]:
    1 df["Brandsnew"].unique()
Out[157]:
array(['Roadster', 'Others', 'Zivame', 'Mast & Harbour', 'HIGHLANDER',
    'HERE&NOW', 'HRX by Hrithik Roshan', 'Vishudh', 'Sangria',
    'Tokyo Talkies', 'DressBerry', 'Anouk', 'Enamor', 'all about you',
    'KASSUALLY', 'WROGN', 'SASSAFRAS', 'Moda Rapido', 'Harpa', 'plusS',
    'Varanga', 'STREET 9', 'Levis', 'Belle Fille', 'ether', 'Jockey',
    'Campus Sutra', 'Peter England', 'H&M', 'Clora Creation',
    'Saree mall', 'JAINISH', 'ETC', 'Clovia', 'Chkokko', 'Floret',
    'U.S. Polo Assn.', 'KALINI', 'Harvard', 'Hangup', 'XYXX',
    'Indo Era', 'TAG 7', 'Mitera', 'Chemistry', 'DEYANN',
    'Louis Philippe Sport', 'Florence', 'Kanvin', 'Jack & Jones',
    'Jompers', 'SOJANYA', 'Van Heusen', 'The Indian Garage Co',
    'Pepe Jeans', 'W', 'Friskers', 'Huetrap', 'Puma', 'VASTRANAND',
    'Sztori', 'Kryptic', 'max', 'Flying Machine', 'MANGO', 'Vero Moda',
    'KISAH', 'Biba', 'Allen Solly', 'ONLY',
    'United Colors of Benetton', 'GRACIT', 'Louis Philippe Jeans',
    'VIMAL JONNEY', 'Kalt', 'Louis Philippe', 'Ethnic basket',
                   'VIMAL JONNEY', 'Kalt', 'Louis Philippe', 'Ethnic basket', 'Marks & Spencer', 'Oxolloxo', 'MIMOSA', 'VASTRAMAY', 'Alcis',
                   'Blackberrys', 'SPYKAR', '7Threads', 'NEUDIS',
'Ajile by Pantaloons', 'Peter England Casuals', 'People',
                  AJIE DY PANTAIOONS', 'PETER ENGLAND CASUALS', 'People',
'Tommy Hilfiger', 'ZOLA', 'URBANIC', 'Sweet Dreams', 'RARE RABBIT',
'FOREVER 21', 'Okane', 'Sonari', 'Duke', 'Globus', 'GOLDSTROMS',
'Sugr', 'JC Collection', 'V2 Value & Variety', 'Fabindia',
'Pothys', 'Mufti', 'KLOTTHE', 'Trendyol', 'Greenfibre',
'Charukriti', 'SAADHVI', 'JADE BLUE', 'SHOWOFF', 'Jinfo',
'ZALORA BASICS', 'FREESOUL', 'Unnati Silks', 'The Chennai Silks',
                   'ZALORA WORK'], dtype=object)
In [158]:
    1 df.columns
Out[158]:
'Reviews', 'Brandsnew'],
                dtype='object')
Column - "Category"
In [159]:
    1 df["Category"].unique()
Out[159]:
In [160]:
    1 df["Category"].value_counts()
Out[160]:
Indian Wear
                                                                       145845
 Western
                                                                       140992
Topwear
                                                                         74537
Bottom Wear
                                                                         55439
Lingerie & Sleep Wear
                                                                         55258
 Sports Wear
                                                                         20627
 Inner Wear & Sleep Wear
                                                                         20370
Plus Size
                                                                         13496
Name: Category, dtype: int64
In [39]:
```

```
localhost:8888/notebooks/Myntra .ipynb#Myntra
```

1 #Seems Good .

Column - 'Individual category'

```
In [161]:
   1 df['Individual_category'].unique()
Out[161]:
array(['jeans', 'track-pants', 'shirts', 'shapewear', 'tshirts', 'tops',
    'trousers', 'tights', 'kurta-sets', 'jumpsuit', 'kurtas', 'bra',
    'shorts', 'dresses', 'bath-robe', 'jackets', 'socks', 'briefs',
    'sweatshirts', 'sarees', 'trunk', 'kurtis', 'skirts',
    'night-suits', 'lounge-pants', 'palazzos', 'stockings', 'jeggings',
    'leggings', 'shrug', 'boxers', 'dupatta', 'tunics',
    'innerwear-vests', 'sweaters', 'lounge-shorts', 'thermal-tops',
    'cappic', 'pightdposs', 'pyjamss', 'sponts capals', 'dungapoos',
              'capris', 'nightdress', 'pyjamas', 'sports-sandals', 'dungarees', 'tracksuits', 'camisoles', 'nehru-jackets', 'blazers',
              'thermal-bottoms', 'lounge-tshirts', 'lehenga-choli', 'baby-dolls', 'coats', 'thermal-set', 'saree-blouse', 'churidar',
             'coats', 'thermal-set', 'saree-blouse', 'churidar', 'dress-material', 'boots', 'lingerie-set', 'sherwani', 'co-ords', 'flats', 'swimwear', 'rain-jacket', 'patiala', 'salwar', 'harem-pants', 'patiala-and-dupatta', 'lingerie-accessories', 'saree-accessories', 'suits', 'dhotis', 'shawl', 'swim-bottoms', 'outdoor-masks', 'stoles', 'clothing-set', 'robe', 'earrings', 'casual-shoes', 'salwar-and-dupatta', 'scarves', 'slips',
              'waistcoat', 'burqas', 'necklace-and-chains', 'hair-accessory', 'sleepsuit', 'heels', 'lungi', 'bracelet', 'jewellery-set', 'handbags', 'flip-flops'], dtype=object)
In [162]:
   1 df['Individual_category'].value_counts()
Out[162]:
                                  61198
tshirts
                                  57915
 sarees
 tops
                                  39126
 kurtas
                                  38984
                                  35590
 dresses
 iewellerv-set
hair-accessory
                                         1
lungi
                                         1
bracelet
                                         1
 flip-flops
                                         1
Name: Individual_category, Length: 92, dtype: int64
In [163]:
   1 categories = df['Individual category'].value counts(ascending= False)
   2 categorieslessthan800 = categories[categories<800]</pre>
In [164]:
        def handling_Individual_category(value):
   1
                if value in categorieslessthan800:
   2
                      return "Others'
   3
   4
                else:
    5
                       return value
        df['INdi_category_New'] = df['Individual_category'].apply(handling_Individual_category)
        df['INdi_category_New'].unique()
   8
Out[164]:
'swimwear', 'dhotis'], dtype=object)
```

```
In [165]:
 1 df['INdi_category_New'].value_counts()
Out[165]:
tshirts
                   61198
                   57915
sarees
                   39126
tops
                   38984
kurtas
dresses
                   35590
shirts
                   32692
kurta-sets
                   26592
                   25206
jeans
                   24706
trousers
                   18097
bra
track-pants
                   16407
shorts
                   13580
sweatshirts
                   13124
night-suits
                   11527
jackets
                   10625
                    9234
briefs
lounge-pants
                   8056
Others
                    6998
sweaters
                    6732
nightdress
                    6465
                    6005
leggings
skirts
                    4622
                    3805
palazzos
                    3800
tights
socks
                    3705
dupatta
                    3536
trunk
                    3081
jumpsuit
                    3039
                    3036
boxers
lehenga-choli
                    3012
nehru-jackets
                    2916
lounge-shorts
                    2634
innerwear-vests
                    1885
dress-material
                    1864
camisoles
                    1703
blazers
                    1675
capris
                    1666
saree-blouse
                    1615
                   1503
shrug
lingerie-set
                    1467
dhotis
                   1243
                    1242
tracksuits
jeggings
                    1225
sherwani
                     872
baby-dolls
                     863
swimwear
                     853
                     843
kurtis
Name: INdi_category_New, dtype: int64
In [166]:
 1 df.columns
Out[166]:
'OriginalPrice (in Rs)', 'DiscountOffer', 'SizeOption', 'Ratings', 'Reviews', 'Brandsnew', 'INdi_category_New'],
      dtype='object')
Columns - 'category_by_Gender'
In [167]:
 1 df['category_by_Gender'].unique()
Out[167]:
array(['Men', 'Women'], dtype=object)
In [168]:
 1 df['category_by_Gender'].value_counts()
Out[168]:
         339185
Women
Men
        187379
Name: category_by_Gender, dtype: int64
```

-We have simple observation here about male and female But we will visualise it later .

Column - "Description"

```
In [169]:
 1 df['Description'].value_counts()
Out[169]:
kanvin women pack of 2 printed pure cotton lounge pants
                                                                        546
gracit women pack of 3 solid ankle length leggings
                                                                        255
clovia pack of 2 bra
ethnic basket women multicoloured ethnic motifs printed crepe kurta
                                                                        182
friskers men pack of 2 printed pure cotton t shirts
                                                                        171
allen solly woman black wrap top
athena women lavender solid a line dress
                                                                          1
all about you maroon ethnic motifs dress
                                                                          1
wishful by w women green regular fit solid parallel trousers
                                                                          1
jockey women blue extended sleeves t shirt
```

Columns - 'DiscountPrice (in Rs)'

Name: Description, Length: 429766, dtype: int64

```
In [170]:
```

```
1 df['DiscountPrice (in Rs)'].isnull().sum()
Out[170]:
```

193158

-There are many null values in the 'DiscountPrice (in Rs)' column so we have to see fill those value with original price. As we could not fill it will "0" or mean, median, mode it will directly affect the discount given. first of all we will check weather original price has any null values. then we will proceed further.

```
In [171]:
```

```
1 df['OriginalPrice (in Rs)'].isnull().sum() # there are no null values .
Out[171]:
```

9

- We will create a new column, and put original price in place or null value.

```
In [172]:
```

```
1 df["Discounted_price"] = df['DiscountPrice (in Rs)'].fillna(df['OriginalPrice (in Rs)'])
```

```
In [173]:
```

```
1 df["Discounted_price"].isnull().sum()
```

Out[173]:

0

Column - "DiscountOffer"

```
In [174]:
```

```
In [175]:
 1 df["DiscountOffer"].value_counts()
Out[175]:
50% OFF
                52737
60% OFF
                38285
40% OFF
                27348
20% OFF
                25561
55% OFF
                25154
Rs. 809 OFF
Rs. 1676 OFF
Rs. 1663 OFF
                    1
Rs. 1885 OFF
                    1
Rs. 283 OFF
                    1
Name: DiscountOffer, Length: 1418, dtype: int64
 • Creating new column - Discountpercent and Total_discount
In [176]:
 1 df['Discountpercent'] = ((df['OriginalPrice (in Rs)'] - df['Discounted_price'])*100)/df['OriginalPrice (in Rs)']
In [177]:
 1 df["Discountpercent"].unique()
Out[177]:
array([45.03002001, 55.00435161, 55.0393138, ..., 25.00247549,
       54.05940594, 45.02463054])
In [178]:
 1 df["Total_discount"] = df['OriginalPrice (in Rs)'] - df['Discounted_price']
In [179]:
 1 df["Total_discount"].value_counts()
Out[179]:
0.0
           193158
900.0
             4588
600.0
             4121
1200.0
             4028
700.0
             3715
15120.0
                1
7762.0
                1
3065.0
                1
20303.0
                1
5048.0
Name: Total_discount, Length: 5416, dtype: int64
```

Columns - "Ratings"

```
In [180]:
```

```
1 df["Ratings"].isnull().sum()
```

Out[180]:

336152

- · We have a huge number null values in ratings columns which is difficult to solve. There 3 ways to handle them
- 1. Droping the column
- 2. Creating a sub-dataset removing all the null value it our approach is based on rating of that product .
- 3. Using machine learning-based methods, can be considered. These methods aim to predict and fill missing values based on the relationships between other variables in the dataset. Implementing these techniques typically requires more advanced knowledge and tools beyond basic pandas operations.
- Conclusion = In the end part of the EDA we will drop the null values to create a visulization based on Rating for now we will keep it as it is.

Column - "Reviews"

```
In [181]:
 1 df['Reviews'].value_counts()
Out[181]:
       12173
5.0
6.0
        9876
7.0
        8326
8.0
        7346
        6372
9.0
960.0
           1
992.0
           1
994.0
821.0
997.0
Name: Reviews, Length: 1000, dtype: int64
In [182]:
 1 df['Reviews'].isnull().sum()
Out[182]:
336152
In [183]:
 1 #handling reviews
 2 df['Reviews'].fillna(0,inplace = True)
In [184]:
 1 df['Reviews'].isnull().sum()
Out[184]:
0
In [185]:
 1 df.columns
Out[185]:
'Discountpercent', 'Total_discount'],
     dtype='object')
```

Droping Columns -

```
In [186]:
1     df1 = df

In [187]:

df1.drop(["URL", "BrandName", "Individual_category", "Description", "DiscountPrice (in Rs)", "DiscountOffer"], axis =1 ,inplace = True )
```

```
In [188]:
```

```
1 df1.head()
```

Out[188]:

	Product_id	Category	category_by_Gender	OriginalPrice (in Rs)	SizeOption	Ratings	Reviews	Brandsnew	INdi_category_New	Discounted_price	Disco
0	2296012	Bottom Wear	Men	1499.0	28, 30, 32, 34, 36	3.9	999.0	Roadster	jeans	824.0	
1	13780156	Bottom Wear	Men	1149.0	S, M, L, XL	4.0	999.0	Others	track-pants	517.0	
2	11895958	Topwear	Men	1399.0	38, 40, 42, 44, 46, 48	4.3	999.0	Roadster	shirts	629.0	
3	4335679	Lingerie & Sleep Wear	Women	1295.0	S, M, L, XL, XXL	4.2	999.0	Zivame	Others	893.0	
4	11690882	Western	Women	599.0	XS, S, M, L, XL	4.2	999.0	Roadster	tshirts	599.0	
<											>

Rearranging Columns -

In [189]:

In [190]:

```
1 df1.columns
```

Out[190]:

In [191]:

```
1 df1.head()
```

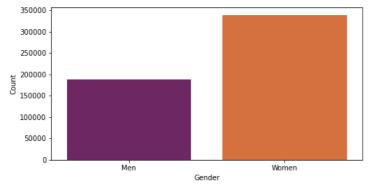
Out[191]:

	Product_id	Brandsnew	Category	INdi_category_New	category_by_Gender	SizeOption	OriginalPrice (in Rs)	Discounted_price	Discountpercent	Total_c
0	2296012	Roadster	Bottom Wear	jeans	Men	28, 30, 32, 34, 36	1499.0	824.0	45.030020	
1	13780156	Others	Bottom Wear	track-pants	Men	S, M, L, XL	1149.0	517.0	55.004352	
2	11895958	Roadster	Topwear	shirts	Men	38, 40, 42, 44, 46, 48	1399.0	629.0	55.039314	
3	4335679	Zivame	Lingerie & Sleep Wear	Others	Women	S, M, L, XL, XXL	1295.0	893.0	31.042471	
4	11690882	Roadster	Western	tshirts	Women	XS, S, M, L, XL	599.0	599.0	0.000000	
<										>

Visualisation -

In [192]:

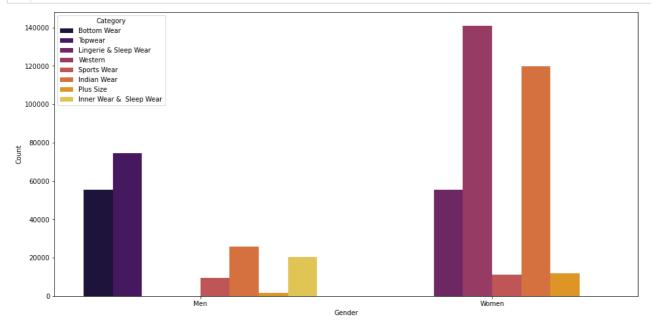
```
plt.figure(figsize=(8,4))
sns.countplot( x = "category_by_Gender", data = df1 , palette= "inferno")
plt.xlabel("Gender")
plt.ylabel("Count")
plt.show()
```



- Women has category advantage over men .
- Below we can analyse their categorical selection of the clothes

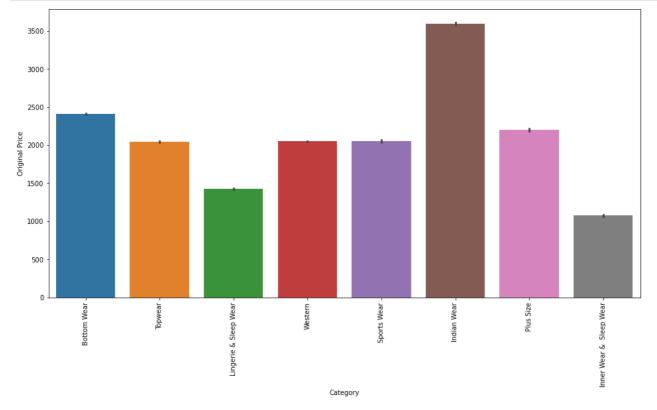
In [131]:

```
plt.figure(figsize=(16,8))
sns.countplot( x = "category_by_Gender",hue="Category" , data = df1 , palette= "inferno")
plt.xlabel("Gender")
plt.ylabel("Count")
plt.show()
```



In [136]:

```
plt.figure(figsize = (16,8))
sns.barplot(x = "Category" , y = "OriginalPrice (in Rs)" , data = df1)
plt.xticks(rotation = 90)
plt.xlabel("Category")
plt.ylabel("Original Price")
plt.show()
```



• The least to most expensive categories can be observed . ie. Indian Wear To Inner wear

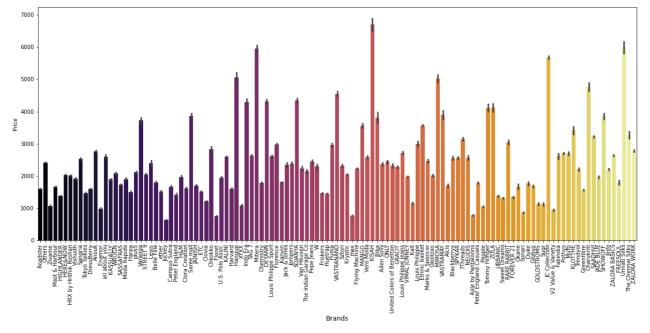
In [137]:

```
1 df1.columns
```

Out[137]

In [202]:

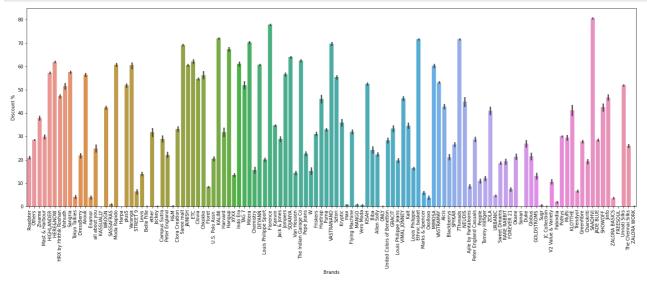
```
plt.figure(figsize = (20,8))
sns.barplot(x = "Brandsnew" , y = "OriginalPrice (in Rs)", data = df1 , palette= "inferno")
plt.xticks(rotation = 90)
plt.xlabel("Brands" , fontsize = 12)
plt.ylabel("Price")
plt.show()
```



- · Most expensive Brand is -Kisah
- · Least expensive is Jockey

In [198]:

```
plt.figure(figsize = (24,8))
sns.barplot(x = "Brandsnew" , y = "Discountpercent", data = df1)
plt.xticks(rotation = 90)
plt.xlabel("Brands")
plt.ylabel("Discount %")
plt.show()
```



- Maximum discount is offered by Saadhvi
- · Minimum discount is offered by only , H&M , and many more.

```
In [200]:
```

```
1 df1.columns
```

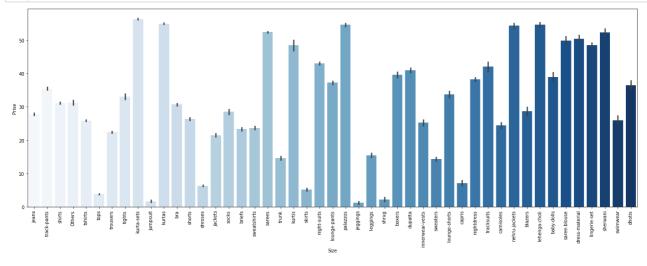
Out[200]:

Category Wise discount-

In [207]:

```
plt.figure(figsize = (24,8))
sns.barplot(x = "INdi_category_New" , y = "Discountpercent", data = df1 , palette= "Blues")
plt.xticks(rotation = 90)

plt.xlabel("Size")
plt.ylabel("Prise")
plt.show()
```

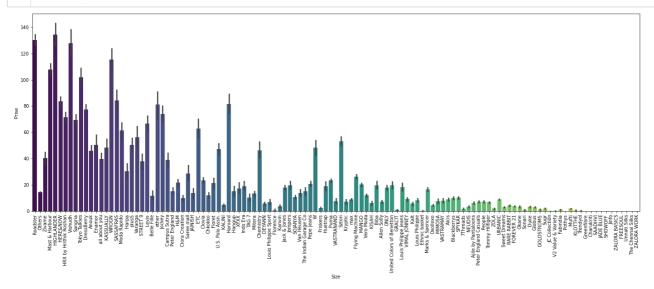


In []:

1 -

In [206]:

```
plt.figure(figsize = (24,8))
sns.barplot(x = "Brandsnew" , y = "Reviews", data = df1 , palette="viridis")
plt.xticks(rotation = 90)
4 plt.xlabel("Size")
5 plt.ylabel("Prise")
6 plt.show()
```



- Highlander and Roadster are the most reviewed brand.
- Summary of Myntra Sale Dataset:

The Myntra Sale dataset consists of various columns that provide information about the products on sale. Here's a summary of each column:

- 1. Product_id: A unique identifier for each product in the dataset.
- 2. Brandsnew: Represents the brand name associated with the product.
- 3. Category: Indicates the general category or type of the product.
- 4. INdi_category_New: Represents a more specific category or sub-category of the product.
- 5. category_by_Gender: Indicates the category of the product based on the target gender (e.g., men, women, unisex).
- 6. SizeOption: Provides information about the available size options for the product.
- 7. OriginalPrice (in Rs): Represents the original price of the product before any discount is applied, in Indian Rupees.
- 8. Discounted_price: Indicates the sale price of the product after the discount has been applied.
- 9. **Discountpercent**: Represents the percentage of discount applied to the original price.
- 10. Total_discount: Provides the total amount saved on the product, calculated as the difference between the original price and the discounted price.
- 11. **Ratings**: Represents the rating assigned to the product by customers. It indicates the overall satisfaction or quality of the product, typically on a numerical scale.
- 12. Reviews: Provides textual reviews or feedback given by customers for the product.

The Myntra Sale dataset allows for analyzing various aspects of the products available for sale, such as brand, category, price, discounts, ratings, and customer reviews. Through exploratory data analysis and statistical techniques, you can gain insights into customer preferences, product performance, pricing strategies, and more