Data Analysis process includes:

- Asking questions
- Data Wrangling
 - Data gathering
 - Data Accessing
 - Data Cleaning and preprations
- EDA
- Coclusions
- Reporting
- Dashboarding through Data Visualisations tools like Power BI and Tableu

Data Wrangling

- Surveys
- Webscrapping
- CSV
- DBMS
- Data Accesing Understanding Data
- Data Cleaning and Preprations: Cleaning the data and preparing it for analysis

Data Assessing

• In this step, we try to understand data deeply. Before cleaning the data and preparing it for analysis, we definetly need to know data better.

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import plotly.express as px
import warnings
warnings.filterwarnings('ignore')
df=pd.read csv('BigBasket.csv')
df
       index
                                                         product \
0
                         Garlic Oil - Vegetarian Capsule 500 mg
           1
           2
                                           Water Bottle - Orange
1
2
           3
                                 Brass Angle Deep - Plain, No.2
3
           4
              Cereal Flip Lid Container/Storage Jar - Assort...
           5
4
                             Creme Soft Soap - For Hands & Body
                     Wottagirl! Perfume Spray - Heaven, Classic
27550 27551
27551 27552
                                                        Rosemary
```

```
27553
                                    Peri-Peri Sweet Potato Chips
27552
      27554
27553
                                        Green Tea - Pure Original
27554
      27555
                                  United Dreams Go Far Deodorant
                                             sub category \
                      category
             Beauty & Hygiene
                                                Hair Care
1
       Kitchen, Garden & Pets
                                   Storage & Accessories
2
         Cleaning & Household
                                              Pooia Needs
3
         Cleaning & Household
                                    Bins & Bathroom Ware
4
                                         Bath & Hand Wash
             Beauty & Hygiene
. . .
             Beauty & Hygiene
27550
                                        Fragrances & Deos
27551
         Gourmet & World Food
                                  Cooking & Baking Needs
27552
         Gourmet & World Food
                                Snacks, Dry Fruits, Nuts
27553
                     Beverages
27554
             Beauty & Hygiene
                                           Men's Grooming
                             brand
                                    sale price
                                                 market price \
                Sri Sri Ayurveda
0
                                         220.00
                                                         220.0
1
                        Mastercook
                                         180.00
                                                        180.0
2
                               Trm
                                         119.00
                                                         250.0
3
                            Nakoda
                                         149.00
                                                         176.0
4
                             Nivea
                                         162.00
                                                        162.0
27550
                                         199.20
                                                         249.0
                            Layerr
                                          67.50
27551
                          Puramate
                                                         75.0
27552
                            FabBox
                                         200.00
                                                        200.0
                                         396.00
27553
                            Tetlev
                                                        495.0
27554
      United Colors Of Benetton
                                         214.53
                                                        390.0
                            type
                                  rating \
                                      4.1
0
               Hair Oil & Serum
1
         Water & Fridge Bottles
                                      2.3
2
                Lamp & Lamp Oil
                                      3.4
3
       Laundry, Storage Baskets
                                      3.7
4
           Bathing Bars & Soaps
                                      4.4
27550
                         Perfume
                                      3.9
27551
       Herbs, Seasonings & Rubs
                                      4.0
27552
                 Nachos & Chips
                                      3.8
27553
                        Tea Bags
                                      4.2
27554
               Men's Deodorants
                                               description
       This Product contains Garlic Oil that is known...
1
       Each product is microwave safe (without lid), ...
2
       A perfect gift for all occasions, be it your m...
3
       Multipurpose container with an attractive desi...
4
       Nivea Creme Soft Soap gives your skin the best...
```

```
27550 Layerr brings you Wottagirl Classic fragrant b...
27551 Puramate rosemary is enough to transform a dis...
27552 We have taken the richness of Sweet Potatoes (...
27553 Tetley Green Tea with its refreshing pure, ori...
27554 The new mens fragrance from the United Dreams ...
[27555 rows x 10 columns]
```

Assessing Data

What is big basket?

- BigBasket is an Indian online grocer headquartered in Bangalore, India, and currently owned by Tata Digital.[1] It was the first online grocer in India, set up in 2011. It is a registered company with the name Supermarket Grocery Supplies Pvt. Ltd.[10]
- As of January 2023, the company operates in more than 30 cities in India and processes around 15 million orders per month.[1]
- According to Bloomberg News, BigBasket is considering an initial public offering by 2025 as part of its growth plans

About our dataset?

columns brief

- index: unique identifier
- product: name of the product listed
- category: category of the product
- sub_category: category is further broken down into subcategories
- brand: name of the company of the product
- sale_price: on how much the item is sold
- market_price: it holds the value of the maximum retail price
- type: type of product
- rating: aggregate rating given to the product
- description: description of our product

```
#seeking information from the data
df.info()
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 27555 entries, 0 to 27554
Data columns (total 10 columns):
                  Non-Null Count Dtype
    Column
- - -
     -----
0
    index
                  27555 non-null int64
    product
1
                  27554 non-null object
    category
2
                  27555 non-null object
```

```
3
    sub_category 27555 non-null object
4
                  27554 non-null object
    brand
5
    sale price 27549 non-null float64
    market_price 27555 non-null float64
6
7
    type
                  27555 non-null object
8
                  18919 non-null float64
     rating
9
    description 27440 non-null object
dtypes: float64(3), int64(1), object(6)
memory usage: 2.1+ MB
```

- It contains around 27555 rows
- It contains 10 columns in total
- It contains null values
- It contains 4 umerical columns and 6 object type(categorical or textual) columns
- It containf 3 float type columns, 1 int type column and 6 textual columns

seeking description of the dataset

df.describe()

| | index | sale_price | market_price | rating |
|-------|-------------|---------------------------|--------------|--------------|
| count | 27555.00000 | $27549.\overline{0}00000$ | 27555.000000 | 18919.000000 |
| mean | 13778.00000 | 334.648391 | 382.056664 | 3.943295 |
| std | 7954.58767 | 1202.102113 | 581.730717 | 0.739217 |
| min | 1.00000 | 2.450000 | 3.000000 | 1.000000 |
| 25% | 6889.50000 | 95.000000 | 100.000000 | 3.700000 |
| 50% | 13778.00000 | 190.320000 | 220.000000 | 4.100000 |
| 75% | 20666.50000 | 359.000000 | 425.000000 | 4.300000 |
| max | 27555.00000 | 112475.000000 | 12500.000000 | 5.000000 |
| | | | | |

- It shows us all the numerical columns and their statistical summary
- By seeing count column, we can conclude that their are null values in sale_price and rating
- By seeing the mean of sale_price and market_price we can see a very commom relation, that sp can never be more than mp
- Information that their is huge difference between market_price and sale_price, sp std is about 2 times mrp std
 - which could mean more discounts are given or their could be outliers
- Min values are considerate accept 1 in market_price we will come back to that later
- Max values are considerable

Data Cleaning or Preparations

- Types of Unclean Data
 - Dirty Data: data with quality issues. also known as low quality data. low quality data has content issues
 - Duplicated values
 - Missing Values

- Corrupt data
- Inaccurate ddata
- Messy Data: structural issues. also known as untidy data.
- Tidy Data:
 - Each variable forma a column
 - Each observation forms a row
 - Each observation forms a table

to check which type of data

```
df.isnull().sum()
index
                     0
                     1
product
                     0
category
                     0
sub category
brand
                     1
sale price
                     6
market_price
                     0
                     0
type
rating
                 8636
description
                  115
dtype: int64
```

type of issues in dirty data

- Completeness: Completeness means making sure we have all the info we need in our data. We check for any missing pieces and either fill them by using estimates or get that missing info if possible. It is important beacause missing data can mess up our analysis and give us wrong estimations.
- Validity: Validity is about making sure our data is correct and makes sense. We check that it is up to date, accurate and fits with what we are trying to learn. Thus involves looking at things like data types, formats and ranges to see if they match what we are expecting
- Accuracy :Accuracy means that the data values we have are exact and right. We look for and fix any mistakes, wierd numbers or outliers in the data.
- Consistency: Consistency is about making sure our data is the same and make senses across different parts. We want everything to match up and be in harmony.

Order of severnity

- Quality Issues: null values
- Tideness
- Quality issues: validity
- Quality Issues: accuracy
- Quality Issues: consistency

Steps in data cleaning

• Define: This is when we figure out what's wrong in our data. We look for the things like missing pieces, or mistakes in the information.

- Code: Here, we write instructions to fix the problems we found earlier. We tell the computer what to do to clean up the data.
- Test: After we have cleaned the data, we check if everything worked correctly. We make sure the data is now good to use and doesn'thave the issues we found before.

Manual Assessing

```
# dealing with null values.
df.isnull().sum()
index
                    0
product
                    1
category
                    0
sub category
                    0
                    1
brand
sale price
                    6
market price
                    0
type
                    0
rating
                 8636
description
                  115
dtype: int64
```

- Product has 1 null value
- Brand has 1 null value
- Sale_price has 6 null values
- Rating has 8636 null values
- Description has 115 null values

```
#Total null values
df.isnull().sum().sum()
8759
df.sale price
         220.00
0
1
         180.00
2
         119.00
3
         149.00
4
         162.00
          . . .
27550
         199.20
27551
          67.50
27552
         200,00
27553
         396.00
27554
         214.53
Name: sale_price, Length: 27555, dtype: float64
df[df.sale_price.isnull()]
```

```
index
                                                         product \
                       Puja Flower Wicks - Puvvu Vathulu Batti
1719
       1720
1720
       1721
                                                 Powder - Sambar
1721
       1722
             Steel Fork - Medium, Premium Excel Series, BBCL08
       1723
1722
                                             Snack Mix - Dhokla
2401
       2402
                                          Battery AA 3UT Hi Top
2402
       2403
                   Klassic Plain Cocktail Napkins (22 X 22 cm)
                      category
                                             sub_category
brand
      \
1719
          Cleaning & Household
                                              Pooia Needs
                                                                  Jaji
                                         Masalas & Spices
                                                            Annapoorna
1720
      Foodgrains, Oil & Masala
1721
        Kitchen, Garden & Pets
                                       Crockery & Cutlery
                                                               BB Home
        Snacks & Branded Foods
1722
                                      Ready To Cook & Eat
                                                                   MTR
2401
        Kitchen, Garden & Pets
                                 Appliances & Electricals
                                                                 Nippo
2402
          Cleaning & Household
                                 Disposables, Garbage Bag
                                                               Origami
                  market price
      sale price
                                                     type
                                                           rating
1719
             NaN
                                         Camphor & Wicks
                           20.0
                                                              NaN
                                         Blended Masalas
1720
             NaN
                           46.0
                                                              NaN
1721
                          299.0
                                   Cutlery, Spoon & Fork
             NaN
                                                              NaN
1722
             NaN
                           65.0
                                 Breakfast & Snack Mixes
                                                              4.1
2401
                                    Battery & Electrical
                                                              4.0
             NaN
                          150.0
2402
             NaN
                           32.0
                                            Toilet Paper
                                                              3.9
                                             description
      Jaji Puja Flower Batti / Puvvu Vathulu is made...
1720
      Annaporna Spices are the preserve for Connoiss...
      BB Home provides fine and classy cutlery that ...
1721
1722
      MTR Dhokla is extremely special in Gujarat. It...
2401
      This Nippo battery incorporates state-of-the-a...
2402
      Klassic Plain Cocktail Napkins (22 X 22 cm) 10...
df.sale price.fillna(df.market price,inplace=True)
df.sale price.isnull().sum()
0
```

• Sale_price is free of null values

```
# Working on null values of Product
df['product'].isnull().sum()
```

```
1
df[df['product'].isnull()]
       index product category sub_category
                                                     brand
sale_price \
14363 14364
                NaN Beverages Coffee Cothas Coffee
200.0
      market price
                             type rating \
             240.0 Ground Coffee
                                      4.2
14363
                                            description
14363 Cothas Specialty Blend Coffee and Chicory incl...
#Filling Null value
df['product'].fillna('Coffee',inplace=True)
df['product'].isnull().sum()
0
df.isnull().sum()
index
                  0
product
                  0
category
                  0
                  0
sub category
brand
                  1
sale price
                  0
market price
                  0
type
                  0
rating
               8636
description
                115
dtype: int64
df[df.brand.isnull()]
                                               category \
      index
                          product
9765 9766 Food Package - Medium Cleaning & Household
                 sub_category brand sale_price market_price \
9765 Disposables, Garbage Bag
                                NaN
                                           50.0
                          type
                                rating description
9765 Aluminium Foil, Clingwrap
                                   NaN
#code
df.brand.fillna('Unknown',inplace=True)
```

```
#test
df.brand.isnull().sum()
#working on null values of Rating column
df[df.rating.isnull()]
       index
                                                        product \
              Soothing Cucumber Facial Scrub With Apricot Seeds
55
          56
              Corporate Planner Diary With Premium PU Leathe...
59
          60
65
                                   Avurvedic Anti-Tan Face Pack
          66
                             Organic Carom Seeds/Ajwain/Om Kalu
68
          69
69
          70
                         Padded Harness - 3/4 inch, Grey Colour
. . .
                                          Deluxe Crackers - Veg
27509
      27510
                          Specialist Stain Remover Pen & Marker
27511
      27512
                                 Verge & Sheer Perfume For Pair
27514 27515
27530
      27531
                        Tick'et to Fleadom Dry Shampoo For Dogs
     27532
                                              Vanilla Ice Cream
27531
                       category
                                           sub category
brand \
55
               Beauty & Hygiene
                                              Skin Care
TJORI
           Cleaning & Household
59
                                             Stationery
                                                             Prozo
Plus
               Beauty & Hygiene
                                              Skin Care
65
TJORI
       Foodgrains, Oil & Masala
68
                                       Masalas & Spices
Earthon
69
         Kitchen, Garden & Pets Pet Food & Accessories
Glenand
27509
           Gourmet & World Food
                                  Chocolates & Biscuits
Kerk
27511
           Cleaning & Household All Purpose Cleaners
365
27514
               Beauty & Hygiene
                                      Fragrances & Deos Skinn by
Titan
         Kitchen, Garden & Pets Pet Food & Accessories
27530
                                                           Captain
Zack
27531
           Gourmet & World Food
                                         Dairy & Cheese
                                                            Haagen-
Dazs
       sale price market price
                                                      type
                                                            rating \
55
            299.4
                          499.0
                                                 Face Care
                                                               NaN
59
            399.0
                          399.0 Notebooks, Files, Folders
                                                               NaN
```

```
65
            269.4
                           449.0
                                                    Face Care
                                                                  NaN
68
             72.0
                            72.0
                                                Whole Spices
                                                                  NaN
69
            840.0
                           840.0
                                       Pet Collars & Leashes
                                                                  NaN
. . .
                                                                   . . .
                           150.0
27509
            150.0
                                    Cookies, Biscotti, Wafer
                                                                  NaN
27511
            449.0
                           449.0
                                           Imported Cleaners
                                                                  NaN
27514
           1615.5
                          1795.0
                                                      Perfume
                                                                  NaN
27530
             99.0
                            99.0
                                     Pet Cleaning & Grooming
                                                                  NaN
27531
            225.0
                           225.0
                                           Gourmet Ice Cream
                                                                  NaN
                                               description
55
       The soothing feel of cucumber meets the gentle...
59
       A5 Size (210x150mm) \n192 Pages Premium Natura...
65
       A nourishing face pack that removes tan and br...
       Earthon's Ajwain is Best quality, organically ...
68
69
       These are soft padded harness for your active ...
27509
       Kerk Biscuits-has been a household name synony...
27511
       Mightier than the pen. The pen may be mightier...
27514
       VERGE for men paints a picture of a classy out...
27530
       1) No Rinse Defence Against Ticks and Fleas: C...
       Some things are so good in their simplest form...
27531
[8636 rows x 10 columns]
df.rating.value counts()
rating
       2249
4.2
4.3
       2138
4.0
       2089
4.1
       1767
5.0
       1407
4.4
       1037
3.9
        932
3.8
        866
4.5
        797
3.0
        684
3.7
        672
3.5
        535
3.6
        447
3.3
        400
1.0
        387
4.6
        322
3.4
        303
4.7
        287
2.0
        237
4.8
        199
3.2
        181
3.1
        163
```

```
2.5
        132
2.8
        125
2.7
        116
2.3
         94
2.9
         79
2.6
         58
4.9
         53
1.5
         32
2.4
         29
2.2
         24
1.8
         22
1.7
         22
2.1
         10
          9
1.3
1.4
          6
1.9
          4
          3
1.6
1.2
          2
Name: count, dtype: int64
#define
#code
df.rating.fillna(0,inplace=True)
df.rating.isnull().sum()
0
# Working on description column
df.description.isnull().sum()
115
df[df.description.isnull()]
                                                          product \
       index
288
                      Arrabbiata Tomato Pasta Sauce With Chilli
         289
480
         481
              Pumice Stone & Emery Foot Filer - FFL3407, Col...
780
         781
                                          Peanut Butter - Chunky
                   Squash - Sarasaparilla/Nannari/Sugandhi Root
845
         846
1047
        1048
                               Natura Rice & Walnut Drink, Vegan
25510
      25511
              BBPopular Almond/Badam Californian 500gm + BBR...
              Chai/Chai/Tea/ Coffee Bone China Microwave Ser...
25583
      25584
26116
                         Tea Strainer - Stainless Steel, Medium
       26117
                               Cold Pressed Virgin Groundnut Oil
26835
       26836
                                         Zipper Storage - Gallon
27303 27304
```

| h | \ | category | sub_category | |
|--|---|--|---|--|
| brand 288 | \ Gourmet | & World Food | Sauces, Spreads & Dips | |
| Montan. | | utu C Ulumiana | Doth C Hond Work | |
| 480 Kaiv | Веац | ıty & Hygiene | Bath & Hand Wash | |
| 780 Garden | Gourmet | & World Food | Sauces, Spreads & Dips | American |
| 845 | D 11 | Beverages | Fruit Juices & Drinks | |
| Naturo 1047 BORGES | Gourmet | & World Food | Drinks & Beverages | |
| | | | | |
| 25510 Combo | Foodgrains, | Oil & Masala | Dry Fruits | bb |
| 25583 | Kitchen, G | Garden & Pets | Crockery & Cutlery | ВР |
| Bharat 26116 Ritu | Kitchen, 0 | Garden & Pets | Kitchen Accessories | |
| 26835 Chekko | • | Oil & Masala | Edible Oils & Ghee | |
| 27303 Glad | | g & Household | Disposables, Garbage Bag | |
| مام م م ساء | - | market_price | type | rating |
| descri 288 | 22325.00 | 325.0 | Mustard & Cheese Sauces | 5.0 |
| NaN 480 | 175.00 | 175 0 | Dathing Assessmins | 2.0 |
| | | 1/3.0 | Bathing Accessories | 3.8 |
| NaN | | 175.0 | Bathing Accessories | 3.8 |
| 780 | 299.00 | 299.0 | Chocolate, Peanut Spread | 4.1 |
| 780 NaN 845 | | | <u>-</u> | |
| 780 NaN 845 NaN | 299.00 140.00 | 299.0 140.0 | Chocolate, Peanut Spread Syrups & Concentrates | 4.1 2.5 |
| 780 NaN 845 | 299.00 | 299.0 | Chocolate, Peanut Spread | 4.1 |
| 780 NaN 845 NaN 1047 NaN | 299.00 140.00 | 299.0 140.0 | Chocolate, Peanut Spread Syrups & Concentrates | 4.1 2.5 |
| 780 NaN 845 NaN 1047 NaN | 299.00 140.00 | 299.0 140.0 | Chocolate, Peanut Spread Syrups & Concentrates | 4.1 2.5 4.5 |
| 780 NaN 845 NaN 1047 NaN 25510 NaN 25583 | 299.00 140.00 275.01 | 299.0 140.0 349.0 | Chocolate, Peanut Spread Syrups & Concentrates Health Drinks | 4.1 2.5 4.5 |
| 780 NaN 845 NaN 1047 NaN 25510 NaN 25583 NaN 26116 | 299.00 140.00 275.01 443.00 | 299.0 140.0 349.0 725.0 | Chocolate, Peanut Spread Syrups & Concentrates Health Drinks Almonds | 4.1 2.5 4.5 |
| 780 NaN 845 NaN 1047 NaN 25510 NaN 25583 NaN 26116 NaN 26835 | 299.00 140.00 275.01 443.00 269.00 | 299.0 140.0 349.0 725.0 373.0 | Chocolate, Peanut Spread Syrups & Concentrates Health Drinks Almonds Cups, Mugs & Tumblers | 4.1 2.5 4.5 0.0 2.5 |
| 780 NaN 845 NaN 1047 NaN 25510 NaN 25583 NaN 26116 NaN | 299.00 140.00 275.01 443.00 269.00 99.00 | 299.0 140.0 349.0 725.0 373.0 135.0 | Chocolate, Peanut Spread Syrups & Concentrates Health Drinks Almonds Cups, Mugs & Tumblers Strainer, Ladle, Spatula | 4.1 2.5 4.5 0.0 2.5 4.3 |

```
[115 rows x 10 columns]
#code
df.description.fillna('No description',inplace=True)
#test
df.description.isnull().sum()
0
```

Whole Dataset is free of null values

Working on Duplicates

```
df.duplicated().sum()
0
```

- No duplicated values

Validity

Working on Accuracy

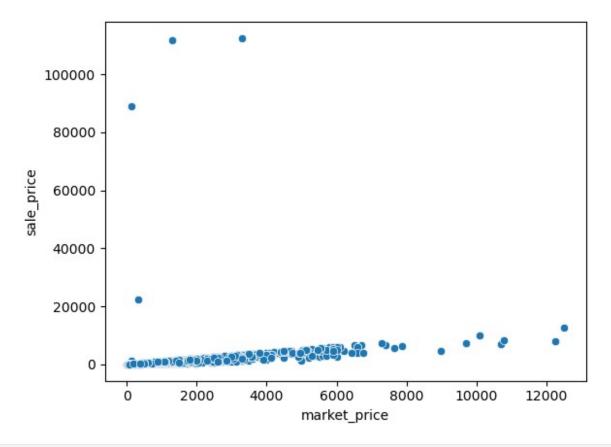
- Outliers
- Wrong Entries

market price

```
# Checking Outliers
df[df.sale price>df.market price]
      index
                                                       product \
248
        249
            4mm Aluminium Induction Base Chapati Roti Tawa...
                     Arrabbiata Tomato Pasta Sauce With Chilli
288
        289
412
        413
            Original Care Lip Balm For 24h Moisture With S...
        437
                                  Balloon - Polka Dot, 12 Inch
436
       1250
                                                     Beard Kit
1249
                                                           brand
                    category
                                        sub_category
sale price \
      Kitchen, Garden & Pets
248
                                Cookware & Non Stick
                                                           HAZEL
111649.0
       Gourmet & World Food Sauces, Spreads & Dips
288
                                                      Montanini
22325.0
412
            Beauty & Hygiene
                                           Skin Care
                                                           Nivea
1114.8
436
       Cleaning & Household
                               Party & Festive Needs
                                                        B Vishal
88899.0
                                      Men's Grooming Uncle Tony
1249
            Beauty & Hygiene
112475.0
```

type rating \

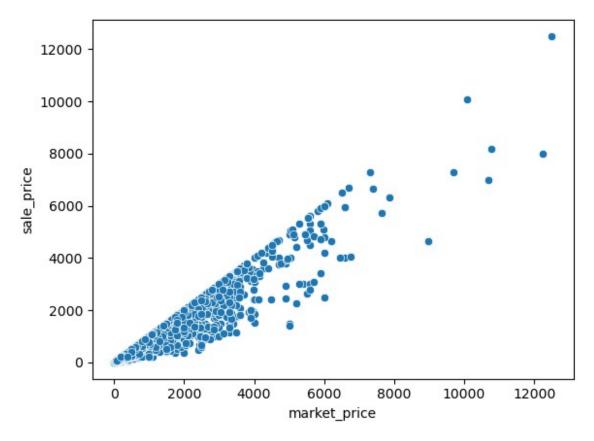
```
248
            1289.0
                            Tawa & Sauce Pan
                                                  0.0
288
             325.0
                     Mustard & Cheese Sauces
                                                  5.0
412
             140.0
                                     Lip Care
                                                  4.3
                    Caps, Balloons & Candles
                                                  3.9
436
             129.0
1249
            3300.0
                          Combos & Gift Sets
                                                  0.0
                                             description
      Hazel Aluminium Tawa has an ergonomic design f...
248
288
                                          No description
412
      Nivea Original Care Lip Blam nourishes lips in...
436
      Whether it is a party in the office, a Christm...
      The combination of a beard oil, a beard wash, ...
1249
sns.scatterplot(data=df,y='sale price',x='market price')
<Axes: xlabel='market_price', ylabel='sale_price'>
```



```
df.sale_price.std()
1201.9769904246652

df.sale_price = np.where(df.sale_price > df.market_price,
    df.market_price, df.sale_price)

sns.scatterplot(data = df,y = "sale_price", x = "market_price")
```



```
df[df.market price > 9000]
       index
                                                       product \
             Gas Stove-3 Burner Royale Plus Schott Glass, B...
1056
       1057
12669
      12670
                               Epilator SE9-9961 Legs-Body-Face
21761
                  Pet Food - N&D Team Breeder Puppy Top Farmina
      21762
             Gas Stove-4 Burner Royale Plus Schott Glass, B...
23082
      23083
25301
                                               Bravura Clipper
      25302
             4 Burner Gas Stove - Marvel Plus Glass Tables,...
25797
      25798
                    category
                                        sub_category
                                                         brand
sale price \
1056
      Kitchen, Garden & Pets Cookware & Non Stick
                                                      Prestige
6999.00
12669
            Beauty & Hygiene
                                    Feminine Hygiene
                                                         Braun
8184.44
21761 Kitchen, Garden & Pets Pet Food & Accessories
                                                       Farmina
10090.00
23082 Kitchen, Garden & Pets Cookware & Non Stick
                                                      Prestige
7999.00
25301 Kitchen, Garden & Pets Pet Food & Accessories
                                                          Wahl
12500.00
```

```
25797 Kitchen, Garden & Pets Cookware & Non Stick Prestige
7270.00
       market price
                                                rating \
                                         type
            10695.0
1056
                                    Gas Stove
                                                   0.0
12669
            10769.0
                                 Hair Removal
                                                   0.0
21761
                           Pet Meals & Treats
                                                   0.0
            10090.0
23082
            12245.0
                                    Gas Stove
                                                   0.0
25301
            12500.0
                      Pet Cleaning & Grooming
                                                   0.0
25797
                                    Gas Stove
             9695.0
                                                   0.0
                                              description
       Prestige Royale Plus Gas Stove. Add a Touch of...
1056
12669
       This cordless epilator has a sonic exfoliation...
             Dog Food Adult Health Nutritional Dog Food.
21761
23082
       Prestige Royale Plus Gas Stove. Add a Touch of...
       The bravura clipper is a must-have clipper for...
25301
25797
       Prestige Marvel Plus Gas Stove . A Smart and C...
df.describe()
             index
                       sale price
                                   market price
                                                        rating
       27555.00000
                    27555.000000
                                   27555.000000
                                                  27555.000000
count
       13778.00000
                       322.575240
                                     382.056664
                                                      2.707429
mean
                       486.449966
                                     581.730717
                                                      1.929072
std
        7954.58767
                         2.450000
                                       3.000000
                                                      0.00000
min
           1.00000
25%
        6889.50000
                        95.000000
                                     100.000000
                                                      0.000000
50%
       13778.00000
                       190.000000
                                     220,000000
                                                      3.800000
75%
       20666.50000
                       359.000000
                                     425.000000
                                                      4.200000
       27555,00000
                    12500.000000
                                   12500.000000
                                                      5.000000
max
df.type.value counts()
type
Face Care
                          1508
Avurveda
                           538
Men's Deodorants
                           500
Shampoo & Conditioner
                           461
Glassware
                           415
Bagels & Baguette
                             1
Roses
                             1
Marinated Meat
                             1
Organic Eggs
                             1
Turkey & Duck
                             1
Name: count, Length: 426, dtype: int64
```

```
Deleting Extra Columns
```

```
df=df.drop("index",axis = 1)
```

```
df
                                                   product \
                   Garlic Oil - Vegetarian Capsule 500 mg
1
                                     Water Bottle - Orange
2
                           Brass Angle Deep - Plain, No.2
       Cereal Flip Lid Container/Storage Jar - Assort...
3
4
                       Creme Soft Soap - For Hands & Body
27550
              Wottagirl! Perfume Spray - Heaven, Classic
27551
                                                   Rosemary
27552
                             Peri-Peri Sweet Potato Chips
                                Green Tea - Pure Original
27553
27554
                           United Dreams Go Far Deodorant
                      category
                                             sub category \
             Beauty & Hygiene
0
                                                Hair Care
1
       Kitchen, Garden & Pets
                                    Storage & Accessories
2
         Cleaning & Household
                                              Pooia Needs
3
         Cleaning & Household
                                     Bins & Bathroom Ware
4
                                         Bath & Hand Wash
             Beauty & Hygiene
27550
             Beauty & Hygiene
                                        Fragrances & Deos
         Gourmet & World Food
27551
                                   Cooking & Baking Needs
         Gourmet & World Food
                                Snacks, Dry Fruits, Nuts
27552
27553
                     Beverages
                                                       Tea
27554
             Beauty & Hygiene
                                           Men's Grooming
                             brand sale_price
                                                 market_price
0
                 Sri Sri Ayurveda
                                         220.00
                                                         220.0
1
                        Mastercook
                                         180.00
                                                         180.0
2
                                         119.00
                               Trm
                                                         250.0
3
                            Nakoda
                                         149.00
                                                         176.0
4
                                         162.00
                                                         162.0
                             Nivea
                                         199.20
                                                         249.0
27550
                            Layerr
                          Puramate
                                          67.50
27551
                                                          75.0
27552
                            FabBox
                                         200.00
                                                         200.0
27553
                                         396.00
                            Tetley
                                                         495.0
27554
       United Colors Of Benetton
                                         214.53
                                                         390.0
                            type
                                  rating \
0
               Hair Oil & Serum
                                      4.1
1
         Water & Fridge Bottles
                                      2.3
2
                 Lamp & Lamp Oil
                                      3.4
3
       Laundry, Storage Baskets
                                      3.7
           Bathing Bars & Soaps
4
                                      4.4
                                      . . .
27550
                         Perfume
                                      3.9
27551
      Herbs, Seasonings & Rubs
                                      4.0
```

```
27552
                 Nachos & Chips
                                    3.8
27553
                       Tea Bags
                                    4.2
27554
               Men's Deodorants
                                    4.5
                                             description
       This Product contains Garlic Oil that is known...
1
       Each product is microwave safe (without lid), ...
2
       A perfect gift for all occasions, be it your m...
3
       Multipurpose container with an attractive desi...
4
       Nivea Creme Soft Soap gives your skin the best...
      Layerr brings you Wottagirl Classic fragrant b...
27550
27551
     Puramate rosemary is enough to transform a dis...
27552 We have taken the richness of Sweet Potatoes (...
27553
      Tetley Green Tea with its refreshing pure, ori...
27554 The new mens fragrance from the United Dreams ...
[27555 rows x 9 columns]
```

Saving Copy of Dataset

```
df.to_csv("BigBasket_Clean.csv", index=False)
```