

```

In [219..] import pandas as pd
import numpy as np
import scipy.stats as stats
import random as r
import matplotlib.pyplot as plt
import seaborn as sns
import scipy as sp
import random as r

# ignore stupid warnings
import warnings
warnings.filterwarnings('ignore')

In [220..] df = pd.read_csv('pizza_data.csv')
df.head()

Out[220..]
  Company      Pizza Name      Type      Size  Price
0  Domino's Pizza  Hand Tossed  Cheeses Pizza  Small (10")  $5.99
1  Domino's Pizza  Hand Tossed  Cheeses Pizza  Medium (12")  $7.99
2  Domino's Pizza  Hand Tossed  Cheeses Pizza  Large (14")  $9.99
3  Domino's Pizza  Handmade Pan  Cheeses Pizza  Medium (12")  $7.99
4  Domino's Pizza  Crunchy Thin Crust  Cheeses Pizza  Small (10")  $5.99

In [221..] df.isnull().sum()

Out[221..]
Company      0
Pizza Name   0
Type         0
Size         0
Price        0
dtype: int64

In [222..] df.dtypes

Out[222..]
Company      object
Pizza Name   object
Type         object
Size         object
Price        object
dtype: object

Good dataset but now I want pizza

summarize price first then summarize it by company

then you can look for relationships between price and other factors such as size

In [223..] len(df['Price'].unique())

Out[223..] 56

In [224..] df['Price'].unique()

Out[224..] array(['$5.99', '$7.99', '$9.99', '$11.99', '$8.99', '$13.99', '$15.99',
      '$17.99', '$14.99', '$15.49', '$8.49', '$10.49', '$4.29', '$12.49',
      '$4.79', '$17.49', '$13.49', '$16.49', '$5.29', '$18.49', '$4.99',
      '$10.99', '$12.99', '$18.99', '$19.99', '$22.24', '$23.99',
      '$27.99', '$26.23', '$16.99', '$21.99', '$22.49', '$25.99',
      '$26.49', '$29.99', '$20.99', '$24.99', '$28.99', '$12.69',
      '$15.34', '$15.24', '$18.69', '$18.74', '$12.70', '$16.20',
      '$19.99', '$23.85', '$9.30', '$11.60', '$14.43', '$17.35',
      '$19.20', '$11.80', '$14.95', '$18.65', '$22.30'], dtype=object)

In [225..] df[df['Company'] == "Domino's Pizza"]['Type'].unique()

Out[225..] array(['Cheeses Pizza', 'Specialty Pizzas', 'Feast Pizzas'], dtype=object)

In [226..] df[df['Company'] == "Godfather's Pizza"]['Type'].unique()

Out[226..] array(['Cheese Pizza', 'Specialty Pizzas', 'Gluten-Free Pizzas',
      'Express Favorites'], dtype=object)

In [227..] df[df['Company'] == "IMO's Pizza"]['Type'].unique()

```

```
[227.] array(['Specialty Pizzas'], dtype=object)
```

```
In [228.]: df[df['Company'] == "Pizza Hut"]['Type'].unique()
Out[228.]: array(['Cheese Pizza', 'Classic Recipe Pizzas', 'New Recipe Pizzas',
        'Skinny Pizzas', 'Gluten-Free Pizzas'], dtype=object)
```

1.) Delete dollar signs and conver price to float

```
In [229.]: df = pd.read_csv('pizza_data.csv')
df.head()
```

	Company	Pizza Name	Type	Size	Price
0	Domino's Pizza	Hand Tossed	Cheeses Pizza	Small (10")	\$5.99
1	Domino's Pizza	Hand Tossed	Cheeses Pizza	Medium (12")	\$7.99
2	Domino's Pizza	Hand Tossed	Cheeses Pizza	Large (14")	\$9.99
3	Domino's Pizza	Handmade Pan	Cheeses Pizza	Medium (12")	\$7.99
4	Domino's Pizza	Crunchy Thin Crust	Cheeses Pizza	Small (10")	\$5.99

```
In [230.]: for i,j in enumerate(df['Price']):
df['Price'][i] = df['Price'][i][1:]

df['Price'] = pd.to_numeric(df['Price'])
df.head()
```

	Company	Pizza Name	Type	Size	Price
0	Domino's Pizza	Hand Tossed	Cheeses Pizza	Small (10")	5.99
1	Domino's Pizza	Hand Tossed	Cheeses Pizza	Medium (12")	7.99
2	Domino's Pizza	Hand Tossed	Cheeses Pizza	Large (14")	9.99
3	Domino's Pizza	Handmade Pan	Cheeses Pizza	Medium (12")	7.99
4	Domino's Pizza	Crunchy Thin Crust	Cheeses Pizza	Small (10")	5.99

2.) Converting Size To Inches

```
In [231.]: df['Diameter(inches)'] = 'n/a'
df.head()
```

	Company	Pizza Name	Type	Size	Price	Diameter(inches)
0	Domino's Pizza	Hand Tossed	Cheeses Pizza	Small (10")	5.99	n/a

	Company	Pizza Name	Type	Size	Price	Diameter(inches)
0	Domino's Pizza	Hand Tossed	Cheeses Pizza	Small (10")	5.99	10
1	Domino's Pizza	Hand Tossed	Cheeses Pizza	Medium (12")	7.99	12
2	Domino's Pizza	Hand Tossed	Cheeses Pizza	Large (14")	9.99	14
3	Domino's Pizza	Handmade Pan	Cheeses Pizza	Medium (12")	7.99	12
4	Domino's Pizza	Crunchy Thin Crust	Cheeses Pizza	Small (10")	5.99	10

3) Condensing the Pizza name into 8 toppings

```
In [ ]:
```

3.) Condensing the Pizza Name into 6 toppings

```
In [238]: pizza_name_cat = {'Hand Tossed':'cheese',
    'Handmade Pan':'cheese',
    'Crunchy Thin Crust':'cheese',
    'Brooklyn Style':'cheese',
    'Gluten Free Crust':'cheese',
    'Spinach & Peta (Hand Tossed or Thin Crust)':'other',
    'Spinach & Peta (Hand Tossed, Handmade Pan or Thin Crust)':'other',
    'Spinach & Peta (Hand Tossed, Thin Crust or Brooklyn Style)':'other',
    'Spinach & Peta (Brooklyn Style)':'other',
    'Spinach & Peta (Gluten Free Crust)':'other',
    'Wisconsin 6 Cheese (Hand Tossed or Thin Crust)':'other',
    'Wisconsin 6 Cheese (Hand Tossed, Handmade Pan or Thin Crust)':'other',
    'Wisconsin 6 Cheese (Hand Tossed, Thin Crust or Brooklyn Style)':'other',
    'Wisconsin 6 Cheese (Brooklyn Style)':'other',
    'Wisconsin 6 Cheese (Gluten Free Crust)':'other',
    'Honolulu Hawaiian (Hand Tossed or Thin Crust)':'hawaiian',
    'Honolulu Hawaiian (Hand Tossed, Handmade Pan or Thin Crust)':'hawaiian',
    'Honolulu Hawaiian (Hand Tossed, Thin Crust or Brooklyn Style)':'hawaiian',
    'Honolulu Hawaiian (Brooklyn Style)':'hawaiian',
    'Honolulu Hawaiian (Gluten Free Crust)':'hawaiian',
    'Philly Cheese Steak (Hand Tossed or Thin Crust)':'other',
    'Philly Cheese Steak (Hand Tossed, Handmade Pan or Thin Crust)':'other',
    'Philly Cheese Steak (Hand Tossed, Thin Crust or Brooklyn Style)':'other',
    'Philly Cheese Steak (Brooklyn Style)':'other',
    'Philly Cheese Steak (Gluten Free Crust)':'other',
    'Pacific Veggie (Hand Tossed or Thin Crust)':'veggie',
    'Pacific Veggie (Hand Tossed, Handmade Pan or Thin Crust)':'veggie',
    'Pacific Veggie (Hand Tossed, Thin Crust or Brooklyn Style)':'veggie',
    'Pacific Veggie (Brooklyn Style)':'veggie',
    'Pacific Veggie (Gluten Free Crust)':'veggie',
    'Cali Chicken Bacon Ranch' (Hand Tossed or Thin Crust)':'other',
    'Cali Chicken Bacon Ranch' (Hand Tossed, Handmade Pan or Thin Crust)':'other',
    'Cali Chicken Bacon Ranch' (Hand Tossed, Thin Crust or Brooklyn Style)':'other',
    'Cali Chicken Bacon Ranch' (Brooklyn Style)':'other',
    'Cali Chicken Bacon Ranch' (Gluten Free Crust)':'other',
    'Fiery Hawaiian' (Hand Tossed or Thin Crust)':'hawaiian',
    'Fiery Hawaiian' (Hand Tossed, Handmade Pan or Thin Crust)':'hawaiian',
    'Fiery Hawaiian' (Hand Tossed, Thin Crust or Brooklyn Style)':'hawaiian',
    'Fiery Hawaiian' (Brooklyn Style)':'hawaiian',
    'Fiery Hawaiian' (Gluten Free Crust)':'hawaiian',
    'Buffalo Chicken (Hand Tossed or Thin Crust)':'chicken',
    'Buffalo Chicken (Hand Tossed, Handmade Pan or Thin Crust)':'chicken',
    'Buffalo Chicken (Hand Tossed, Thin Crust or Brooklyn Style)':'chicken',
    'Buffalo Chicken (Brooklyn Style)':'chicken',
    'Buffalo Chicken (Gluten Free Crust)':'chicken',
    'Memphis BBQ Chicken (Hand Tossed or Thin Crust)':'chicken',
    'Memphis BBQ Chicken (Hand Tossed, Handmade Pan or Thin Crust)':'chicken',
    'Memphis BBQ Chicken (Hand Tossed, Thin Crust or Brooklyn Style)':'chicken',
    'Memphis BBQ Chicken (Brooklyn Style)':'chicken',
    'Memphis BBQ Chicken (Gluten Free Crust)':'chicken',
    'America's Favorite Beards (Hand Tossed or Thin Crust)':'other'.
```

```
'America's Favorite Feast@ (Gluten Free Crust)':'other',
' Bacon Cheeseburger Feast@ (Hand Tossed or Thin Crust)':'bacon cheeseburger',
' Bacon Cheeseburger Feast@ (Handmade Pan)':'bacon cheeseburger',
' Bacon Cheeseburger: Feast@ (Hand Tossed, Thin Crust or Brooklyn Style)':'bacon cheeseburger',
' Bacon Cheeseburger Feast@ (Brooklyn Style)':'bacon cheeseburger',
' Bacon Cheeseburger Feast@ (Gluten Free Crust)':'bacon cheeseburger',
'Deluxe Feast@ (Hand Tossed or Thin Crust)':'supreme',
```

```

'Deluxe Feast0 (Handmade Pan)':'supreme',
'Deluxe Feast0 (Hand Tossed, Thin Crust or Brooklyn Style)':'supreme',
'Deluxe Feast0 (Brooklyn Style)':'supreme',
'Deluxe Feast0 (Gluten Free Crust)':'supreme',
'ExtravaganZa Feast0 (Hand Tossed or Thin Crust)':'supreme',
'ExtravaganZa Feast0 (Hand Tossed, Handmade Pan or Thin Crust)':'supreme',
'ExtravaganZa Feast0 (Hand Tossed, Thin Crust or Brooklyn Style)':'supreme',
'ExtravaganZa Feast0 (Brooklyn Style)':'supreme',
'ExtravaganZa Feast0 (Gluten Free Crust)':'supreme',
'MeatZa Feast0 (Hand Tossed or Thin Crust)':'meat',
'MeatZa Feast0 (Hand Tossed, Handmade Pan or Thin Crust)':'meat',
'MeatZa Feast0 (Hand Tossed, Thin Crust or Brooklyn Style)':'meat',
'MeatZa Feast0 (Brooklyn Style)':'meat',
'MeatZa Feast0 (Gluten Free Crust)':'meat',
'Ultimate Pepperoni Feast0 (Hand Tossed or Thin Crust)':'pepperoni',
'Ultimate Pepperoni Feast0 (Hand Tossed, Handmade Pan or Thin Crust)':'pepperoni',
'Ultimate Pepperoni Feast0 (Hand Tossed, Thin Crust or Brooklyn Style)':'pepperoni',
'Ultimate Pepperoni Feast0 (Brooklyn Style)':'pepperoni',
'Ultimate Pepperoni Feast0 (Gluten Free Crust)':'pepperoni',

'Cheese (Original Crust)':'cheese',
'Cheese (Original or Golden Crust)':'cheese',
'Cheese (Original, Golden or Thin Crust)':'cheese',
'Cheese (Mozza-Loaded Crust)':'cheese',
'Cheese (Original or Thin Crust)':'cheese',
'All-Meat Combo Pizza (Original Crust)':'meat',
'All-Meat Combo Pizza (Original or Golden Crust)':'meat',
'All-Meat Combo Pizza (Original, Golden or Thin Crust)':'meat',
'All-Meat Combo Pizza (Mozza-Loaded Crust)':'meat',
'Bacon Cheeseburger Pizza (Original Crust)':'bacon cheeseburger',
'Bacon Cheeseburger Pizza (Original or Golden Crust)':'bacon cheeseburger',
'Bacon Cheeseburger Pizza (Original, Golden or Thin Crust)':'bacon cheeseburger',
'Bacon Cheeseburger Pizza (Mozza-Loaded Crust)':'bacon cheeseburger',
'Bacon Cheeseburger Pizza (Original or Thin Crust)':'bacon cheeseburger',
'Taco Pie Pizza (Original Crust)':'other',
'Taco Pie Pizza (Original or Golden Crust)':'other',
'Taco Pie Pizza (Original, Golden or Thin Crust)':'other',
'Taco Pie Pizza (Mozza-Loaded Crust)':'other',
'Taco Pie Pizza (Original or Thin Crust)':'other',
'Classic Combo Pizza (Original Crust)':'supreme',
'Classic Combo Pizza (Original or Golden Crust)':'supreme',
'Classic Combo Pizza (Original, Golden or Thin Crust)':'supreme',
'Classic Combo Pizza (Mozza-Loaded Crust)':'supreme',
'Classic Combo Pizza (Original or Thin Crust)':'supreme',
'Humble Pie Pizza (Original Crust)':'other',
'Humble Pie Pizza (Original or Golden Crust)':'other',
'Humble Pie Pizza (Original, Golden or Thin Crust)':'other',
'Humble Pie Pizza (Mozza-Loaded Crust)':'other',
'Humble Pie Pizza (Original or Thin Crust)':'other',
'Veggie Pie Pizza (Original Crust)':'veggie',
'Veggie Pie Pizza (Original or Golden Crust)':'veggie',
'Veggie Pie Pizza (Original, Golden or Thin Crust)':'veggie',
'Veggie Pie Pizza (Mozza-Loaded Crust)':'veggie',
'Veggie Pie Pizza (Original or Thin Crust)':'veggie',
'Hot Stuff Pizza (Original Crust)':'other',
'Hot Stuff Pizza (Original or Golden Crust)':'other',
'Hot Stuff Pizza (Original, Golden or Thin Crust)':'other',
'Hot Stuff Pizza (Mozza-Loaded Crust)':'other',
'Hot Stuff Pizza (Original or Thin Crust)':'other',
'Hawaiian Pizza (Original Crust)':'hawaiian',
'Hawaiian Pizza (Original, Golden or Thin Crust)':'hawaiian',
'Hawaiian Pizza (Mozza-Loaded Crust)':'hawaiian',
'Hawaiian Pizza (Original or Thin Crust)':'hawaiian',
'BLT Pizza (Original Crust)':'other',
'BLT Pizza (Original or Golden Crust)':'other',
'BLT Pizza (Original, Golden or Thin Crust)':'other',
'BLT Pizza (Mozza-Loaded Crust)':'other',
'BLT Pizza (Original or Thin Crust)':'other',
'Buffalo Chicken Pizza (Original Crust)':'chicken',
'Buffalo Chicken Pizza (Original or Golden Crust)':'chicken',
'Buffalo Chicken Pizza (Original, Golden or Thin Crust)':'chicken',
'Buffalo Chicken Pizza (Mozza-Loaded Crust)':'chicken',
'Buffalo Chicken Pizza (Original or Thin Crust)':'chicken',

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```
'Super Combo Pizza (Original or Golden Crust)': 'supreme',
'Super Combo Pizza (Original, Golden or Thin Crust)': 'supreme',
'Super Combo Pizza (Mozza-Loaded Crust)': 'supreme',
'Super Combo Pizza (Original or Thin Crust)': 'supreme',
'Super Hawaiian Pizza (Original or Golden Crust)': 'hawaiian',
'Super Hawaiian Pizza (Original, Golden or Thin Crust)': 'hawaiian',
'Super Hawaiian Pizza (Mozza-Loaded Crust)': 'hawaiian',
'Super Hawaiian Pizza (Original or Thin Crust)': 'hawaiian',
'Super Taco Pizza (Original or Golden Crust)': 'other',
'Super Taco Pizza (Original, Golden or Thin Crust)': 'other',
'Super Taco Pizza (Mozza-Loaded Crust)': 'other',
'Super Taco Pizza (Original or Thin Crust)': 'other',
'The Don (Original or Golden Crust)': 'other',
'The Don (Original, Golden or Thin Crust)': 'other',
'The Don (Mozza-Loaded Crust)': 'other',
'The Don (Original or Thin Crust)': 'other',
'Super Veggie Pizza (Original or Golden Crust)': 'vegie',
'Super Veggie Pizza (Original, Golden or Thin Crust)': 'vegie',
'Super Veggie Pizza (Mozza-Loaded Crust)': 'vegie',
'Super Veggie Pizza (Original or Thin Crust)': 'vegie',
'BBQ Bacon Cheeseburger Pizza (Original Crust)': 'bacon cheeseburger',
'BBQ Bacon Cheeseburger Pizza (Original, Golden or Thin Crust)': 'bacon cheeseburger',
'BBQ Bacon Cheeseburger Pizza (Mozza-Loaded Crust)': 'bacon cheeseburger',
'Chipotle Chicken and Bacon Pizza (Original Crust)': 'other',
'Chipotle Chicken and Bacon Pizza (Original, Golden or Thin Crust)': 'other',
'Chipotle Chicken and Bacon Pizza (Mozza-Loaded Crust)': 'other',
'Margarita Pizza (Original, Golden or Thin Crust)': 'other',
'Margarita Pizza (Thin Crust)': 'other',
'Margarita Chicken Pizza (Original, Golden or Thin Crust)': 'other',
'Margarita Chicken Pizza (Thin Crust)': 'other',
'Thin Crust': 'cheese',
'Original Crust': 'cheese',
'Original or Golden Crust': 'cheese',
'Original, Golden or Thin Crust': 'cheese',
'Mozza-Loaded Crust': 'cheese',
'Original or Thin Crust': 'cheese',

'Deluxe Pizza': 'supreme',
'Veggie Pizza': 'vegie',
'Cheese Pizza': 'cheese',
'All Meat Pizza': 'meat',
'BBQ Chicken Pizza': 'chicken',
'Egy-Ceptional Pizza': 'other',

'Hand-Tossed': 'cheese',
'Pan Pizzaz': 'cheese',
'Thin N Crispy': 'cheese',
'Stuffed Crust': 'cheese',
'Skinny Slice': 'cheese',
'Pepperoni Lover's® Pizza (Hand-Tossed)': 'pepperoni',
'Pepperoni Lover's® Pizza (Pan Pizzaz)': 'pepperoni',
'Pepperoni Lover's® Pizza (Thin N Crispy)': 'pepperoni',
'Pepperoni Lover's® Pizza (Stuffed Crust)': 'pepperoni',
'Pepperoni Lover's® Pizza (Skinny Slice)': 'pepperoni',
'Meat Lover's® Pizza (Hand-Tossed)': 'meat',
'Meat Lover's® Pizza (Pan Pizzaz)': 'meat',
'Meat Lover's® Pizza (Thin N Crispy)': 'meat',
'Meat Lover's® Pizza (Stuffed Crust)': 'meat',
'Meat Lover's® Pizza (Skinny Slice)': 'meat',
'Ultimate Cheese Lover's® Pizza (Hand-Tossed)': 'other',
'Ultimate Cheese Lover's® Pizza (Pan Pizzaz)': 'other',
'Ultimate Cheese Lover's® Pizza (Thin N Crispy)': 'other',
'Ultimate Cheese Lover's® Pizza (Stuffed Crust)': 'other',
'Ultimate Cheese Lover's® Pizza (Skinny Slice)': 'other',
'Veggie Lover's® Pizza (Hand-Tossed)': 'vegie',
'Veggie Lover's® Pizza (Pan Pizzaz)': 'vegie',
'Veggie Lover's® Pizza (Thin N Crispy)': 'vegie',
'Veggie Lover's® Pizza (Stuffed Crust)': 'vegie',
'Veggie Lover's® Pizza (Skinny Slice)': 'vegie',
'Skinny Slice': 'cheese',
```

```

'Supreme Pizza (Pan Pizza)': 'supreme',
'Supreme Pizza (Thin N Crispy)': 'supreme',
'Supreme Pizza (Stuffed Crust)': 'supreme',
'Supreme Pizza (Skinny Slice)': 'supreme',
'BBQ Lover's™ (Hand-Tossed)': 'other',
'BBQ Lover's™ (Pan Pizza)': 'other',
'BBQ Lover's™ (Thin N Crispy)': 'other',
'BBQ Lover's™ (Stuffed Crust)': 'other',
'BBQ Lover's™ (Skinny Slice)': 'other',
'Chicken Supreme Pizza (Hand-Tossed)': 'supreme',
'Chicken Supreme Pizza (Pan Pizza)': 'supreme',
'Chicken Supreme Pizza (Thin N Crispy)': 'supreme',
'Chicken Supreme Pizza (Stuffed Crust)': 'supreme',
'Chicken Supreme Pizza (Skinny Slice)': 'supreme',
'New Primo Meat Pizza (Hand-Tossed)': 'meat',
'New Primo Meat Pizza (Pan Pizza)': 'meat',
'New Primo Meat Pizza (Thin N Crispy)': 'meat',
'New Primo Meat Pizza (Stuffed Crust)': 'meat',
'New Primo Meat Pizza (Skinny Slice)': 'meat',
'Hawaiian Luau (Hand-Tossed)': 'hawaiian',
'Hawaiian Luau (Pan Pizza)': 'hawaiian',
'Hawaiian Luau (Thin N Crispy)': 'hawaiian',
'Hawaiian Luau (Stuffed Crust)': 'hawaiian',
'Hawaiian Luau (Skinny Slice)': 'hawaiian',
'Super Supreme Pizza (Hand-Tossed)': 'supreme',
'Super Supreme Pizza (Pan Pizza)': 'supreme',
'Super Supreme Pizza (Thin N Crispy)': 'supreme',
'Super Supreme Pizza (Stuffed Crust)': 'supreme',
'Super Supreme Pizza (Skinny Slice)': 'supreme',
'Garden Party™ (Thin N Crispy)': 'other',
'Old Fashioned Meatbrown™ (Pan Pizza)': 'other',
'Cook-a-doodle Bacon™ (Hand-Tossed)': 'other',
'Hot and Twisted™ (Hand-Tossed)': 'other',
'Pretzel Piggy™ (Hand-Tossed)': 'other',
'BBQ Bacon Cheeseburger (Hand-Tossed)': 'bacon cheeseburger',
'Giddy-Up BBQ Chicken™ (Hand-Tossed)': 'chicken',
'Buffalo State of Mind™ (Hand-Tossed)': 'chicken',
'Cherry Pepper Bombshell™ (Thin N Crispy)': 'other',
'Alarm Fire™ (Hand-Tossed)': 'other',
'Skinny Beach™ (Skinny Slice)': 'other',
'Skinny With A Kick™ (Skinny Slice)': 'other',
'Skinny Italy (Skinny Slice)': 'other',
'Skinny Luau™ (Skinny Slice)': 'other',
'Skinny Club™ (Skinny Slice)': 'other',
'Create Your Own (Gluten-Free Crust)': 'other' }

```

	0	Domino's Pizza	Hand Tossed	Cheeses Pizza	Small (10") 5.99 10 cheese
	1	Domino's Pizza	Hand Tossed	Cheeses Pizza	Medium (12") 7.99 12 cheese
	2	Domino's Pizza	Hand Tossed	Cheeses Pizza	Large (14") 9.99 14 cheese
	3	Domino's Pizza	Handmade Pan	Cheeses Pizza	Medium (12") 7.99 12 cheese
	4	Domino's Pizza	Crunchy Thin Crust	Cheeses Pizza	Small (10") 5.99 10 cheese
In [240]		df['Company'].value_counts()			
Out[240]		<pre> Godfather's Pizza 133 Pizza Hut 126 Domino's Pizza 88 IMO's Pizza 24 Name: Company, dtype: int64 </pre>			
In [241]		df['Pizza Name'].value_counts()			
Out[241]		<pre> BBQ Bacon Cheeseburger Pizza (Original, Golden or Thin Crust) 4 Chicago's Chicken and Bacon Pizza (Original, Golden or Thin Crust) 4 Cheese Pizza 4 Egg-Optional Pizza 4 BBQ Chicken Pizza 4 .. Spinach & Peta (Hand Tossed, Thin Crust or Brooklyn Style) 1 Skinny Italy (Skinny Slice) 1 Taco Pie Pizza (Original or Golden Crust) 1 Spinach & Peta (Gluten Free Crust) 1 Fiery Hawaiian™ (Hand Tossed, Thin Crust or Brooklyn Style) 1 Name: Pizza Name, Length: 247, dtype: int64 </pre>			
In [242]		df['Type'].value_counts()			
Out[242]		<pre> Specialty Pizzas 186 Classic Recipe Pizzas 90 Feast Pizzas 33 New Recipe Pizzas 21 Cheese Pizzas 16 Cheeses Pizza 10 Express Favorites 7 Skinny Pizzas 5 Gluten-Free Pizzas 3 Name: Type, dtype: int64 </pre>			
In [243]		df['Size'].value_counts()			
Out[243]		<pre> Large 111 Medium 84 Small (10") 39 Medium (12") 27 Large (14") 24 Small 19 </pre>			

```

Jumbo             18
X-Large (16")     16
Mini              14
Personal          12
X Large (16")      6
Name: Size, dtype: int64

```

```

In [244]: df.columns

Out[244]: Index(['Company', 'Pizza Name', 'Type', 'Size', 'Price', 'Diameter(inches)',
                  'Toppings'],
                  dtype='object')

```

Make a catogorical variable for price

```

In [245]: price = df['Price']
q13 = df['Price'].quantile(1/3)
q23 = df['Price'].quantile(2/3)
price_level = []
for i in price:
    if i < q13:
        price_level.append('low')
    elif q13 <= i < q23:
        price_level.append('medium')
    else:
        price_level.append('high')

```

```

In [246]: df['Price_Level'] = price_level

```

```

In [ ]:

```

Rearange columns

```

In [247]: column_names_order = ['Company', 'Pizza Name', 'Type', 'Size', 'Diameter(inches)', 'Toppings', 'Price_Level', 'Price']

In [248]: df = df.reindex(columns=column_names_order)
df.head()

```

	Company	Pizza Name	Type	Size	Diameter(inches)	Toppings	Price_Level	Price
0	Domino's Pizza	Hand Tossed	Cheeses Pizza	Small (10")	10	cheese	low	5.99
1	Domino's Pizza	Hand Tossed	Cheeses Pizza	Medium (12")	12	cheese	low	7.99
2	Domino's Pizza	Hand Tossed	Cheeses Pizza	Large (14")	14	cheese	low	9.99
3	Domino's Pizza	Handmade Pan	Cheeses Pizza	Medium (12")	12	cheese	low	7.99

```
4 Domino's Pizza    Crunchy Thin Crust    Cheeses Pizza    Small (10")    10    cheese    low    5.99
```

Delete related Columns

```
In [249]: del df['Pizza Name']
del df['Size']
df.head()
```

	Company	Type	Diameter(inches)	Toppings	Price_Level	Price
0	Domino's Pizza	Cheeses Pizza	10	cheese	low	5.99
1	Domino's Pizza	Cheeses Pizza	12	cheese	low	7.99
2	Domino's Pizza	Cheeses Pizza	14	cheese	low	9.99
3	Domino's Pizza	Cheeses Pizza	12	cheese	low	7.99
4	Domino's Pizza	Cheeses Pizza	10	cheese	low	5.99

Condense The Pizza Type

Specialty Pizzas: 186

Classic Recipe Pizzas: 90

Feast Pizzas: 33

Rest: other type

```
In [250]: for i,j in enumerate(df['Type']):
if (df['Type'][i] == 'Specialty Pizzas') or (df['Type'][i] == 'Classic Recipe Pizzas') or (df['Type'][i] == 'None'):
    None
else:
    df['Type'][i] = 'other'

df.head()
```

	Company	Type	Diameter(inches)	Toppings	Price_Level	Price
0	Domino's Pizza	other	10	cheese	low	5.99
1	Domino's Pizza	other	12	cheese	low	7.99
2	Domino's Pizza	other	14	cheese	low	9.99
3	Domino's Pizza	other	12	cheese	low	7.99
4	Domino's Pizza	other	10	cheese	low	5.99

```
In [262]:
```

```

In [240]: df['Price_Level'].value_counts()

Out[263]:
medium    133
high      125
low       113
Name: Price_Level, dtype: int64

In [251]: df.dtypes

Out[251]:
Company      object
Type         object
Diameter(inches)  int64
Toppings     object
Price_Level  object
Price        float64
dtype: object

In [259]: len(df['Type'].value_counts())

Out[259]:
4

In [253]: df['Price_Level'].value_counts()

Out[253]:
medium    133
high      125
low       113
Name: Price_Level, dtype: int64

In [254]: df.to_csv (z'pizza_updated.csv', index = False, header=True)

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:

```