

```
In [34]: import pandas as pd
from pandas import DataFrame
import lxml
from pandas import Series, DataFrame
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

In [7]: data=pd.read_html("https://www.gourmetfoodstore.com/wine-cheese-15193", flavor= "html5lib")
data[0]
```

	0	1	2	3
0	Type of Wine	Example	Cheese Type	Example
1	Dry White Wines, light to med-bodied	Auxerrois, Travigne White and Rose, Chardonnay...	Cream based Fresh no rind, Most Goat's cheeses...	Crème fraîche, mozzarella, Fontina, Chèvre, Cr...
2	Dry White Wines, Full-Bodied	Chardonnay Reserve Chardonnay Single Vineyards...	Semi-softGrey-pink thick rind Soft cheeses w/ ...	Brie; Camembert; Port-Salut, Chaource, Livarot...
3	Dry White Wines, Full-Bodied	Chardonnay Reserve Chardonnay Single Vineyards...	Semi-softGrey-pink thick rind Soft cheeses w/ ...	Brie; Camembert; Port-Salut, Chaource, Livarot...
4	Dry Red Wines, Light to Med-Bodied, Fruity	Merlot Pinot NoirCabernet Franc	Fresh with no rind Soft cheeses with bloomy ri...	Brie, Edam, Emmental, Gouda, Gruyere, Mozzarel...
5	Dry Red Wines, Medium-Bodied, Complex	NaN	Soft w/ washed rindSticky orange-red, brownish...	Vacherin, Munster, Langres, Mature Epoisses, M...
6	Dry Red Wines Full-Bodied	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Hard Cheeses, waxed or oiled	Parmigiano Reggiano, Ricotta Salata, Romano, A...

```
In [9]: #Cheese Pairing by Type of Wine
data_wine=pd.DataFrame(data[0])
data_wine
```

	0	1	2	3
0	Type of Wine	Example	Cheese Type	Example
1	Dry White Wines, light to med-bodied	Auxerrois, Travigne White and Rose, Chardonnay...	Cream based Fresh no rind, Most Goat's cheeses...	Crème fraîche, mozzarella, Fontina, Chèvre, Cr...
2	Dry White Wines, Full-Bodied	Chardonnay Reserve Chardonnay Single Vineyards...	Semi-softGrey-pink thick rind Soft cheeses w/ ...	Brie; Camembert; Port-Salut, Chaource, Livarot...
3	Dry White Wines, Full-Bodied	Chardonnay Reserve Chardonnay Single Vineyards...	Semi-softGrey-pink thick rind Soft cheeses w/ ...	Brie; Camembert; Port-Salut, Chaource, Livarot...
4	Dry Red Wines, Light to Med-Bodied, Fruity	Merlot Pinot NoirCabernet Franc	Fresh with no rind Soft cheeses with bloomy ri...	Brie, Edam, Emmental, Gouda, Gruyere, Mozzarel...
5	Dry Red Wines, Medium-Bodied, Complex	NaN	Soft w/ washed rindSticky orange-red, brownish...	Vacherin, Munster, Langres, Mature Epoisses, M...
6	Dry Red Wines Full-Bodied	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Hard Cheeses, waxed or oiled	Parmigiano Reggiano, Ricotta Salata, Romano, A...

```
In [10]: #Rename columns
data_wine.columns=["Type of Wine":"0", "Wine Examples":"1", "Cheese Type":"2", "Cheese Examples":"3"]
data_wine
```

	Type of Wine	Wine Examples	Cheese Type	Cheese Examples
0	Type of Wine	Example	Cheese Type	Example
1	Dry White Wines, light to med-bodied	Auxerrois, Travigne White and Rose, Chardonnay...	Cream based Fresh no rind, Most Goat's cheeses...	Crème fraîche, mozzarella, Fontina, Chèvre, Cr...
2	Dry White Wines, Full-Bodied	Chardonnay Reserve Chardonnay Single Vineyards...	Semi-softGrey-pink thick rind Soft cheeses w/ ...	Brie; Camembert; Port-Salut, Chaource, Livarot...
3	Dry White Wines, Full-Bodied	Chardonnay Reserve Chardonnay Single Vineyards...	Semi-softGrey-pink thick rind Soft cheeses w/ ...	Brie; Camembert; Port-Salut, Chaource, Livarot...
4	Dry Red Wines, Light to Med-Bodied, Fruity	Merlot Pinot NoirCabernet Franc	Fresh with no rind Soft cheeses with bloomy ri...	Brie, Edam, Emmental, Gouda, Gruyere, Mozzarel...
5	Dry Red Wines, Medium-Bodied, Complex	NaN	Soft w/ washed rindSticky orange-red, brownish...	Vacherin, Munster, Langres, Mature Epoisses, M...
6	Dry Red Wines Full-Bodied	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Hard Cheeses, waxed or oiled	Parmigiano Reggiano, Ricotta Salata, Romano, A...

```
In [12]: #Delete row 0
data_wined=data_wine.drop(data_wine.index[0])
data_wined
```

	Type of Wine	Wine Examples	Cheese Type	Cheese Examples
1	Dry White Wines, light to med-bodied	Auxerrois, Travigne White and Rose, Chardonnay...	Cream based Fresh no rind, Most Goat's cheeses...	Crème fraîche, mozzarella, Fontina, Chèvre, Cr...
2	Dry White Wines, Full-Bodied	Chardonnay Reserve Chardonnay Single Vineyards...	Semi-softGrey-pink thick rind Soft cheeses w/ ...	Brie; Camembert; Port-Salut, Chaource, Livarot...
3	Dry White Wines, Full-Bodied	Chardonnay Reserve Chardonnay Single Vineyards...	Semi-softGrey-pink thick rind Soft cheeses w/ ...	Brie; Camembert; Port-Salut, Chaource, Livarot...
4	Dry Red Wines, Light to Med-Bodied, Fruity	Merlot Pinot NoirCabernet Franc	Fresh with no rind Soft cheeses with bloomy ri...	Brie, Edam, Emmental, Gouda, Gruyere, Mozzarel...
5	Dry Red Wines, Medium-Bodied, Complex	NaN	Soft w/ washed rindSticky orange-red, brownish...	Vacherin, Munster, Langres, Mature Epoisses, M...
6	Dry Red Wines Full-Bodied	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Hard Cheeses, waxed or oiled	Parmigiano Reggiano, Ricotta Salata, Romano, A...

```
In [13]: #Turn the DF into a CSV
data_wined.to_csv("TypeofWineToCheese")

In [14]: #Split by Type of Wine
s = data_wined['Type of Wine'].str.split(',').apply(Series, 1).stack()
s.index = s.index.droplevel(-1) # to line up with df's index
s.name = 'Type of Wine' # needs a name to join
del data_wined['Type of Wine']
SplitWine=data_wined.join(s)
SplitWine
```

	Wine Examples	Cheese Type	Cheese Examples	Type of Wine
1	Auxerrois, Travigne White and Rose, Chardonnay...	Cream based Fresh no rind, Most Goat's cheeses...	Crème fraîche, mozzarella, Fontina, Chèvre, Cr...	Dry White Wines
1	Auxerrois, Travigne White and Rose, Chardonnay...	Cream based Fresh no rind, Most Goat's cheeses...	Crème fraîche, mozzarella, Fontina, Chèvre, Cr...	light to med-bodied
2	Chardonnay Reserve Chardonnay Single Vineyards...	Semi-softGrey-pink thick rind Soft cheeses w/ ...	Brie; Camembert; Port-Salut, Chaource, Livarot...	Dry White Wines
2	Chardonnay Reserve Chardonnay Single Vineyards...	Semi-softGrey-pink thick rind Soft cheeses w/ ...	Brie; Camembert; Port-Salut, Chaource, Livarot...	Full-Bodied
3	Chardonnay Reserve Chardonnay Single Vineyards...	Semi-softGrey-pink thick rind Soft cheeses w/ ...	Brie; Camembert; Port-Salut, Chaource, Livarot...	Dry White Wines
3	Chardonnay Reserve Chardonnay Single Vineyards...	Semi-softGrey-pink thick rind Soft cheeses w/ ...	Brie; Camembert; Port-Salut, Chaource, Livarot...	Full-Bodied
4	Merlot Pinot NoirCabernet Franc	Fresh with no rind Soft cheeses with bloomy ri...	Brie, Edam, Emmental, Gouda, Gruyere, Mozzarel...	Dry Red Wines
4	Merlot Pinot NoirCabernet Franc	Fresh with no rind Soft cheeses with bloomy ri...	Brie, Edam, Emmental, Gouda, Gruyere, Mozzarel...	Light to Med-Bodied
4	Merlot Pinot NoirCabernet Franc	Fresh with no rind Soft cheeses with bloomy ri...	Brie, Edam, Emmental, Gouda, Gruyere, Mozzarel...	Fruity
5	NaN	Soft w/ washed rindSticky orange-red, brownish...	Vacherin, Munster, Langres, Mature Epoisses, M...	Dry Red Wines
5	NaN	Soft w/ washed rindSticky orange-red, brownish...	Vacherin, Munster, Langres, Mature Epoisses, M...	Medium-Bodied
5	NaN	Soft w/ washed rindSticky orange-red, brownish...	Vacherin, Munster, Langres, Mature Epoisses, M...	Complex
6	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Hard Cheeses, waxed or oiled	Parmigiano Reggiano, Ricotta Salata, Romano, A...	Dry Red Wines Full-Bodied

```
In [15]: c = SplitWine['Cheese Examples'].str.split(',').apply(Series, 1).stack()
c.index = c.index.droplevel(-1) # to line up with df's index
c.name = 'Cheese Examples' # needs a name to join
del SplitWine['Cheese Examples']
SplitCheeseEx= SplitWine.join(c)
SplitCheeseEx
```

	Wine Examples	Cheese Type	Type of Wine	Cheese Examples
1	Auxerrois, Travigne White and Rose, Chardonnay...	Cream based Fresh no rind, Most Goat's cheeses...	Dry White Wines	Crème fraîche
1	Auxerrois, Travigne White and Rose, Chardonnay...	Cream based Fresh no rind, Most Goat's cheeses...	Dry White Wines	mozzarella
1	Auxerrois, Travigne White and Rose, Chardonnay...	Cream based Fresh no rind, Most Goat's cheeses...	Dry White Wines	Fontina
1	Auxerrois, Travigne White and Rose, Chardonnay...	Cream based Fresh no rind, Most Goat's cheeses...	Dry White Wines	Chèvre
1	Auxerrois, Travigne White and Rose, Chardonnay...	Cream based Fresh no rind, Most Goat's cheeses...	Dry White Wines	Crottin
...
6	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Hard Cheeses, waxed or oiled	Dry Red Wines Full-Bodied	Manchego
6	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Hard Cheeses, waxed or oiled	Dry Red Wines Full-Bodied	ComtéOld Gouda
6	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Hard Cheeses, waxed or oiled	Dry Red Wines Full-Bodied	Beaufort
6	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Hard Cheeses, waxed or oiled	Dry Red Wines Full-Bodied	Chèvre NoirMahon
6	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Hard Cheeses, waxed or oiled	Dry Red Wines Full-Bodied	Roncal

253 rows × 4 columns

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In [16]: c = SplitCheeseEx['Cheese Type'].str.split(',').apply(Series, 1).stack()
c.index = c.index.droplevel(-1) # to line up with df's index
c.name = 'Cheese Type' # needs a name to join
del SplitCheeseEx['Cheese Type']
SplitCheeseType= SplitCheeseEx.join(c)
SplitCheeseType
```

	Wine Examples	Type of Wine	Cheese Examples	Cheese Type
1	Auxerrois, Travigne White and Rose, Chardonnay...	Dry White Wines	Crème fraîche	Cream based Fresh no rind
1	Auxerrois, Travigne White and Rose, Chardonnay...	Dry White Wines	Crème fraîche	Most Goat's cheeses Blush-gray natural rind
1	Auxerrois, Travigne White and Rose, Chardonnay...	Dry White Wines	Crème fraîche	Cream based Fresh no rind
1	Auxerrois, Travigne White and Rose, Chardonnay...	Dry White Wines	Crème fraîche	Most Goat's cheeses Blush-gray natural rind
1	Auxerrois, Travigne White and Rose, Chardonnay...	Dry White Wines	Crème fraîche	Cream based Fresh no rind
...
6	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Dry Red Wines Full-Bodied	Roncal	waxed or oiled
6	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Dry Red Wines Full-Bodied	Roncal	Hard Cheeses
6	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Dry Red Wines Full-Bodied	Roncal	waxed or oiled
6	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Dry Red Wines Full-Bodied	Roncal	Hard Cheeses
6	Cabernet Franc Reserve,Merlot, Shiraz, Caberne...	Dry Red Wines Full-Bodied	Roncal	waxed or oiled

20457 rows × 4 columns

```
In [17]: c = SplitCheeseType['Wine Examples'].str.split(',').apply(Series, 1).stack()
c.index = c.index.droplevel(-1) # to line up with df's index
c.name = 'Wine Examples' # needs a name to join
del SplitCheeseType['Wine Examples']
SplitWineEx= SplitCheeseType.join(c)
SplitWineEx
```

	Type of Wine	Cheese Examples	Cheese Type	Wine Examples
1	Dry White Wines	Crème fraîche	Cream based Fresh no rind	Auxerrois
1	Dry White Wines	Crème fraîche	Cream based Fresh no rind	Travigne White and Rose
1	Dry White Wines	Crème fraîche	Cream based Fresh no rind	Chardonnay Riesling Reserve
1	Dry White Wines	Crème fraîche	Cream based Fresh no rind	Pinot Blanc
1	Dry White Wines	Crème fraîche	Cream based Fresh no rind	Pinot Grigio Riesling and Late Autumn Riesling
...
6	Dry Red Wines Full-Bodied	Roncal	waxed or oiled	Cabernet Sauvignon
6	Dry Red Wines Full-Bodied	Roncal	waxed or oiled	Cabernet Franc Reserve
6	Dry Red Wines Full-Bodied	Roncal	waxed or oiled	Merlot
6	Dry Red Wines Full-Bodied	Roncal	waxed or oiled	Shiraz
6	Dry Red Wines Full-Bodied	Roncal	waxed or oiled	Cabernet Sauvignon

92982401 rows × 4 columns

```
In [18]: _#Cheese Pairing by Type of Cheese
data_Cheese=pd.DataFrame(data[1])
data_Cheese
```

	0	1	2
0	Type	Example	Wine
1	Soft Cheeses	Munster, Boursin, Brie	Light Reds, Gewurztraminer, Cabernet, Côtes du...
2	Semi-Soft	Bel Paese, Swiss	Chardonnay
3	Downy/Bloomy Rind Cheese	Camembert, Brie	Light Reds
4	Pressed Cheese	Mimollette	Light Reds
5	Fresh Cheese	Ricotta, Cottage, Fresh chèvre	Light and fruity wines, served cool
6	Goats Milk cheese / Chevres	ValencayCrottin de Chavignol	Light Reds, dry fruity whites, Herbal acid whi...
7	Soft, Washed Rind	Munster, Reblochon AOC	Robust Reds, Côtes de Nuit, Saint-Émilion, Cô...
8	Blue Cheese/Roquefort	Bresse Blue, Stilton Blue	Smooth whites, Ports or Madeiras, Graves, St...
9	Sheep's milk /Ewe's Milk Cheese	Feta Queso de la Serena Pecorino Sardo,Pecorin...	Fuller Whites (Alsace Gewurztraminer), Sweet W...
10	Processed Cheese	Any cheese that is enriched or encrusted with ...	Light Whites Light Reds (Beaujolais)

```
In [19]: #Rename columns
data_Cheese.columns=data_Cheese.iloc[0]
data_Cheese
```

	Type	Example	Wine
0	Type	Example	Wine
1	Soft Cheeses	Munster, Boursin, Brie	Light Reds, Gewurztraminer, Cabernet, Côtes du...
2	Semi-Soft	Bel Paese, Swiss	Chardonnay
3	Downy/Bloomy Rind Cheese	Camembert, Brie	Light Reds
4	Pressed Cheese	Mimollette	Light Reds
5	Fresh Cheese	Ricotta, Cottage, Fresh chèvre	Light and fruity wines, served cool
6	Goats Milk cheese / Chevres	ValencayCrottin de Chavignol	Light Reds, dry fruity whites, Herbal acid whi...
7	Soft, Washed Rind	Munster, Reblochon AOC	Robust Reds, Côtes de Nuit, Saint-Émilion, Cô...
8	Blue Cheese/Roquefort	Bresse Blue, Stilton Blue	Smooth whites, Ports or Madeiras, Graves, St...
9	Sheep's milk /Ewe's Milk Cheese	Feta Queso de la Serena Pecorino Sardo,Pecorin...	Fuller Whites (Alsace Gewurztraminer), Sweet W...
10	Processed Cheese	Any cheese that is enriched or encrusted with ...	Light Whites Light Reds (Beaujolais)

```
In [21]: #Delete row 0
data_Cheeseed=data_Cheese.drop(data_Cheese.index[0])
data_Cheeseed
```

	Type	Example	Wine
1	Soft Cheeses	Munster, Boursin, Brie	Light Reds, Gewurztraminer, Cabernet, Côtes du...
2	Semi-Soft	Bel Paese, Swiss	Chardonnay
3	Downy/Bloomy Rind Cheese	Camembert, Brie	Light Reds
4	Pressed Cheese	Mimollette	Light Reds
5	Fresh Cheese	Ricotta, Cottage, Fresh chèvre	Light and fruity wines, served cool
6	Goats Milk cheese / Chevres	ValencayCrottin de Chavignol	Light Reds, dry fruity whites, Herbal acid whi...
7	Soft, Washed Rind	Munster, Reblochon AOC	Robust Reds, Côtes de Nuit, Saint-Émilion, Cô...
8	Blue Cheese/Roquefort	Bresse Blue, Stilton Blue	Smooth whites, Ports or Madeiras, Graves, St...
9	Sheep's milk /Ewe's Milk Cheese	Feta Queso de la Serena Pecorino Sardo,Pecorin...	Fuller Whites (Alsace Gewurztraminer), Sweet W...
10	Processed Cheese	Any cheese that is enriched or encrusted with ...	Light Whites Light Reds (Beaujolais)

```
In [22]: #Most Popular Cheeses
data_popularCheese=pd.DataFrame(data[2])
data_popularCheese
```

	0	1
0	Cheese Name	Wine
1	Swiss	Anti Spumanti
2	Blue	Port, Madeira
3	Boursin	Gewurztraimer
4	Brie (French)	Sweet sherry
5	Camamber	Cabernet, Chenin Blanc
6	Mild Cheddar	Chardonnay
7	Strong Cheddar	Cabernet, Rioja, Sauvignon Blanc
8	Chevre	Gewurztraimer
9	Danish Blue	Cabernet
10	Edam	Riesling
11	Feta	Beaujolais
12	Gorgonzola	Sauternes, Bourdax
13	Gouda	Riesling
14	Gruyere	Chardonnay, Saubignon Blanc
15	Havarti	Bordeaux, Rioja
16	Muenster	Beaujolais, Zinfandel
17	Provologne	Chardonnay
18	Roquefort	Port
19	Stilton	Port

```
In [23]: #Rename columns
data_popularCheese.columns=data_popularCheese.iloc[0]
data_popularCheese
```

	Cheese Name	Wine
0	Cheese Name	Wine
1	Swiss	Anti Spumanti
2	Blue	Port, Madeira
3	Boursin	Gewurztraimer
4	Brie (French)	Sweet sherry
5	Camamber	Cabernet, Chenin Blanc
6	Mild Cheddar	Chardonnay
7	Strong Cheddar	Cabernet, Rioja, Sauvignon Blanc
8	Chevre	Gewurztraimer
9	Danish Blue	Cabernet
10	Edam	Riesling
11	Feta	Beaujolais
12	Gorgonzola	Sauternes, Bourdax
13	Gouda	Riesling
14	Gruyere	Chardonnay, Saubignon Blanc
15	Havarti	Bordeaux, Rioja
16	Muenster	Beaujolais, Zinfandel
17	Provologne	Chardonnay
18	Roquefort	Port
19	Stilton	Port

```
In [24]: #Delete row 0
data_popularCheeseed=data_popularCheese.drop(data_popularCheese.index[0])
data_popularCheeseed
```

	Cheese Name	Wine
1	Swiss	Anti Spumanti
2	Blue	Port, Madeira
3	Boursin	Gewurztraimer
4	Brie (French)	Sweet sherry
5	Camamber	Cabernet
6	Mild Cheddar	Chardonnay
7	Strong Cheddar	Cabernet, Rioja, Sauvignon Blanc
8	Chevre	Gewurztraimer
9	Danish Blue	Cabernet
10	Edam	Riesling
11	Feta	Beaujolais
12	Gorgonzola	Sauternes
13	Gorgonzola	Bourdax
14	Gouda	Riesling
15	Gruyere	Chardonnay
16	Havarti	Bordeaux, Rioja
17	Muenster	Beaujolais, Zinfandel
18	Provologne	Chardonnay
19	Roquefort	Port
19	Stilton	Port

```
In [25]: pc = data_popularCheeseed['Wine'].str.split(',').apply(Series, 1).stack()
pc.index = pc.index.droplevel(-1) # to line up with df's index
pc.name = 'Wine' # needs a name to join
del data_popularCheeseed['Wine']
SplitpopularCheeseed= data_popularCheeseed.join(pc)
SplitpopularCheeseed
```

	Cheese Name	Wine
1	Swiss	Anti Spumanti
2	Blue	Port
2	Blue	Madeira
3	Boursin	Gewurztraimer
4	Brie (French)	Sweet sherry
5	Camamber	Cabernet
5	Camamber	Chenin Blanc
6	Mild Cheddar	Chardonnay
7	Strong Cheddar	Cabernet
7	Strong Cheddar	Rioja
7	Strong Cheddar	Sauvignon Blanc
8	Chevre	Gewurztraimer
9	Danish Blue	Cabernet
10	Edam	Riesling
11	Feta	Beaujolais
12	Gorgonzola	Sauternes
13	Gorgonzola	Bourdax
14	Gouda	Riesling
15	Gruyere	Chardonnay
16	Havarti	Bordeaux, Rioja
17	Muenster	Beaujolais
18	Provologne	Chardonnay
19	Roquefort	Port
19	Stilton	Port

```
In [28]: # Create CSV
winecheese pairingdataaCSV=winecheese pairingdata.to_csv('winecheese pairingdata.csv', index=False)

In [ ]:
```