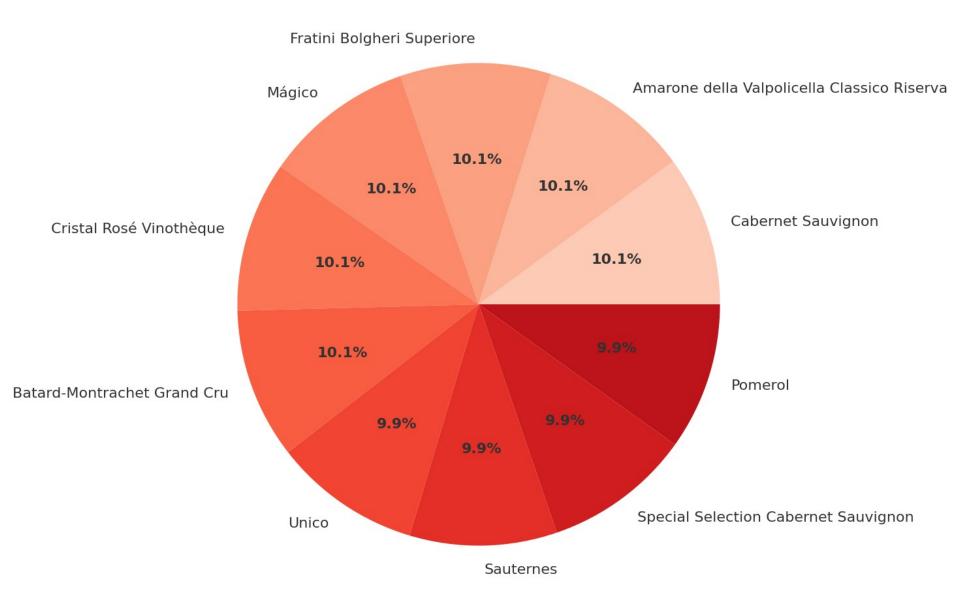


Top 10 Wines Based on Average Rating



```
1 # highlight 10 wines based on ratings and number of ratings (likely popular and well-regarded by customers)
   2 v top_wines = (session.query(Wine)
                   .filter(Wine.ratings_count > 50)
                   .order_by(Wine.ratings_average.desc())
                   .limit(10)
                    .all())
     print("Top 10 wines based in ratings and number of ratings")
   9 \sim \text{for wine in top wines:}
          print(f"Wine ID: {wine.id}, Name: {wine.name}, Average Rating: {wine.ratings_average}, Ratings Count: {wine.ratings_count}")
Top 10 wines based in ratings and number of ratings
Wine ID: 1187886, Name: Amarone della Valpolicella Classico Riserva, Average Rating: 4.8, Ratings Count: 587
Wine ID: 1611255, Name: Cabernet Sauvignon, Average Rating: 4.8, Ratings Count: 2941
Wine ID: 5806244, Name: Mágico, Average Rating: 4.8, Ratings Count: 146
Wine ID: 6534388, Name: Fratini Bolgheri Superiore, Average Rating: 4.8, Ratings Count: 153
Wine ID: 7266631, Name: Cristal Rosé Vinothèque, Average Rating: 4.8, Ratings Count: 88
Wine ID: 8023, Name: IX Estate Red, Average Rating: 4.7, Ratings Count: 2810
```

Wine ID: 66294, Name: Special Selection Cabernet Sauvignon, Average Rating: 4.7, Ratings Count: 41236

Wine ID: 77136, Name: Unico Reserva Especial Edición, Average Rating: 4.7, Ratings Count: 13025

Wine ID: 77137, Name: Unico, Average Rating: 4.7, Ratings Count: 45140 Wine ID: 77178, Name: Eszencia, Average Rating: 4.7, Ratings Count: 488

```
Possibly lucrative market with high user ratings and a large number of ratings:
Country: Allemagne, Average Rating: 4.5, Total Ratings: 8257
Country: Israël, Average Rating: 4.5, Total Ratings: 894
Country: États-Unis, Average Rating: 4.49, Total Ratings: 834263
Country: Moldavie, Average Rating: 4.48, Total Ratings: 14114
Country: Hongrie, Average Rating: 4.47, Total Ratings: 30564
Country: Afrique du Sud, Average Rating: 4.46, Total Ratings: 59995
Country: Australie, Average Rating: 4.46, Total Ratings: 52138
Country: France, Average Rating: 4.45, Total Ratings: 2124809
Country: Espagne, Average Rating: 4.44, Total Ratings: 746710
Country: Portugal, Average Rating: 4.44, Total Ratings: 62454
```

```
Possibly lucrative market with high user ratings and a large number of ratings:
Country: Allemagne, Average Rating: 4.5, Total Ratings: 8257
Country: Israël, Average Rating: 4.5, Total Ratings: 894
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Country: Espagne, Average Rating: 4.44, Total Ratings: 746710
Country: Portugal, Average Rating: 4.44, Total Ratings: 62454
 Region with only one wine:
 Wine Name: Evenstad Reserve Pinot Noir, Region: Willamette Valley
 Wine Name: Belles Soeurs Cuvée Pinot Noir, Region: Yamhill County
 Wine Name: Rapture Cabernet Sauvignon, Region: Lodi
 Wine Name: Howell Mountain Cabernet Sauvignon, Region: Howell Mountain
 Wine Name: One Point Five Cabernet Sauvignon, Region: Stags Leap District
 Wine Name: Blueline Estate Cabernet Sauvignon, Region: Calistoga
 Wine Name: Hyde Vineyard Chardonnay, Region: Los Carneros
 Wine Name: Bentrock Vineyard Chardonnay, Region: Sta. Rita Hills
 Wine Name: Alexander Valley Cabernet Sauvignon, Region: Alexander Valley
 Wine Name: Cabernet Sauvignon, Region: Columbia Valley
```

```
#Market Engagement: A high number of ratings and reviews could suggest an engaged customer base.
 2 v market engagement = (session.guery(
        Country name,
        func.sum(Wine.ratings count).label('total ratings'))
        .join(Region, Country.code == Region.country_code)
        .join(Wine, Region.id == Wine.region_id)
        .group_by(Country.name)
        .order_by(desc('total_ratings'))
 9
        .limit(5))
10
    print("Engaged customer base:")
11
12 ∨ for country, total_ratings in market_engagement:
13
        print(f"Country: {country}, Total Ratings: {total_ratings}")
14
```

```
Engaged customer base:
Country: Italie, Total Ratings: 2135839
Country: France, Total Ratings: 2124809
Country: États-Unis, Total Ratings: 834263
Country: Espagne, Total Ratings: 746710
Country: Argentine, Total Ratings: 283673
```

```
#Diversity of Wine Offerings: Countries with a greater diversity of wines and wineries may represent a more vibrant market

2 wine_diversity = (session.query(

Country.name,

Country.wines_count,

country.wineries_count)

order_by(desc(Country.wines_count), desc(Country.wineries_count))

limit(5))

print("Winery diversity: ")

vfor country, wines_count, wineries_count in wine_diversity:

print(f"Country: {country}, Wines Count: {wineries_count} + Wineries_count})

print(f"Country: {country}, Wines Count: {wineries_count} + Wineries_count})
```

```
Winery diversity:
Country: France, Wines Count: 422503, Wineries Count: 67553
Country: Italie, Wines Count: 274658, Wineries Count: 42399
Country: États-Unis, Wines Count: 204060, Wineries Count: 28145
Country: Allemagne, Wines Count: 164533, Wineries Count: 13643
Country: Espagne, Wines Count: 102662, Wineries Count: 18026
```

We would like to give awards to the best wineries. Which wineries should we choose and why?

```
1∨'''Award for Excellence in Quality:
   Criteria: Based on the highest average wine ratings.
   Query: Select wineries with the highest average ratings for their wines. This reflects
    consistent quality across their offerings.
7 v top_quality_wineries = (session.query()
        Winery name,
        func.avg(Wine.ratings_average).label('average_rating'))
10
        .join(Wine, Winery.id == Wine.winery_id)
11
        .group_by(Winery.name)
12
        .order_by(desc('average_rating'))
13
        .limit(3)) # You can adjust the number based on how many winners you want
14
15
    print("Award for Excellence in Quality: Wineries with the highest average wines ratings:")
16 v for winery, avg_rating in top_quality_wineries:
        print(f"Winery: {winery}, Average Rating: {avg_rating}")
17
18
```

```
Award for Excellence in Quality: Wineries with the highest average wines ratings: Winery: Tenuta Tignanello 'Solaia', Average Rating: 4.5
Winery: Corte di Cama Sforzato di Valtellina, Average Rating: 4.5
Winery: Tignanello, Average Rating: 4.4
```

We would like to give awards to the best wineries. Which wineries should we choose and why?

```
1∨'''Award for Consumer Choice:
    Criteria: Based on the total number of ratings received.
    Query: Select wineries whose wines have received the most ratings,
    indicating popular choice and engagement.
 6
 7∨popular choice wineries = (session.query(
        Winery name,
        func.sum(Wine.ratings_count).label('total_ratings'))
10
        .join(Wine, Winery.id == Wine.winery id)
11
        .group_by(Winery.name)
        .order_by(desc('total_ratings'))
12
13
        .limit(3))
14
    print("Award for Consumer Choice: Wineries with the most ratings received:")
16 v for winery, total_ratings in popular_choice_wineries:
17
        print(f"Winery: {winery}, Total Ratings: {total_ratings}")
18
```

```
Award for Consumer Choice: Wineries with the most ratings received: Winery: Siepi, Total Ratings: 4981
Winery: Tenuta Tignanello 'Solaia', Total Ratings: 2472
Winery: Tignanello, Total Ratings: 741
```

Cluster C.R.E.A.M

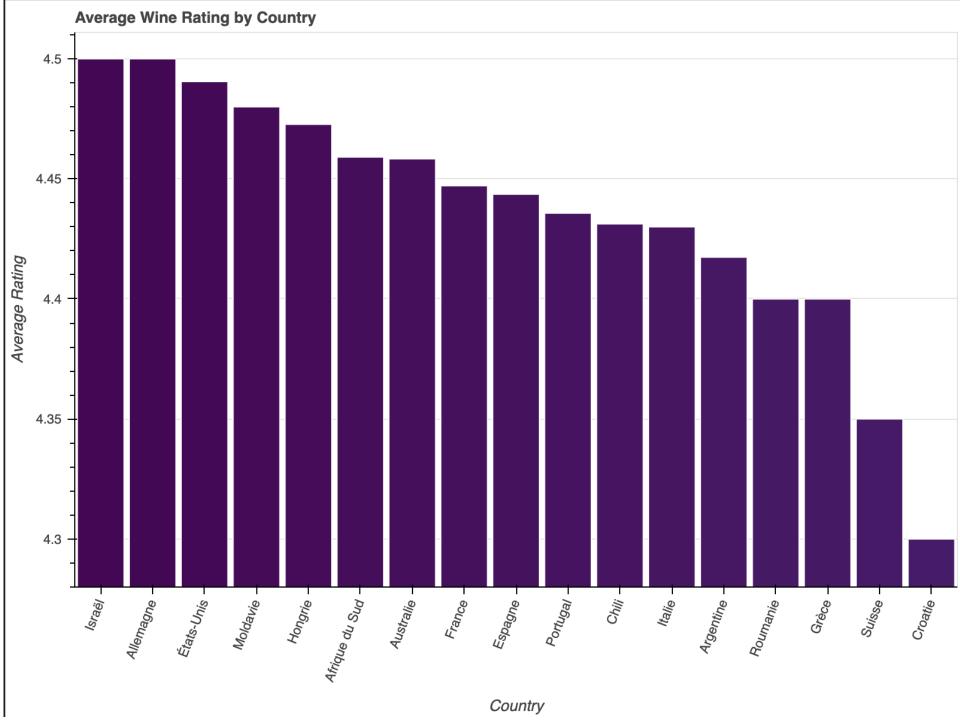
Find wines related to the keywords below with at least 10 user confirmations

keywords_list = ['coffee', 'toast', 'green apple', 'cream', 'citrus']

```
Wine: Le Mesnil Blanc de Blancs (Cuvée S) Brut Champagne, Keywords count: citrus (240), toast (200), coffee (24), cream (118), green apple (76)
Wine: Sauternes, Keywords count: green apple (13), coffee (52), toast (98), citrus (201), cream (215)
Wine: Cristal Brut Champagne (Millésimé), Keywords count: toast (928), coffee (52), green apple (298), citrus (954), cream (496)
Wine: Vintage, Keywords count: toast (712), coffee (112), cream (240), green apple (96), citrus (406)
Wine: P2 Plénitude Brut Champagne, Keywords count: toast (322), coffee (28), cream (135), green apple (30), citrus (141)
Wine: Cuvée des Enchanteleurs Brut Champagne, Keywords count: toast (62), coffee (28), cream (37), green apple (11), citrus (25)
Wine: Grande Cuvée, Keywords count: toast (1426), coffee (100), cream (439), citrus (916), green apple (304)
Wine: Brut Champagne, Keywords count: toast (4330), coffee (290), cream (1564), green apple (893), citrus (2596)
Wine: R.D Extra Brut Champagne (Récemment Dégorgé), Keywords count: toast (326), coffee (34), cream (157), green apple (34), citrus (149)
Wine: Sir Winston Churchill Brut Champagne, Keywords count: toast (564), coffee (26), cream (290), green apple (127), citrus (408)
Wine: Dom Ruinart Blanc de Blancs Brut Champagne, Keywords count: toast (452), coffee (44), cream (165), green apple (86), citrus (250)
Wine: La Grande Année Brut Champagne, Keywords count: toast (1050), coffee (64), cream (425), green apple (175), citrus (454)
Wine: La Grande Dame Brut Champagne, Keywords count: toast (488), coffee (32), green apple (111), cream (178), citrus (326)
Wine: Comtes de Champagne Blanc de Blancs, Keywords count: toast (1174), coffee (78), cream (589), citrus (720), green apple (249)
Wine: MV, Keywords count: coffee (20), toast (226), green apple (33), cream (109), citrus (131)
Wine: Sauternes (Premier Grand Cru Classé), Keywords count: green apple (10), coffee (58), toast (162), citrus (267), cream (277)
Wine: Belle Epoque Brut Champagne, Keywords count: green apple (224), toast (478), coffee (28), citrus (423), cream (207)
Wine: Blanc des Millénaires, Keywords count: toast (320), coffee (54), cream (149), citrus (181), green apple (66)
Wine: Trebbiano d'Abruzzo, Keywords count: coffee (42), green apple (14), citrus (55), toast (22), cream (27)
```

Country Leaderboard

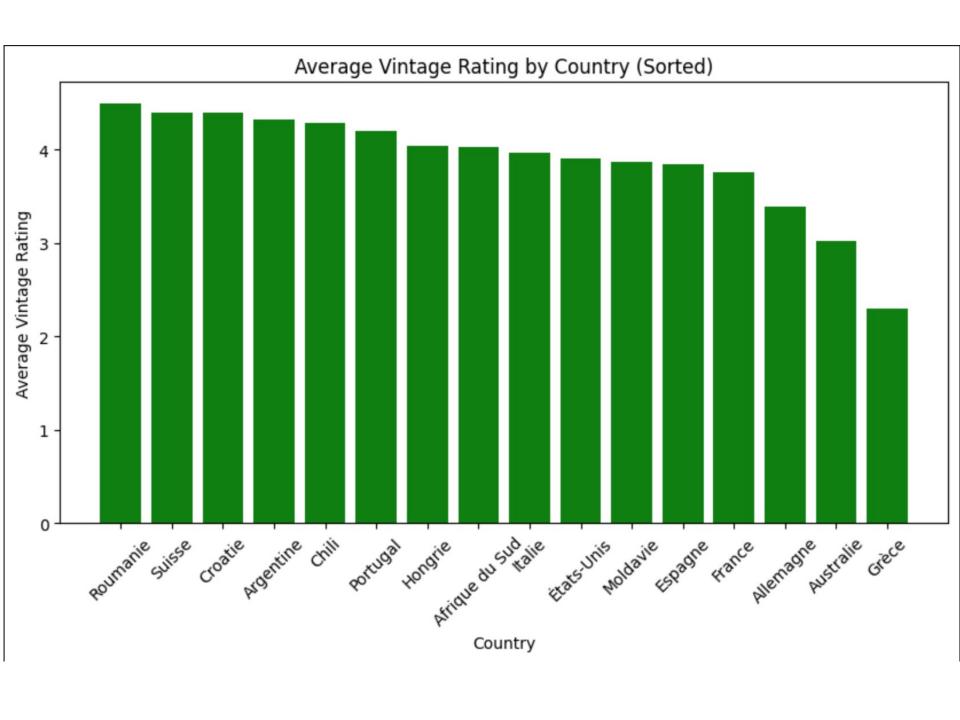
Average Wine Rat	ting by	Country:
Israël	4.50	
Allemagne	4.50	
États-Unis	4.49	
Moldavie	4.48	
Hongrie	4.47	
Afrique du Sud	4.46	
Australie	4.46	
France	4.45	
Espagne	4.44	
Portugal	4.44	
Chili	4.43	
Italie	4.43	
Argentine	4.42	
Roumanie	4.40	
Grèce	4.40	
Suisse	4.35	
Croatie	4.30	



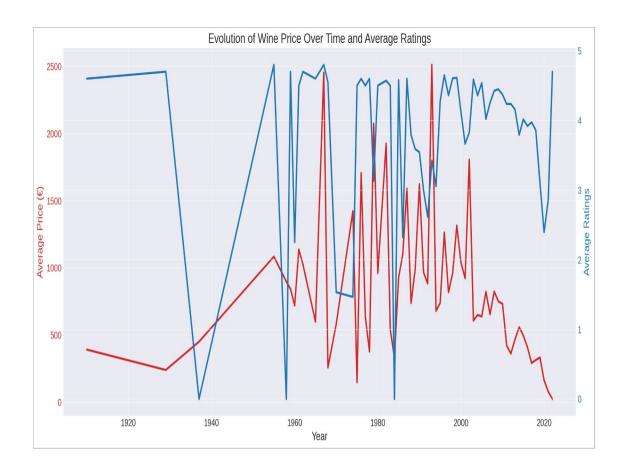
Country Leaderboard

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Espagne	4.44
Portugal	4.44
Chili	4.43
Italie	4.43
Argentine	4.42
Roumanie	4.40
Grèce	4.40
Suisse	4.35
Croatie	4.30

Rating	by	Country:
4.50		
4.40		
4.40		
4.32		
4.29		
4.20		
4.04		
4.03		
3.97		
3.91		
3.87		
3.85		
3.76		
3.39		
3.02		
2.30		
	4.50 4.40 4.40 4.32 4.29 4.20 4.04 4.03 3.97 3.91 3.85 3.76 3.39 3.02	4.40 4.40 4.32 4.29 4.20 4.04 4.03 3.97 3.91 3.87 3.85 3.76 3.39 3.02

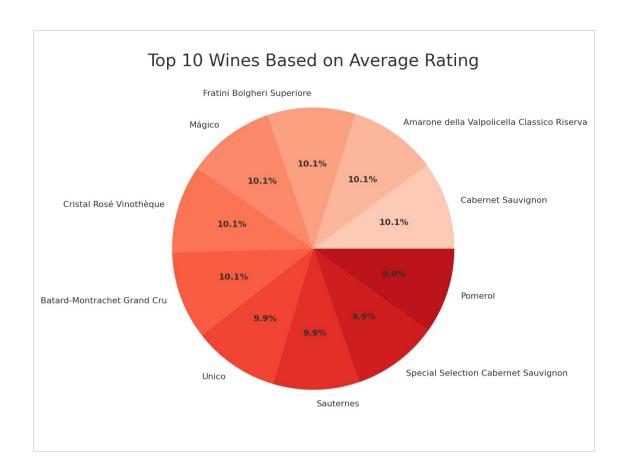


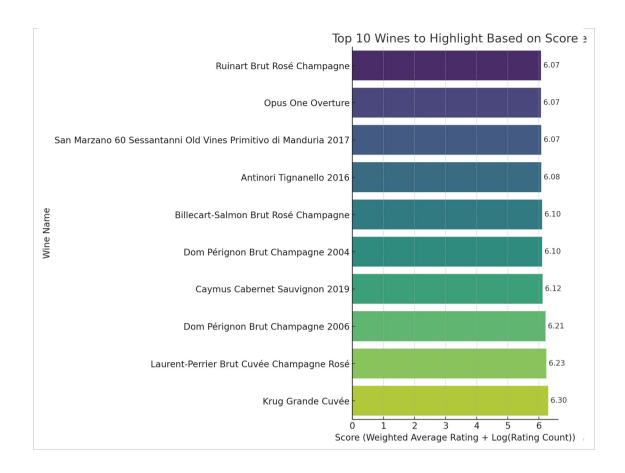




Key Insights:

- significant increase in average wine prices over time, suggesting a trend of rising wine value.
- Average ratings exhibit a steady, positive trend, indicating that higher prices may coincide with perceived improvements in wine quality.





To decide which 10 wines to highlight to potentially increase sales, I'll consider a combination of factors:

- 1. High average ratings: Wines with high ratings are likely to attract customers who are looking for quality.
- 2. Significant number of ratings: A high count of ratings may indicate popularity and consumer trust.
- 3. *Price*: Reasonably priced wines may have a better chance of selling, although highlighting a few premium wines could also attract a certain clientele.

To balance between quality and popularity, we weight the average rating by a factor of 0.7 and the log-transformed ratings count by a factor of 0.3.

These wines have been selected for their high ratings and popularity, taking into account both the often higher ratings assigned to quality wines and the notion that a larger number of ratings can indicate a more widely appreciated and trustworthy product.

Possibly lucrative market with high user ratings and a large number of ratings: Country: Allemagne, Average Rating: 4.5, Total Ratings: 8257
Country: Israël, Average Rating: 4.5, Total Ratings: 894
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Country: Espagne, Average Rating: 4.44, Total Ratings: 746710
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```
We have a limited marketing budget for this year.
   Which country should we prioritise and why?
Possibly lucrative market with high user ratings and a large number of ratings:
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 Region with only one wine:
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 Wine Name: Belles Soeurs Cuvée Pinot Noir, Region: Yamhill County
 Wine Name: Rapture Cabernet Sauvignon, Region: Lodi
 Wine Name: Howell Mountain Cabernet Sauvignon, Region: Howell Mountain
 Wine Name: One Point Five Cabernet Sauvignon, Region: Stags Leap District
 Wine Name: Blueline Estate Cabernet Sauvignon, Region: Calistoga
 Wine Name: Hyde Vineyard Chardonnay, Region: Los Carneros
 Wine Name: Bentrock Vineyard Chardonnay, Region: Sta. Rita Hills
 Wine Name: Alexander Valley Cabernet Sauvignon, Region: Alexander Valley
 Wine Name: Cabernet Sauvignon, Region: Columbia Valley
```

Assuming uniqueness can be determined by a wine being the only one from a specific region

```
1 #Market Engagement: A high number of ratings and reviews could suggest an engaged customer base.
   2 v market_engagement = (session.query()
          Country name,
           func.sum(Wine.ratings_count).label('total_ratings'))
           .join(Region, Country.code == Region.country_code)
           .join(Wine, Region.id == Wine.region_id)
           .group_by(Country.name)
           .order_by(desc('total_ratings'))
           .limit(5))
  print("Engaged customer base:")
  12 v for country, total_ratings in market_engagement:
13 print(f"Country: {country}, Total Ratings: {total_ratings}")
Engaged customer base:
Country: Italie, Total Ratings: 2135839
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   7 v top_quality_wineries = (session.query()
          Winery name,
          func.avg(Wine.ratings_average).label('average_rating'))
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          .group_by(Winery.name)
          .order_by(desc('average_rating'))
          .limit(3)) # You can adjust the number based on how many winners you want
  15 print("Award for Excellence in Quality: Wineries with the highest average wines ratings:")
  16 > for winery, avg_rating in top_quality_wineries:
          print(f"Winery: {winery}, Average Rating: {avg_rating}")
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Winery: Tenuta Tignanello 'Solaia', Average Rating: 4.5
Winery: Corte di Cama Sforzato di Valtellina, Average Rating: 4.5
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We would like to give awards to the best wineries. Which wineries should we choose and why?

```
1∨'''Award for Consumer Choice:
   2 Criteria: Based on the total number of ratings received.
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   4 indicating popular choice and engagement.
  7 v popular_choice_wineries = (session.query(
         Winery name,
          func.sum(Wine.ratings_count).label('total_ratings'))
          .join(Wine, Winery.id == Wine.winery_id)
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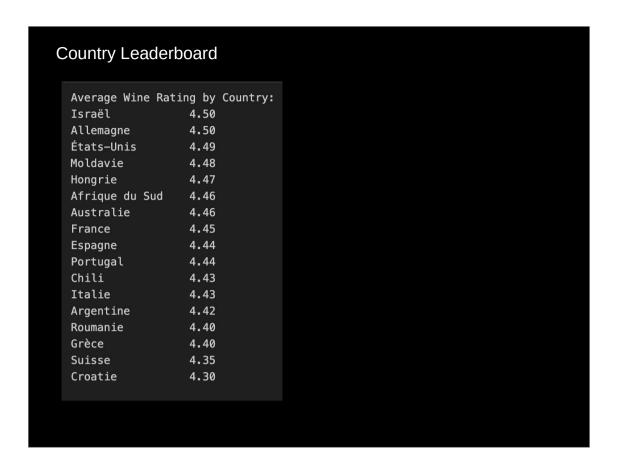
Cluster C.R.E.A.M

Find wines related to the keywords below with at least 10 user confirmations

keywords list = ['coffee', 'toast', 'green apple', 'cream', 'citrus']

```
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Wine: Sauternes, Keywords count: green apple (13), coffee (52), toast (98), citrus (201), cream (215)
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Wine: Sauternes (Premier Grand Cru Classé), Keywords count: green apple (30), coffee (58), toast (162), citrus (267), cream (277)
Wine: Balnc des Millénaires, Keywords count: green apple (24), toast (478), coffee (28), citrus (423), cream (207)
Wine: Trebbiano d'Abruzzo, Keywords count: coaffee (42), green apple (14), citrus (55), toast (22), cream (27)
```

Cash rules everything around me



Cash rules everything around me

Average Wine Rat Israël Allemagne États-Unis Moldavie Hongrie Afrique du Sud Australie France Espagne Portugal Chili Italie Argentine Roumanie Grèce Suisse Croatie	eing by Country: 4.50 4.50 4.49 4.48 4.47 4.46 4.45 4.44 4.43 4.43 4.43 4.42 4.40 4.40 4.35 4.30	Average Vintage Roumanie Suisse Croatie Argentine Chili Portugal Hongrie Afrique du Sud Italie États-Unis Moldavie Espagne France Allemagne Australie Grèce	Rating by Country: 4.50 4.40 4.40 4.32 4.29 4.20 4.04 4.03 3.97 3.91 3.87 3.85 3.76 3.39 3.02 2.30
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Cash rules everything around me

