Olympic Odyssey: A Data Journey Through the Ages

Tracing the historical tapestry of the Olympic Games, from its humble beginnings in Athens to the global spectacle of today, exploring key trends and transformations that have shaped sporting history.

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Introduction

Embarking on a thrilling data journey, this project dives into the heart of Olympic history, spanning 1896 to 2014. Unveiling the secrets behind the medals, we explore pressing questions:

- Who reigns as the perennial champions?
- Does the pulse of GDP, population, and politics synchronize with Olympic success?
- Summer sprints or winter wonders - which holds the key to glory?
- Does geography play referee?
- Diving into the clash of genders at the Olympics: do culture and religion play a role in determining success?
- Examining tradition's role at the Olympics: Do long-standing customs affect who takes the podium?

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Data Collection and Cleaning

1. All the datasets are taken from Kaggle. Here are the datasets :

- https://drive.google.com/drive/folders/1S59Ad8YQLy1UvhgQjyxUGq3OaC3Iongw?usp=sharing

2. Following steps were taken in the cleaning process :

- Seamlessly merged the Summer and Winter Data frames, giving rise to the authoritative 'Olympics' Data frame—a comprehensive canvas for unraveling the intricacies of Olympic history.
- Adding another layer of clarity, we harmonized full country names from a dedicated dictionary dataframe with their corresponding country codes. This enhancement not only streamlined our dataset but also laid the foundation for a more profound understanding of global Olympic participation.
- We delved deeper into the essence of Olympic victories by categorizing medals into the illustrious distinctions of gold, silver, and bronze. This strategic move promises to unveil nuanced patterns and narratives within the dataset, offering a richer exploration of the triumphs that have graced the Olympic podium throughout history.

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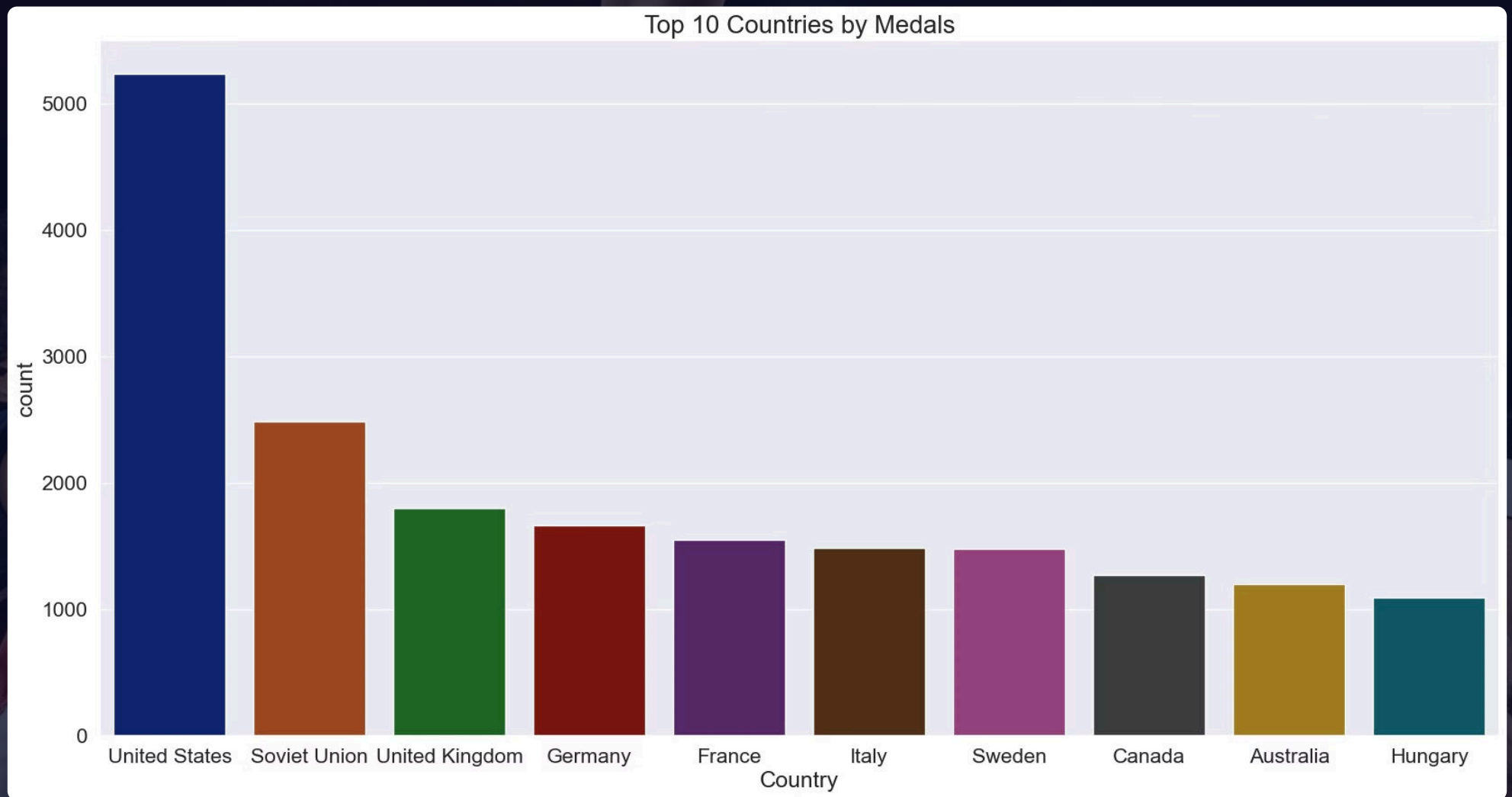
Analysis 1: Most Successful Countries of All Time

Statistics:



- From the inaugural 1896 Athens Games to Sochi 2014, The above stats are depicting the medal achievements of the top 10 countries, offering a comprehensive view across both the Summer and Winter editions of the Olympic Games."
- Note- The above stats are plotted using seaborn and matplotlib packages of python.

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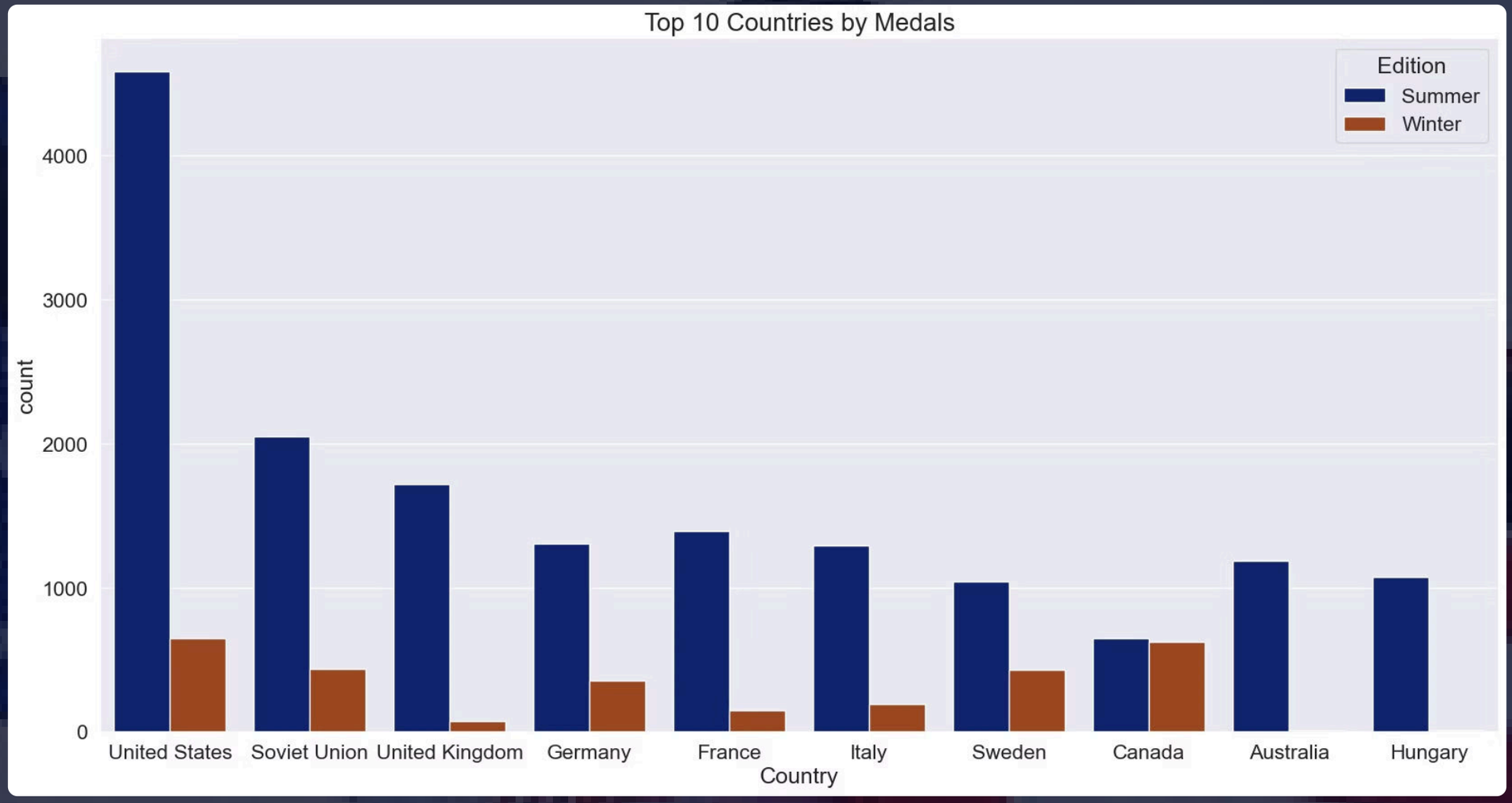

- The above stats shows the top 10 countries' medal achievements, brilliantly highlighting their stellar performances across both the Summer and Winter editions of the Olympic Games.
- Note- The above stats are plotted using seaborn and matplotlib packages of python.

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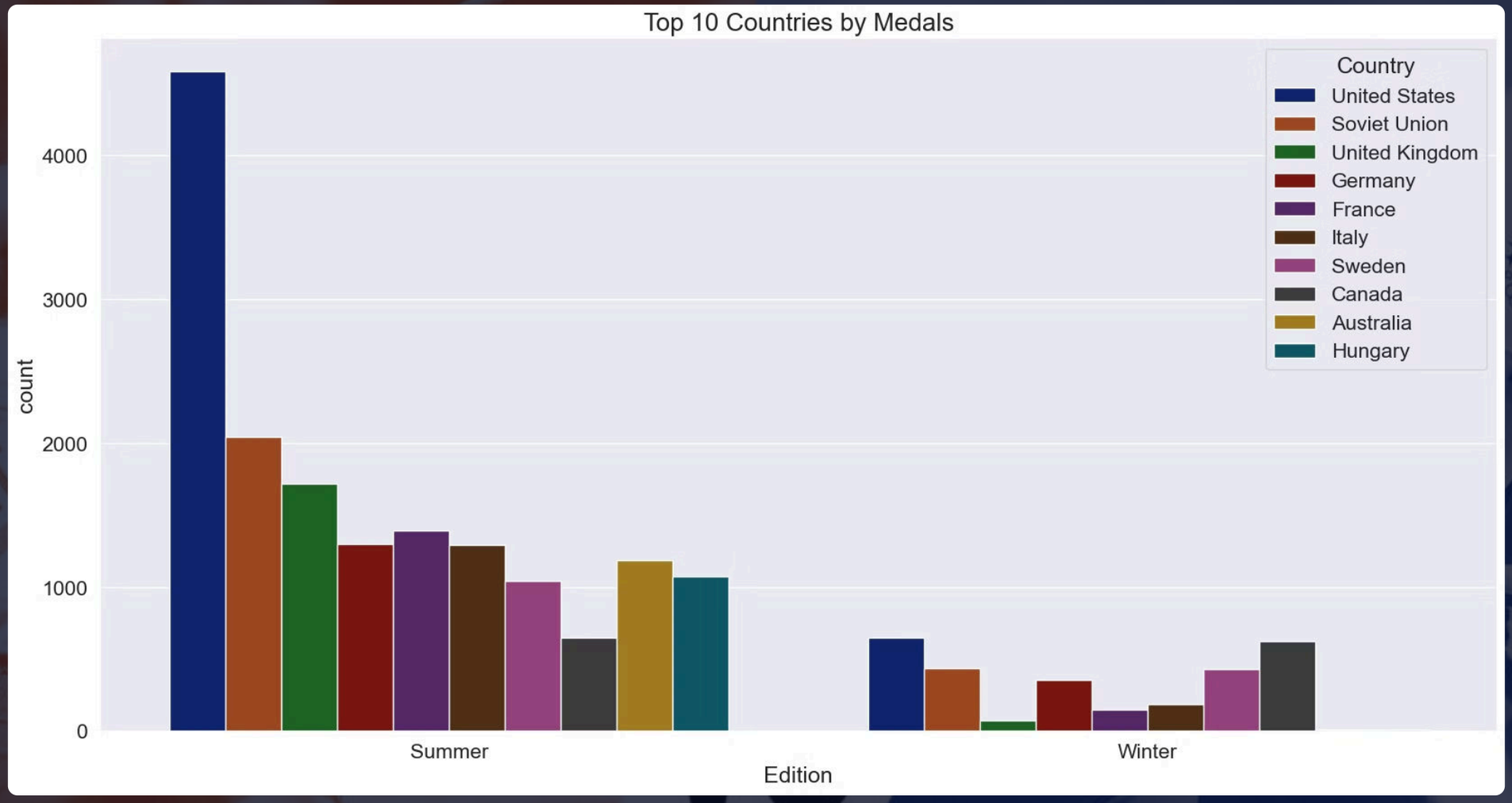

- The above stats are descripting the performance of Top 10 countries through count of medal in summer and winter edition respectively.
- Note- The above stats are plotted using seaborn and matplotlib packages of python.

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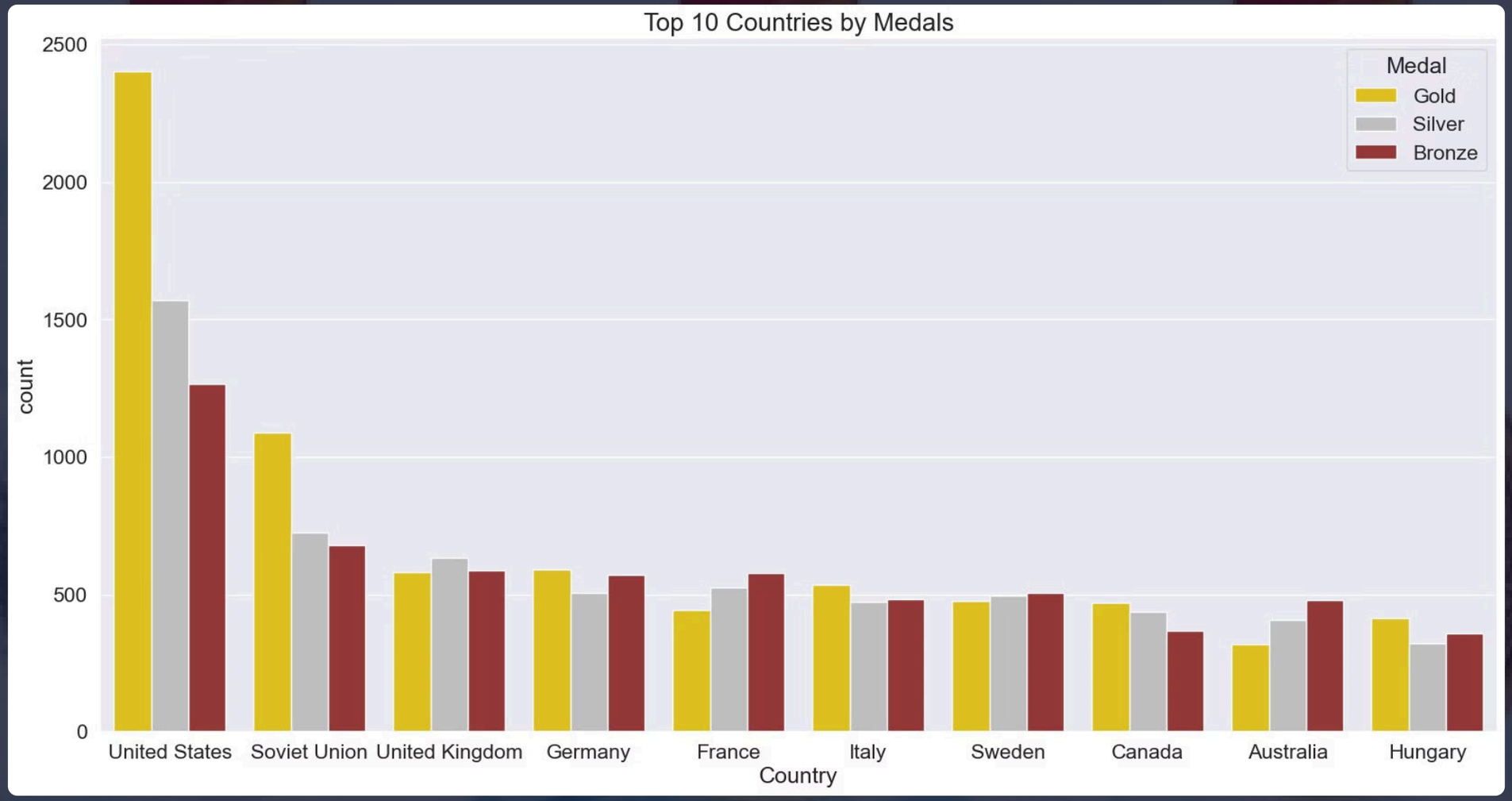

- The above stats are descripting the number of gold, silver and bronze medal bagged by Top 10 performing countries.
- Note- The above stats are plotted using seaborn and matplotlib packages of python.

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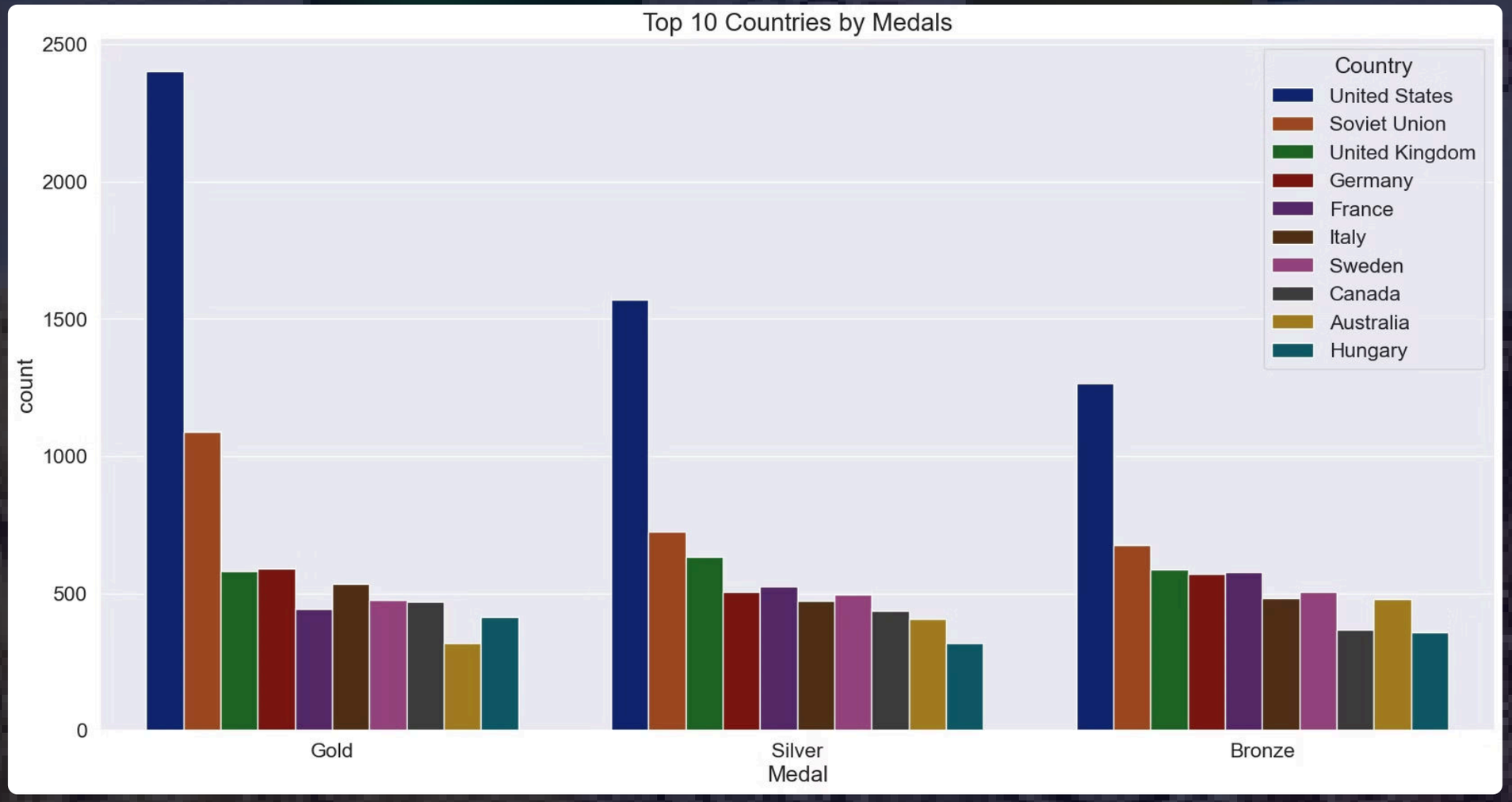

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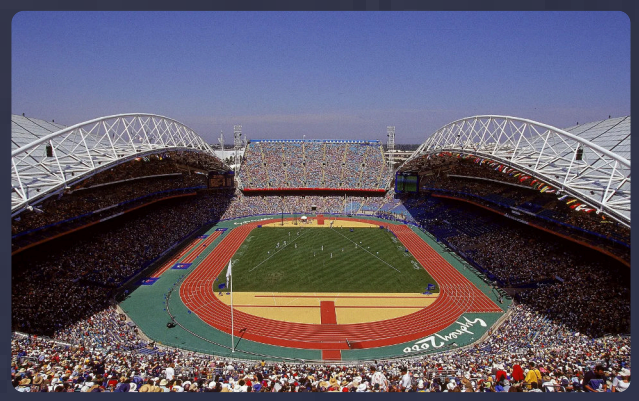
Analysis 1: Most Successful Countries of All Time

Insights :

Top medal-winning countries 🏅

1. United States
2. Soviet Union(now Russia)
3. United Kingdom
4. Germany
5. France



The home-field advantage 🏟️

- Host countries often experience a "home-field advantage" in terms of morale, familiarity with facilities, and increased support from the local population.
- USA leads in Olympic medals and hosting frequency. Surprisingly, some top 10 countries hosted only once, while Hungary, having never hosted, still secures a spot.

Dominant athletes ⭐

1. **Michael Phelps (USA)** - Swimming - 22 medals
2. **Larisa Latynina (Soviet Union)** - Gymnastics - 18 medals
3. **Nikolai Andrianov (Soviet Union)** - Gymnastics - 15 medals
4. **Boris Shakhlin (Soviet Union)** - Gymnastics - 13 medals
5. **Paavo Nurmi (Finland)** - Athletics - 12 medals

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Analysis 2: Does GDP, Population, and Politics Matter?

To answer above questions we did **Statistical Analysis and Hypothesis Testing with scipy**

A country success is evaluated by total medals bagged.

Hypothesis-1. There is no relationship between total medals and population of a country

Applied Spearman rank correlation between these two entities

```
r, p_value = stats.spearmanr(medals_per_country.Total, medals_per_country.Population,
                             nan_policy = "omit")
r = 0.41975527887063924
p = 8.132240 * 10^-7
```

Since p< 0.05(Standard)

=> The hypothesis is rejected

👉 There is relationship between total medals and population of a country.

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Analysis 2: Does GDP, Population, and Politics Matter?

Hypothesis 2: There is no relationship between total medals and GDP per capital

Applied Spearman rank correlation between these two entities

```
r, p_value = stats.spearmanr(medals_per_country.Total, medals_per_country.GDP,
                             nan_policy = "omit")
r = 0.45847787983426685
p = 1.5758169913239602e-07
```

Since p < 0.05(Standard)

=> Hypothesis is rejected

👉 There is relationship between total medals and GDP per capital

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Analysis 2: Does GDP, Population, and Politics Matter?

The politics factor is judged by the number of participants of a country in Olympics.

Hypothesis 3: There is no relationship between total medals and participation

Applied Spearman rank correlation between these two entities

```
r, p_value = stats.spearmanr(medals_per_country.head(50).Total,
                             medals_per_country.head(50).Total_Games)
r = 0.6818689415046658
p = 4.982151209468708e-08
```

Since p < 0.05(Standard)

=> Hypothesis is rejected

👉 There is relationship between total medals participation

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Analysis 3: Does Geographical Location Matter?

- Yes, Geographical Location matter in Olympics. Here are some statements and plots to prove our insights.

1. The contiguous United States experiences four distinct seasons with average temperatures ranging from cold winters to hot summers. Coastal regions may have milder temperatures, while inland areas can experience more extreme temperature variations. That is why, USA is the most successful country in both winter and summer Olympics.
2. Canada is considered a cold country. It is the second-largest country in the world by land area, and a significant portion of its territory experiences cold temperatures, especially during the winter months. Many parts of Canada, particularly in the northern regions, can have subarctic and Arctic climates with very cold winters. That is why the ranking of Canada is better in winter Olympics as compared to summer Olympics.
3. Norway is in Top 3 in winter Olympics but holds 17th rank in summer Olympics. This is due to the cold weather in most parts of the Norway.
4. Austria is in Top 10 in winter Olympics but holds 38th position in summer Olympics. Austria is characterized by the Eastern Alps. In the Alpine regions, winter temperatures can drop below freezing, often ranging from -5 to -15 degrees Celsius (23 to 5 degrees Fahrenheit).

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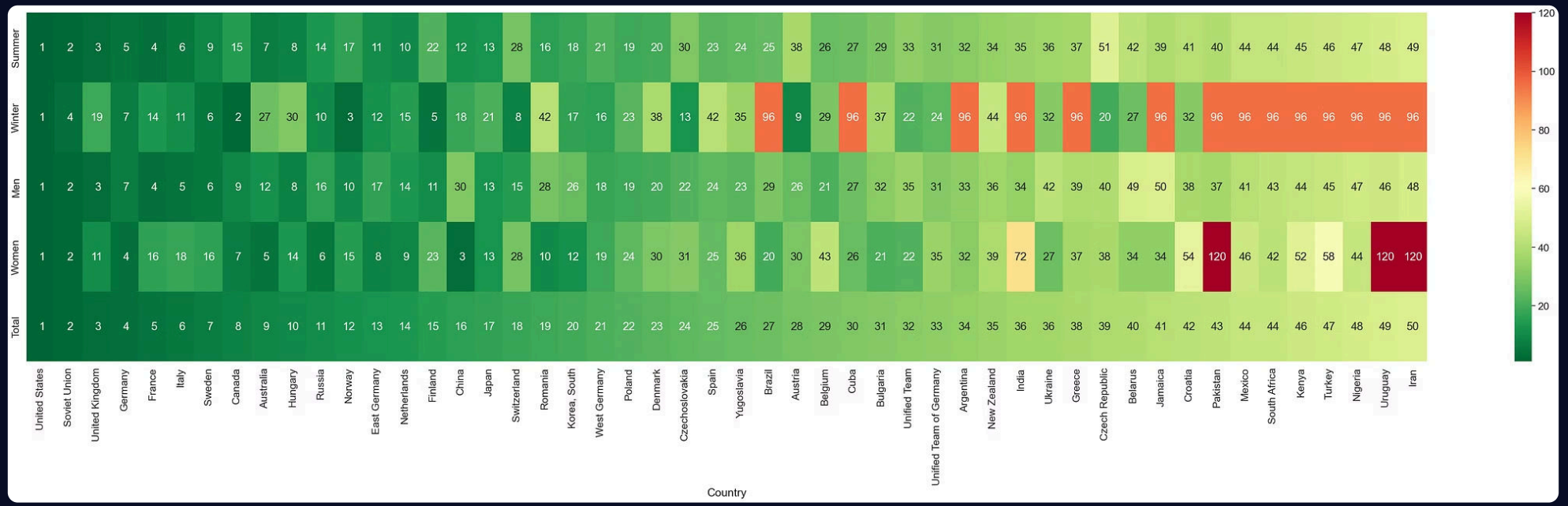
Ranking of Countries in Summer Olympics (1896 - 2012)



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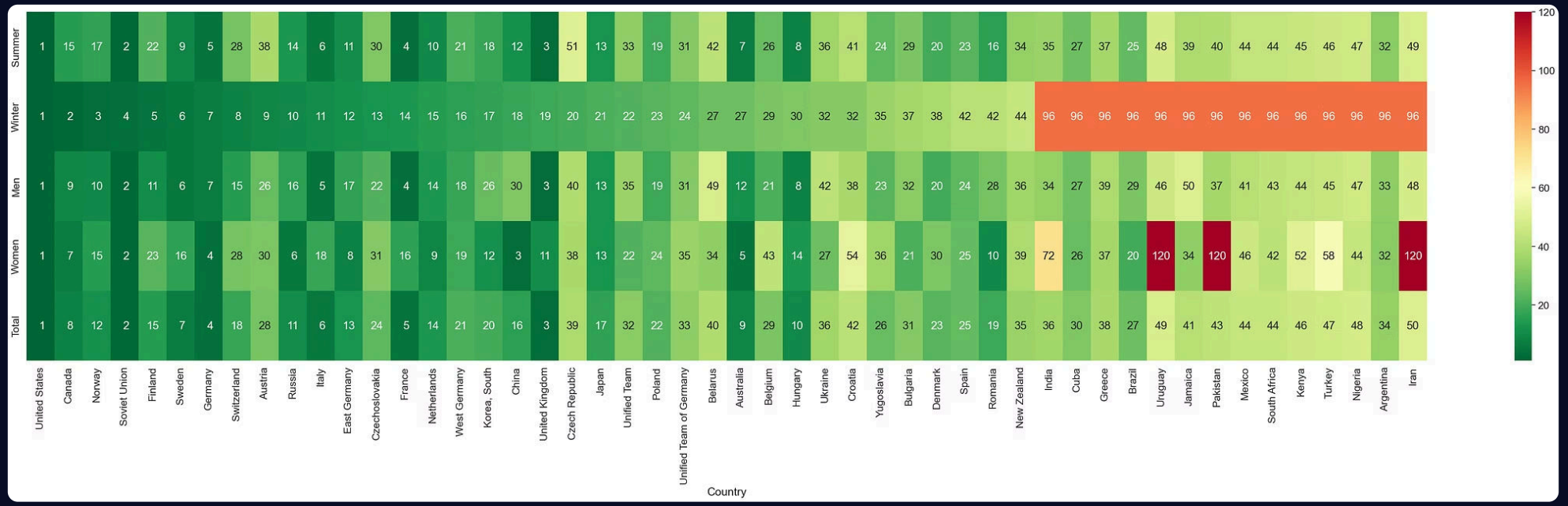
Ranking of Countries in Winter Olympics(1924 - 2014)



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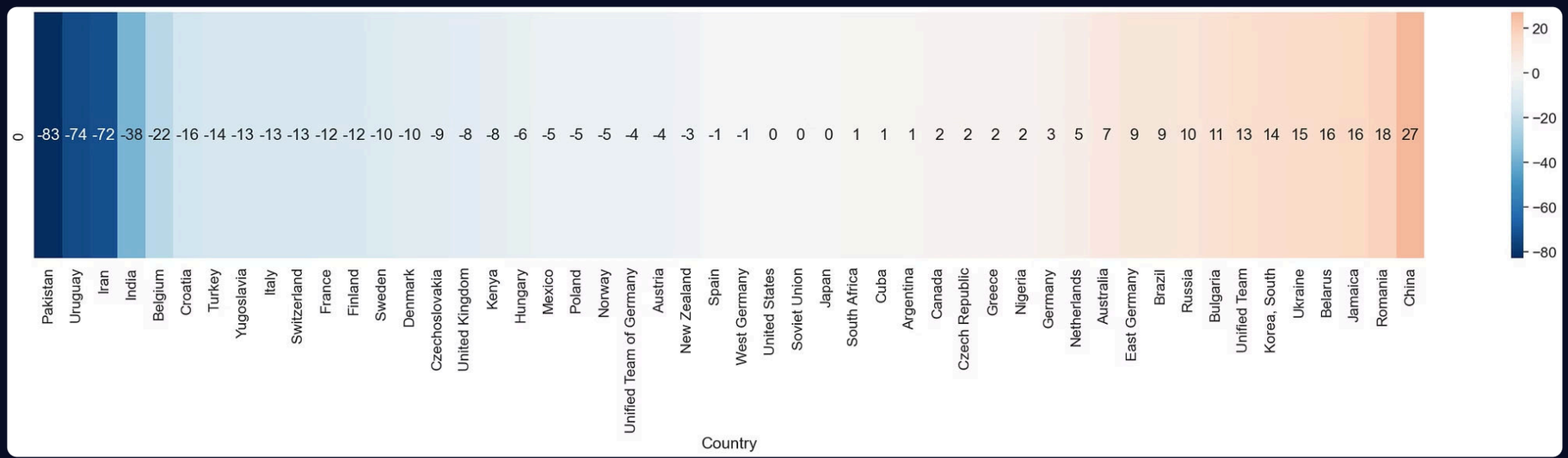
Analysis 4: Men vs Women - Does Culture and Religion Matter?

Approach- To check this factor we took the difference of women participation rank and men participation rank of each country and plotted the graph.



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Insights :

- Many countries have improved their overall performance in athletic events due to their having achieved equality between genders thus rising female participation. More female athletes participating in the events, means more medals that will be brought home. In the recent Olympic Games, women from 29 countries won more total medals than men, including the USA, China, Russia, Canada, the Netherlands, Hungary, Jamaica and Sweden.

THE EXAMPLE OF THE USA IN THE LATEST SUMMER OGs

An example of the abovementioned observation is the Olympic team of the USA. USA was the first ever country to include more women than men in the Games of 2012 in London (269 women and 261 men). That has had a positive impact on their performance, as women won 58 medals and men 45, thus sending the USA to the first position. 4 years later, they followed the same pattern, sending to the Games 292 female athletes of a total of 555. This is the largest value of women participating for any nation in the history of the Olympic Games.

The recipe was successful once again: USA was the leader in the final table, totaling 121 medals. The biggest success achieved by the women of team USA, who won the majority of the medals. At the Rio Olympics, 61 of USA's 121 medals were won by women, while men won 55 (5 medals were from mixed events). Furthermore, from the 61 female medals, 27 were gold.

Many countries soon started following the same pattern, understanding the importance of women's participation. Australia, in the Rio Olympics won 29 medals (41.5% was from female athletes) reaching the 10th position with 5 out of 8 gold medals won by female athletes.

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Insights :

THE EXAMPLE OF MUSLIM COUNTRIES: SAUDI ARABIA, BAHRAIN, QATAR AND OTHERS

In contrast to the global majority and due to cultural and historical differences, some Muslim countries still have low (or zero) female participation.

More than 2 billion people from countries all over the world are Muslim (25% of the world population). Due to various local traditions and beliefs, women in some Muslim countries still face greater biases as well as discouragement in the fields of sports, arts, education and culture; a trend that is changing, albeit at a slow pace.

The Organization of Islamic Cooperation (OIC) is an international organization founded in 1969, consisting of 57 member states. All of the member states of the OIC performed poorly in the Olympics.

The poor performance of OIC's countries can be directly linked to the lack of female athletes. Positively, this is changing in recent years, linked to a vastly more important change in the general role of women in society at the OIC countries.

The London Olympic Games in 2012 entered history as the first Games where every participating country had female athletes. Saudi Arabia, Qatar and Bahrain also entered history by sending female athletes for first time. Qatar even went a step further by having female sharp-shooter, Bahiya al-Hamad, carry their flag at the opening ceremony.

Iran participated in the Rio Summer Olympic Games with 63 athletes, only nine of whom were women. Yet, Kimia Alizadeh, competing in taekwondo, made history when she became the first Iranian woman to win an Olympic medal.

Saudi Arabia's first participation was in 2012 with two female athletes (US-born runner Sarah Attar and judo competitor Wojdan Shahrkhani). 4 years later they doubled the number of female athletes on their roster, sending four women to Rio (Sarah Attar, sprinter Kariman Abuljadayel, judoka Wujud Fahmi, and fencer Lubna al-Omair). Bahrain and Oman are also following the trend and increasing their number of female athletes.

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Analysis 5: Do Traditions Matter?

1 Pre-competition rituals

- Sometimes it also helps to have a ritual that you share with your teammates. When asked if she had a routine before the games, **Alina Kovaleva,** the skip of the ROC women's curling team, told Olympics.com: "Yes, we have a team ritual before the games. We play with a little ball full of rice, which is called 'socks' [footbag circle kicking] - we kick it and then everyone goes to warm up, stretch and get ready for the game."
- Meanwhile, Hungarian short track skater **Shaolin Sandor Liu** went viral at **PyeongChang 2018**, when he **introduced his signature entrance to the ice** before the race: Touching his right eyebrow and then left with his right hand while staring at the camera, before winking with his right eye and smiling. It's not clear whether this ritual was part of the reason for him winning a first-ever Olympic gold medal for Hungary, but Shaolin seems to believe in the power of his 'Wink of Love':

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Analysis 5: Do Traditions Matter?

1 Olympic Spirit

- The mission of *Olympic Spirit* is "to build a peaceful and better world in the *Olympic Spirit* which requires mutual understanding with a spirit of friendship, solidarity and fair play.

Few stories that show Olympic spirit :

- *Luz Long and Jesse Owens chat together at the Berlin Stadium in 1936. (CORR/HO/AFP/Getty Images)*

The friendship between American Jesse Owens and German Luz Long is a famous story.

It started in Berlin, Germany, at the Olympics. The Nazis were in power. So it was dangerous for Long to be friends with Owens, who was Black. But Long didn’t care.

The story goes that Owens was having trouble qualifying for the long jump final. He had made a mistake on his first two attempts. So Long (who had already qualified) suggested Owens start his jump from a different spot.

Owens qualified, then went on to win gold in the final, with Long winning silver. Years later Owens would say, “I knew that he wanted me to do my best – even if that meant beating him.”

- *onas Warrer and Martin kirketerp Ibsen in a spare boat borrowed from the Croatian team, 2008. (Clive Mason/Getty Images)*

It was right before the start of the 49er class boat race. Disaster struck for Danish sailors Jonas Warrer and Martin Kirketerp Ibsen. The mast of their boat broke!

Luckily, the Croatian team (who hadn’t qualified for the race) heard about what happened. They were ready to lend a hand – and a boat.

Together, the teams rushed to prep the Croatians’ boat. They wound up only a few minutes behind everyone else when they set off. They ended up winning the gold medal!

The Croatian team were given a trophy too – the Pierre de Coubertin world trophy. It's awarded to an athlete or team for doing an act of fair play. And it's even awarded by the Fair Play Committee. Nice!

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