Evolution of Female Inclusion in Sports

Milestone 4

Sql-Data-Science-Capstone
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1. Client

I choose SportStats client. I'll work with this data since I'm interesting in evolution of female inclusion in sports. Also, I want to find correlations that suggests a recommendation to people.

2. Questions

I. Have the numbers of medals for women increased or decreased over the years?
II. What is the magnitude of physical differences between men and women?
III. Which region has experienced greater success for female athletes?

3. Hypothesis

I. Increased
II. Men are bigger (h/w) than women
III. North America

Data Analysis Approach

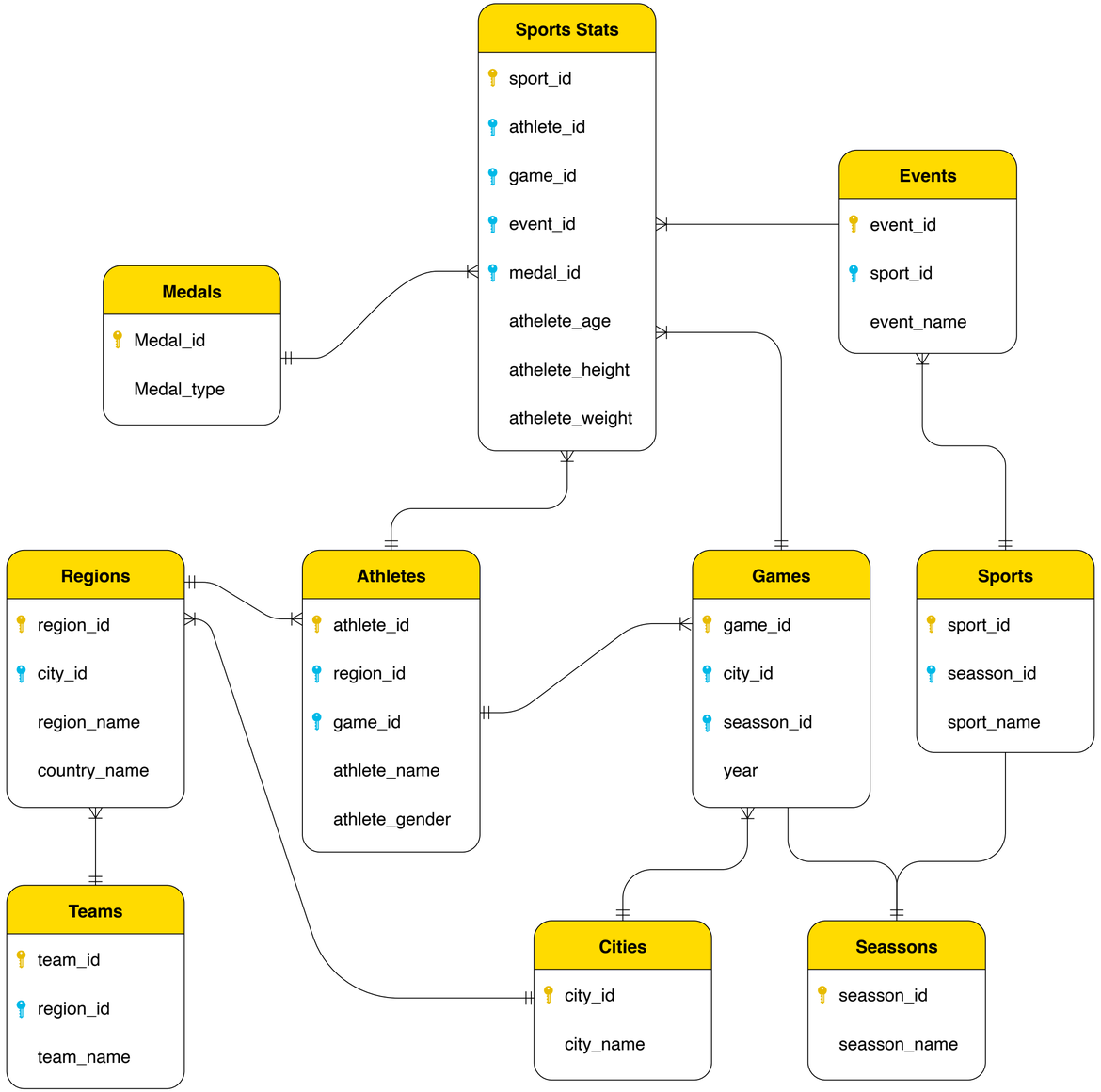
A1: Use correlation matrix to find insights between Age and Region for women at the Olympics. But also, find new info comparing with men metrics.

A2: A comparative analysis between male and female athletes within specific sports or disciplines will be conducted, utilizing statistical measures like means, medians, and standard deviations to quantify the extent of differences.

A3: Connect the results to suggest a trend.

Technical Challenges

- Not enough data to find useful correlations.
- Limitation of Pandas for SQL (Sqlite) made some SQL difficult to execute but manageable.
- Data is not updated.


Sports Stats
sport_id
athlete_id
game_id
event_id
medal_id
athelete_age
athelete_height
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Events
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event_name
Medals
Medal_id
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region_id
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athlete_name
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game_id
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year
Sports
sport_id
seasson_id
sport_name
Teams
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region_id
team_name
Cities
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city_name
Seassons
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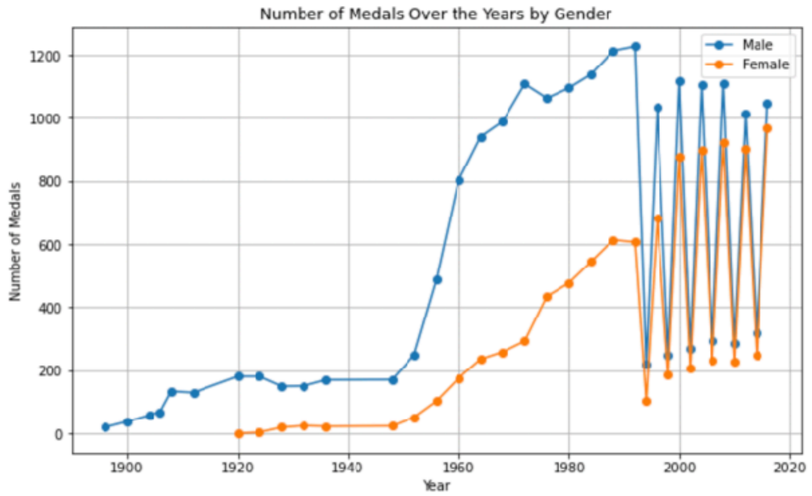
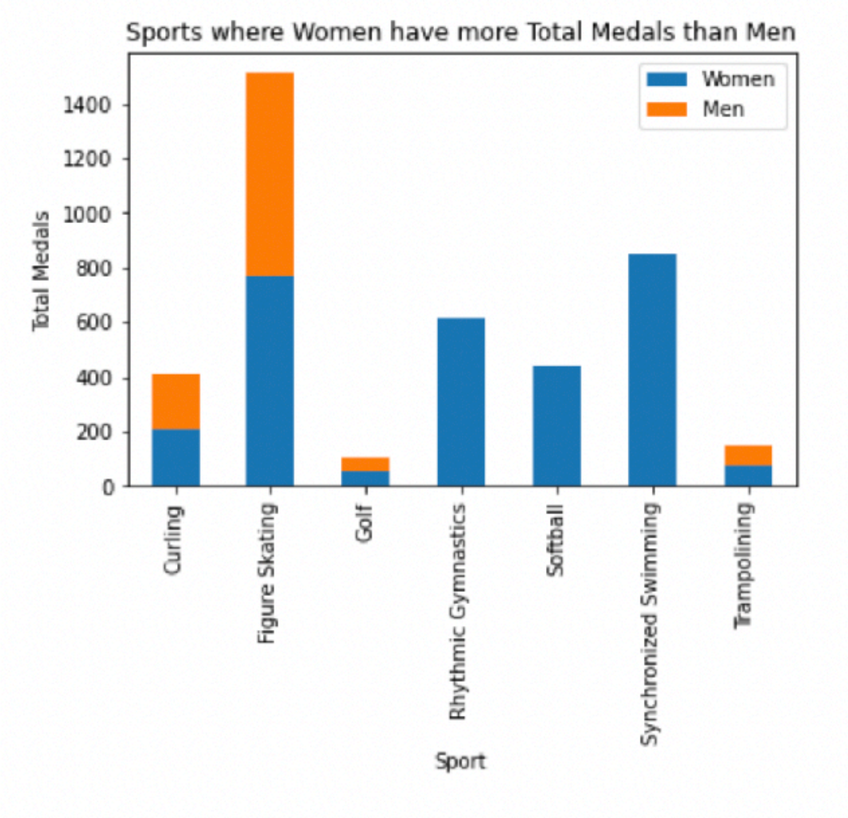
seasson_name

Diagram



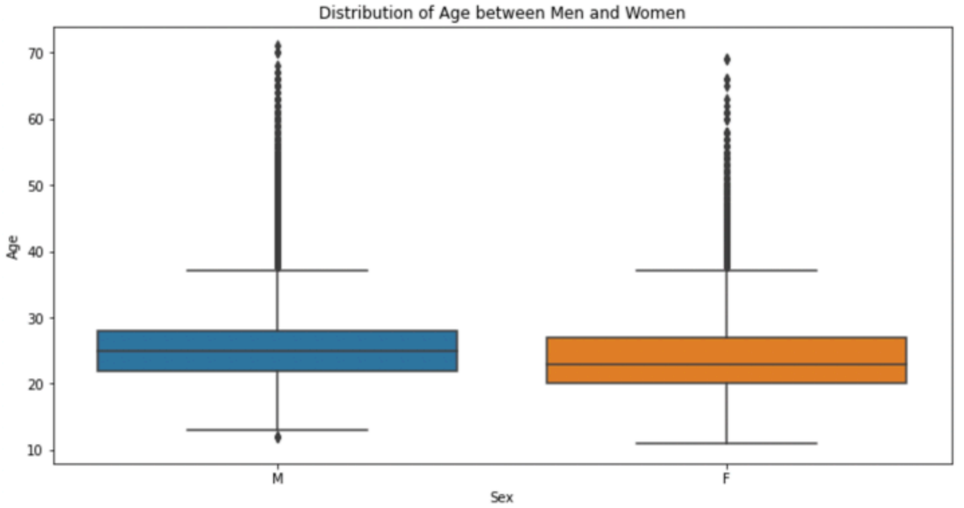
The analysis revealed a notable increase in the participation and success of female athletes over the years. This shift is indicative of the ongoing progress towards gender equality in sports, with women achieving remarkable success in various disciplines. Over the years, female athletes have demonstrated remarkable achievements, contributing to a notable increase in the number of medals earned, with a peak in 2016 where they earned 969 medals. This trend underscores the progress and growing impact of women in sports, reflecting their dedication, skill, and competitiveness on the global stage.

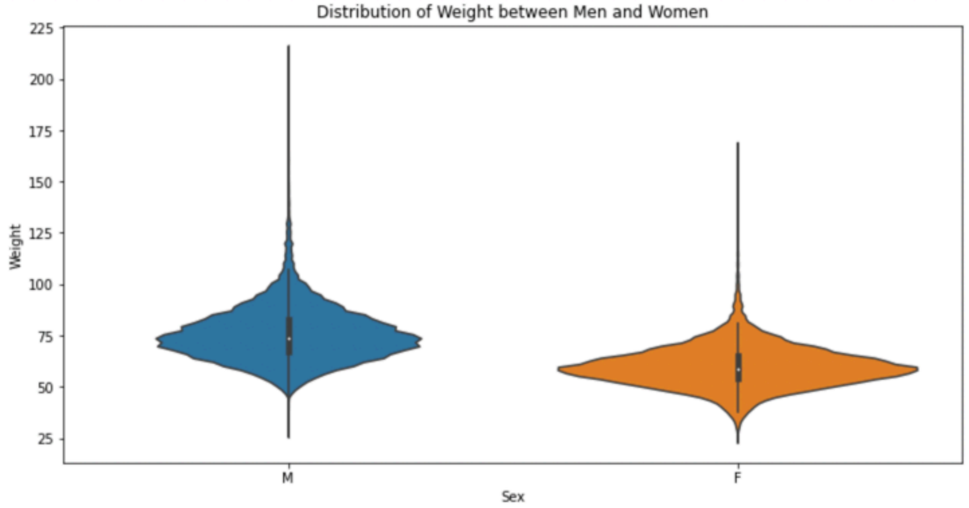


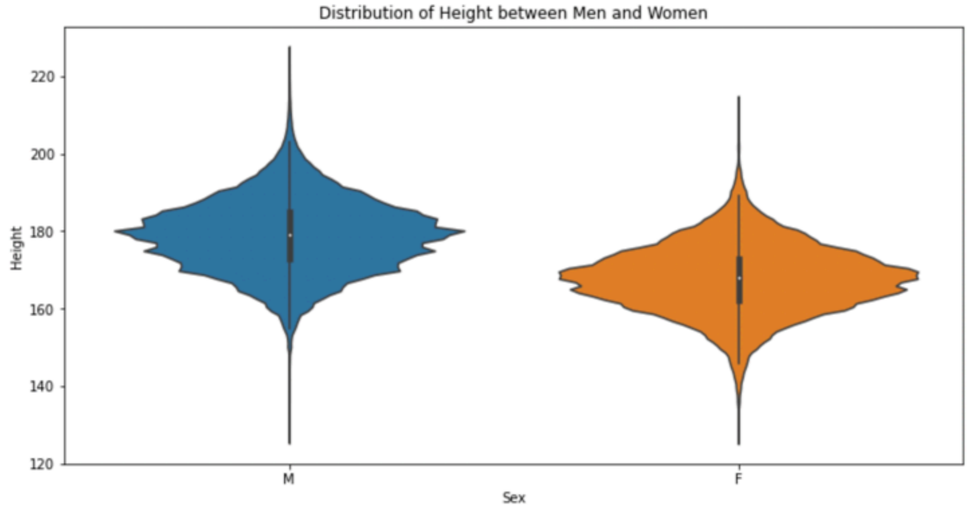
Specific sports, such as Curling, Figure Skating, Golf, Rhythmic Gymnastics, Softball, Synchronized Swimming, and Trampolining, showcased instances where women were more successful than men. This opens avenues for deeper exploration into the dynamics of these sports, including training structures and societal attitudes.

From the summary statistics, it's evident that there are clear differences in the distribution of Age, Weight, and Height between males and females. These differences are supported by the observed disparities in mean values, standard deviations, and quartile ranges. The correlation is negative between gender and these physical attributes, indicating that, on average, females tend to be younger, weigh less, and are shorter than males in the dataset. The consistency in lower standard deviations for females suggests that their physical attributes are more concentrated around the mean compared to males.

T-Test for Age - p-value: 0.0



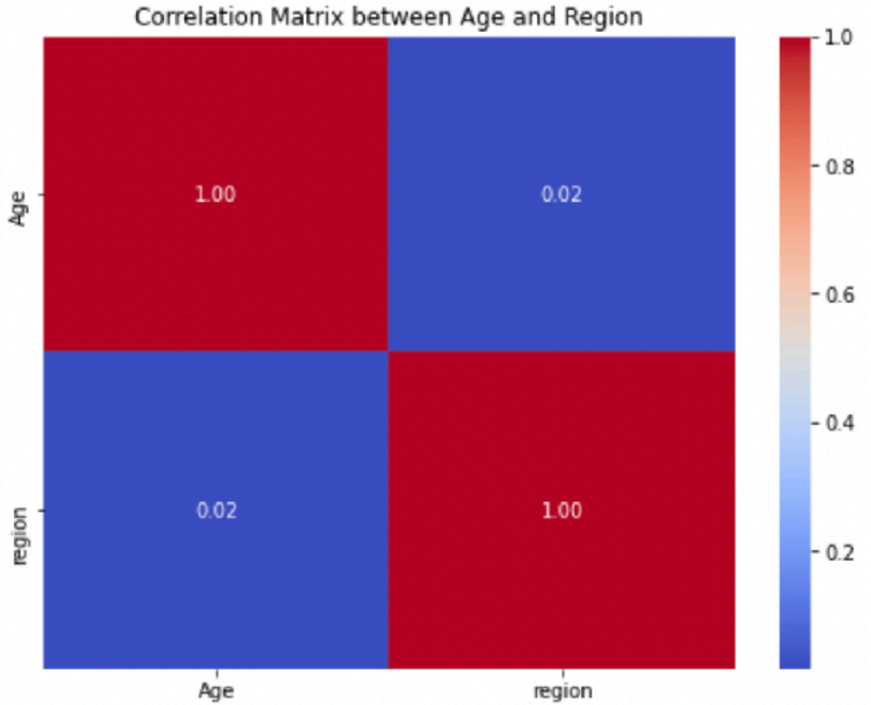


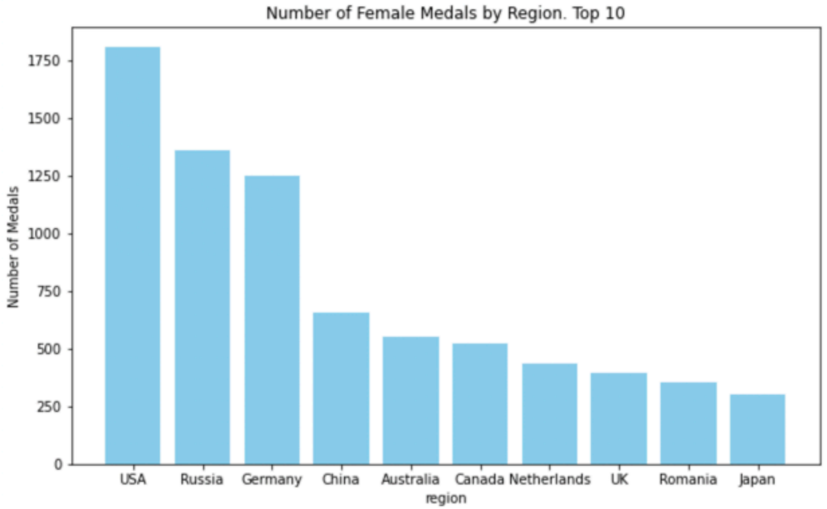


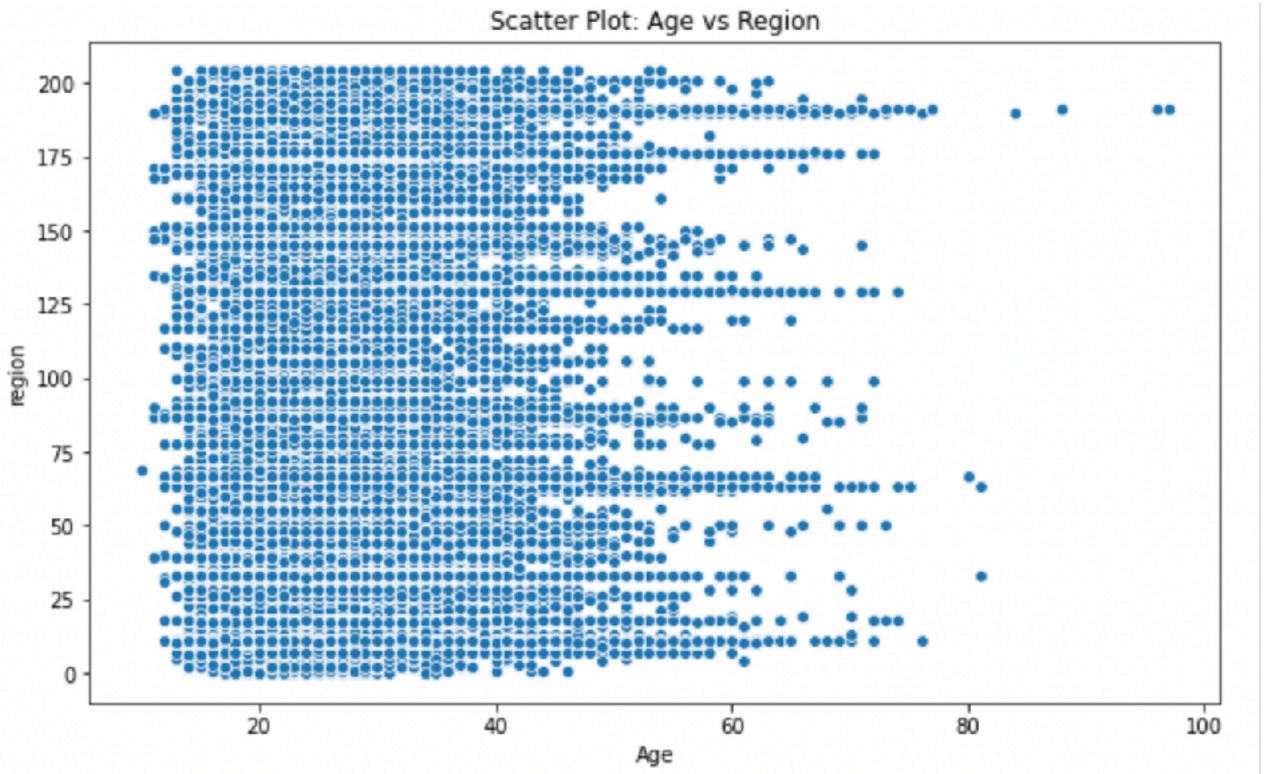
	ID	Age	Height	Weight	Year
ID	1.000000	-0.002100	-0.012190	-0.009039	0.007067
Age	-0.002100	1.000000	0.141684	0.212041	0.089142
Height	-0.012190	0.141684	1.000000	0.796573	0.048142
Weight	-0.009039	0.212041	0.796573	1.000000	0.022175
Year	0.007067	0.089142	0.048142	0.022175	1.000000

The correlation coefficient between age and region is approximately 0.018, indicating a very weak positive correlation. This implies that there is a slight tendency for age and continent to increase together, but the relationship is minimal. In practical terms, age has limited predictive power in determining the continent to which an athlete belongs. The positive sign suggests that, on average, as age increases, the continent code also increases, but the correlation is not strong enough to draw significant conclusions.

Correlation coefficient between Age and Region:
0.017933667652870817







Deeper Analysis

Increasing Female Participation Over Time:

The analysis of historical Olympic data reveals a positive trend in the inclusion of female athletes over the years. From the early 20th century to the present, the number of female athletes participating in the Olympic Games has significantly increased. This suggests a positive shift toward greater gender equality and inclusivity in the world of sports, aligning with global efforts to promote women's participation in athletics.

Sports with Notable Female Success:

Certain sports stand out for their remarkable success in promoting gender equality, with women achieving comparable or even greater success than their male counterparts. Notably, sports like Curling, Figure Skating, Golf, Rhythmic Gymnastics, Softball, Synchronized Swimming, and Trampolining have seen female athletes outperforming or achieving parity with male athletes in terms of medal counts. This highlights the evolving landscape of sports and challenges traditional gender stereotypes.

Continental Disparities and Opportunities for Improvement:

The examination of female athletes' success across continents provides insights into regional variations. While some continents have seen significant achievements and strides in female sports participation, others may have opportunities for improvement. Recommendations for targeted interventions and support can be tailored based on these regional disparities. This finding emphasizes the importance of addressing specific challenges faced by female athletes in different parts of the world to ensure more widespread and equitable opportunities for women in sports.