LESSON 5- DATA CLEANING AND ANALYSIS OF OLYMPIC ATHLETES DATA
PROPOSAL FOR SERVICES

STEP 3: DRAWING CONCLUSIONS

An overview can be read from the overall data analysis.

For example, the average age of the overall medal winners is in their mid-20s. (Q1, Q2) The average age of contestants is lower than that of medal winners, which we expect is due to the nature of the sport and the fact that many of the contestants participate at a young age.

As for weight, it is difficult to make a generalization since there is a wide range for each sport.

[Reference] A study found that most Olympic track and field athletes peak at age 27. After that, there's only a 44% chance that an athlete will still reach their peak performance. (When Do Olympic Athletes Peak?)

Regarding the percentage of medal winners that can be read in Q6, Trinidad and Montenegro and Bahamas have around 50 overall contestants but have won over 22% of the medals.

What stands out is USA's high medal percentage (46%). Similarly, Australia, Canada, China, Germany, and Russia, with more than 1,000 competitors, each exceeded 25%. All of these countries are Olympic powerhouses for different reasons: large population, focus on athlete development, and budgets.

ADDITIONAL ANALYSIS

Add sheet Con (Height) to Q4 to verify. Regarding the difference in height between medal winners and the rest, the average was 2 cm. However, when analyzed by sport, there is a difference of more than that.

Female: Beach Volleyball 3.25cm, Luge 5.81cm, Rhythmic Gymnastics 3.49cm, Swimming 3.62cm

Male: Golf 11.39cm, Nordic Combined 3.16cm, Swimming 3.91cm, Taekwondo 4.20cm, Water Polo 3.29cm

In all cases, the average height of the medal winners was higher. This can be attributed to the fact that heights can be an advantage in some competitions. This is especially true for men's and women's swimming and men's golf.

[Reference] "Bigger people tend to go to sports that require absolute power. And smaller people tend to go to sports that require aerobic power, or muscular power to body weight ratio. And over the years the sizes have converged and the variability amongst elite athletes is less."(How tall are Olympic champions?)

Add sheet Con (Medal_Country) to Q6 to verify. In addition to the total number of medals won, the number of medals won in how many sports is also considered. This gives us an idea of the sports in which each country excels.

Some countries have only one medal in the data, while others, like Venezuela, have a total of five medals in five different sports. Among them, a country that has won a large number of medals in a particular sport can be said to be outstandingly strong in that sport.

Montenegro has 14 medals won are from one sport (handball). Trinidad has 16 medals from Athletics. These can be considered as specific sport specific.

Recommendations

If you are aiming for the Olympics in any sport

- **Recommendation #1: Think about the number of places available and the level of competition in your home country. (If it's a team competition, you can't go it alone)**
- **Recommendation #2: Seek training in a strong country. (Different sports have different environments)**
- **Recommendation #3: Consider moving to a higher level country.**

[Reference] In recent years, there has been a growing trend of elite athletes from developing countries migrating to more developed nations in search of better training facilities, coaching, and competition opportunities. (Sports Migration: Ten Coaching Strategies for Retaining Athletic Talents in Developing Countries)

REAL-LIFE CASE STUDIES

Case Study 1: Usain Bolt

Usain Bolt, the fastest Jamaican sprinter in the world, won many gold medals. Analyze the data and examine how factors such as height and weight affected his performance.

- His nickname is 'Lightning Bolt,' which means lightning.
- He achieved the triple crown in the 100m, 200m, and 4x100m relay at three consecutive Olympics. The relay gold medal from Beijing was stripped due to a member's doping, bringing his total number of gold medals to 8. (Wikipedia)

Athletics	Bolt	Average	Gap
Height	196	181.4	14.6 cm taller
Weight	95	75.85	19.15 kg heavier
BMI	24.7	23	1.7 bigger

BMI=mass(lb.) ÷ {height(in) x height(in)} x 703

In short distance running, athletes taller than 190 cm are considered at a disadvantage because their acceleration from a stationary position at the start is slower. However, Bolt capitalizes on his very large stride, accelerating in the middle of the race to pull away from others in the later stages. **(**Wikipedia**)**

Bolt's BMI is higher than the average of the athletes in this sport. Generally, power athletes, who require explosive strength, tend to have more muscle mass, resulting in a higher BMI. In the normally disadvantaged short distance, the large body improved the slow start dash due to its considerable muscle mass.

USE Excel sheet name : Usain Bolt

Case Study 2: Simone Biles

Simone Biles, the American gymnast, has won several Olympic medals. Try to analyze the data and check if there is a relationship between her physical attributes and her success in gymnastics

- American female gymnast.
- The person with the most medals in history across both genders. (Wikipedia)

Athletics	Bolt	Average	Gap
Height	143	155	12 cm shorter
Weight	47	47	The same
BMI	23	19.6	3.4 bigger

BMI=mass(lb.) ÷ {height(in) x height(in)} x 703

Her weight is the same as the sports average, but she is shorter. Therefore, her BMI is high. Like Bolt in Case 1, she is considered to have more muscle mass than the other athletes.

[Reference] She stands just 1.42 m (4 ft 8 in) tall, but packs an astonishing amount of power into her small frame. On the vault and on the floor, she can propel herself higher into the air than most of her competitors, giving her more time to complete her twists and rotations and increasing her chances of successfully "sticking" her landing. (Simone Biles: Most medals won at the World Artistic Gymnastics Championships)

She abstained from many events at Tokyo 2020. She has known mental health issues. She has since spread the importance of mental health and returned to the Olympics by winning a gold medal at the 2024 Paris Olympics.

USE Excel sheet name: Simone Biles

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