# Predicting the Beijing 2022 Winter Olympics medal tally

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The **Olympic Games** are one of the **most prestigious sporting events**, bringing the best athletes from around the world to compete against one another to prove who really is the best on Earth. The Games are not only a display of incredible athletic ability but also a symbol of **sportsmanship**, **unity** and **pride**. The **popularity** of the Winter Olympics **appears to be growing** in the UK, with streams for Pyeongchang 2018 almost doubling those for Sochi 2014.[1]

Participation in the Winter Olympics **has increased** over the years, but it is still much lower than in the Summer Games, which saw ≈ 12000 athletes compete in Tokyo 2020.

Participation in the Winter Olympics by year

Summer and Winter Games split to be held in different years.
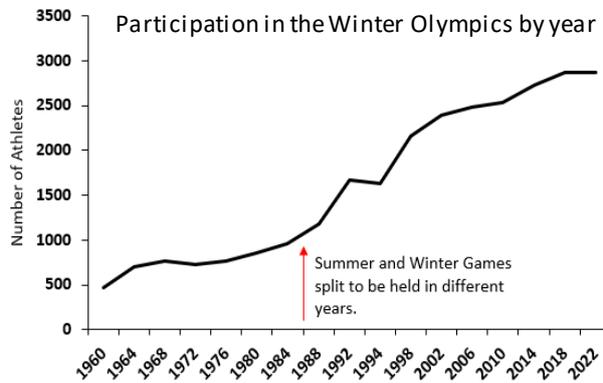
"Citius, Altius, Fortius, Communiter"

"Faster, Higher, Stronger, Together"

President Xi Jinping - 2022[3]

While the games appear to be growing in popularity, the **Beijing 2022 Winter Games is surrounded by controversy.**[2] A number of countries, including the UK, are declaring a diplomatic boycott due to reports of human rights abuses in China. Politics aside, however, the Games are still generally considered a positive highlight in sports worldwide.
Such a **high profile event** usually generates **lots of accurate data** for us analysts to hack at, so **let's do exactly that**!

Predicting the 2022 Winter Olympics medal tally by country using Python

Objective	❖ To **predict the medal tally** for each country participating in the **Beijing 2022 Winter Olympics** using **Python**.
Methods	➤ Build a **regression model** using historical Olympic, gross domestic product and population data[4,5] using **Python**. ➤ **Scrape athlete information** for Beijing 2022[6] using **Selenium** and **BeautifulSoup**. ➤ Apply the regression model to the 2022 data and **predict the medal tally by country.**
Results	✓ The regression model has an **R² of 0.65** and has a **standard deviation of ≈ 6 medals.** ✓ The **USA** are predicted to achieve the **highest number of medals**. ✓ With **China being the host nation**, they are expected to finish inside the **top 10 for total medals** and **equal their largest ever medal tally**. ✓ **Team size** appears to play a role in the **number of medals** a nation brings home.

Predicted medal tally for the top 10 teams in the 2022 Beijing Winter Olympics

Team	Team Size	Predicted Medals (Range)
USA	224	18 (12-24)
Canada	215	17 (11-23)
Switzerland	167	14 (8-20)
Germany	149	11 (5-17)
China	174	11 (5-17)
Japan	124	9 (3-15)
Sweden	116	8 (2-14)
Italy	118	8 (2-14)
Czech Republic	116	8 (2-14)
Austria	106	7 (1-13)

Take home points:

- Our model **predicts total medal tally to within a standard deviation of 6 medals** for historical data.
- Our results should be **interpreted with caution** as certain countries and years were omitted due to missing data. The 2018 Winter Olympic data are also missing from this analysis.
- The **United States of America** are predicted to **top the table for total medals**, but this does not necessarily mean they will win the Games. **Their declining medal haul since 2010 is also predicted to carry on.**
- Team **China** are predicted to equal their **highest ever medal tally** and finish inside the top 10 for total medals, likely due to having a **home team advantage.** They may even beat their best place finish.
- **Best of all**, **we can measure the success of this analysis when the Beijing Winter Olympics finish**!

References
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6. Beijing 2022 Olympic Data (https://olympics.com/beijing-2022/olympic-games/en/results/all-sports/athletes.htm)