Visualizing the Olympics

STAT3622

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Agenda

I. Introduction to the Dataset
II. Background Information
III. Methods
IV. Interesting Insights
    a. Trend in Female Participation
    b. Political/Socioeconomic Influence
    c. Trend in Physical Attributes
V. Conclusion

1. Introduction to the Dataset

Dataset includes sex, age, height, weight, medal, sport, year,etc

1 Dataset

- Date: Athenes 1896 to London 2012 (Summer and Winter)

- Decided to distinguish Summer/Winter
1. Winter Olympics started later
2. Have different number of events

- Features: Sex, Age, Height, Weight, Medal, Sport, Team, Season, etc

ID	Name	Sex	Age	Height	Weight	Team	NOC	Games
1	A Dijiang	M	24	180	80	China	CHN	1992 Summe
2	A Lamusi	M	23	170	60	China	CHN	2012 Summe
3	Gunnar Niels	M	24	NA	NA	Denmark	DEN	1920 Summe
4	Edgar Linden	M	34	NA	NA	Denmark/Sw	DEN	1900 Summe
5	Christine Jac	F	21	185	82	Netherlands	NED	1988 Winter
5	Christine Jac	F	21	185	82	Netherlands	NED	1988 Winter
5	Christine Jac	F	25	185	82	Netherlands	NED	1992 Winter
5	Christine Jac	F	25	185	82	Netherlands	NED	1992 Winter
5	Christine Jac	F	27	185	82	Netherlands	NED	1994 Winter
5	Christine Jac	F	27	185	82	Netherlands	NED	1994 Winter
6	Per Knut Aal	M	31	188	75	United State	USA	1992 Winter
6	Per Knut Aal	M	31	188	75	United State	USA	1992 Winter
6	Per Knut Aal	M	31	188	75	United State	USA	1992 Winter
6	Per Knut Aal	M	31	188	75	United State	USA	1992 Winter
6	Per Knut Aal	M	33	188	75	United State	USA	1994 Winter
6	Per Knut Aal	M	33	188	75	United State	USA	1994 Winter
6	Per Knut Aal	M	33	188	75	United State	USA	1994 Winter
6	Per Knut Aal	M	33	188	75	United State	USA	1994 Winter
7	John Aalberg	M	31	183	72	United State	USA	1992 Winter
7	John Aalberg	M	31	183	72	United State	USA	1992 Winter
7	John Aalberg	M	31	183	72	United State	USA	1992 Winter
7	John Aalberg	M	31	183	72	United State	USA	1992 Winter
7	John Aalberg	M	33	183	72	United State	USA	1994 Winter
7	John Aalberg	M	33	183	72	United State	USA	1994 Winter
7	John Aalberg	M	33	183	72	United State	USA	1994 Winter
7	John Aalberg	M	33	183	72	United State	USA	1994 Winter
8	Cornelia "Co	F	18	168	NA	Netherlands	NED	1932 Summe

2. Background Information

The Olympics had diverse reasons for factors such as start date, number of sports, and cancellation

1 Start Date

Summer Game started in 1896

Winter Games started in 1924

Due to logistic difficulties for organizing snow and ice events

2 Number of Sports

Reached saturation point in the last 5 Olympics
Summer Olympics: 26
Winter Olympics: 15

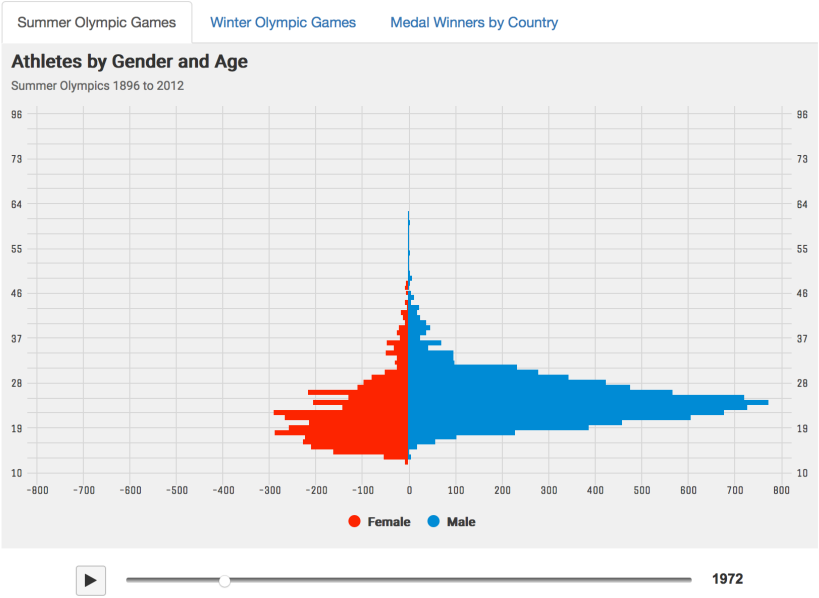
3 Cancellation

1916, 1940, 1944 Summer Olympic Games and 1940, 1944 Winter Olympic Games did not happen due to World War I&II

3. Methods

Various types of Interactive apps were made to derive insight through visualization

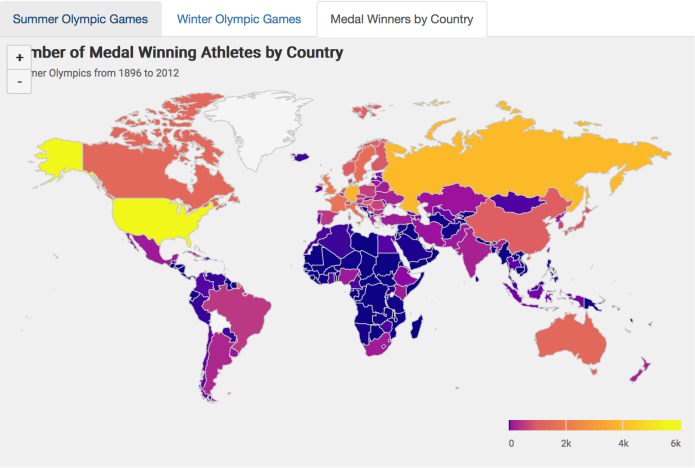
Number of Athletes by Gender and Age through Years

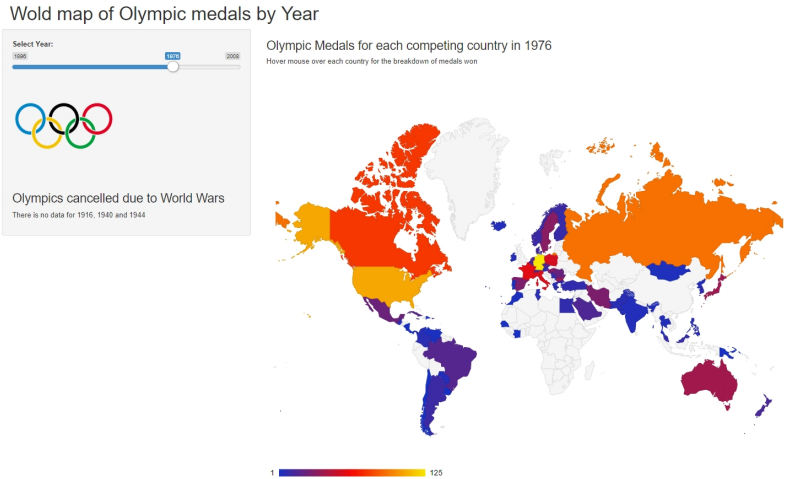


3. Methods

Various types of Interactive apps were made to derive insight through visualization

World Map of Medal Winners by Country through Years

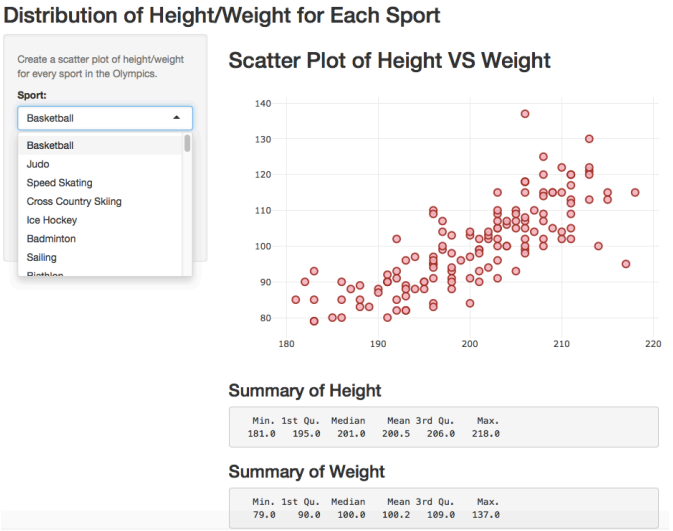




3. Methods

Various types of Interactive apps were made to derive insight through visualization

Scatter Plot of Height VS Weight by Sport, Year, and Gender



4. Interesting Insights

Visualization apps illustrated a few insights gender, political/social, and biology issues

1. Interesting trends in female participation
2. Influence of political/social issues on participation
3. Possible influence of technology on the biology of athletes

4a. Trend in Female Participation

Growth of female participants remained on the same level as men's untill 1996

1 General

- Trend in number of female athletes largely mirrored growth in the number of male athletes up **until 1996**
- After 1996, number of male athletes **remained the same** while number of female athletes continued to **increase**

2 No Women Initially

- Founder, Coubertin, strongly disapproved of female athletes competing in the Olympics→"**impractical,unteresting,unaesthetic, and incorrect**"

3 Reason for Growth

- Increase in number of female athletes→increase **in number of sports** they could participate in
- 1956~1968; Increase is not as evident→president of the Olympics, Brundage, **disapproved of female athletes**

4b. Political/Socioeconomic Influence

Numerous political and socioeconomic events have influenced the participation of the Olympics

1 LA 1932: The Great Depression

- Attendance dipped because these Games occurred in the midst of the **Great Depression** and in a **remote location**, such that many athletes were **unable to afford** the trip to the Olympics.

4b. Political/Socioeconomic Influence

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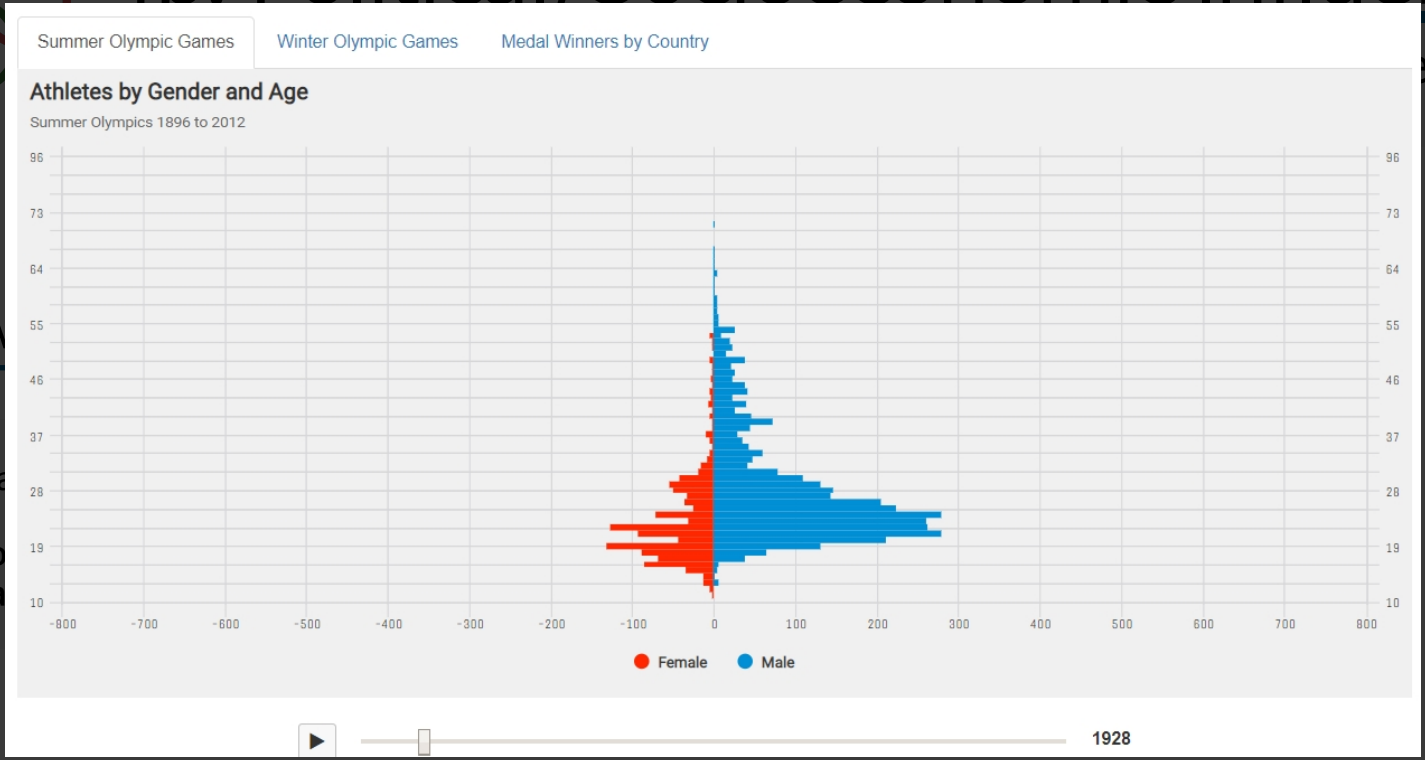
1 LA

– Attenda
occurred
in a **remo**
were **una**



4b. Political/Socioeconomic Influence

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1 LA

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occurred
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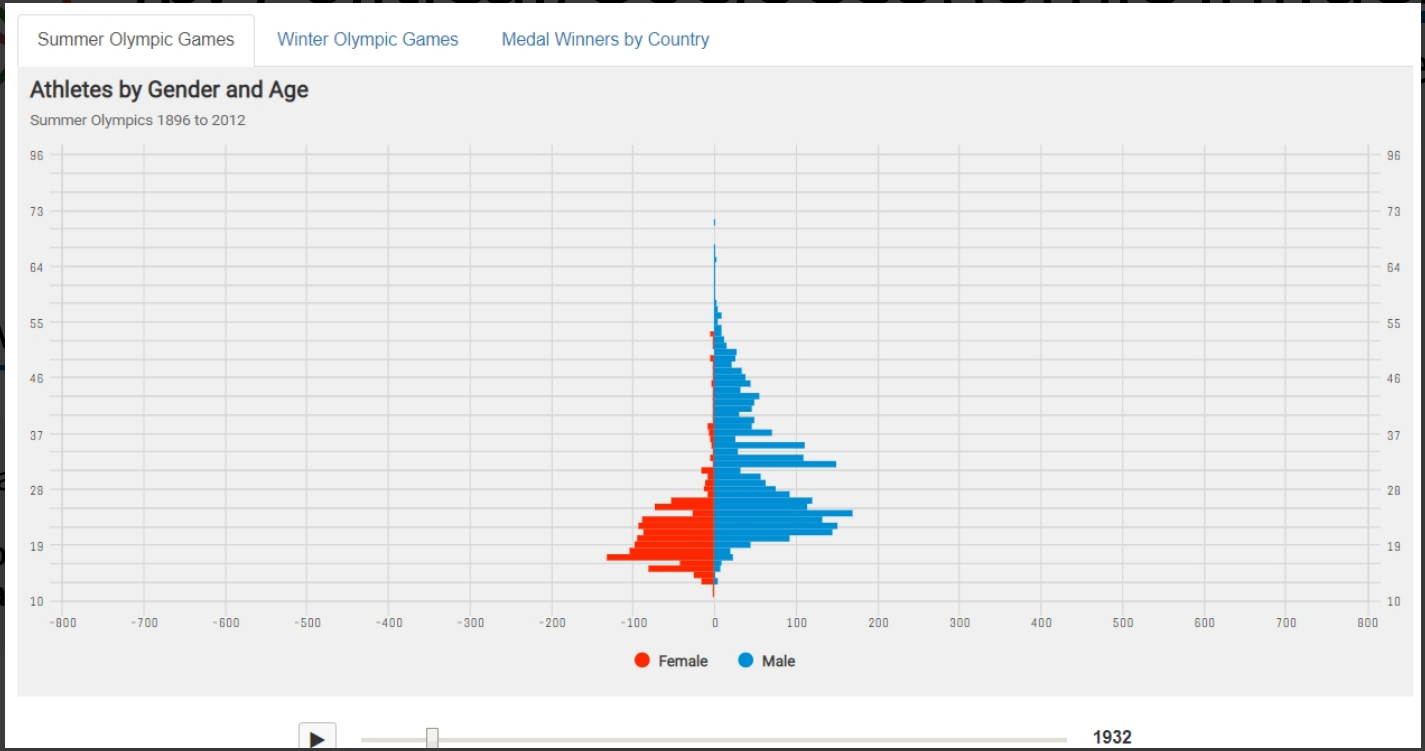

4b. Political/Socioeconomic Influence

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1 LA 1932: The Great Depression

- Attendance dipped because these Games occurred in the midst of the **Great Depression** and in a **remote location**, such that many athletes were **unable to afford** the trip to the Olympics.

2 Melbourne 1956: Boycotts

- Iraq, Egypt, and Lebanon did not participate →**Suez Canal**
- Netherlands, Spain, Switzerland, and Cambodia did not participate→**Soviet Union**
- China did not participate→ IOC's **recognition of Taiwan.**

Wold map of Olympic medals by Year

Select Year:

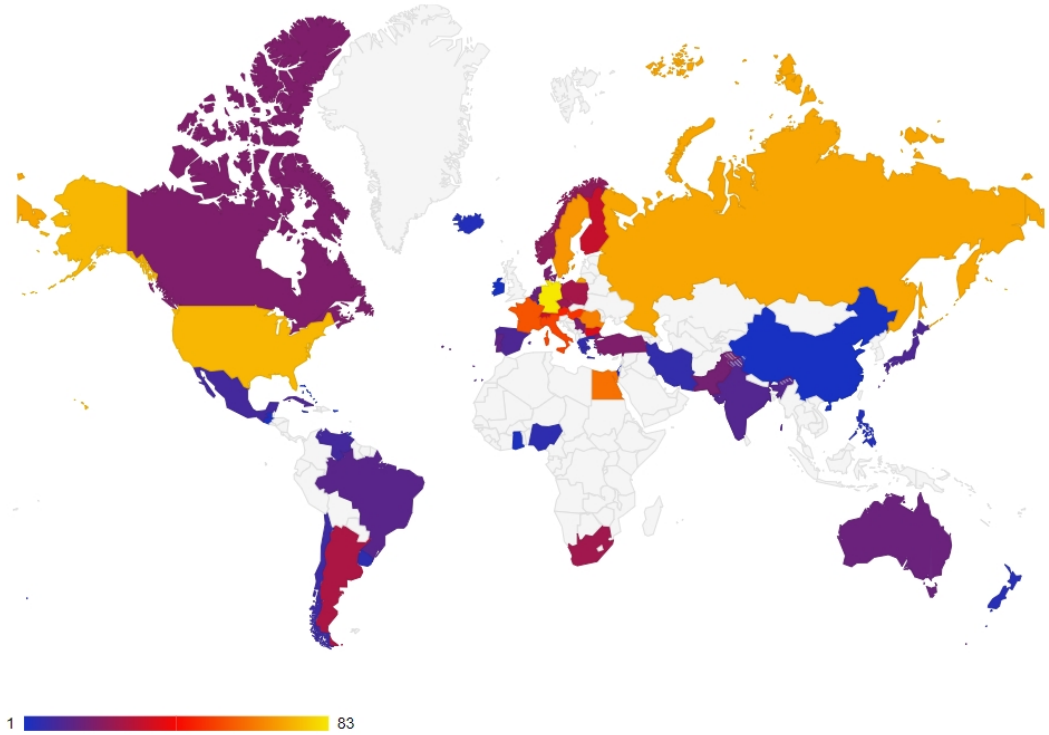
1896 1952 2008

Olympics cancelled due to World Wars

There is no data for 1916, 1940 and 1944

Olympic Medals for each competing country in 1952

Hover mouse over each country for the breakdown of medals won



Wold map of Olympic medals by Year

Select Year:

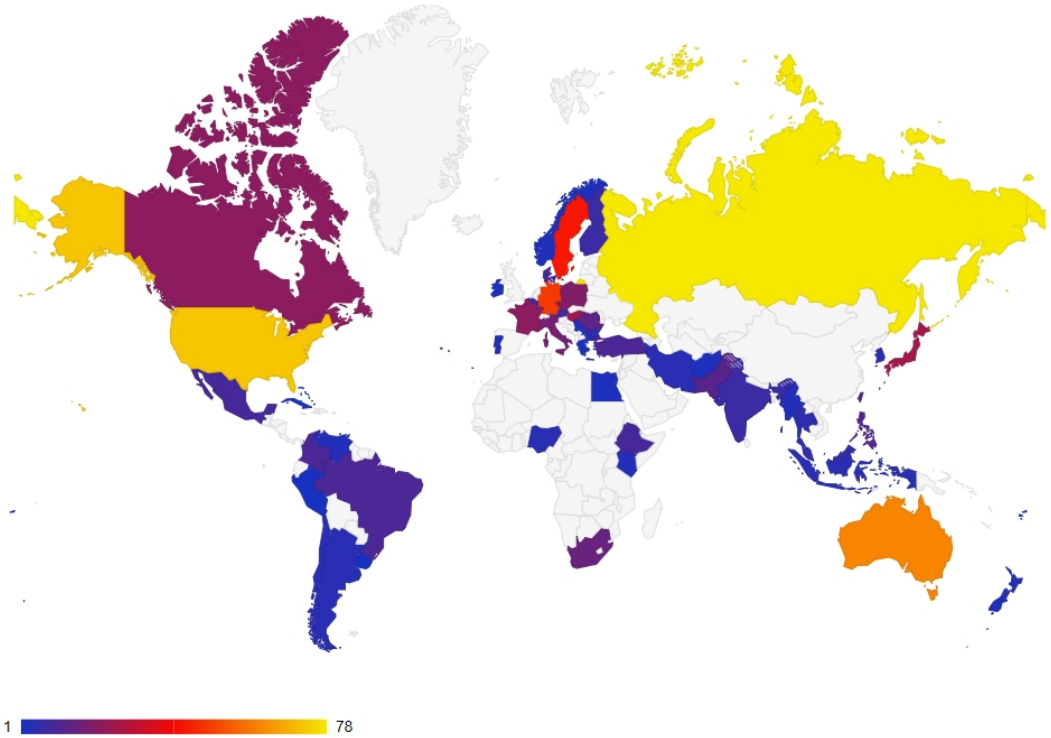
1896 1956 2008

Olympics cancelled due to World Wars

There is no data for 1916, 1940 and 1944

Olympic Medals for each competing country in 1956

Hover mouse over each country for the breakdown of medals won



4b. Political/Socioeconomic Influence

Numerous political and socioeconomic events have influenced the participation of the Olympics

3 Montreal 1976: African Boycott

- 25 nations, mostly African, boycotted the Games →**apartheid in South Africa**
- 1980 Winter Olympics in Lake Placid wasn't affected much→African nations have **limited presence** at the Winter Games.

Wold map of Olympic medals by Year

Select Year:

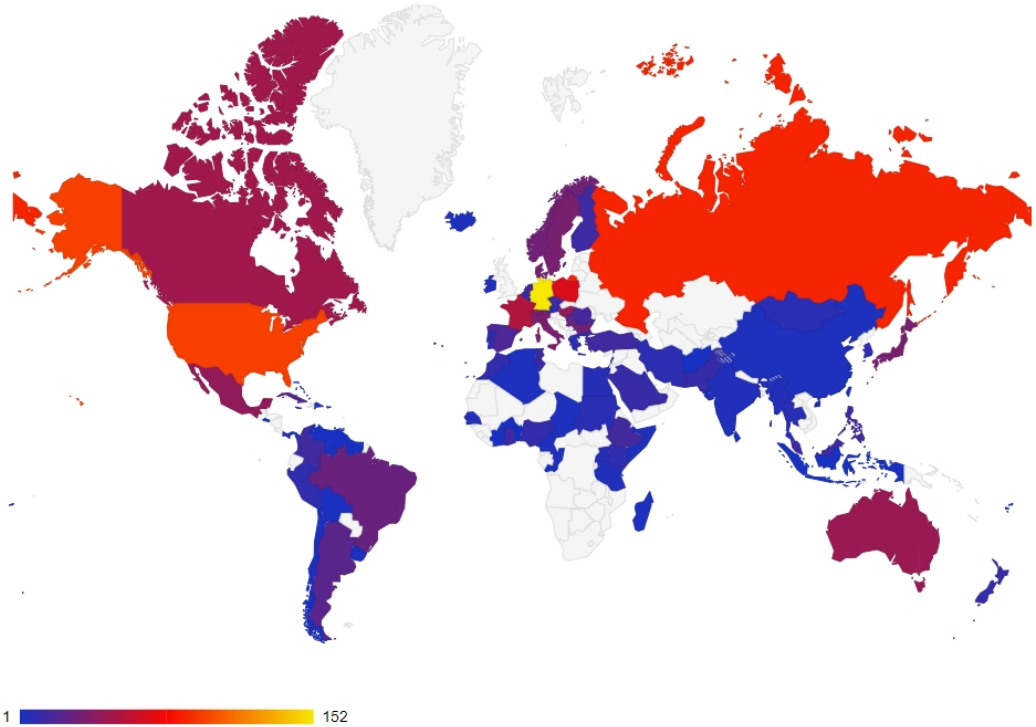
1896 1972 2008

Olympics cancelled due to World Wars

There is no data for 1916, 1940 and 1944

Olympic Medals for each competing country in 1972

Hover mouse over each country for the breakdown of medals won



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Wold map of Olympic medals by Year

Select Year:

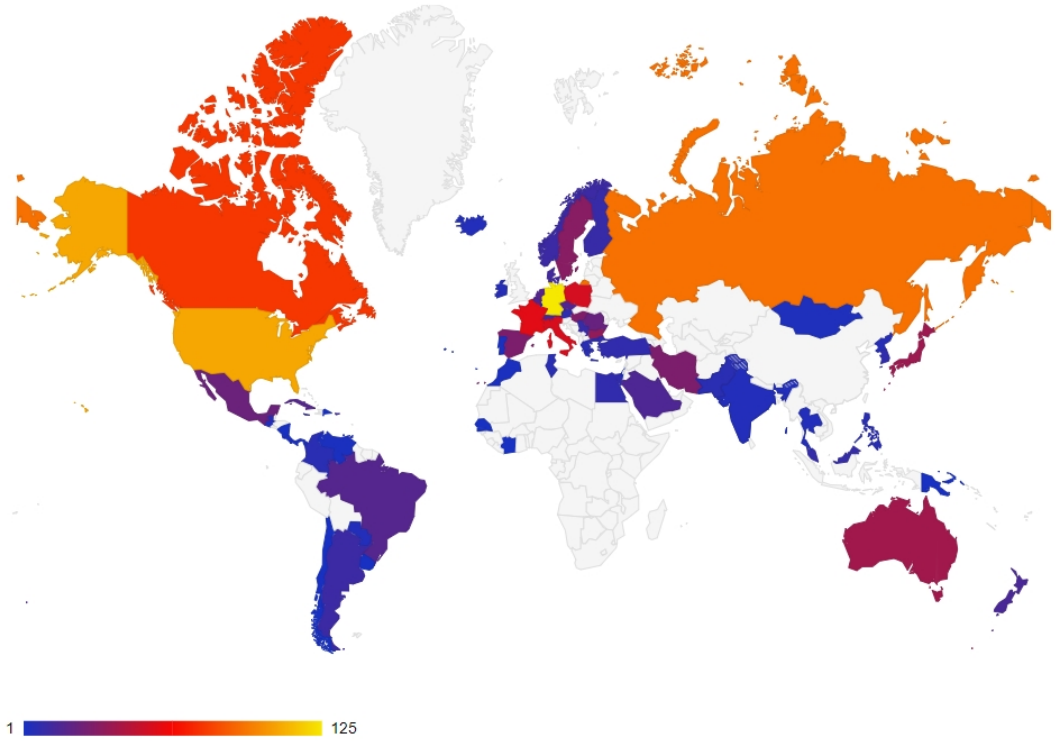
1896 1976 2008

Olympics cancelled due to World Wars

There is no data for 1916, 1940 and 1944

Olympic Medals for each competing country in 1976

Hover mouse over each country for the breakdown of medals won



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4b. Political/Socioeconomic Influence

Numerous political and socioeconomic events have influenced the participation of the Olympics

3 Montreal 1976: African Boycott

- 25 nations, mostly African, boycotted the Games →**apartheid in South Africa**
- 1980 Winter Olympics in Lake Placid wasn't affected much→African nations have **limited presence** at the Winter Games.

4 Moscow 1980: Invasion of Afghan

- Number of medalists dipped because 66 nations, including the U.S., boycotted the Games in response to **the Soviet invasion of Afghanistan.**

Wold map of Olympic medals by Year

Select Year:

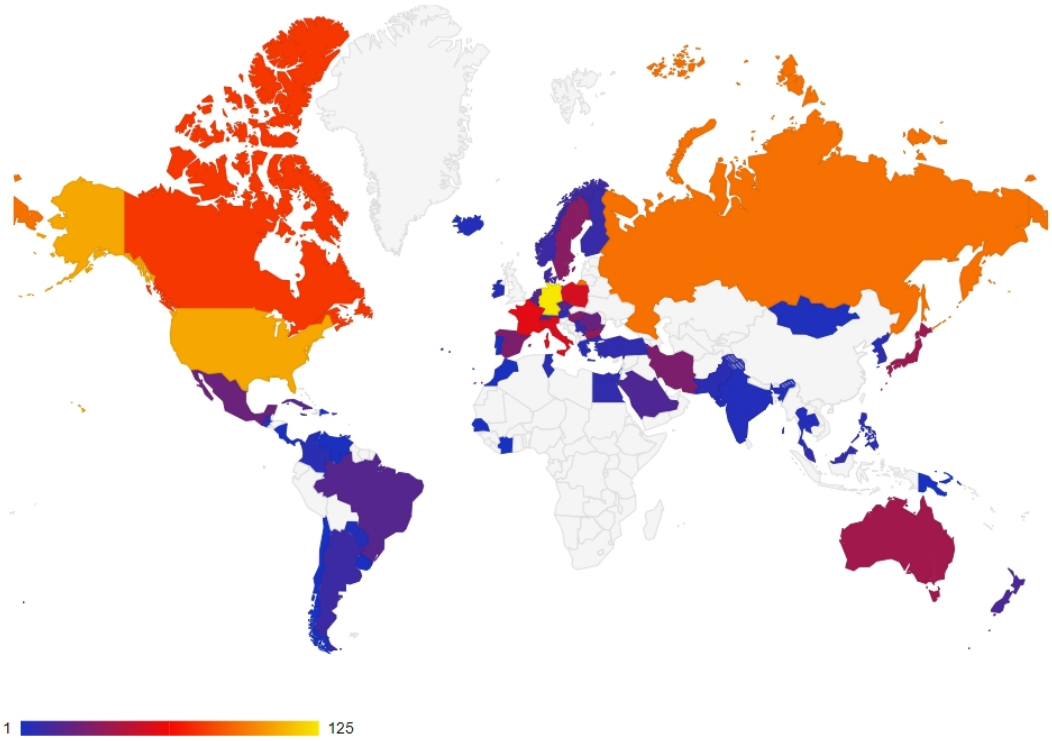
1896 1976 2008

Olympics cancelled due to World Wars

There is no data for 1916, 1940 and 1944

Olympic Medals for each competing country in 1976

Hover mouse over each country for the breakdown of medals won



Wold map of Olympic medals by Year

Select Year:

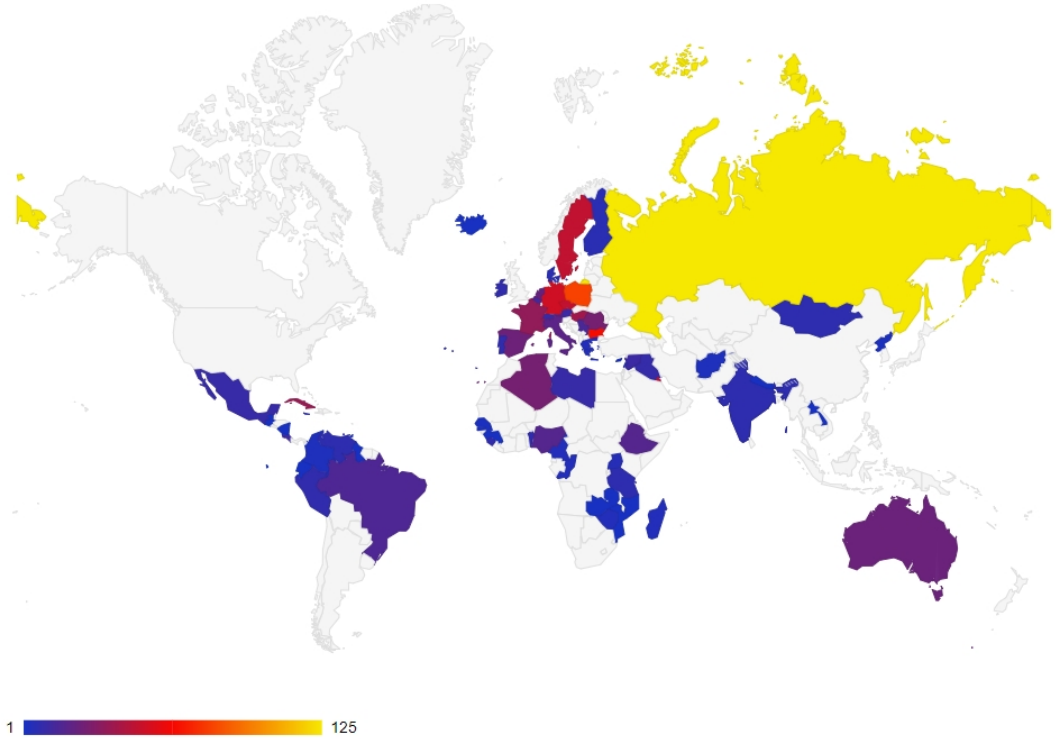
1896 1980 2008

Olympics cancelled due to World Wars

There is no data for 1916, 1940 and 1944

Olympic Medals for each competing country in 1980

Hover mouse over each country for the breakdown of medals won



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4c. Trend in Physical Attributes

Over time, the physique of athletes have changed to become more competitive in certain sports

1 Basketball

- Initially, the average height/weight of basketball was around 187/85.
- Over time, height/weight grew steadily
- After 1988, height/weight became more standardized to be 200/99

4a. Trend in Physical Attributes

o become more

1 Baske

- Initially, the
basketball w
- Over time, h
- After 1988, h
standardized

Distribution of Height/Weight for Each Sport

Create a scatter plot of height/weight for every sport in the Olympics.

Sport:

Basketball

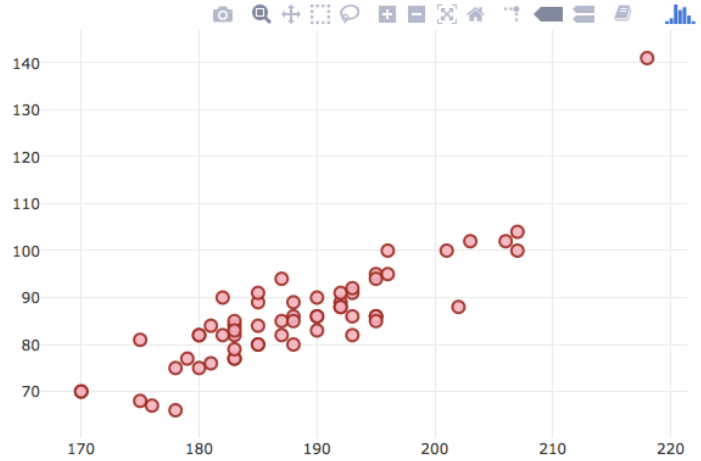
Year:

1956

Sex:

M

Scatter Plot of Height VS Weight



Summary of Height

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  170.0   182.8   187.5   188.3   193.0   218.0
```

Summary of Weight

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  66.00   80.75   85.00   86.12   90.25  141.00
```

4a. Trend in Physical Attributes

o become more

1 Baske

- Initially, the
basketball w
- Over time, h
- After 1988, h
standardized

Distribution of Height/Weight for Each Sport

Create a scatter plot of height/weight for every sport in the Olympics.

Sport:

Basketball

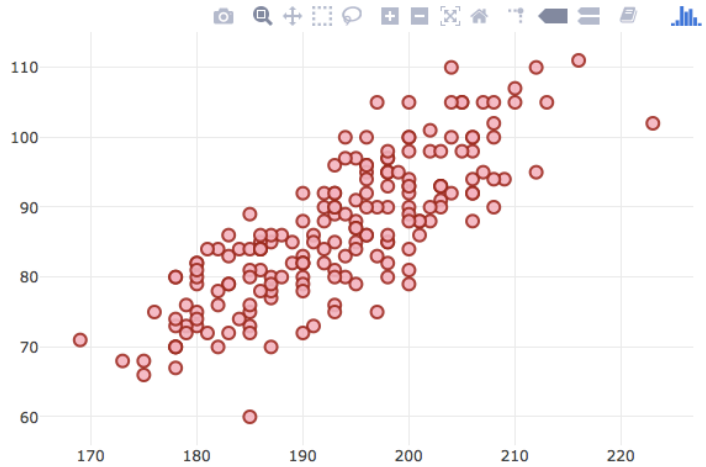
Year:

1972

Sex:

M

Scatter Plot of Height VS Weight



Summary of Height

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  169.0   186.0   194.0   193.4   200.0   223.0
```

Summary of Weight

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  60.00   80.00   86.00   86.74   94.00  111.00
```

4a. Trend in Physical Attributes

o become more

1 Basket

- Initially, the
basketball w
- Over time, h
- After 1988, h
standardized

Distribution of Height/Weight for Each Sport

Create a scatter plot of height/weight for every sport in the Olympics.

Sport:

Basketball

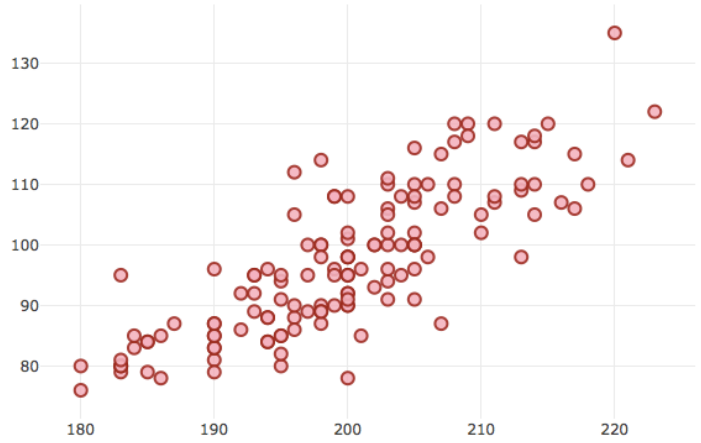
Year:

1992

Sex:

M

Scatter Plot of Height VS Weight



Summary of Height

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  180.0   194.0   200.0   199.8   205.0   223.0
```

Summary of Weight

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  76.00   87.00   96.00   97.27  107.00  135.00
```

4a. Trend in Physical Attributes

ecome more

1 Baske

- Initially, the
basketball w
- Over time, h
- After 1988, h
standardized

Create a scatter plot of height/weight for every sport in the Olympics.

Sport:

Basketball

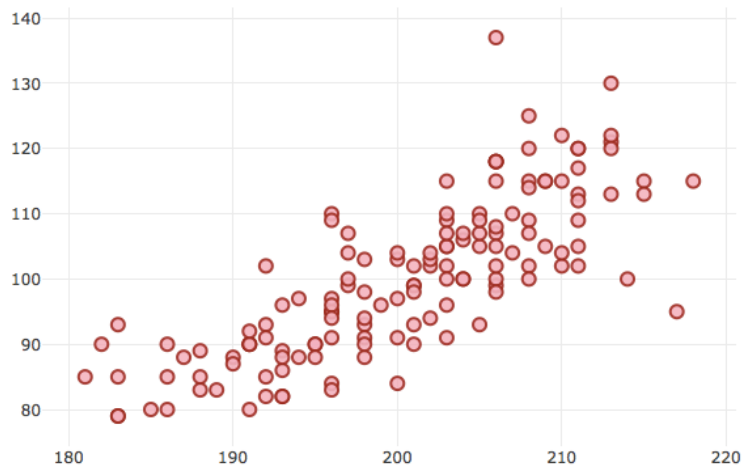
Year:

2016

Sex:

M

Scatter Plot of Height VS Weight



Summary of Height

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  181.0   195.0   201.0   200.5   206.0   218.0
```

Summary of Weight

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
   79.0    90.0   100.0   100.2   109.0   137.0
```

4c. Trend in Physical Attributes

Over time, the physique of athletes have changed to become more competitive in certain sports

1 Basketball

- Initially, the average height/weight of basketball was around 187/85.
- Over time, height/weight grew steadily
- After 1988, height/weight became more standardized to be 200/99

2 Weightlifting

- Weightlifting initially had an average height/weight of around 169/79
- However, after 1992, average weight suddenly increased to around 86

4c.

Over
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1 Basketball

- Initially, the average h
basketball was around
- Over time, height/wei
- After 1988, height/we
standardized to be 20

ht/

denly

Distribution of Height/Weight for Each Sport

Create a scatter plot of height/weight for every sport in the Olympics.

Sport:

Weightlifting

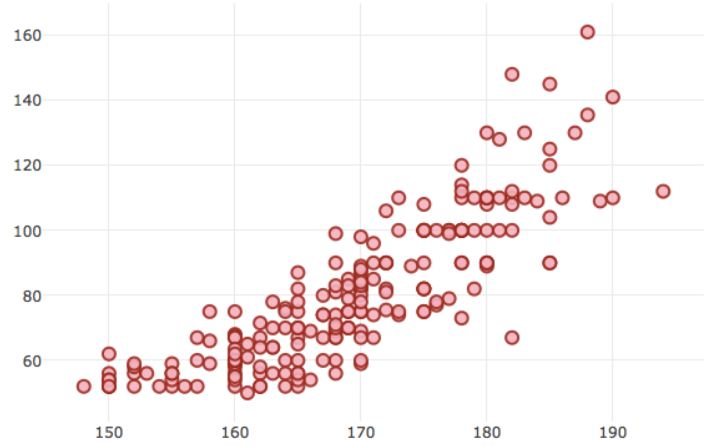
Year:

1988

Sex:

M

Scatter Plot of Height VS Weight



Summary of Height

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  148.0   162.0   170.0   169.4   177.5   194.0
```

Summary of Weight

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  50.00   60.00   75.00   80.66   99.50  161.00
```

4c.

Over
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1 Basketball

- Initially, the average h
basketball was around
- Over time, height/wei
- After 1988, height/we
standardized to be 20

ht/

denly

Distribution of Height/Weight for Each Sport

Create a scatter plot of height/weight for every sport in the Olympics.

Sport:

Weightlifting

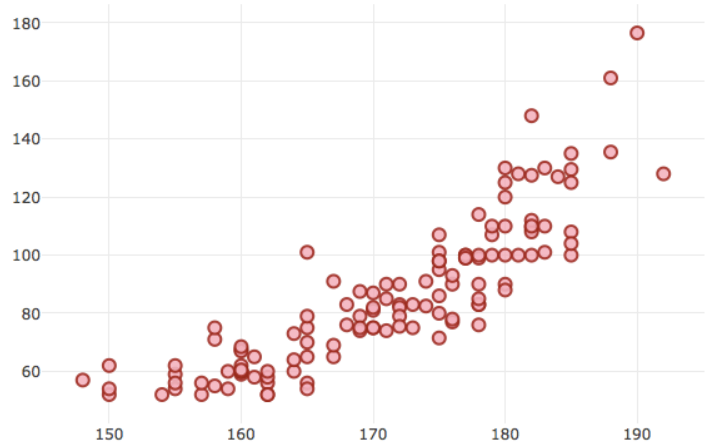
Year:

1992

Sex:

M

Scatter Plot of Height VS Weight



Summary of Height

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  148.0   162.0   172.0   171.2   179.0   192.0
```

Summary of Weight

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  52.00   65.00   83.00   86.21  100.00  176.50
```

4c. Trend in Physical Attributes

Over time, the physique of athletes have changed to become more competitive in certain sports

3 Swimming

- Initially, the average height/weight of swimming was 178/74
- These values increased steadily, until 1996.
- After 1996, the average height/weight of swimming standardized to 187/80

4c.

Over
comp
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3 Swimming

- Initially, the average h
swimming was 178/74
- These values increase
- After 1996, the averag
swimming standardize

Distribution of Height/Weight for Each Sport

Create a scatter plot of height/weight for every sport in the Olympics.

Sport:

Swimming

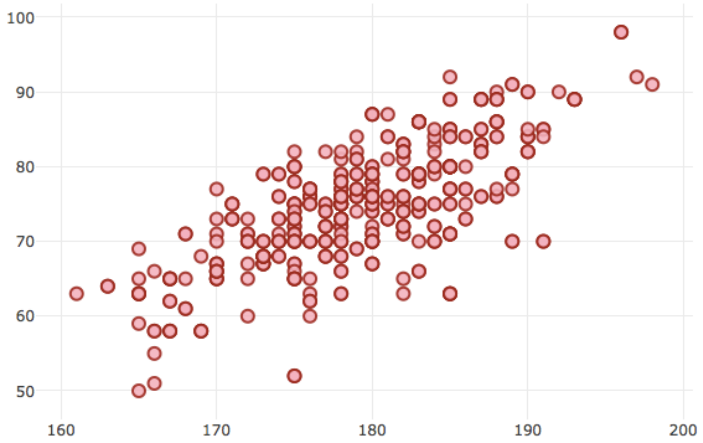
Year:

1964

Sex:

M

Scatter Plot of Height VS Weight



Summary of Height

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  161.0   175.0   179.0   179.2   184.0   198.0
```

Summary of Weight

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  50.00   70.00   75.00   74.72   80.00   98.00
```

4c.

Over
comp
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3 Swimming

- Initially, the average h
swimming was 178/74
- These values increase
- After 1996, the averag
swimming standardize

Distribution of Height/Weight for Each Sport

Create a scatter plot of height/weight for every sport in the Olympics.

Sport:

Swimming

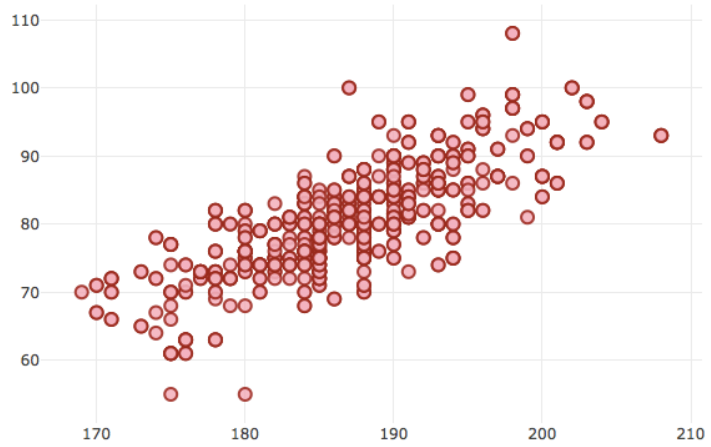
Year:

1996

Sex:

M

Scatter Plot of Height VS Weight



Summary of Height

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  169.0   183.0   187.0   187.2   192.0   208.0
```

Summary of Weight

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  55.00   75.00   80.00   80.86   86.00  108.00
```

4c. Trend in Physical Attributes

Over time, the physique of athletes have changed to become more competitive in certain sports

3 Swimming

- Initially, the average height/weight of swimming was 178/74
- These values increased steadily, until 1996.
- After 1996, the average height/weight of swimming standardized to 187/80

4 Athletics

- Initially, the average height/weight of athletics was 178/72
- Oddly, this average has not changed over time. It has remained throughout, with the 2016 average being 180/74

4c.

Over
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3 Swimming

- Initially, the average h
swimming was 178/74
letics
- These values increase
time.
- After 1996, the averag
swimming standardize
6

Distribution of Height/Weight for Each Sport

Create a scatter plot of height/weight for every sport in the Olympics.

Sport:

Athletics

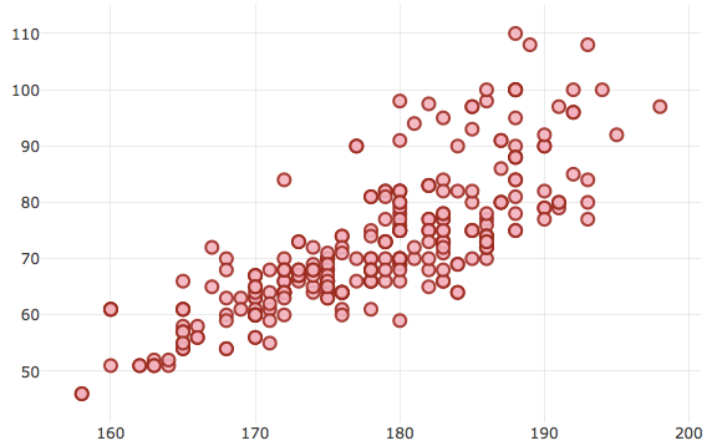
Year:

1932

Sex:

M

Scatter Plot of Height VS Weight



Summary of Height

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  158.0   172.0   179.0   178.2   184.0   198.0
```

Summary of Weight

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  46.00   64.00   70.00   72.34   79.00  110.00
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4c.

Over
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3 Swimming

- Initially, the average h
swimming was 178/74
letics
- These values increase
time.
- After 1996, the averag
swimming standardize
6

Distribution of Height/Weight for Each Sport

Create a scatter plot of height/weight for every sport in the Olympics.

Sport:

Athletics

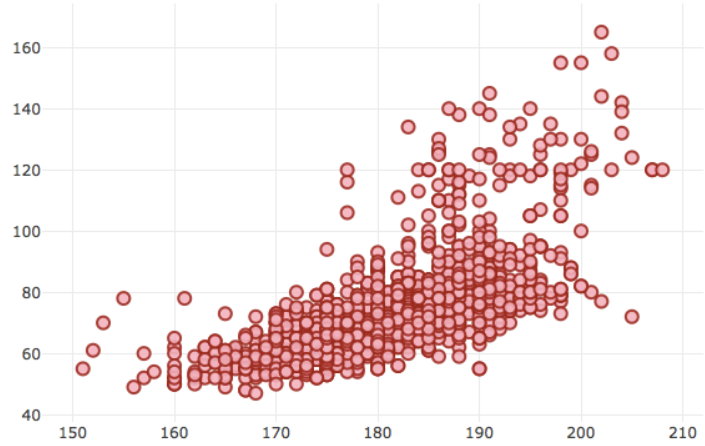
Year:

2016

Sex:

M

Scatter Plot of Height VS Weight



Summary of Height

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  151.0   175.0   180.0   180.9   187.0   208.0
```

Summary of Weight

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  47.00   63.00   72.00   74.48   80.00  165.00
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5. Conclusion

Visualizing data for the Olympics resulted in interesting insights that involved gender, political, socioeconomic, and biological issues

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5. Conclusion

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2. Olympics was largely involved in political and socioeconomic factors historically

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Visualizing data for the Olympics resulted in interesting insights that involved gender, political, socioeconomic, and biological issues

1. Able to gain hints on the types of facts/events we should search through visualization
2. Olympics was largely involved in political and socioeconomic factors historically
3. Athletes of certain sports had growing physical attributes, while others remained the same