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來源資料概述

<https://www.kaggle.com/martj42/international-football-results-from-1872-to-2017/data>

date, home\_team, away\_team, home\_score, away\_score, tournament, city, country, neutral(比賽是在中立場還是在主隊的體育場進行)

網站中的Column Metrics可以參考用(互動式的)

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dataset %>%

select(date, home\_team, away\_team, home\_score, away\_score) %>%

mutate(total\_goals = home\_score + away\_score) %>%

arrange(-total\_goals) %>%

head(1)

--------------------------------------------------------------------------------------------

date home\_team away\_team home\_score away\_score total\_goals

<date> <chr> <chr> <int> <int> <int>

1 2001-04-11 Australia American Samoa 31 0 31

-------------------------------------------------------------------------------------------------

<https://en.wikipedia.org/wiki/Australia_31%E2%80%930_American_Samoa>

圖表分析

1. 足球實力面量圖.png

2. 所有比賽勝率條狀圖.png

3. 所有比賽勝率面量圖.png

4. 世界盃勝率條狀圖.png

5. 世界盃勝率面量圖.png

6.

什麼是elo評分系統?

Elo評分系統是一種計算玩家在零和遊戲中的相對技能水平的方法。它的創建者是匈牙利 - 美國物理學教授Arpad Elo。

Elo系統最初是使用在國際象棋評級系統，但後來也被用作多個視頻遊戲，足球，美式足球，籃球，美國職業棒球大聯盟，英雄聯盟中的多人比賽評級系統，外交和其他遊戲等遊戲。

玩家的Elo等級由一個數字表示，該數字根據評級玩家之間的遊戲結果而增加或減少。每場比賽之後，勝者將從失敗者中獲得積分。獲勝者和失敗者的評分之間的差異決定了比賽后獲得或失去的總分數。在高等級球員與低等級球員之間的一系列比賽中，高等級球員預計將獲得更多勝利。如果高評分球員獲勝，那麼只有少數評分將從低評分球員身上獲得。但是，如果評分較低的玩家獲得[不滿的勝利](https://en.wikipedia.org/wiki/Upset_(competition)" \o "打亂（競爭）)，許多評分點將被轉移。如果平局，評分較低的玩家也將獲得較高評分的玩家幾分。這意味著這個評級系統是自我糾正的。從長遠來看，評分太低的球員應該比評分系統預測的好，從而獲得評分，直到評分反映他們的真實強度。

<https://en.wikipedia.org/wiki/Elo_rating_system#Most_accurate_K-factor>

程式碼會跑表的地方:

###看排名

teams %>%

arrange(desc(elo)) %>%

head()

team elo join

1 Brazil 2039.662 1

2 Spain 1969.259 1

3 France 1948.421 1

4 Germany 1934.574 1

5 Argentina 1924.396 1

6 England 1913.401 1

####2018FIFA World Cup

WC\_teams <- teams %>%

filter(team %in% c("Russia", "Germany", "Brazil", "Portugal", "Argentina", "Belgium",

"Poland", "France", "Spain", "Peru", "Switzerland", "England",

"Colombia", "Mexico", "Uruguay", "Croatia", "Denmark", "Iceland",

"Costa Rica", "Sweden", "Tunisia", "Egypt", "Senegal", "Iran",

"Serbia", "Nigeria", "Australia", "Japan", "Morocco", "Panama",

"Korea Republic", "Saudi Arabia")) %>%

arrange(desc(elo))

WC\_teams

team elo join

1 Brazil 2039.662 1

2 Spain 1969.259 1

3 France 1948.421 1

4 Germany 1934.574 1

5 Argentina 1924.396 1

6 England 1913.401 1

7 Belgium 1889.754 1

8 Portugal 1883.698 1

9 Peru 1870.290 1

10 Colombia 1858.794 1

11 Mexico 1843.687 1

12 Switzerland 1832.037 1

13 Uruguay 1814.028 1

14 Croatia 1809.948 1

15 Iran 1808.954 1

16 Poland 1795.867 1

17 Denmark 1755.002 1

18 Morocco 1749.514 1

19 Australia 1747.218 1

20 Senegal 1741.229 1

21 Sweden 1740.440 1

22 Costa Rica 1736.015 1

23 Korea Republic 1732.249 1

24 Japan 1728.299 1

25 Russia 1717.162 1

26 Serbia 1713.893 1

27 Egypt 1702.158 1

28 Nigeria 1698.251 1

29 Tunisia 1693.319 1

30 Iceland 1689.777 1

31 Panama 1681.461 1

32 Saudi Arabia 1646.610 1

###世界盃遺珠

meanelo<-mean(WC\_teams$elo)

teams %>%

filter(elo > meanelo, !team %in% WC\_teams$team)

team elo join

1 Netherlands 1843.180 0

2 Italy 1835.915 0

3 Chile 1824.524 0

###開幕戰

russia <- subset(WC\_teams, team == "Russia")$elo

saudi\_arabia <- subset(WC\_teams, team == "Saudi Arabia")$elo

elo.prob(russia, saudi\_arabia)

0.60016

###兩強對打

france <- subset(WC\_teams, team == "France")$elo

argentina <- subset(WC\_teams, team == "Argentina")$elo

elo.prob(france, argentina)

0.5345199

###強打弱

brazil <- subset(WC\_teams, team == "Brazil")$elo

iceland <- subset(WC\_teams, team == "Iceland")$elo

elo.prob(brazil, iceland)

0.8822694