



Data Analysis Introduction

Final Project

ATP Tennis Tournaments Analysis

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Introduction

The Association of Tennis Professionals (ATP) was formed in September 1972 to protect the interests of male professional tennis players.



Research Objectives

In this study, we expect to analyse and answer below set of questions:

- How many ATP tournaments in each year? and which year has most ATP tournaments?
- How many of them indoor, how many of them outdoor tournaments?
- What kind of surface usually had been played on in the tournaments?
- Who is in the top 10 most successful players in the ATP history?
- Which player has most won between 4 grand slam tournaments? (aus-open, roland garros, wimbledon, us open)
- How is the competition between the big four (Nadal, Federer, Djokovic, Murray) in the grand slams?
- How is the Big Four's performances in different surfaces?
- How is the competition between Rafael Nadal and Novak Djokovic in the clay surface?
- How is the competition between Rafael Nadal and Novak Djokovic in the hard surface?



Dataset Information

atp-world-tour-tennis-data_zip: This dataset contains tennis data from the ATP World Tour website. The data is updated annually in October. The data contains ATP tournaments, match scores, match stats, rankings and players overview. The latest available data is for 2017.

Data actively used for this project | Tournaments.csv : Only includes ATP tournaments-- winner names.

Data source: <https://datahub.io/sports-data/atp-world-tour-tennis-data/r/0.html>

Tools and packages used for this analysis

R packages were used to visualize the plots in this document.

```
library(tidyverse)  
library(plyr)  
library(dplyr)  
library(ggplot2)
```

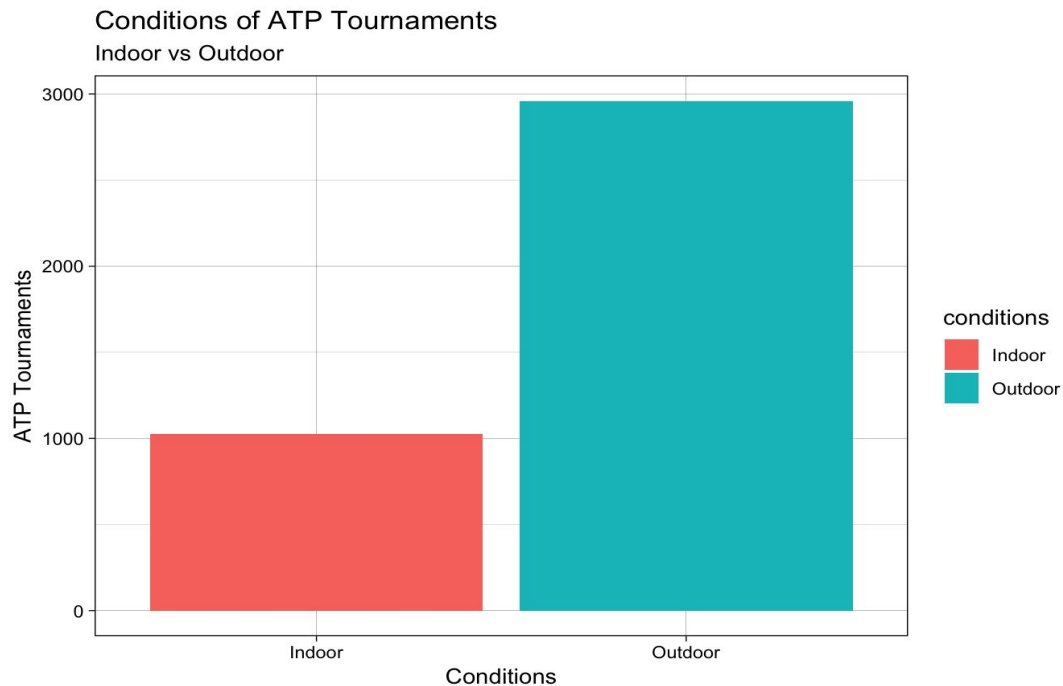


How many ATP tournaments in each year? and which year has most ATP tournaments?

```
## # A tibble: 6 x 2
##   year number_of_tournaments
##   <int>             <int>
## 1  1982              102
## 2  1976              100
## 3  1977              100
## 4  1980               98
## 5  1973               94
## 6  1974               94
```

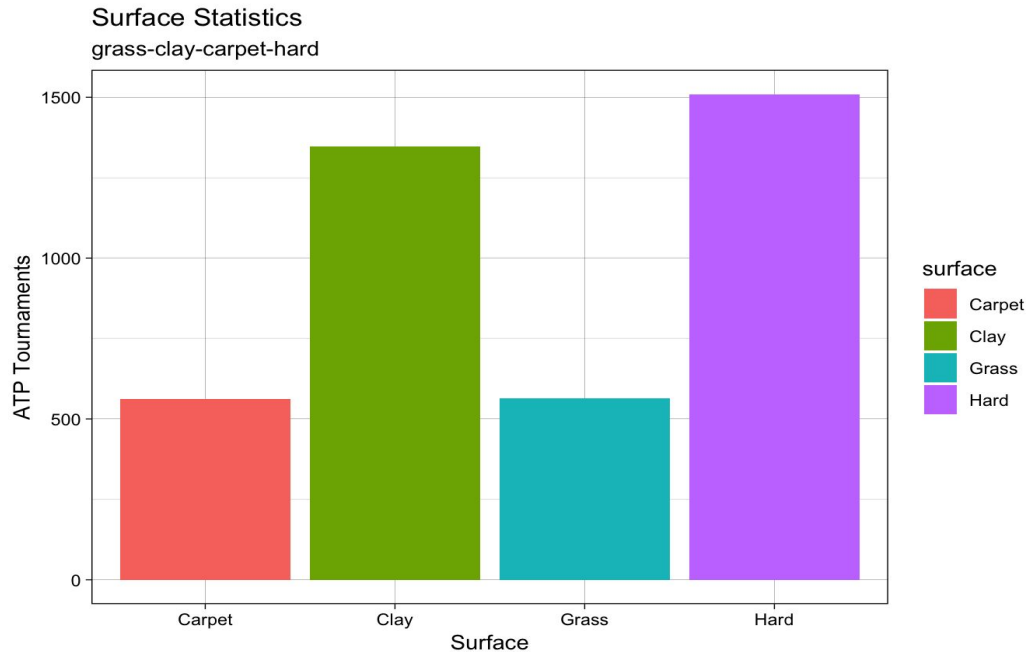
- 70's, 80's more tournaments was organized.
- 1982 is the year which more tournaments was organized in.
- After 1968 there is a big jump in the numbers of tournaments organized.
- In 1968 the "Open Era" began when major tournaments agreed to allow professional players to compete with amateurs.

How many of them indoor, how many of them outdoor tournaments?



- Most of the tournaments were organized in outdoor conditions.
- Indoors, the light is good, no wind, no sun, no temperature problems, no rain.
- That makes perfect conditions but also make the tournaments less exciting.

What kind of surface usually had been played on in the tournaments?



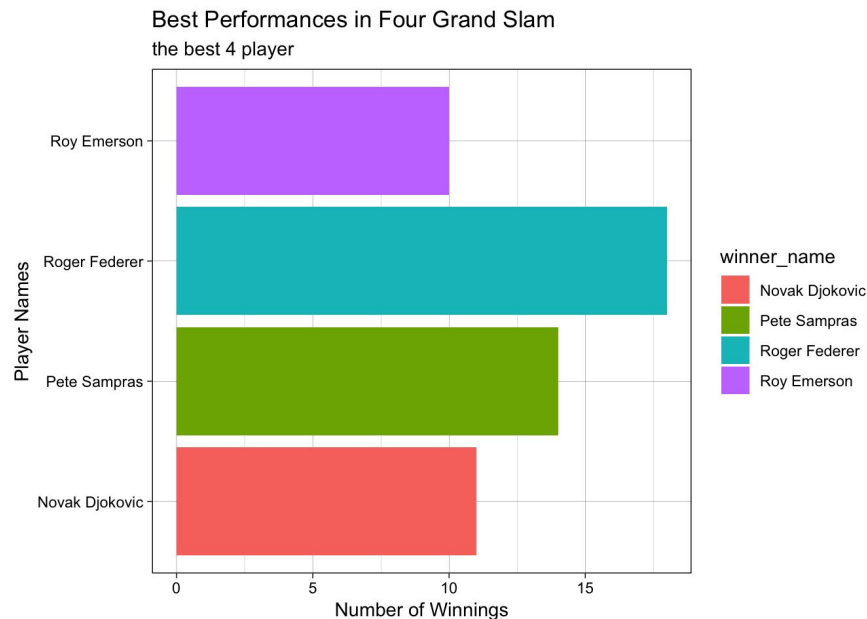
Although grass courts are more traditional than other types of tennis courts, maintenance costs of grass courts are higher than those of hard courts and clay courts. Hard courts are most low maintenance of the three and hence most common across the world.

Who is in the top 10 most successful players in the ATP history.

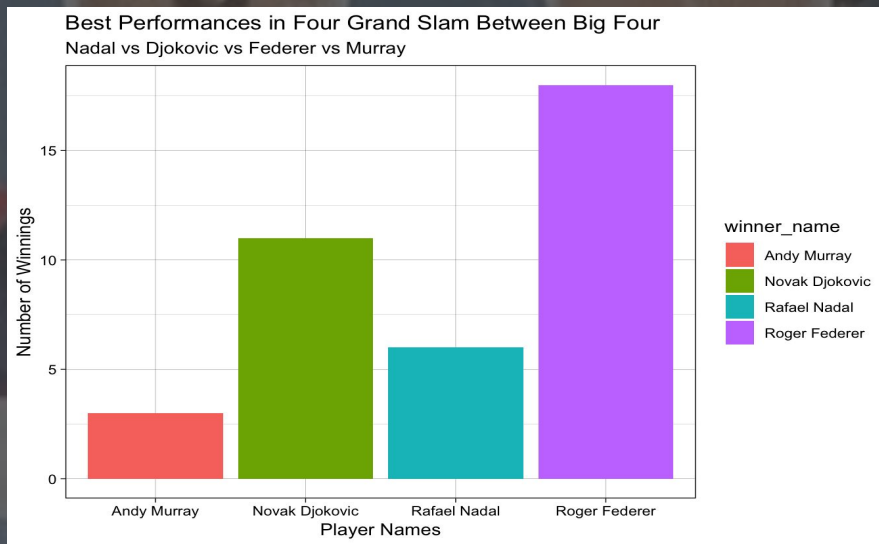
```
## # A tibble: 10 x 2
##   winner_name      number_of_wins
##   <fct>           <int>
## 1 Jimmy Connors    110
## 2 Ivan Lendl       90
## 3 Roger Federer    90
## 4 John McEnroe     75
## 5 Rafael Nadal     75
## 6 Novak Djokovic   67
## 7 Bjorn Borg       61
## 8 Guillermo Vilas  61
## 9 Andre Agassi     59
## 10 Pete Sampras    59
```



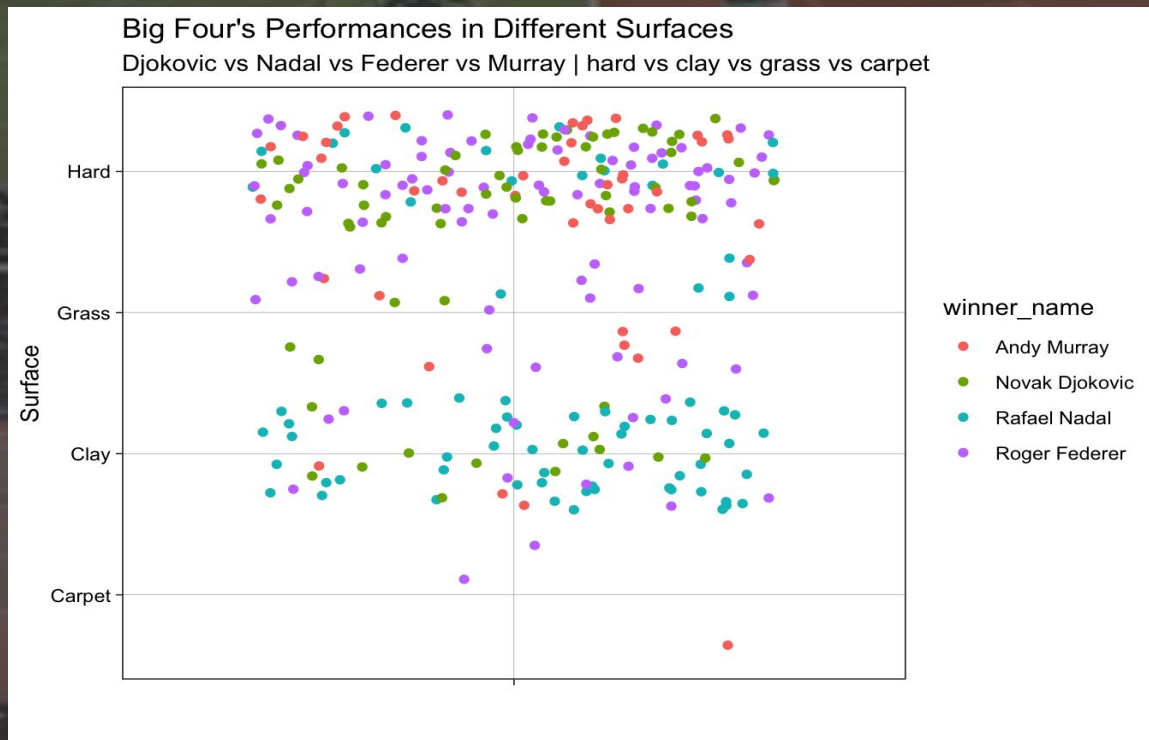
Which player has most won between 4 grand slam tournaments?



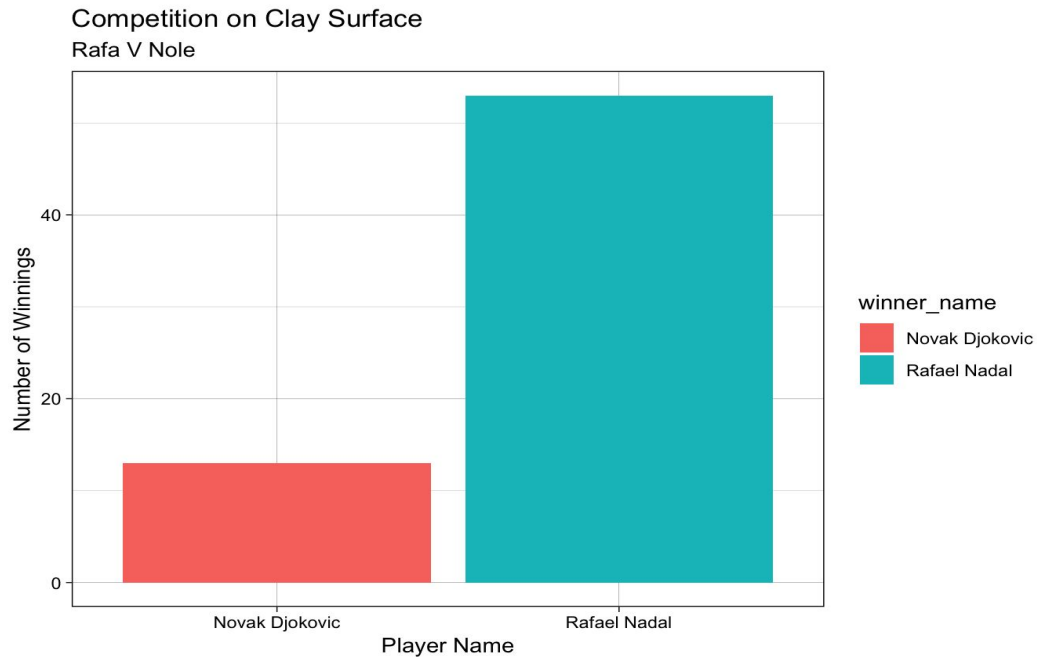
How is the competition between the big four in the grand slams?



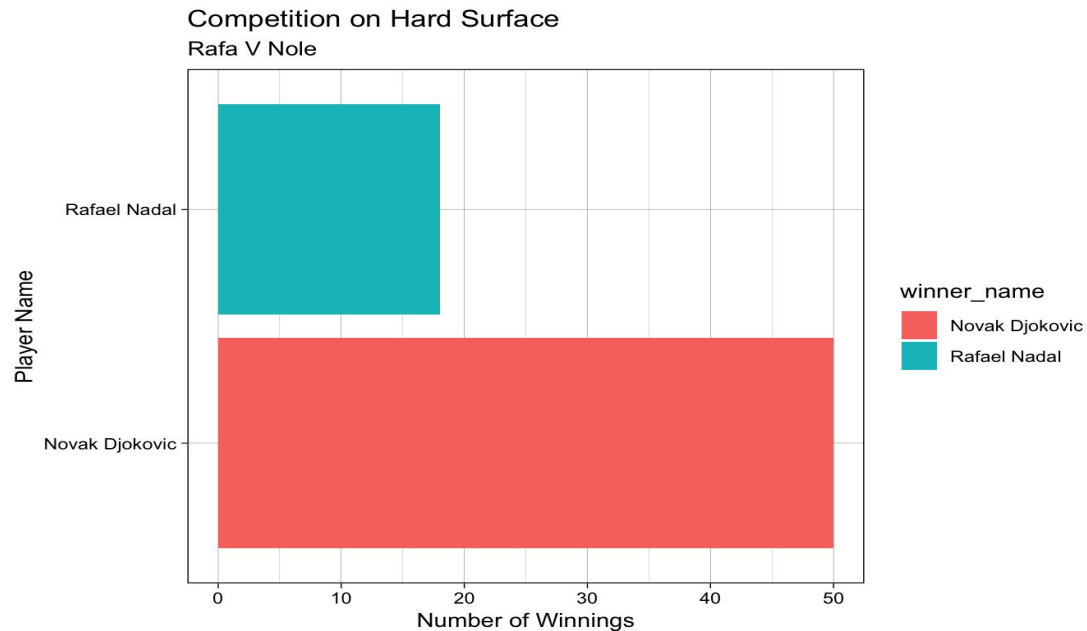
How is the Big Four's performances in different surfaces?



How is the competition between Rafael Nadal and Novak Djokovic in the clay surface?



How is the competition between Rafael Nadal and Novak Djokovic in the hard surface?



A photograph of two tennis rackets and a tennis ball lying on a green grassy field. The rackets are positioned horizontally, with their heads facing each other and their handles extending outwards. A single yellow tennis ball is placed in the foreground, centered between the two handles. The entire image is overlaid with a semi-transparent dark green filter, and the text "THANK YOU!" is centered in white.

THANK YOU!