NFL_Data_Analysis

Isaac Swope Kyle Barber Tim Smith

2025-12-03

Data Overview

Team Wins from 1999-2022

Figure 1: Boxplots of Team Wins

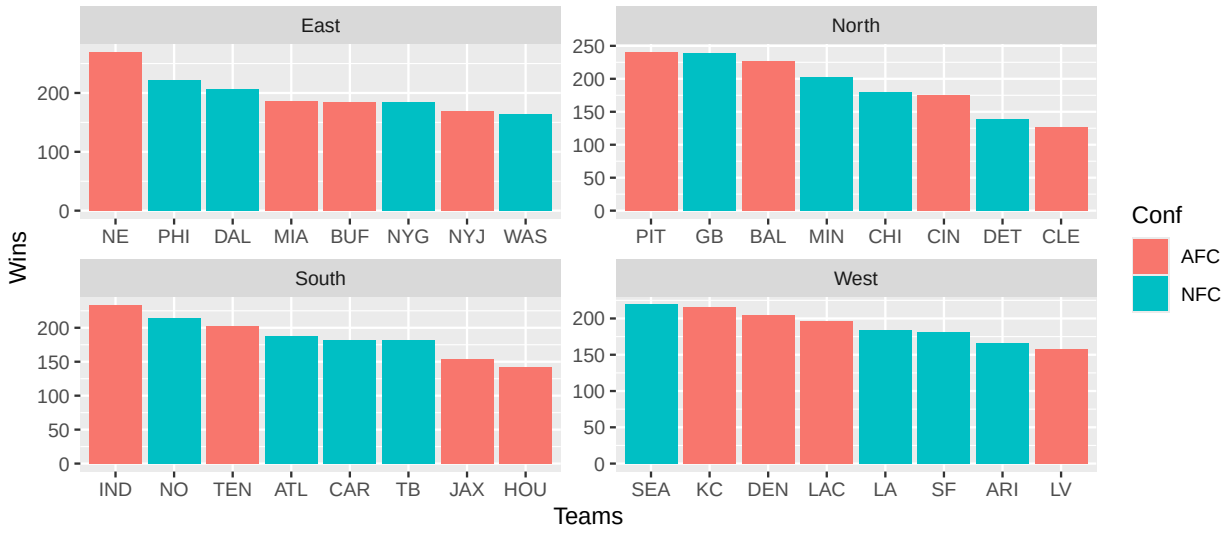

Table 1: Team Wins Statistics

Team	Seasons	Minimum	Quartile 1	Median	Quartile 3	Max	Mean	SD
ARI	24	3	5.00	6.5	8.25	13	6.92	2.72
ATL	24	4	5.75	7.0	10.00	13	7.79	2.78
BAL	24	5	8.00	10.0	11.00	14	9.46	2.34
BUF	24	3	6.00	7.0	9.00	13	7.71	2.56
CAR	24	1	6.00	7.0	8.75	15	7.58	3.17
CHI	24	3	5.00	7.0	9.25	13	7.50	2.95
CIN	24	2	4.00	7.5	10.00	12	7.29	3.10
CLE	24	0	4.00	5.0	7.00	11	5.29	2.68
DAL	24	4	6.00	8.5	10.25	13	8.58	2.69
DEN	24	4	6.75	8.0	10.25	13	8.54	2.75
DET	24	0	3.00	6.0	8.25	11	5.79	2.90
GB	24	4	8.00	10.0	12.00	15	9.96	2.71
HOU	21	2	4.00	7.0	9.00	12	6.76	3.03
IND	24	2	8.00	10.5	12.00	14	9.75	3.22
JAX	24	1	4.75	6.0	8.25	14	6.42	3.24
KC	24	2	7.00	9.5	12.00	14	8.96	3.51
LA	24	1	5.75	7.0	10.25	14	7.67	3.71
LAC	24	1	6.50	8.5	9.25	14	8.17	3.10
LV	24	2	4.00	6.0	8.00	12	6.54	2.89
MIA	24	1	6.00	8.0	9.25	11	7.75	2.44
MIN	24	3	6.75	8.0	10.00	13	8.46	2.59
NE	24	5	10.00	12.0	13.00	16	11.25	2.56
NO	24	3	7.00	8.5	11.00	13	8.92	2.87
NYG	24	3	6.00	7.5	10.00	12	7.67	2.66
NYJ	24	2	4.75	7.5	9.00	11	7.04	2.56
PHI	24	4	7.75	9.5	11.00	14	9.25	2.75
PIT	24	6	8.75	10.0	12.00	15	10.04	2.24
SEA	24	4	7.00	9.0	10.25	13	9.12	2.36
SF	24	2	5.00	7.0	10.25	13	7.54	3.46
TB	24	2	5.00	7.5	10.00	13	7.54	3.08
TEN	24	2	6.75	9.0	11.00	13	8.46	3.13
WAS	24	3	5.00	7.0	8.00	10	6.83	2.12

Code Appendix

```
#Tidyverse Coding Styling
library(tidyverse)
library(dbplyr)
library(kableExtra)

NFL_raw <- read.csv("nfl-team-statistics (1).csv")

NFC_East_data <- NFL_raw %>%
  filter(team %in% c("DAL", "NYG", "PHI", "WAS"))%>%
  mutate(Conf = 'NFC_East')

NFC_West_data <- NFL_raw %>%
  filter(team %in% c("LA", "SEA", "SF", "ARI"))%>%
  mutate(Conf = 'NFC_West')

NFC_North_data <- NFL_raw %>%
  filter(team %in% c("CHI", "GB", "DET", "MIN"))%>%
  mutate(Conf = 'NFC_North')

NFC_South_data <- NFL_raw %>%
  filter(team %in% c("TB", "CAR", "ATL", "NO"))%>%
  mutate(Conf = 'NFC_South')

AFC_East_data <- NFL_raw %>%
  filter(team %in% c("NE", "BUF", "MIA", "NYJ"))%>%
  mutate(Conf = 'AFC_East')

AFC_West_data <- NFL_raw %>%
  filter(team %in% c("DEN", "LAC", "KC", "LV"))%>%
  mutate(Conf = 'AFC_West')

AFC_North_data <- NFL_raw %>%
  filter(team %in% c("BAL", "PIT", "CIN", "CLE"))%>%
  mutate(Conf = 'AFC_North')

AFC_South_data <- NFL_raw %>%
  filter(team %in% c("JAX", "IND", "HOU", "TEN"))%>%
  mutate(Conf = 'AFC_South')

NFL_Clean <- bind_rows(NFC_East_data, NFC_North_data, NFC_South_data, NFC_West_data, AFC_East_d
  arrange(season, team)%>%
    separate_wider_delim(
    cols = 'Conf',
    delim = '_',
    names = c('Conf', 'Div')
  )
```

```r
#author: Isaac Swope


ggplot(NFL_Clean) +
  aes(x = fct_reorder(team, wins, .fun=sum, .desc=TRUE), y = wins, fill = Conf) +
  geom_col(color = NA) +
  scale_fill_hue(direction = 1) +
  facet_wrap("Div", scales = "free") + #eliminate spacing between columns due to scale
  labs(y = "Wins",
       x = "Teams",
       )

#author: Isaac Swope

winsTable <- NFL_Clean %>%
  group_by(team)%>%
  summarize(
    Count=n(),
    Min = min(wins, na.rm = TRUE),
    Quartile_1 = quantile(wins, probs = 0.25, na.rm = TRUE),
    Median = median(wins, na.rm = TRUE),
    Quintile_3 = quantile(wins, probs = 0.75, na.rm = TRUE),
    Max = max(wins, na.rm = TRUE),
    Mean = mean(wins, na.rm = TRUE),
    SD = sd(wins, na.rm = TRUE),
  )%>%
  mutate(
    across(
      .cols = where(is.numeric),
      .fns = ~round(.x, digits = 2)
    )
  )

names(winsTable) <- c(
    "Team",
    "Seasons",
    "Minimum",
    "Quartile 1",
    "Median",
    "Quartile 3",
    "Max",
    "Mean",
    "SD"
    )

winsTable %>%
  kable(
```

```
    booktabs = TRUE,
    align = c("l", rep("c",10))
  )
```