## referees-cpmr

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```
## Installing package into '/Users/runner/work/_temp/Library'
## (as 'lib' is unspecified)
##
## The downloaded binary packages are in
## /var/folders/24/8k48j16d249_n_qfxws16xvm0000gn/T//RtmpewUp6x/downloaded_packages
## -- Attaching packages ------ tidyverse 1.3.1 --
## v ggplot2 3.3.5 v purrr 0.3.4

## v tibble 3.1.6 v dplyr 1.0.8

## v tidyr 1.2.0 v stringr 1.4.0

## v readr 2.1.2 v forcats 0.5.1
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag() masks stats::lag()
raw_data <- read.csv("../scraped-data/referees.csv")</pre>
raw_data <- as_tibble(raw_data)</pre>
head(raw_data)
## # A tibble: 6 x 4
## Referee Matches Red.cards Yellow.cards
   <chr>
                   <int> <int> <int>
## 1 Anthony Taylor 23 4
## 2 Paul Tierney 23 2
                                             89
                                              94
                                2
## 3 Martin Atkinson
                       22
                                               53
## 4 Jonathan Moss
                       22
                                               52
                                  4
## 5 Michael Oliver
                       22
                                               66
                        22
## 6 Craig Pawson
                                               95
raw_columns <- raw_data %>% select(Referee, Matches, Yellow.cards)
head(raw_columns)
## # A tibble: 6 x 3
## Referee Matches Yellow.cards
## <chr>
                     <int> <int>
```

```
## 1 Anthony Taylor
                          23
                                       89
## 2 Paul Tierney
                                       94
                          23
## 3 Martin Atkinson
                          22
                                       53
## 4 Jonathan Moss
                          22
                                       52
## 5 Michael Oliver
                          22
                                       66
## 6 Craig Pawson
                          22
                                       95
new_table <- raw_columns %>% mutate(yellow_card_ratio = Yellow.cards / Matches)
new_table <- new_table[order(-new_table$yellow_card_ratio),]</pre>
head(new_table)
## # A tibble: 6 x 4
    Referee
                       Matches Yellow.cards yellow_card_ratio
                                      <int>
##
     <chr>
                         <int>
                                                        <dbl>
## 1 Michael Salisbury
                                                         5.5
                             2
                                         11
## 2 John Brooks
                             3
                                                         5.33
                                         16
## 3 David Coote
                                                         4.74
                            19
                                         90
## 4 Peter Bankes
                                         51
                                                         4.64
                            11
## 5 Kevin Friend
                            14
                                         62
                                                         4.43
## 6 Craig Pawson
                            22
                                         95
                                                         4.32
data <- new_table %>% select(Referee, yellow_card_ratio)
head(data)
## # A tibble: 6 x 2
## Referee
                       yellow_card_ratio
##
     <chr>
                                   <dbl>
## 1 Michael Salisbury
                                    5.5
## 2 John Brooks
                                    5.33
```

```
write.csv(data, "../cleaned-data/referees-cpmr.csv", row.names = FALSE)
```

4.74

4.64

4.43

4.32

## 3 David Coote

## 4 Peter Bankes

## 5 Kevin Friend

## 6 Craig Pawson