## 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//RtmpYfhToG/downloaded_packages
## -- Attaching packages ------ tidyverse 1.3.1 --
## v ggplot2 3.3.6 v purrr 0.3.4

## v tibble 3.1.7 v dplyr 1.0.9

## 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 26 5
## 2 Martin Atkinson 25 2
                                              98
                                               59
                                 2
2
7
## 3 Mike Dean
                        25
                                               82
## 4 Michael Oliver
                       25
                                  7
                                               75
                                   2
## 5 Craig Pawson
                       25
                                               108
                        25
## 6 Paul Tierney
                                               103
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
                         26
                                       98
## 2 Martin Atkinson
                         25
                                       59
## 3 Mike Dean
                         25
                                       82
## 4 Michael Oliver
                         25
                                      75
## 5 Craig Pawson
                          25
                                      108
## 6 Paul Tierney
                         25
                                      103
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>
                                <int>
     <chr>
## 1 John Brooks
                      4
                                    21
                                                    5.25
## 2 David Coote
                       20
                                    93
                                                    4.65
## 3 Peter Bankes
                                    55
                      12
                                                    4.58
## 4 Kevin Friend
                      17
                                   76
                                                    4.47
## 5 Craig Pawson
                       25
                                   108
                                                    4.32
## 6 Paul Tierney
                      25
                                   103
                                                    4.12
data <- new_table %>% select(Referee, yellow_card_ratio)
head(data)
## # A tibble: 6 x 2
## Referee yellow_card_ratio
##
     <chr>
                            <dbl>
## 1 John Brooks
                              5.25
## 2 David Coote
                              4.65
## 3 Peter Bankes
                              4.58
## 4 Kevin Friend
                              4.47
## 5 Craig Pawson
                              4.32
## 6 Paul Tierney
                              4.12
write.csv(data, "../cleaned-data/referees-cpmr.csv", row.names = FALSE)
```