## 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//RtmppBQpaR/downloaded_packages
## -- Attaching packages ------ tidyverse 1.3.2 --
## 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>
                     28
## 1 Anthony Taylor
                                5
                                            104
                        27
                                  5
## 2 Paul Tierney
                                             107
## 3 Martin Atkinson
                       26
                                  2
                                              65
## 4 Mike Dean
                       26
                                              82
                        26
                                   7
                                              77
## 5 Michael Oliver
## 6 Craig Pawson
                        26
                                             109
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
                                   104
## 2 Paul Tierney
                       27
                                    107
                    26
## 3 Martin Atkinson
                                    65
## 4 Mike Dean
                        26
                                    82
## 5 Michael Oliver
                       26
                                    77
## 6 Craig Pawson
                        26
                                    109
```

```
new_table <- raw_columns %>% mutate(yellow_card_ratio = Yellow.cards / Matches)
new_table <- new_table[order(-new_table$yellow_card_ratio),]
head(new_table)</pre>
```

```
## # A tibble: 6 x 4
##
    Referee Matches Yellow.cards yellow_card_ratio
##
    <chr>
                     <int>
                                 <int>
                                                   <dbl>
## 1 John Brooks
                        4
                                     21
                                                    5.25
                                                    4.65
## 2 David Coote
                        20
                                     93
## 3 Peter Bankes
                        12
                                    55
                                                    4.58
## 4 Kevin Friend
                                    78
                                                    4.33
                        18
## 5 Craig Pawson
                        26
                                    109
                                                    4.19
## 6 Darren England
                        15
                                    60
```

```
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
                               4.33
## 5 Craig Pawson
                               4.19
## 6 Darren England
```

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