EuroVsCopa

Collin

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```
data <- read.csv("C:/Users/cstra/data/EuroVsCopa.csv")
View(data)
summary(data)</pre>
```

```
##
      stadium
                         attendance
                                                                away_team
                                            home_team
   Length:81
                       Length:81
                                           Length:81
                                                               Length:81
    Class : character
                       Class : character
                                           Class : character
                                                               Class : character
    Mode :character
                       Mode : character
                                           Mode :character
                                                               Mode : character
##
##
##
                                      Home.Expected.goals.xG. Home.Total.shots
##
      home_goals
                      away_goals
##
          :0.000
                            :0.0000
                                             :0.120
   Min.
                    Min.
                                                               Min.
    1st Qu.:0.000
                    1st Qu.:0.0000
                                      1st Qu.:0.760
                                                               1st Qu.: 8
##
    Median :1.000
                    Median :1.0000
                                      Median :1.110
                                                               Median:12
##
    Mean
           :1.309
                            :0.9383
                                             :1.344
                    Mean
                                      Mean
                                                               Mean
                                                                      :13
##
    3rd Qu.:2.000
                    3rd Qu.:1.0000
                                      3rd Qu.:1.770
                                                               3rd Qu.:18
##
   Max.
           :5.000
                    Max.
                            :4.0000
                                      Max.
                                             :3.360
                                                               Max.
                                                                      :35
    Home.Shots.on.target Home.Big.chances Home.Big.chances.missed
##
    Min.
          : 0.000
                         Min.
                                 :0.000
                                           Min.
                                                  :0.000
    1st Qu.: 3.000
                         1st Qu.:1.000
                                           1st Qu.:0.000
  Median : 4.000
                                           Median :1.000
##
                         Median :2.000
   Mean
          : 4.531
                         Mean
                                 :2.272
                                           Mean
                                                  :1.543
##
    3rd Qu.: 6.000
                         3rd Qu.:3.000
                                           3rd Qu.:2.000
  {\tt Max.}
           :13.000
                         Max.
                                 :9.000
                                           Max.
                                                   :7.000
##
  Home.Accurate.passes Home.Fouls.committed Home.Corners Home.Total.shots.
##
    Length:81
                         Min.
                                 : 4.00
                                               Min.
                                                       : 0
                                                              Min.
##
    Class : character
                          1st Qu.: 9.00
                                               1st Qu.: 3
                                                              1st Qu.: 8
    Mode :character
                         Median :12.00
                                               Median: 4
                                                              Median:12
##
                         Mean
                                :12.09
                                               Mean
                                                      : 5
                                                              Mean
                                                                     :13
##
                          3rd Qu.:15.00
                                               3rd Qu.: 6
                                                              3rd Qu.:18
##
                         Max.
                                 :26.00
                                               Max.
                                                       :13
    Home.Shots.off.target Home.Shots.on.target. Home.Blocked.shots
    Min.
          : 0.000
                          Min. : 0.000
                                                 Min.
                                                         : 0.000
                          1st Qu.: 3.000
   1st Qu.: 3.000
##
                                                 1st Qu.: 2.000
  Median : 4.000
                          Median : 4.000
                                                 Median : 3.000
  Mean
          : 4.728
                                 : 4.531
                                                       : 3.741
##
                          Mean
                                                 Mean
##
    3rd Qu.: 6.000
                           3rd Qu.: 6.000
                                                 3rd Qu.: 5.000
## Max.
           :16.000
                          Max.
                                  :13.000
                                                 Max.
                                                         :12.000
  Home.Hit.woodwork Home.Shots.inside.box Home.Shots.outside.box
## Min.
           :0.0000
                      Min.
                            : 1.000
                                             Min.
                                                     : 0.000
```

```
1st Qu.: 3.000
   1st Qu.:0.0000
                     1st Qu.: 4.000
##
   Median :0.0000
                     Median : 7.000
                                           Median : 5.000
                     Mean : 7.667
##
   Mean
         :0.2469
                                           Mean : 5.333
                     3rd Qu.:10.000
##
   3rd Qu.:0.0000
                                           3rd Qu.: 7.000
##
   Max.
          :2.0000
                     Max.
                            :20.000
                                           Max.
                                                  :15.000
##
   Home.Expected.goals..xG. Home.xG.open.play Home.xG.set.play
##
   Min.
          :0.120
                            Min. :0.0200
                                              Min. :0.0000
##
   1st Qu.:0.760
                            1st Qu.:0.5100
                                              1st Qu.:0.0900
##
   Median :1.110
                            Median : 0.7100
                                              Median: 0.2100
##
   Mean :1.344
                            Mean :0.9202
                                              Mean :0.3014
   3rd Qu.:1.770
                            3rd Qu.:1.3500
                                              3rd Qu.:0.3900
##
   Max.
          :3.360
                            Max.
                                  :2.6600
                                              Max.
                                                   :1.3500
   Home.Non.penalty.xG Home.xG.on.target..xGOT. Home.Passes
##
   Min.
          :0.120
                       Min.
                              :0.040
                                                Min.
                                                       :229.0
##
   1st Qu.:0.720
                       1st Qu.:0.580
                                                1st Qu.:374.0
##
   Median :1.010
                       Median :1.210
                                                Median :457.0
##
   Mean
         :1.218
                                                      :476.8
                       Mean :1.445
                                                Mean
##
   3rd Qu.:1.660
                       3rd Qu.:2.100
                                                3rd Qu.:562.0
##
  Max. :3.360
                              :5.090
                                                Max.
                                                       :869.0
                       Max.
##
   Home.Accurate.passes.1 Home.Own.half
                                          Home.Opposition.half
##
   Length:81
                          Min. : 75.0
                                          Min.
                                                : 56.0
##
   Class : character
                          1st Qu.:157.0
                                          1st Qu.:116.0
   Mode :character
                          Median :192.0
##
                                          Median :180.0
##
                          Mean :200.1
                                          Mean :206.5
##
                          3rd Qu.:232.0
                                          3rd Qu.:277.0
##
                          Max.
                                 :457.0
                                          Max.
                                                 :582.0
##
   Home.Accurate.long.balls Home.Accurate.crosses Home.Throws
                            Length:81
                                                  Min. : 8.00
##
   Length:81
##
   Class :character
                            Class :character
                                                  1st Qu.:14.00
                            Mode :character
   Mode :character
                                                  Median :18.00
##
                                                  Mean :18.12
##
                                                  3rd Qu.:21.00
##
                                                  Max. :41.00
##
   Home.Touches.in.opposition.box Home.Offsides
                                                  Home.Yellow.cards
##
   Min. : 4.00
                                  Min.
                                         :0.000
                                                  Min. :0.000
##
   1st Qu.:13.00
                                  1st Qu.:1.000
                                                  1st Qu.:1.000
##
   Median :21.00
                                  Median :2.000
                                                  Median :2.000
##
   Mean
         :23.02
                                  Mean
                                         :1.802
                                                  Mean
                                                         :1.938
##
   3rd Qu.:30.00
                                  3rd Qu.:3.000
                                                  3rd Qu.:3.000
##
   Max.
          :57.00
                                  Max.
                                         :5.000
                                                  Max.
                                                         :6.000
   Home.Red.cards
                    Home.Tackles.won
                                       Home. Interceptions Home. Blocks
##
   Min.
          :0.0000
                    Length:81
                                       Min.
                                             : 1.000
                                                          Min.
                                                                 :0.000
   1st Qu.:0.0000
                    Class :character
                                       1st Qu.: 6.000
                                                          1st Qu.:1.000
##
  Median :0.0000
                    Mode :character
                                       Median : 7.000
                                                          Median :3.000
##
   Mean
                                             : 7.494
          :0.1111
                                       Mean
                                                          Mean
                                                               :3.062
   3rd Qu.:0.0000
                                       3rd Qu.:10.000
##
                                                          3rd Qu.:5.000
##
          :2.0000
                                       Max.
                                              :15.000
                                                          Max.
                                                                 :8.000
##
   Home.Clearances Home.Keeper.saves Home.Duels.won Home.Ground.duels.won
  Min. : 5.00
                   Min. : 0.000
                                     Min.
                                            :22.00
                                                     Length:81
                   1st Qu.: 2.000
##
   1st Qu.:13.00
                                     1st Qu.:40.00
                                                     Class : character
##
  Median :18.00
                   Median : 3.000
                                     Median :48.00
                                                     Mode :character
##
                                     Mean :49.51
  Mean :19.16
                   Mean : 2.728
##
   3rd Qu.:24.00
                   3rd Qu.: 3.000
                                     3rd Qu.:57.00
## Max. :45.00
                   Max. :11.000
                                     Max.
                                            :83.00
```

```
Home. Aerial.duels.won Home. Successful.dribbles Away. Expected.goals.xG.
                                                        :0.020
##
   Length:81
                         Length:81
                                                 Min.
##
   Class :character
                         Class :character
                                                  1st Qu.:0.570
  Mode :character
                         Mode :character
                                                 Median :1.160
##
##
                                                  Mean
                                                         :1.196
##
                                                  3rd Qu.:1.560
##
                                                 Max.
                                                         :3.740
##
  Away.Total.shots Away.Shots.on.target Away.Big.chances Away.Big.chances.missed
##
   Min. : 1.00
                    Min. : 0.000
                                         Min. :0.000
                                                         Min.
                                                                :0.000
##
   1st Qu.: 9.00
                    1st Qu.: 2.000
                                         1st Qu.:1.000
                                                         1st Qu.:1.000
  Median :11.00
                    Median : 3.000
                                         Median :2.000
                                                         Median :1.000
## Mean :11.75
                    Mean
                          : 3.667
                                               :2.123
                                                         Mean
                                                               :1.506
                                         Mean
   3rd Qu.:15.00
                    3rd Qu.: 5.000
                                         3rd Qu.:3.000
                                                         3rd Qu.:2.000
##
          :27.00
                    Max.
                           :12.000
                                                :6.000
                                                                :5.000
  {\tt Max.}
                                         Max.
                                                         Max.
   Away.Accurate.passes Away.Fouls.committed Away.Corners
                                                             Away. Total. shots.
##
   Length:81
                        Min. : 4.00
                                             Min.
                                                   : 0.000
                                                             Min. : 1.00
##
   Class :character
                        1st Qu.: 8.00
                                             1st Qu.: 2.000
                                                             1st Qu.: 9.00
##
   Mode :character
                        Median :12.00
                                             Median : 4.000
                                                             Median :11.00
##
                        Mean
                              :11.67
                                             Mean
                                                  : 4.358
                                                             Mean
                                                                    :11.75
##
                        3rd Qu.:14.00
                                             3rd Qu.: 6.000
                                                             3rd Qu.:15.00
##
                        Max.
                               :22.00
                                             Max.
                                                    :13.000
                                                             Max.
                                                                    :27.00
##
  Away.Shots.off.target Away.Shots.on.target. Away.Blocked.shots
  Min. : 0.000
                         Min. : 0.000
##
                                               Min.
                                                      :0.000
   1st Qu.: 3.000
                         1st Qu.: 2.000
                                               1st Qu.:2.000
##
##
  Median : 5.000
                         Median : 3.000
                                               Median :3.000
   Mean : 4.975
                         Mean : 3.667
                                               Mean :3.111
##
   3rd Qu.: 7.000
                         3rd Qu.: 5.000
                                               3rd Qu.:5.000
   Max.
          :14.000
                         Max.
                               :12.000
                                               Max.
                                                      :8.000
##
  Away.Hit.woodwork Away.Shots.inside.box Away.Shots.outside.box
  Min.
          :0.000
                     Min. : 0.000
                                           Min. : 0.00
                     1st Qu.: 4.000
                                           1st Qu.: 3.00
##
   1st Qu.:0.000
##
   Median :0.000
                     Median : 7.000
                                           Median: 4.00
##
  Mean :0.358
                                           Mean : 4.58
                     Mean : 7.173
##
   3rd Qu.:1.000
                     3rd Qu.:10.000
                                           3rd Qu.: 6.00
##
   Max.
         :2.000
                     Max.
                            :17.000
                                           Max. :13.00
##
   Away.Expected.goals..xG. Away.xG.open.play Away.xG.set.play
##
  Min.
         :0.020
                            Min. :0.0000
                                             Min. :0.0000
##
   1st Qu.:0.570
                            1st Qu.:0.3200
                                              1st Qu.:0.0500
##
   Median :1.160
                            Median :0.7100
                                             Median :0.1800
## Mean :1.196
                            Mean :0.8388
                                             Mean :0.2711
   3rd Qu.:1.560
                            3rd Qu.:1.3100
                                              3rd Qu.:0.3500
##
  Max. :3.740
                            Max. :2.4600
                                             Max. :1.8700
   Away.Non.penalty.xG Away.xG.on.target..xGOT. Away.Passes
##
  Min.
          :0.020
                       Min.
                             :0.000
                                                Min.
                                                      :192.0
   1st Qu.:0.540
                       1st Qu.:0.390
                                                1st Qu.:329.0
## Median :1.100
                       Median :1.130
                                                Median :409.0
## Mean :1.108
                       Mean :1.164
                                                Mean :423.9
##
   3rd Qu.:1.510
                       3rd Qu.:1.640
                                                3rd Qu.:517.0
  Max. :3.070
                       Max.
                              :4.000
                                                Max.
                                                      :690.0
##
   Away.Accurate.passes.1 Away.Own.half
                                          Away.Opposition.half
##
  Length:81
                          Min. : 67.0
                                          Min. : 33.0
## Class :character
                          1st Qu.:143.0
                                          1st Qu.:102.0
## Mode :character
                          Median :181.0
                                          Median :149.0
##
                          Mean :187.4
                                          Mean :165.9
```

```
##
                          3rd Qu.:233.0
                                          3rd Qu.:228.0
##
                          Max.
                                :302.0
                                         Max.
                                                  :513.0
##
   Away.Accurate.long.balls Away.Accurate.crosses Away.Throws
##
  Length:81
                            Length:81
                                                  Min.
                                                         : 6.00
   Class : character
                            Class : character
                                                  1st Qu.:13.00
##
  Mode :character
                            Mode :character
                                                  Median :17.00
##
                                                  Mean :17.25
                                                  3rd Qu.:22.00
##
##
                                                  Max.
                                                         :29.00
##
  Away.Touches.in.opposition.box Away.Offsides
                                                  Away.Yellow.cards
## Min. : 1.00
                                  Min.
                                         :0.000
                                                  Min. : 0.000
  1st Qu.:13.00
                                  1st Qu.:0.000
                                                  1st Qu.: 1.000
##
## Median :19.00
                                  Median :1.000
                                                  Median : 2.000
## Mean
         :20.11
                                  Mean
                                         :1.358
                                                  Mean
                                                        : 2.198
## 3rd Qu.:26.00
                                  3rd Qu.:2.000
                                                  3rd Qu.: 3.000
## Max.
          :50.00
                                  Max.
                                         :6.000
                                                  Max.
                                                         :11.000
##
  Away.Red.cards
                     Away.Tackles.won
                                       Away.Interceptions Away.Blocks
## Min. :0.00000
                                        Min. : 1.000
                     Length:81
                                                           Min. : 0.000
  1st Qu.:0.00000
                     Class : character
                                        1st Qu.: 5.000
                                                           1st Qu.: 2.000
                     Mode :character
## Median :0.00000
                                        Median : 7.000
                                                           Median : 3.000
                                               : 7.531
## Mean
         :0.06173
                                        Mean
                                                           Mean
                                                                  : 3.654
## 3rd Qu.:0.00000
                                        3rd Qu.: 9.000
                                                           3rd Qu.: 5.000
         :1.00000
## Max.
                                        Max.
                                               :16.000
                                                           Max.
                                                                  :11.000
## Away.Clearances Away.Keeper.saves Away.Duels.won Away.Ground.duels.won
                          :0.000
## Min.
          : 4.00 Min.
                                     Min.
                                            :26.00
                                                     Length:81
## 1st Qu.:15.00 1st Qu.:2.000
                                     1st Qu.:41.00
                                                     Class : character
## Median :19.00 Median :3.000
                                     Median :47.00
                                                     Mode :character
## Mean
         :20.37
                          :3.235
                                     Mean
                                            :48.49
                   Mean
## 3rd Qu.:26.00
                   3rd Qu.:4.000
                                     3rd Qu.:56.00
                          :9.000
## Max.
          :55.00
                   Max.
                                     Max.
                                            :73.00
## Away.Aerial.duels.won Away.Successful.dribbles
## Length:81
                         Length:81
## Class :character
                         Class : character
## Mode :character
                         Mode :character
##
##
##
data$goals <- data$home_goals + data$away_goals</pre>
data$XG <- data$Home.Expected.goals.xG. + data$Away.Expected.goals.xG.
data$shots <- data$Home.Total.shots + data$Away.Total.shots</pre>
data$fouls <- data$Home.Fouls.committed + data$Away.Fouls.committed
data$yellows <- data$Home.Yellow.cards + data$Away.Yellow.cards</pre>
data$reds <- data$Home.Red.cards + data$Away.Red.cards
data$passes <- data$Home.Passes + data$Away.Passes</pre>
data$passes.own.half <- data$Home.Own.half + data$Away.Own.half
data$passes.opp.half <- data$Home.Opposition.half + data$Away.Opposition.half
euro <- data[1:51,]</pre>
copa <- data[52:81,]</pre>
View(euro)
View(copa)
summary(euro)
```

```
##
      stadium
                       attendance
                                          home team
                                                             away_team
##
  Length:51
                      Length:51
                                         Length:51
                                                            Length:51
                                                            Class : character
   Class : character
                      Class :character
                                         Class : character
   Mode :character
                      Mode :character
                                         Mode :character
                                                            Mode : character
##
##
##
##
                                  Home.Expected.goals.xG. Home.Total.shots
##
     home_goals
                      away_goals
##
   Min.
          :0.000
                   Min.
                          :0.00
                                  Min.
                                         :0.170
                                                          Min.
                                                                 : 4.00
##
   1st Qu.:0.500
                   1st Qu.:0.00
                                  1st Qu.:0.780
                                                          1st Qu.: 9.50
   Median :1.000
                   Median:1.00
                                  Median :1.320
                                                          Median :13.00
##
   Mean :1.275
                   Mean
                         :1.02
                                  Mean :1.376
                                                          Mean
                                                                :13.37
   3rd Qu.:2.000
                   3rd Qu.:1.00
                                  3rd Qu.:1.765
                                                          3rd Qu.:17.50
##
   Max.
          :5.000
                          :3.00
                                  Max.
                                         :3.360
                                                                 :35.00
                   Max.
                                                          Max.
   Home.Shots.on.target Home.Big.chances Home.Big.chances.missed
##
   Min. : 0.000
                        Min.
                               :0.000
                                         Min.
                                                :0.000
##
   1st Qu.: 3.000
                        1st Qu.:1.000
                                         1st Qu.:1.000
##
   Median : 4.000
                        Median :2.000
                                         Median :1.000
##
   Mean
         : 4.725
                        Mean
                              :2.392
                                         Mean
                                               :1.706
   3rd Qu.: 6.500
##
                        3rd Qu.:4.000
                                         3rd Qu.:3.000
          :13.000
##
   Max.
                        Max.
                               :6.000
                                         Max.
                                                 :6.000
   Home.Accurate.passes Home.Fouls.committed Home.Corners
                                                              Home. Total. shots.
##
   Length:51
                        Min. : 6.00
                                             Min. : 1.000
                                                              Min.
                                                                     : 4.00
   Class : character
                        1st Qu.: 9.00
                                             1st Qu.: 3.000
                                                              1st Qu.: 9.50
                        Median :11.00
##
   Mode :character
                                             Median : 5.000
                                                              Median :13.00
##
                        Mean :11.61
                                             Mean : 5.333
                                                              Mean
                                                                     :13.37
##
                        3rd Qu.:14.00
                                             3rd Qu.: 6.000
                                                              3rd Qu.:17.50
##
                                                    :13.000
                         Max.
                               :19.00
                                             Max.
                                                              Max.
                                                                     :35.00
##
   Home.Shots.off.target Home.Shots.on.target. Home.Blocked.shots
   Min. : 0.000
                         Min. : 0.000
                                               Min. : 0.000
   1st Qu.: 3.000
                          1st Qu.: 3.000
                                               1st Qu.: 2.000
##
##
   Median : 4.000
                         Median : 4.000
                                               Median : 3.000
##
   Mean : 4.686
                         Mean : 4.725
                                               Mean : 3.961
##
   3rd Qu.: 5.500
                          3rd Qu.: 6.500
                                               3rd Qu.: 6.000
##
   Max.
         :16.000
                         Max.
                               :13.000
                                               Max.
                                                      :11.000
   Home.Hit.woodwork Home.Shots.inside.box Home.Shots.outside.box
##
  Min. :0.0000
                     Min. : 1.000
                                           Min. : 0.000
##
   1st Qu.:0.0000
                     1st Qu.: 5.000
                                           1st Qu.: 4.000
##
   Median :0.0000
                     Median : 8.000
                                           Median : 6.000
   Mean
         :0.2745
                     Mean : 7.765
                                           Mean : 5.608
##
   3rd Qu.:0.0000
                     3rd Qu.:10.500
                                           3rd Qu.: 7.000
##
  Max.
          :2.0000
                     Max.
                            :20.000
                                           Max.
                                                  :15.000
   Home.Expected.goals..xG. Home.xG.open.play Home.xG.set.play
##
   Min.
                                  :0.0700
                                              Min.
          :0.170
                            Min.
                                                    :0.0000
   1st Qu.:0.780
                            1st Qu.:0.5900
                                              1st Qu.:0.0900
##
  Median :1.320
                            Median :0.7500
                                              Median :0.2300
   Mean :1.376
                            Mean :0.9645
                                              Mean :0.3078
##
   3rd Qu.:1.765
                            3rd Qu.:1.3500
                                              3rd Qu.:0.4400
          :3.360
                            Max.
                                   :2.6600
                                              Max.
                                                     :1.0600
##
   Home.Non.penalty.xG Home.xG.on.target..xGOT. Home.Passes
##
   Min.
          :0.170
                       Min.
                              :0.040
                                                Min.
                                                       :229.0
##
   1st Qu.:0.755
                        1st Qu.:0.815
                                                1st Qu.:402.5
## Median :1.200
                       Median :1.330
                                                Median :504.0
## Mean :1.268
                       Mean :1.562
                                                Mean :511.3
```

```
## 3rd Qu.:1.690
                       3rd Qu.:2.130
                                                3rd Qu.:583.0
##
         :3.360
                       Max.
                              :5.090
                                                Max.
                                                      :869.0
  Max.
   Home.Accurate.passes.1 Home.Own.half
                                          Home.Opposition.half
##
  Length:51
                          Min. : 75.0
                                          Min. : 60.0
   Class : character
                          1st Qu.:171.0
                                          1st Qu.:126.0
##
   Mode :character
                          Median :212.0
                                          Median :210.0
##
                          Mean :209.8
                                          Mean :234.7
##
                          3rd Qu.:233.5
                                          3rd Qu.:306.5
##
                          Max.
                                 :457.0
                                          Max.
                                                 :582.0
##
   Home.Accurate.long.balls Home.Accurate.crosses Home.Throws
   Length:51
                            Length:51
                                                  Min.
##
   Class : character
                            Class : character
                                                  1st Qu.:14
   Mode :character
                            Mode :character
                                                  Median:17
##
                                                  Mean
                                                         :17
##
                                                  3rd Qu.:20
##
                                                  Max.
                                                         :26
##
   Home.Touches.in.opposition.box Home.Offsides
                                                  Home.Yellow.cards
  Min.
          :10.00
                                  Min.
                                         :0.000
                                                  Min.
                                                        :0.000
   1st Qu.:13.00
                                  1st Qu.:0.000
                                                  1st Qu.:1.000
##
  Median :21.00
##
                                  Median :1.000
                                                  Median :2.000
                                        :1.608
##
   Mean
         :23.57
                                  Mean
                                                  Mean
                                                       :2.078
##
   3rd Qu.:31.00
                                  3rd Qu.:3.000
                                                  3rd Qu.:3.000
  Max.
##
          :57.00
                                  Max.
                                         :5.000
                                                  Max.
                                                         :6.000
##
   Home.Red.cards
                                       Home.Interceptions Home.Blocks
                     Home.Tackles.won
##
  Min.
         :0.00000
                     Length:51
                                               : 1.000
                                        Min.
                                                           Min.
                                                                  :0.000
                                        1st Qu.: 5.000
                                                           1st Qu.:2.000
  1st Qu.:0.00000
                     Class : character
## Median :0.00000
                     Mode :character
                                        Median : 6.000
                                                           Median :3.000
## Mean
         :0.05882
                                        Mean
                                               : 6.882
                                                           Mean
                                                                  :3.471
##
  3rd Qu.:0.00000
                                        3rd Qu.: 8.000
                                                           3rd Qu.:5.000
## Max.
          :2.00000
                                        Max.
                                               :15.000
                                                           Max.
                                                                  :8.000
## Home.Clearances Home.Keeper.saves Home.Duels.won Home.Ground.duels.won
##
          : 5.00 Min.
                          : 0.000
                                     Min.
                                            :22.00
                                                     Length:51
                  1st Qu.: 2.000
##
   1st Qu.:14.00
                                     1st Qu.:37.00
                                                     Class : character
  Median :19.00
                 Median : 3.000
                                     Median :44.00
                                                     Mode :character
## Mean :19.57
                   Mean : 2.784
                                     Mean :44.94
##
   3rd Qu.:24.50
                   3rd Qu.: 3.000
                                     3rd Qu.:52.00
##
  Max.
          :45.00
                   Max.
                          :11.000
                                     Max.
                                            :83.00
##
  Home.Aerial.duels.won Home.Successful.dribbles Away.Expected.goals.xG.
   Length:51
                         Length:51
                                                  Min.
                                                         :0.020
   Class :character
                                                  1st Qu.:0.740
##
                         Class : character
##
   Mode :character
                         Mode :character
                                                  Median :1.180
##
                                                  Mean
                                                         :1.231
##
                                                  3rd Qu.:1.535
##
                                                  Max.
                                                         :3.070
  Away.Total.shots Away.Shots.on.target Away.Big.chances Away.Big.chances.missed
## Min. : 1.00
                    Min. : 0.000
                                               :0.000
                                         Min.
                                                          Min.
                                                                :0.000
   1st Qu.: 9.00
                    1st Qu.: 3.000
                                         1st Qu.:1.000
                                                          1st Qu.:1.000
##
  Median :12.00
                    Median : 4.000
                                         Median :2.000
                                                          Median :1.000
## Mean :12.35
                    Mean
                          : 3.745
                                         Mean
                                               :2.157
                                                          Mean
                                                               :1.471
                    3rd Qu.: 5.000
##
   3rd Qu.:15.00
                                         3rd Qu.:3.000
                                                          3rd Qu.:2.000
## Max.
          :27.00
                           :12.000
                                                :6.000
                                                                 :4.000
                    Max.
                                         Max.
                                                          Max.
## Away.Accurate.passes Away.Fouls.committed Away.Corners
                                                              Away. Total. shots.
## Length:51
                        Min. : 5.00
                                             Min.
                                                    : 0.000
                                                             Min. : 1.00
## Class :character
                        1st Qu.: 8.00
                                             1st Qu.: 2.000
                                                              1st Qu.: 9.00
```

```
Median : 4.000
   Mode :character
                        Median :10.00
                                                             Median :12.00
                                                                   :12.35
##
                        Mean :10.71
                                            Mean : 4.686
                                                             Mean
##
                        3rd Qu.:13.00
                                            3rd Qu.: 7.000
                                                             3rd Qu.:15.00
##
                        Max.
                               :22.00
                                            Max.
                                                   :13.000
                                                             Max.
                                                                    :27.00
##
   Away.Shots.off.target Away.Shots.on.target. Away.Blocked.shots
##
   Min. : 1.000
                         Min. : 0.000
                                              Min.
                                                     :0.000
   1st Qu.: 3.000
                         1st Qu.: 3.000
                                              1st Qu.:2.000
  Median : 5.000
                         Median : 4.000
                                              Median :3.000
##
   Mean : 5.176
                         Mean : 3.745
                                              Mean :3.431
##
   3rd Qu.: 7.000
                         3rd Qu.: 5.000
                                              3rd Qu.:5.000
## Max.
          :14.000
                         Max.
                              :12.000
                                              Max.
                                                     :8.000
  Away.Hit.woodwork Away.Shots.inside.box Away.Shots.outside.box
##
   Min.
          :0.0000
                     Min. : 1.000
                                          Min. : 0.000
##
  1st Qu.:0.0000
                     1st Qu.: 5.000
                                          1st Qu.: 3.000
## Median :0.0000
                     Median : 8.000
                                          Median: 4.000
## Mean :0.3922
                     Mean : 7.745
                                          Mean : 4.608
##
   3rd Qu.:1.0000
                     3rd Qu.:10.500
                                          3rd Qu.: 6.000
##
  Max. :2.0000
                     Max.
                           :17.000
                                          Max. :13.000
##
   Away.Expected.goals..xG. Away.xG.open.play Away.xG.set.play
   Min. :0.020
                            Min. :0.0000
                                             Min. :0.000
##
   1st Qu.:0.740
                            1st Qu.:0.3950
                                             1st Qu.:0.045
##
  Median :1.180
                            Median :0.8200
                                             Median :0.140
## Mean :1.231
                            Mean :0.9051
                                             Mean :0.252
##
   3rd Qu.:1.535
                            3rd Qu.:1.3350
                                             3rd Qu.:0.330
                                 :2.4600
## Max. :3.070
                            Max.
                                             Max. :1.870
   Away.Non.penalty.xG Away.xG.on.target..xGOT. Away.Passes
##
  Min. :0.020
                       Min. :0.000
                                               Min. :251.0
   1st Qu.:0.560
                       1st Qu.:0.540
                                               1st Qu.:364.0
## Median :1.140
                       Median :1.180
                                               Median :453.0
## Mean :1.154
                       Mean :1.214
                                               Mean :461.6
##
   3rd Qu.:1.510
                       3rd Qu.:1.770
                                               3rd Qu.:567.5
          :3.070
##
   Max.
                       Max.
                             :4.000
                                               Max.
                                                      :690.0
##
   Away.Accurate.passes.1 Away.Own.half
                                         Away.Opposition.half
                          Min. : 91.0
                                         Min. : 33.0
   Length:51
                          1st Qu.:168.5
##
   Class :character
                                         1st Qu.:113.0
##
   Mode :character
                          Median :210.0
                                         Median :165.0
##
                          Mean :203.6
                                         Mean :189.2
##
                          3rd Qu.:243.0
                                         3rd Qu.:264.0
##
                          Max.
                               :302.0
                                         Max.
                                                :513.0
##
  Away.Accurate.long.balls Away.Accurate.crosses Away.Throws
  Length:51
                           Length:51
                                                 Min. : 8.00
##
   Class : character
                            Class :character
                                                 1st Qu.:12.00
   Mode :character
                            Mode :character
                                                 Median :16.00
##
                                                 Mean :16.14
##
                                                 3rd Qu.:18.50
##
                                                 Max. :29.00
                                                 Away.Yellow.cards
  Away.Touches.in.opposition.box Away.Offsides
## Min. : 2.0
                                        :0.000
                                                 Min. : 0.000
                                 Min.
  1st Qu.:12.5
                                  1st Qu.:0.000
                                                 1st Qu.: 1.000
## Median :19.0
                                                 Median : 2.000
                                 Median :1.000
                                        :1.529
## Mean
         :21.1
                                                 Mean : 2.333
                                 Mean
## 3rd Qu.:28.5
                                  3rd Qu.:2.000
                                                 3rd Qu.: 3.000
## Max. :50.0
                                 Max.
                                        :6.000
                                                 Max.
                                                       :11.000
                     Away.Tackles.won Away.Interceptions Away.Blocks
## Away.Red.cards
```

```
## Min.
          :0.00000
                     Length:51
                                       Min. : 1.000
                                                          Min. : 0.000
  1st Qu.:0.00000
                     Class : character
                                       1st Qu.: 5.000
                                                          1st Qu.: 2.000
## Median :0.00000
                     Mode :character
                                       Median : 7.000
                                                          Median : 3.000
         :0.03922
## Mean
                                       Mean
                                              : 7.039
                                                          Mean
                                                                : 3.922
   3rd Qu.:0.00000
                                       3rd Qu.: 9.000
                                                          3rd Qu.: 6.000
##
  Max.
          :1.00000
                                              :16.000
                                                          Max.
                                       Max.
                                                                 :11.000
   Away.Clearances Away.Keeper.saves Away.Duels.won Away.Ground.duels.won
  Min. : 4.0
                   Min. :0.00
                                    Min. :26.00
                                                    Length:51
##
   1st Qu.:15.0
                   1st Qu.:2.00
                                    1st Qu.:40.00
                                                    Class : character
##
  Median:19.0
                   Median:3.00
                                    Median :44.00
                                                    Mode :character
## Mean
         :21.1
                   Mean
                        :3.49
                                    Mean :45.96
##
   3rd Qu.:26.5
                   3rd Qu.:5.00
                                     3rd Qu.:50.00
  Max.
          :55.0
                   Max.
                         :9.00
                                    Max.
                                           :72.00
  Away.Aerial.duels.won Away.Successful.dribbles
                                                     goals
                                                                       XG
  Length:51
                         Length:51
                                                                        :0.700
                                                 Min. :0.000
                                                                 Min.
##
   Class : character
                         Class : character
                                                 1st Qu.:1.500
                                                                 1st Qu.:1.985
##
   Mode :character
                                                 Median :2.000
                                                                 Median :2.400
                         Mode :character
##
                                                 Mean
                                                       :2.294
                                                                 Mean :2.606
##
                                                 3rd Qu.:3.000
                                                                 3rd Qu.:3.345
##
                                                 Max.
                                                        :6.000
                                                                 Max.
                                                                       :4.390
##
       shots
                       fouls
                                     yellows
                                                        reds
   Min. :11.00
                          :14.00
                                  Min. : 1.000
                                                          :0.00000
                                                   Min.
   1st Qu.:22.00
                                   1st Qu.: 3.000
##
                   1st Qu.:17.50
                                                   1st Qu.:0.00000
   Median :26.00
                   Median :22.00
                                  Median : 4.000
                                                   Median : 0.00000
                                  Mean : 4.412
##
   Mean :25.73
                   Mean :22.31
                                                   Mean
                                                          :0.09804
   3rd Qu.:29.00
                   3rd Qu.:25.50
                                   3rd Qu.: 5.000
                                                   3rd Qu.:0.00000
##
  Max. :41.00
                   Max. :39.00
                                  Max. :16.000
                                                   Max.
                                                          :2.00000
##
       passes
                    passes.own.half passes.opp.half
##
  Min. : 741.0
                          :275.0
                                   Min.
                                         :219.0
                    Min.
   1st Qu.: 873.5
                                    1st Qu.:353.0
                    1st Qu.:359.0
##
  Median : 961.0
                    Median :401.0
                                    Median :414.0
                          :413.4
   Mean : 972.9
                    Mean
                                   Mean
                                         :423.9
##
   3rd Qu.:1041.5
                    3rd Qu.:476.5
                                    3rd Qu.:497.5
## Max.
          :1455.0
                    Max.
                          :685.0
                                    Max.
                                          :683.0
```

summary(copa)

```
attendance
##
     stadium
                                         home_team
                                                            away_team
                                                           Length:30
##
  Length:30
                      Length:30
                                        Length:30
   Class : character
                      Class :character
                                        Class : character
                                                           Class : character
##
   Mode :character
                      Mode :character
                                        Mode :character
                                                           Mode :character
##
##
##
##
     home_goals
                     away_goals Home.Expected.goals.xG. Home.Total.shots
   Min. :0.000
                   Min. :0.0
                                Min. :0.1200
                                                        Min. : 2.00
##
##
   1st Qu.:0.000
                   1st Qu.:0.0
                                1st Qu.:0.7525
                                                        1st Qu.: 8.00
##
   Median :1.000
                   Median :1.0
                                                        Median :11.00
                                Median :0.8800
##
   Mean
         :1.367
                   Mean :0.8
                                Mean
                                      :1.2910
                                                        Mean
                                                             :12.37
## 3rd Qu.:2.000
                   3rd Qu.:1.0
                                3rd Qu.:2.0775
                                                        3rd Qu.:17.75
## Max.
          :5.000
                   Max.
                          :4.0
                                Max.
                                       :3.0200
                                                        Max.
                                                               :24.00
## Home.Shots.on.target Home.Big.chances Home.Big.chances.missed
## Min. :1.0
                       Min. :0.000
                                      Min. :0.000
                       1st Qu.:1.000
## 1st Qu.:3.0
                                        1st Qu.:0.000
```

```
## Median :4.0
                        Median :1.500
                                         Median :1.000
##
   Mean :4.2
                                         Mean :1.267
                        Mean :2.067
   3rd Qu.:5.0
                        3rd Qu.:2.750
                                         3rd Qu.:2.000
##
  Max. :9.0
                        Max.
                               :9.000
                                         Max.
                                                :7.000
   Home.Accurate.passes Home.Fouls.committed Home.Corners
                                                             Home. Total. shots.
##
   Length:30
                              : 4.00
                                             Min.
                                                    :0.000
                                                             Min.
                                                                   : 2.00
                        Min.
   Class : character
                        1st Qu.:10.25
                                             1st Qu.:2.000
                                                             1st Qu.: 8.00
   Mode :character
                        Median :12.00
                                             Median :4.000
                                                             Median :11.00
##
##
                        Mean :12.90
                                             Mean :4.433
                                                             Mean
                                                                    :12.37
##
                        3rd Qu.:15.75
                                             3rd Qu.:6.750
                                                             3rd Qu.:17.75
##
                        Max.
                               :26.00
                                             Max.
                                                    :9.000
                                                             Max.
                                                                    :24.00
##
   Home.Shots.off.target Home.Shots.on.target. Home.Blocked.shots
   Min.
         : 0.00
                         Min. :1.0
                                               Min.
                                                      : 0.000
##
   1st Qu.: 2.25
                         1st Qu.:3.0
                                               1st Qu.: 2.000
  Median: 5.00
                         Median:4.0
                                               Median : 2.500
##
   Mean : 4.80
                         Mean :4.2
                                               Mean : 3.367
##
   3rd Qu.: 7.00
                         3rd Qu.:5.0
                                               3rd Qu.: 4.750
##
  Max.
          :12.00
                         Max. :9.0
                                               Max. :12.000
  Home.Hit.woodwork Home.Shots.inside.box Home.Shots.outside.box
##
  Min. :0.0
                     Min. : 1.0
                                           Min. : 0.000
##
   1st Qu.:0.0
                     1st Qu.: 4.0
                                           1st Qu.: 3.000
  Median:0.0
                     Median: 6.5
                                           Median : 5.000
                     Mean : 7.5
                                           Mean : 4.867
##
  Mean :0.2
##
   3rd Qu.:0.0
                     3rd Qu.:10.0
                                           3rd Qu.: 6.000
##
  Max. :1.0
                     Max.
                            :15.0
                                           Max.
                                                :11.000
   Home.Expected.goals..xG. Home.xG.open.play Home.xG.set.play
##
          :0.1200
                                  :0.020
                                              Min.
                                                   :0.0000
                            Min.
   1st Qu.:0.7525
                            1st Qu.:0.480
                                              1st Qu.:0.0925
##
  Median :0.8800
                            Median : 0.675
                                              Median :0.1650
  Mean
         :1.2910
                            Mean :0.845
                                              Mean :0.2903
##
   3rd Qu.:2.0775
                            3rd Qu.:1.225
                                              3rd Qu.:0.3575
                                   :2.390
##
  Max.
          :3.0200
                            Max.
                                              Max.
                                                     :1.3500
##
   Home.Non.penalty.xG Home.xG.on.target..xGOT. Home.Passes
          :0.1200
                              :0.0500
                                                      :251.0
##
                       Min.
                                                Min.
                       1st Qu.:0.3775
                                                1st Qu.:346.2
##
   1st Qu.:0.7125
                       Median :0.9550
##
  Median: 0.8650
                                                Median :403.0
## Mean :1.1337
                       Mean :1.2453
                                                Mean :418.0
##
   3rd Qu.:1.5375
                       3rd Qu.:1.5675
                                                3rd Qu.:509.8
##
   Max.
           :3.0200
                       Max.
                              :3.8900
                                                Max.
                                                       :695.0
##
   Home.Accurate.passes.1 Home.Own.half
                                          Home.Opposition.half
   Length:30
                          Min. : 80.0
                                          Min. : 56.0
##
   Class : character
                          1st Qu.:124.5
                                          1st Qu.:109.5
   Mode :character
                          Median :165.0
                                          Median :144.0
##
##
                          Mean
                                :183.5
                                          Mean
                                                :158.7
                          3rd Qu.:221.5
##
                                          3rd Qu.:185.8
##
                                 :381.0
                                          Max.
                                                 :410.0
                          Max.
##
   Home.Accurate.long.balls Home.Accurate.crosses Home.Throws
##
   Length:30
                            Length:30
                                                  Min. :11.00
   Class : character
                            Class : character
                                                  1st Qu.:17.25
##
   Mode :character
                            Mode :character
                                                  Median :19.00
##
                                                         :20.03
                                                  Mean
##
                                                  3rd Qu.:22.00
##
                                                  Max.
                                                         :41.00
   Home. Touches.in. opposition.box Home. Offsides
                                                  Home.Yellow.cards
```

```
## Min. : 4.0
                                 Min. :0.000
                                                Min.
                                                       :0.0
##
  1st Qu.:13.0
                                 1st Qu.:1.000
                                                1st Qu.:1.0
                                 Median :2.000
                                                Median:2.0
## Median :21.0
## Mean :22.1
                                 Mean
                                       :2.133
                                                Mean
                                                       :1.7
##
   3rd Qu.:29.0
                                 3rd Qu.:3.000
                                                3rd Qu.:2.0
##
  Max. :50.0
                                        :5.000
                                 Max.
                                                {\tt Max.}
                                                       :5.0
   Home.Red.cards Home.Tackles.won
                                    Home. Interceptions Home. Blocks
  Min. :0.0
                                          : 4.000
##
                  Length:30
                                    Min.
                                                      Min.
                                                             :0.000
##
   1st Qu.:0.0
                  Class : character
                                    1st Qu.: 7.000
                                                      1st Qu.:1.000
##
  Median:0.0
                  Mode :character
                                    Median : 8.000
                                                      Median :2.000
  Mean :0.2
                                    Mean : 8.533
                                                      Mean
                                                            :2.367
## 3rd Qu.:0.0
                                                      3rd Qu.:4.000
                                    3rd Qu.:10.000
                                                      Max.
## Max.
        :1.0
                                    Max.
                                          :15.000
                                                             :7.000
## Home.Clearances Home.Keeper.saves Home.Duels.won Home.Ground.duels.won
## Min. : 7.00
                  Min.
                         :0.000
                                    Min.
                                          :39.00
                                                   Length:30
##
   1st Qu.:12.50
                  1st Qu.:1.250
                                    1st Qu.:48.00
                                                   Class : character
##
  Median :17.00
                  Median :2.500
                                    Median :57.00
                                                   Mode :character
## Mean :18.47
                  Mean :2.633
                                    Mean :57.27
                                    3rd Qu.:64.00
  3rd Qu.:23.75
                  3rd Qu.:3.750
## Max. :45.00
                  Max.
                         :8.000
                                    Max.
                                          :81.00
  Home.Aerial.duels.won Home.Successful.dribbles Away.Expected.goals.xG.
  Length:30
                        Length:30
                                                Min. :0.030
                                                1st Qu.:0.525
##
   Class : character
                        Class :character
   Mode :character
                        Mode :character
                                                Median :1.050
##
                                                Mean :1.136
##
                                                3rd Qu.:1.620
##
                                                Max.
                                                       :3.740
   Away.Total.shots Away.Shots.on.target Away.Big.chances Away.Big.chances.missed
  Min. : 2.00
                   Min. :0.000
                                        Min. :0.000
                                                        Min. :0.000
   1st Qu.: 7.00
                    1st Qu.:2.000
                                        1st Qu.:1.000
                                                        1st Qu.:0.250
## Median :10.50
                    Median :3.000
                                        Median :2.000
                                                        Median :1.000
## Mean :10.73
                   Mean
                         :3.533
                                        Mean :2.067
                                                        Mean :1.567
##
   3rd Qu.:13.75
                    3rd Qu.:5.000
                                        3rd Qu.:3.000
                                                        3rd Qu.:2.000
  Max. :22.00
                                                              :5.000
                   Max.
                         :9.000
                                        Max.
                                              :5.000
                                                        Max.
   Away.Accurate.passes Away.Fouls.committed Away.Corners Away.Total.shots.
  Length:30
                       Min. : 4.0
                                           Min. : 0.0
                                                          Min. : 2.00
  Class :character
                       1st Qu.:10.5
                                            1st Qu.: 2.0
                                                          1st Qu.: 7.00
##
  Mode : character
                       Median:13.5
                                           Median: 3.0
                                                          Median :10.50
##
                       Mean :13.3
                                           Mean : 3.8
                                                          Mean :10.73
##
                       3rd Qu.:16.5
                                           3rd Qu.: 5.0
                                                          3rd Qu.:13.75
##
                             :20.0
                                           Max. :11.0
                       Max.
                                                          Max. :22.00
##
   Away.Shots.off.target Away.Shots.on.target. Away.Blocked.shots
   Min. :0.000
                        Min. :0.000
                                             Min. :0.000
##
   1st Qu.:3.000
                        1st Qu.:2.000
                                             1st Qu.:1.000
  Median :5.000
                        Median :3.000
                                             Median :2.000
## Mean :4.633
                        Mean :3.533
                                             Mean :2.567
   3rd Qu.:6.000
                        3rd Qu.:5.000
                                              3rd Qu.:4.000
## Max. :9.000
                                                    :8.000
                        Max. :9.000
                                             Max.
  Away.Hit.woodwork Away.Shots.inside.box Away.Shots.outside.box
                    Min. : 0.00
                                          Min. : 0.000
## Min. :0.00
## 1st Qu.:0.00
                    1st Qu.: 3.25
                                          1st Qu.: 3.000
## Median :0.00
                    Median: 6.00
                                         Median: 4.000
## Mean :0.30
                    Mean : 6.20
                                         Mean : 4.533
                                         3rd Qu.: 6.000
## 3rd Qu.:0.75
                    3rd Qu.: 8.00
```

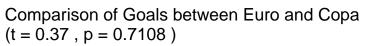
```
:15.00
## Max. :2.00
                     Max.
                                          Max. :10.000
   Away.Expected.goals..xG. Away.xG.open.play Away.xG.set.play
  Min. :0.030
                           Min. :0.0200
                                             Min. :0.0000
  1st Qu.:0.525
                            1st Qu.:0.2025
##
                                             1st Qu.:0.0500
   Median :1.050
                            Median :0.5250
                                             Median :0.1950
##
  Mean :1.136
                            Mean
                                 :0.7260
                                             Mean :0.3037
   3rd Qu.:1.620
                            3rd Qu.:1.0300
                                             3rd Qu.:0.3950
  Max. :3.740
                                             Max.
##
                            Max.
                                  :1.9200
                                                   :1.3800
   Away.Non.penalty.xG Away.xG.on.target..xGOT. Away.Passes
##
  Min. :0.030
                       Min. :0.000
                                               Min. :192.0
   1st Qu.:0.525
                       1st Qu.:0.310
                                               1st Qu.:311.2
## Median :0.980
                       Median :0.925
                                               Median :336.0
   Mean :1.031
                       Mean
                             :1.078
                                               Mean
                                                     :359.9
                       3rd Qu.:1.395
                                               3rd Qu.:407.0
##
   3rd Qu.:1.510
## Max.
          :2.720
                       Max.
                                               Max.
                             :3.640
                                                      :551.0
   Away.Accurate.passes.1 Away.Own.half
                                         Away.Opposition.half
##
                          Min. : 67.0
                                         Min. : 43.0
   Length:30
   Class : character
                          1st Qu.:127.2
                                         1st Qu.: 86.5
##
   Mode :character
                          Median :161.0
                                         Median :117.0
##
                          Mean :159.9
                                         Mean
                                               :126.4
##
                          3rd Qu.:187.5
                                         3rd Qu.:157.5
##
                          Max.
                                :260.0
                                         Max.
##
  Away.Accurate.long.balls Away.Accurate.crosses Away.Throws
   Length:30
                            Length:30
##
                                                 Min.
                                                        : 6.00
   Class :character
##
                            Class : character
                                                 1st Qu.:17.00
   Mode :character
                            Mode :character
                                                 Median :20.50
##
                                                 Mean
                                                      :19.13
##
                                                 3rd Qu.:22.75
##
                                                 Max.
                                                        :29.00
  Away. Touches. in. opposition. box Away. Offsides
                                                 Away.Yellow.cards
##
   Min. : 1.00
                                 Min. :0.000
                                                 Min.
                                                       :0.000
##
   1st Qu.:13.50
                                  1st Qu.:0.000
                                                 1st Qu.:1.000
##
  Median :18.00
                                 Median :1.000
                                                 Median :2.000
## Mean :18.43
                                 Mean :1.067
                                                       :1.967
                                                 Mean
##
   3rd Qu.:22.75
                                  3rd Qu.:2.000
                                                 3rd Qu.:3.000
##
   Max.
          :45.00
                                        :3.000
                                                        :5.000
                                 Max.
                                                 Max.
   Away.Red.cards Away.Tackles.won Away.Interceptions Away.Blocks
## Min.
          :0.0
                  Length:30
                                    Min. : 2.000
                                                       Min. : 0.00
   1st Qu.:0.0
##
                  Class :character
                                     1st Qu.: 7.000
                                                       1st Qu.: 1.25
  Median :0.0
##
                  Mode :character
                                    Median : 8.000
                                                       Median: 2.50
  Mean :0.1
                                    Mean : 8.367
                                                       Mean : 3.20
##
   3rd Qu.:0.0
                                     3rd Qu.:10.000
                                                       3rd Qu.: 4.00
   Max.
          :1.0
                                     Max.
                                           :16.000
                                                       Max.
                                                             :11.00
   Away.Clearances Away.Keeper.saves Away.Duels.won Away.Ground.duels.won
  Min. : 6.00
                   Min.
                         :0.0
                                     Min.
                                           :35.00
                                                    Length:30
##
  1st Qu.:14.00
                   1st Qu.:1.0
                                     1st Qu.:44.00
                                                    Class : character
   Median :16.50
                   Median:2.0
                                    Median :51.50
                                                    Mode :character
## Mean :19.13
                                    Mean :52.80
                   Mean :2.8
   3rd Qu.:23.00
                   3rd Qu.:4.0
                                     3rd Qu.:60.25
## Max. :37.00
                   Max.
                         :8.0
                                    Max. :73.00
  Away.Aerial.duels.won Away.Successful.dribbles
                                                                       XG
                                                     goals
## Length:30
                         Length:30
                                                 Min.
                                                      :0.000
                                                                 Min.
                                                                       :1.410
## Class :character
                         Class : character
                                                 1st Qu.:1.000
                                                                 1st Qu.:1.748
## Mode :character
                        Mode :character
                                                 Median :2.000
                                                                 Median :2.455
```

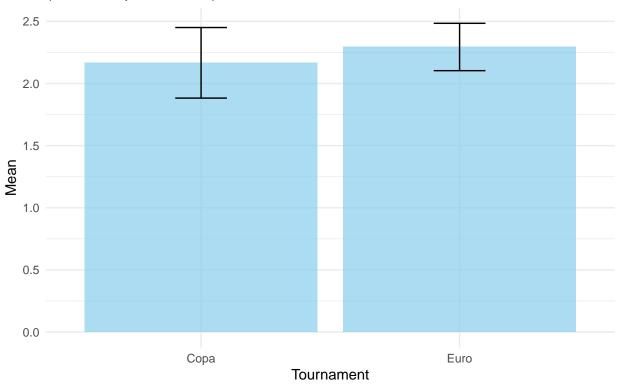
```
##
                                                       :2.167
                                                               Mean
                                                                     :2.427
##
                                                3rd Qu.:3.000 3rd Qu.:2.822
##
                                                Max.
                                                     :5.000 Max.
                                                                     :4.610
##
                      fouls
                                    yellows
       shots
                                                     reds
                                                                  passes
## Min. :14.00 Min. :15.00
                                 Min.
                                       :0.000
                                                Min.
                                                       :0.0 Min.
                                                                     :607.0
                 1st Qu.:23.00
                                  1st Qu.:3.000
                                                 1st Qu.:0.0 1st Qu.:721.0
  1st Qu.:19.25
## Median :22.00 Median :25.00
                                  Median :4.000
                                                 Median :0.0 Median :776.5
         :23.10 Mean :26.20
                                  Mean :3.667
                                                 Mean :0.3 Mean :777.9
## Mean
## 3rd Qu.:27.50
                  3rd Qu.:30.25
                                  3rd Qu.:4.750
                                                 3rd Qu.:0.0 3rd Qu.:837.5
## Max.
         :33.00
                  Max.
                         :41.00
                                  Max. :7.000
                                                 Max. :2.0 Max. :944.0
## passes.own.half passes.opp.half
## Min.
         :240.0 Min.
                         :210.0
                 1st Qu.:252.5
## 1st Qu.:267.0
## Median :341.5 Median :270.0
## Mean
         :343.4 Mean
                        :285.1
## 3rd Qu.:395.5 3rd Qu.:312.2
## Max. :530.0 Max. :459.0
t.test(euro$goals, copa$goals)
##
## Welch Two Sample t-test
## data: euro$goals and copa$goals
## t = 0.37267, df = 54.574, p-value = 0.7108
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.5580423 0.8129442
## sample estimates:
## mean of x mean of y
## 2.294118 2.166667
t.test(euro$XG, copa$XG)
## Welch Two Sample t-test
## data: euro$XG and copa$XG
## t = 0.90301, df = 65.943, p-value = 0.3698
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.2177496 0.5773575
## sample estimates:
## mean of x mean of y
## 2.606471 2.426667
t.test(euro$shots, copa$shots)
##
## Welch Two Sample t-test
## data: euro$shots and copa$shots
```

```
## t = 2.0421, df = 70.367, p-value = 0.04489
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## 0.0615103 5.1894701
## sample estimates:
## mean of x mean of y
## 25.72549 23.10000
t.test(euro$fouls, copa$fouls)
## Welch Two Sample t-test
##
## data: euro$fouls and copa$fouls
## t = -2.9358, df = 52.294, p-value = 0.004935
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -6.542267 -1.230282
## sample estimates:
## mean of x mean of y
## 22.31373 26.20000
t.test(euro$yellows, copa$yellows)
##
##
   Welch Two Sample t-test
## data: euro$yellows and copa$yellows
## t = 1.5148, df = 78.985, p-value = 0.1338
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.2339402 1.7241362
## sample estimates:
## mean of x mean of y
## 4.411765 3.666667
t.test(euro$reds, copa$reds)
##
## Welch Two Sample t-test
## data: euro$reds and copa$reds
## t = -1.6835, df = 41.73, p-value = 0.09975
\#\# alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.44410933 0.04018776
## sample estimates:
## mean of x mean of y
## 0.09803922 0.30000000
```

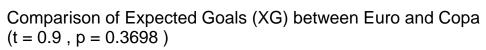
```
t.test(euro$passes, copa$passes)
##
## Welch Two Sample t-test
## data: euro$passes and copa$passes
## t = 7.5042, df = 77.963, p-value = 8.553e-11
\#\# alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## 143.2825 246.7607
## sample estimates:
## mean of x mean of y
## 972.9216 777.9000
t.test(euro$passes.own.half, copa$passes.own.half)
##
## Welch Two Sample t-test
##
## data: euro$passes.own.half and copa$passes.own.half
## t = 3.7691, df = 63.282, p-value = 0.0003624
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## 32.90189 107.14909
## sample estimates:
## mean of x mean of y
## 413.3922 343.3667
t.test(euro$passes.opp.half, copa$passes.opp.half)
##
## Welch Two Sample t-test
## data: euro$passes.opp.half and copa$passes.opp.half
## t = 8.206, df = 77.507, p-value = 3.908e-12
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## 105.0692 172.3896
## sample estimates:
## mean of x mean of y
## 423.8627 285.1333
# Perform t-tests and store results
t_tests <- list(</pre>
  goals = t.test(euro$goals, copa$goals),
 XG = t.test(euro$XG, copa$XG),
  shots = t.test(euro$shots, copa$shots),
  fouls = t.test(euro$fouls, copa$fouls),
  yellows = t.test(euro$yellows, copa$yellows),
 reds = t.test(euro$reds, copa$reds),
  passes = t.test(euro$passes, copa$passes),
```

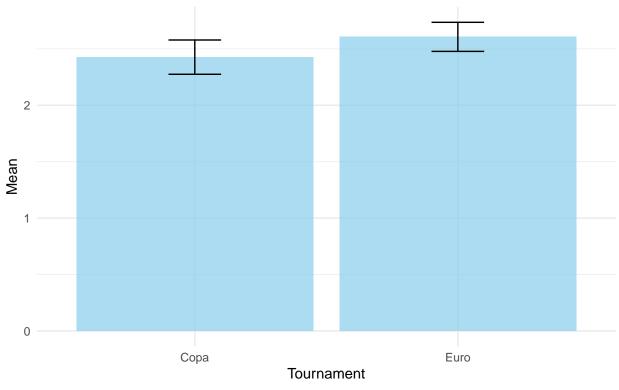
```
passes_own_half = t.test(euro$passes.own.half, copa$passes.own.half),
  passes_opp_half = t.test(euro$passes.opp.half, copa$passes.opp.half)
library(ggplot2)
## Warning: package 'ggplot2' was built under R version 4.4.2
# Function to create plot for each t-test
create_plot <- function(data, t_test_result, title) {</pre>
  plot_data <- data.frame(</pre>
    group = c("Euro", "Copa"),
    mean = c(mean(data[[1]]), mean(data[[2]])),
    sd = c(sd(data[[1]]), sd(data[[2]])),
    se = c(sd(data[[1]])/sqrt(length(data[[1]])), sd(data[[2]])/sqrt(length(data[[2]])))
  )
  ggplot(plot_data, aes(x = group, y = mean)) +
    geom_bar(stat = "identity", fill = "skyblue", alpha = 0.7) +
    geom_errorbar(aes(ymin = mean - se, ymax = mean + se), width = 0.2) +
    labs(title = paste(title, "\n(t =", round(t_test_result$statistic, 2), ", p =", round(t_test_result
         x = "Tournament", y = "Mean") +
    theme minimal()
}
# Create plots
plots <- list(</pre>
  goals = create_plot(list(euro$goals, copa$goals), t_tests$goals, "Comparison of Goals between Euro an
  XG = create_plot(list(euro$XG, copa$XG), t_tests$XG, "Comparison of Expected Goals (XG) between Euro
  shots = create_plot(list(euro$shots, copa$shots), t_tests$shots, "Comparison of Shots between Euro an
  fouls = create_plot(list(euro$fouls, copa$fouls), t_tests$fouls, "Comparison of Fouls between Euro and
  yellows = create_plot(list(euro$yellows, copa$yellows), t_tests$yellows, "Comparison of Yellow Cards"
  reds = create_plot(list(euro$reds, copa$reds), t_tests$reds, "Comparison of Red Cards between Euro an
  passes = create_plot(list(euro$passes, copa$passes), t_tests$passes, "Comparison of Passes between Eu
  passes_own_half = create_plot(list(euro$passes.own.half, copa$passes.own.half), t_tests$passes_own_ha
  passes_opp_half = create_plot(list(euro$passes.opp.half, copa$passes.opp.half), t_tests$passes_opp_ha
plots$goals
```



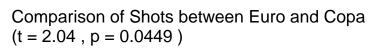


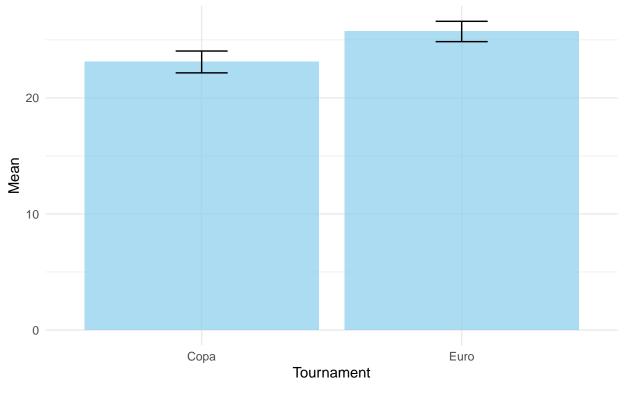
plots**\$**XG



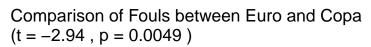


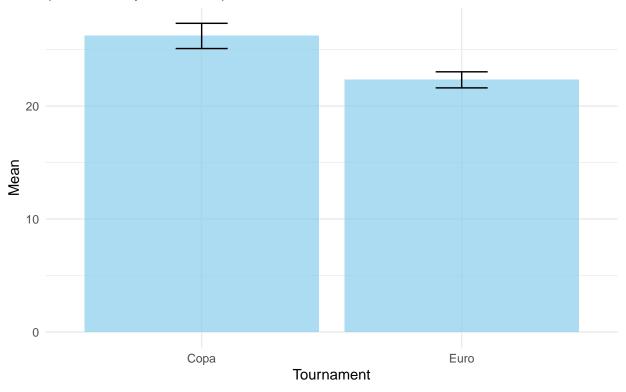
plots\$shots





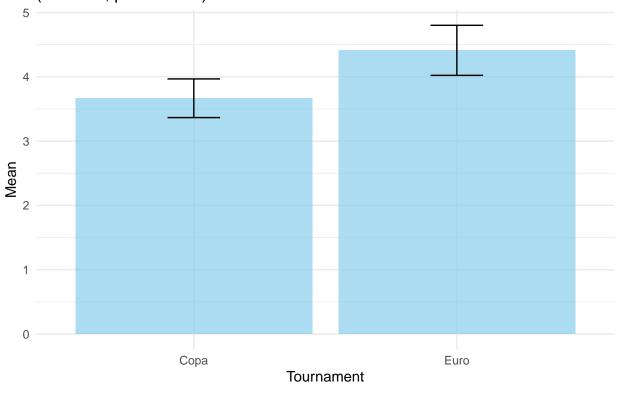
plots\$fouls



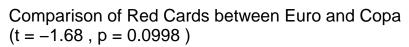


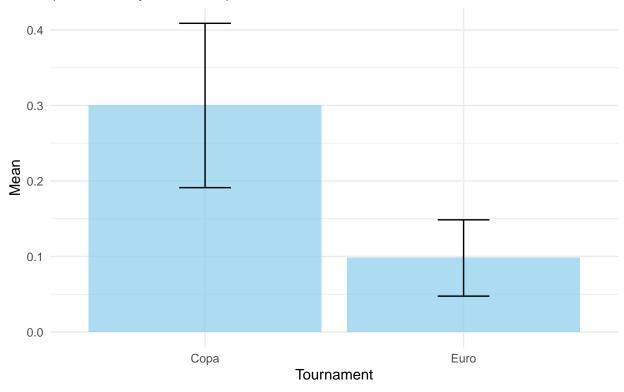
plots\$yellows

Comparison of Yellow Cards between Euro and Copa (t = 1.51 , p = 0.1338)

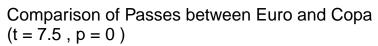


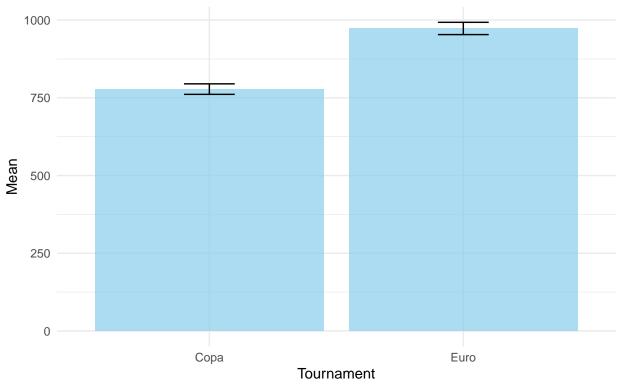
plots\$reds





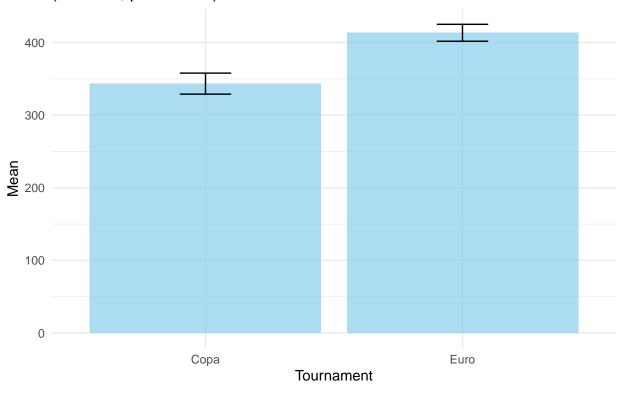
plots\$passes



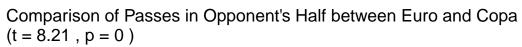


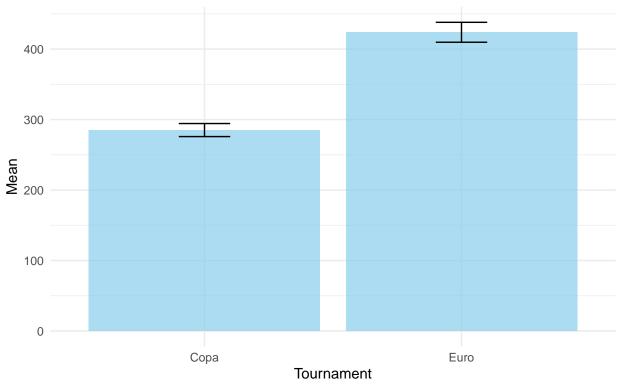
plots\$passes_own_half

Comparison of Passes in Own Half between Euro and Copa (t = 3.77 , p = 4e–04)



plots\$passes_opp_half





""