Generate Synthetic Data in R

** ANALYSIS REPORT **

Loading the datafile game schedule.csv

```r
data_file <- read.csv("C:/Users/sanya/Documents/prachi/OneDrive/R programming - Data analytics/game-sch
```

Calculating standings (2-1-0 system)

```r
# To calculate the standings used aggregrate function to find the number of wins, overtime losses and t
standings <- aggregate(cbind(Wins = data_file$home.team.goals > data_file$away.team.goals,
                             OvertimeLosses = data_file$home.team.goals == data_file$home.team.goals &


# To find the loss calculated the total number of games - (wins and overtime losses.)

standings$Losses <- nrow(data_file) - standings$Wins - standings$OvertimeLosses

# To compute specific scoring system given 2 points for winning and 1 point or Overtime losses
standings$Points <- 2 * standings$Wins + standings$OvertimeLosses

# Sort standings by points
standings <- standings[order(-standings$Points), ]

# Rename columns
colnames(standings) <- c("Team", "Wins", "OvertimeLosses", "Losses", "Points")

# Print the standings table
print(standings)
```

```
##                   Team Wins OvertimeLosses Losses Points
## 8          Frozen Fury   20              4    456     44
## 12         Icy Inferno   15              8    457     38
## 1     Arctic Avalanche   17              3    460     37
## 15    Subzero Scorchers   17             2    461     36
## 4   Coldfront Conquerors  16             3    461     35
## 7        Frostfire Foxes   15             5    460     35
## 10     Hailstone Hammers   15             3    462     33
## 3       Chillzone Chasers   15            2    463     32
## 13        Polar Pioneers   15             2    463     32
## 16        Winter Warriors   15            2    463     32
## 2        Blizzard Blades   14             3    463     31
## 11       Iceberg Invaders   13            5    462     31
## 6      Frostbite Phantoms   13            3    464     29
## 9       Glacial Guardians   13            3    464     29
## 5       Crystal Crusaders   11            4    465     26
## 14    Snowstorm Stingers   11             4    465     26
```

Based on the above data , where *2-1-0 system* , 2 points score were given for winning team ,1 point for Overtime losses and 0 for team that lost in regulation. The data suggests that *Frozen fury team* were the top performers scoring overall *44* points with *20* wins and *4* overtime losses. Followed by *Icy Ferno team* having overall score of *38* points even though there were *8* overtime losses.Looking at all other teams , majority of them have their points lying between 31-37 while only 2 teams having scoring less than *30* (Frostbite Phantoms,Glacial Guardians, Crystal Crusaders and Snowstorm Stingers) Over time wins are important type of scoring system as it affects the overall points along with the winning. Teams with balanced wins and overtime losses perform well.Teams that perform well in overtime can offset some regulation losses.

Calculating standings (3-2-1 system)

```
# To calculate the standings used aggregrate function to find the number of wins, overtime wins ,total

standings2 <- aggregate(cbind(Wins = data_file$home.team.goals > data_file$away.team.goals,
                          OvertimeWins = data_file$home.team.goals == data_file$away.team.goals & 
                          OvertimeLosses = data_file$away.team.goals > data_file$home.team.goals & 


# Standings on the basis of 3,2,1 scoring system( 3 points for winning , 2 for overtime win and 1 for l

standings2$Points <- 3 * standings2$Wins + 2 * standings2$OvertimeWins + 1 * standings2$OvertimeLosses


# Sorted standings by points
standings2 <- standings2[order(-standings2$Points), ]

# Renamed the columns
colnames(standings2) <- c("Team", "Wins", "OvertimeLoss", "OvertimeWins", "Points")

# Print the standings table with the new scoring system
print(standings2)
```

```
##                     Team Wins OvertimeLoss OvertimeWins Points
## 8           Frozen Fury   20            0            1     61
## 1       Arctic Avalanche   17            0            1     52
## 15     Subzero Scorchers   17            0            0     51
## 4    Coldfront Conquerors  16            0            0     48
## 7         Frostfire Foxes   15            0            2     47
## 16        Winter Warriors   15            0            2     47
## 3        Chillzone Chasers   15            0            1     46
## 12            Icy Inferno   15            0            1     46
## 10      Hailstone Hammers   15            0            0     45
## 13          Polar Pioneers   15            0            0     45
## 2         Blizzard Blades   14            0            1     43
## 9       Glacial Guardians   13            0            2     41
## 11        Iceberg Invaders   13            0            2     41
## 6      Frostbite Phantoms   13            0            1     40
## 14     Snowstorm Stingers   11            0            1     34
## 5        Crystal Crusaders   11            0            0     33
```

Based on the above standings data , in 3-2-1 system ,where 3 points score were given for winning team, 2 points for Overtime wins and 1 for overtime loss. The above data suggests that Frozen furry scored the highest points overall *61* points, with *1* Overtime wins and winning *20* games in total. None of the teams lost in overtime. While some teams like Frostfire Foxes, Winter Warriors, Glacial Guardians, Iceberg Invaders

won *2* overtime wins in total. Arctic Avalanche scores *52* points overall with 1 over time win. On the other hand some teams had the score ranging from *40 - 48.* The least points scoring being *34 and 33* for Snowstorm Stingers and Crystal Crusaders team.