Team Standings Report

Nishat Mohammad

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Report 1 on Team Standings

```
# Pull code from my .R file I made earlier for this project
source("DA5030.A6.108.v1.Nishat.Mohammad.R", echo=TRUE)
```

```
##
## > url = "http://artificium.us/assignments/06.r/a-6-108/teams.csv"
##
## > schedule_df <- read.csv(url)
##
## > str(schedule_df)
## 'data.frame':    16 obs. of  2 variables:
##  $ team.number: int  1 2 3 4 5 6 7 8 9 10 ...
##  $ team.name  : chr  "Arctic Avalanche" "Frostbite Phantoms" "Polar Pioneers" "Glacial Guardians" ..
##
## > names <- c("home.team", "away.team", "home.team.goals",
## +     "away.team.goals", "ot")
##
## > empty_df <- data.frame(matrix(ncol = 5, nrow = 0))
##
## > colnames(empty_df) <- names
##
## > empty_df
## [1] home.team       away.team       home.team.goals away.team.goals
## [5] ot
## <0 rows> (or 0-length row.names)
##
## > hm_team <- c(schedule_df$team.name[1:4])
##
## > hm_team2 <- c(hm_team[2:4], hm_team[1])
##
## > hm_team3 <- c(hm_team2[2:4], hm_team2[1])
##
## > hm_team4 <- c(hm_team3[2:4], hm_team3[1])
##
## > hm_team4
## [1] "Glacial Guardians"  "Arctic Avalanche"   "Frostbite Phantoms"
## [4] "Polar Pioneers"
##
## > home.team <- rep(hm_team, time = 3)
```

```
##
## > away.team <- c(hm_team2, hm_team3, hm_team4)
##
## > home.team.goals <- c("")
##
## > away.team.goals <- c("")
##
## > ot <- c("")
##
## > sub_df <- cbind(home.team, away.team, home.team.goals,
## +     away.team.goals, ot)
##
## > sub_df
##       home.team            away.team            home.team.goals away.team.goals
##  [1,] "Arctic Avalanche"   "Frostbite Phantoms" ""              ""
##  [2,] "Frostbite Phantoms" "Polar Pioneers"     ""              ""
##  [3,] "Polar Pioneers"     "Glacial Guardians"  ""              ""
##  [4,] "Glacial Guardians"  "Arctic Avalanche"   ""              ""
##  [5,] "Arctic Avalanche"   "Polar Pioneers"     ""              ""
##  [6,] "Frostbite Phantoms" "Glacial Guardians"  ""              ""
##  [7,] "Polar Pioneers"     "Arctic Avalanche"   ""              ""
##  [8,] "Glacial Guardians"  "Frostbite Phantoms" ""              ""
##  [9,] "Arctic Avalanche"   "Glacial Guardians"  ""              ""
## [10,] "Frostbite Phantoms" "Arctic Avalanche"   ""              ""
## [11,] "Polar Pioneers"     "Frostbite Phantoms" ""              ""
## [12,] "Glacial Guardians"  "Polar Pioneers"     ""              ""
##       ot
##  [1,] ""
##  [2,] ""
##  [3,] ""
##  [4,] ""
##  [5,] ""
##  [6,] ""
##  [7,] ""
##  [8,] ""
##  [9,] ""
## [10,] ""
## [11,] ""
## [12,] ""
##
## > empty_df
## [1] home.team       away.team       home.team.goals away.team.goals
## [5] ot
## <0 rows> (or 0-length row.names)
##
## > my_teams_df <- rbind(empty_df, sub_df)
##
## > my_teams_df
##             home.team          away.team home.team.goals away.team.goals ot
## 1    Arctic Avalanche Frostbite Phantoms
## 2  Frostbite Phantoms     Polar Pioneers
## 3      Polar Pioneers  Glacial Guardians
## 4   Glacial Guardians   Arctic Avalanche
## 5    Arctic Avalanche     Polar Pioneers
```

```
## 6  Frostbite Phantoms  Glacial Guardians
## 7      Polar Pioneers   Arctic Avalanche
## 8   Glacial Guardians Frostbite Phantoms
## 9    Arctic Avalanche  Glacial Guardians
## 10 Frostbite Phantoms   Arctic Avalanche
## 11     Polar Pioneers Frostbite Phantoms
## 12  Glacial Guardians     Polar Pioneers
##
## > `?`(runif)
##
## > set.seed(786)
##
## > home.team.goals <- round(runif(n = nrow(my_teams_df),
## +     min = 0, max = 7), 0)
##
## > my_teams_df$home.team.goals <- home.team.goals
##
## > my_teams_df
##             home.team          away.team home.team.goals away.team.goals ot
## 1    Arctic Avalanche Frostbite Phantoms               6
## 2  Frostbite Phantoms     Polar Pioneers               1
## 3      Polar Pioneers  Glacial Guardians               3
## 4   Glacial Guardians   Arctic Avalanche               2
## 5    Arctic Avalanche     Polar Pioneers               3
## 6  Frostbite Phantoms  Glacial Guardians               6
## 7      Polar Pioneers   Arctic Avalanche               1
## 8   Glacial Guardians Frostbite Phantoms               0
## 9    Arctic Avalanche  Glacial Guardians               7
## 10 Frostbite Phantoms   Arctic Avalanche               2
## 11     Polar Pioneers Frostbite Phantoms               1
## 12  Glacial Guardians     Polar Pioneers               0
##
## > away.team.goals <- round(runif(n = nrow(my_teams_df),
## +     min = 0, max = 7), 0)
##
## > my_teams_df$away.team.goals <- away.team.goals
##
## > my_teams_df
##             home.team          away.team home.team.goals away.team.goals ot
## 1    Arctic Avalanche Frostbite Phantoms               6               1
## 2  Frostbite Phantoms     Polar Pioneers               1               0
## 3      Polar Pioneers  Glacial Guardians               3               3
## 4   Glacial Guardians   Arctic Avalanche               2               5
## 5    Arctic Avalanche     Polar Pioneers               3               2
## 6  Frostbite Phantoms  Glacial Guardians               6               1
## 7      Polar Pioneers   Arctic Avalanche               1               1
## 8   Glacial Guardians Frostbite Phantoms               0               6
## 9    Arctic Avalanche  Glacial Guardians               7               2
## 10 Frostbite Phantoms   Arctic Avalanche               2               6
## 11     Polar Pioneers Frostbite Phantoms               1               6
## 12  Glacial Guardians     Polar Pioneers               0               7
##
## > tie_game <- (my_teams_df$home.team.goals == my_teams_df$away.team.goals)
##
```

```
## > tie_game
##  [1] FALSE FALSE  TRUE FALSE FALSE FALSE  TRUE FALSE FALSE FALSE FALSE FALSE
##
## > my_teams_df$ot <- tie_game
##
## > my_teams_df
##             home.team          away.team home.team.goals away.team.goals    ot
## 1    Arctic Avalanche Frostbite Phantoms               6               1 FALSE
## 2  Frostbite Phantoms     Polar Pioneers               1               0 FALSE
## 3      Polar Pioneers  Glacial Guardians               3               3  TRUE
## 4   Glacial Guardians   Arctic Avalanche               2               5 FALSE
## 5    Arctic Avalanche     Polar Pioneers               3               2 FALSE
## 6  Frostbite Phantoms  Glacial Guardians               6               1 FALSE
## 7      Polar Pioneers   Arctic Avalanche               1               1  TRUE
## 8   Glacial Guardians Frostbite Phantoms               0               6 FALSE
## 9    Arctic Avalanche  Glacial Guardians               7               2 FALSE
## 10 Frostbite Phantoms   Arctic Avalanche               2               6 FALSE
## 11     Polar Pioneers Frostbite Phantoms               1               6 FALSE
## 12  Glacial Guardians     Polar Pioneers               0               7 FALSE
##
## > for (i in my_teams_df$ot) {
## +     if (i == TRUE) {
## +         my_teams_df$home.team.goals <- home.team.goals + 1
## +     }
## + }
##
## > my_teams_df
##             home.team          away.team home.team.goals away.team.goals    ot
## 1    Arctic Avalanche Frostbite Phantoms               7               1 FALSE
## 2  Frostbite Phantoms     Polar Pioneers               2               0 FALSE
## 3      Polar Pioneers  Glacial Guardians               4               3  TRUE
## 4   Glacial Guardians   Arctic Avalanche               3               5 FALSE
## 5    Arctic Avalanche     Polar Pioneers               4               2 FALSE
## 6  Frostbite Phantoms  Glacial Guardians               7               1 FALSE
## 7      Polar Pioneers   Arctic Avalanche               2               1  TRUE
## 8   Glacial Guardians Frostbite Phantoms               1               6 FALSE
## 9    Arctic Avalanche  Glacial Guardians               8               2 FALSE
## 10 Frostbite Phantoms   Arctic Avalanche               3               6 FALSE
## 11     Polar Pioneers Frostbite Phantoms               2               6 FALSE
## 12  Glacial Guardians     Polar Pioneers               1               7 FALSE
##
## > write.csv(my_teams_df, "gameschedule.csv", row.names = FALSE)
```

```
### Question 7. ####
#Create an R Notebook and build a "report" that lists the teams and then produces the "standings", i.e.
#### Answers ####

# Create a df for the table
points_table <- as.data.frame(matrix(ncol= 5, nrow=0))
colnames(points_table) <- c("game_num", "winning_team", "Winner_point", "losing_team","losser_point")

my_teams_df
```

```
##             home.team          away.team home.team.goals away.team.goals    ot
```

```
## 1    Arctic Avalanche Frostbite Phantoms              7              1 FALSE
## 2  Frostbite Phantoms     Polar Pioneers              2              0 FALSE
## 3      Polar Pioneers  Glacial Guardians              4              3  TRUE
## 4   Glacial Guardians   Arctic Avalanche              3              5 FALSE
## 5    Arctic Avalanche     Polar Pioneers              4              2 FALSE
## 6  Frostbite Phantoms  Glacial Guardians              7              1 FALSE
## 7      Polar Pioneers   Arctic Avalanche              2              1  TRUE
## 8   Glacial Guardians Frostbite Phantoms              1              6 FALSE
## 9    Arctic Avalanche  Glacial Guardians              8              2 FALSE
## 10 Frostbite Phantoms   Arctic Avalanche              3              6 FALSE
## 11     Polar Pioneers Frostbite Phantoms              2              6 FALSE
## 12  Glacial Guardians     Polar Pioneers              1              7 FALSE
```

```
# Get the points in th points table
for (row in 1: nrow(my_teams_df)){
  points_table[row,1] <- row
  if (my_teams_df$ot[row]==FALSE){
      if (my_teams_df$home.team.goals[row] > my_teams_df$away.team.goals[row]){
        points_table[row,2] <- my_teams_df$home.team[row]
        points_table[row,3] <- 2
        points_table[row,4] <- my_teams_df$away.team[row]
        points_table[row,5] <- 0
      }else {
        points_table[row,2] <- my_teams_df$away.team[row]
        points_table[row,3] <- 2
        points_table[row,4] <- my_teams_df$home.team[row]
        points_table[row,5] <- 0
      }
  } else{
    if (my_teams_df$home.team.goals[row] > my_teams_df$away.team.goals[row]){
        points_table[row,2] <- my_teams_df$home.team[row]
        points_table[row,3] <- 2
        points_table[row,4] <- my_teams_df$away.team[row]
        points_table[row,5] <- 1
      }else {
        points_table[row,2] <- my_teams_df$away.team[row]
        points_table[row,3] <- 2
        points_table[row,4] <- my_teams_df$home.team[row]
        points_table[row,5] <- 1
      }
    }
}
points_table
```

```
##    game_num       winning_team Winner_point        losing_team losser_point
## 1         1   Arctic Avalanche            2 Frostbite Phantoms            0
## 2         2 Frostbite Phantoms            2     Polar Pioneers            0
## 3         3     Polar Pioneers            2  Glacial Guardians            1
## 4         4   Arctic Avalanche            2  Glacial Guardians            0
## 5         5   Arctic Avalanche            2     Polar Pioneers            0
## 6         6 Frostbite Phantoms            2  Glacial Guardians            0
## 7         7     Polar Pioneers            2   Arctic Avalanche            1
## 8         8 Frostbite Phantoms            2  Glacial Guardians            0
## 9         9   Arctic Avalanche            2  Glacial Guardians            0
```

```
## 10       10   Arctic Avalanche            2 Frostbite Phantoms            0
## 11       11 Frostbite Phantoms            2     Polar Pioneers            0
## 12       12     Polar Pioneers            2  Glacial Guardians            0
```

```r
# Get the team names
team_names <- unique(c(unique(points_table$winning_team), unique(points_table$losing_team)))

# Create the Standings table
standings_table <- as.data.frame(matrix(ncol= 2, nrow=length(team_names)))
colnames(standings_table) <- c("team_name", "total_points")

# Add the team names column
standings_table[1:(length(team_names)),1]<- team_names

for (row in 1:nrow(standings_table)){
  total_win_point<-points_table$Winner_point[points_table$winning_team==standings_table$team_name[row]]
  total_loss_point<- points_table$losser_point[points_table$losing_team==standings_table$team_name[row]]
  total_point <- sum(total_loss_point,total_win_point)
  standings_table$total_points[row] <- total_point
}
standings_table
```

```
##            team_name total_points
## 1   Arctic Avalanche           11
## 2 Frostbite Phantoms            8
## 3     Polar Pioneers            6
## 4  Glacial Guardians            1
```

```r
tot_points<- standings_table$total_points
```

Team List

The Team List is:
"Arctic Avalanche", "Frostbite Phantoms", "Polar Pioneers", "Glacial Guardians"

Standings

The standings for the respective teams are:
11, 8, 6, 1
View all details in the tables above.

Report 2 on Team Standings

```r
### Question 8. ####
#Add another section to the R Notebook that creates a different table based on the winner getting 3 poi
#### Answers ####
# Create a df for the second table
points_table2 <- as.data.frame(matrix(ncol= 5, nrow=0))
colnames(points_table2) <- c("game_num", "winning_team", "Winner_point", "losing_team","losser_point")
```

```
# Get the points in th points table2
for (row in 1: (length(my_teams_df$home.team.goals))){
  points_table2[row,1] <- row
  if (my_teams_df$ot[row]==FALSE){
      if (my_teams_df$home.team.goals[row] > my_teams_df$away.team.goals[row]){
        points_table2[row,2] <- my_teams_df$home.team[row]

        points_table2[row,3] <- 3
        points_table2[row,4] <- my_teams_df$away.team[row]
        points_table2[row,5] <- 0
      }else {
        points_table2[row,2] <- my_teams_df$away.team[row]
        points_table2[row,3] <- 3
        points_table2[row,4] <- my_teams_df$home.team[row]
        points_table2[row,5] <- 0
      }
  } else{
    if (my_teams_df$home.team.goals[row] > my_teams_df$away.team.goals[row]){
        points_table2[row,2] <- my_teams_df$home.team[row]
        points_table2[row,3] <- 2
        points_table2[row,4] <- my_teams_df$away.team[row]
        points_table2[row,5] <- 1
      }else {
        points_table2[row,2] <- my_teams_df$away.team[row]
        points_table2[row,3] <- 2
        points_table2[row,4] <- my_teams_df$home.team[row]
        points_table2[row,5] <- 1
      }
    }
}
points_table2
```

```
##    game_num       winning_team Winner_point        losing_team losser_point
## 1         1   Arctic Avalanche            3 Frostbite Phantoms            0
## 2         2 Frostbite Phantoms            3     Polar Pioneers            0
## 3         3     Polar Pioneers            2  Glacial Guardians            1
## 4         4   Arctic Avalanche            3  Glacial Guardians            0
## 5         5   Arctic Avalanche            3     Polar Pioneers            0
## 6         6 Frostbite Phantoms            3  Glacial Guardians            0
## 7         7     Polar Pioneers            2   Arctic Avalanche            1
## 8         8 Frostbite Phantoms            3  Glacial Guardians            0
## 9         9   Arctic Avalanche            3  Glacial Guardians            0
## 10       10   Arctic Avalanche            3 Frostbite Phantoms            0
## 11       11 Frostbite Phantoms            3     Polar Pioneers            0
## 12       12     Polar Pioneers            3  Glacial Guardians            0
```

```
# Get the team names
team_names2 <- unique(c(unique(points_table2$winning_team), unique(points_table2$losing_team)))

# Create the Standings table
standings_table2 <- as.data.frame(matrix(ncol= 2, nrow=length(team_names2)))
colnames(standings_table2) <- c("team_name", "total_points")
```

```r
# Add the team names column
standings_table2[1:(length(team_names2)),1]<- team_names2

# Get the total score and add to the second standings table
for (row in 1:nrow(standings_table2)){
  total_win_point2<-points_table2$Winner_point[points_table2$winning_team==standings_table2$team_name[r
  total_loss_point2<- points_table2$losser_point[points_table2$losing_team==standings_table2$team_name[
  total_point2 <- sum(total_loss_point2,total_win_point2)
  standings_table2$total_points[row] <- total_point2
}
standings_table2
```

```
##            team_name total_points
## 1   Arctic Avalanche           16
## 2 Frostbite Phantoms           12
## 3     Polar Pioneers            7
## 4  Glacial Guardians            1
```

```r
tot_points2 <- standings_table2$total_points
```

Team List

The team list remains the same as in report 1:
"Arctic Avalanche", "Frostbite Phantoms", "Polar Pioneers", "Glacial Guardians"

Standings

The Standings have now changed based of winner is regular time getting 3 points and 0 for loosers, winners in over time get 2 points while loosers in over time get 1. Please view the standings for the respective teams:

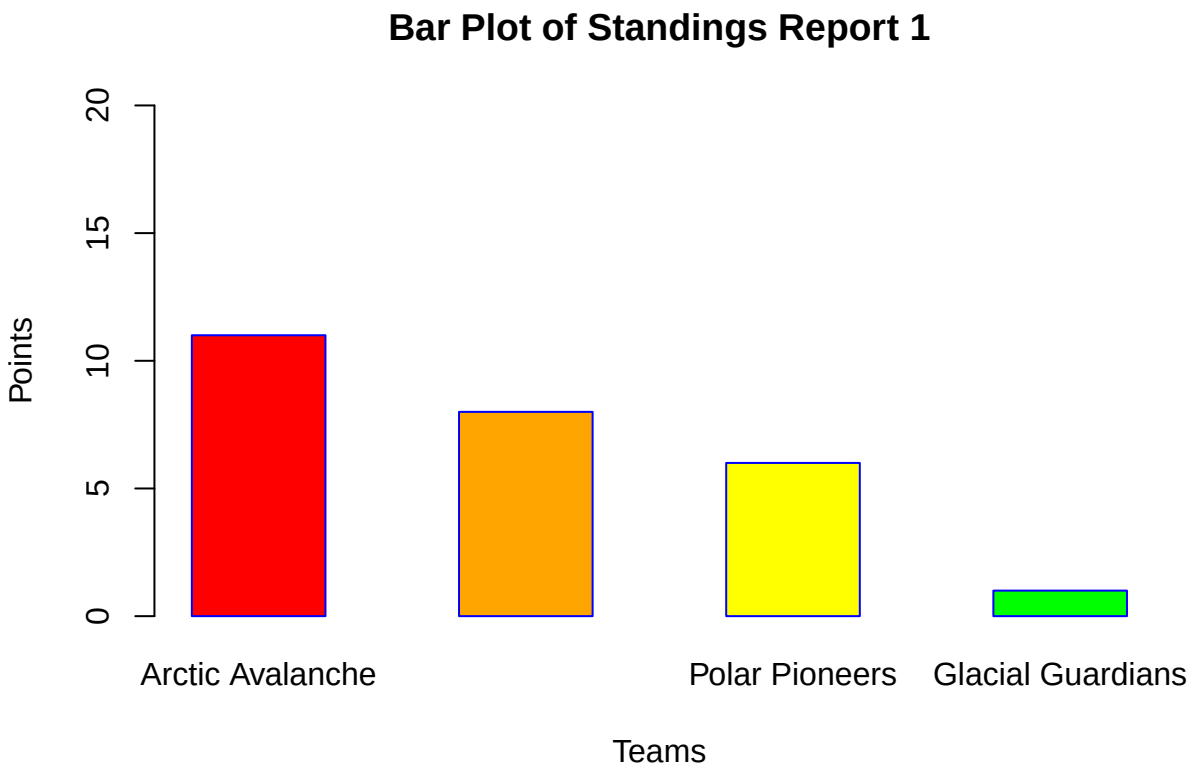
16, 12, 7, 1

View all details in the tables above.

Analysis of Standings Report 1 and 2

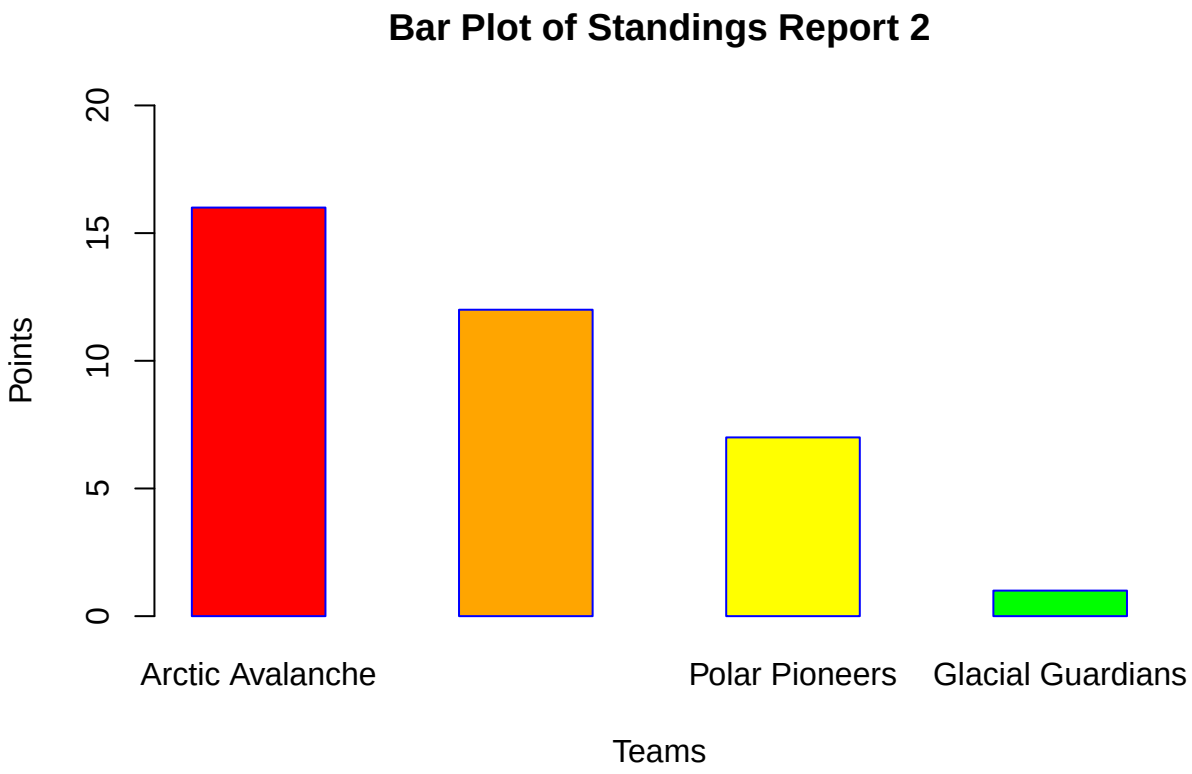
```r
# Bar plots for the reports
# Report 1
colors <- c("red", "orange", "yellow", "green")
pnts <- c(standings_table$total_points)
name_teams <- c(standings_table$team_name)

# Create a bar plot
barplot(height = pnts, width = 2, space = 1, names.arg = name_teams,
        main = "Bar Plot of Standings Report 1",
        xlab = "Teams",
        ylab = "Points",
        col = colors,
        border = "blue",
        ylim = c(0, 20) )
```




```r
# Report 2
pnts2 <- c(standings_table2$total_points)
name_teams2 <- c(standings_table2$team_name)

# Create a bar plot
barplot(height = pnts2, width = 2, space = 1, names.arg = name_teams2,
        main = "Bar Plot of Standings Report 2",
        xlab = "Teams",
        ylab = "Points",
        col = colors,
        border = "blue",
        ylim = c(0, 20) )
```



Bar plots for Standings

The Bar plots above visualize the two reports with Arctic Avalanche having the highest points and Glacial Guardians having the lowest points in both reports. Over all both reports are supportive of each others findings.

The points scored by the teams in Report 1 are 11, 8, 6, 1 for Arctic Avalanche, Frostbite Phantoms, Polar Pioneers, Glacial Guardians respectively.
The points scored by the teams in Report 2 are 16, 12, 7, 1 for Arctic Avalanche, Frostbite Phantoms, Polar Pioneers, Glacial Guardians respectively.