INSTITUTO TECNOLOGICO DE TIJUANA

MATERIA: MINERIA DE DATOS

INGENIERIA:

Ing.Tecnologías de la información y la comunicación.

NOMBRE DEL TRABAJO:

PRACTICA 4

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Practica 4

Tiros libres

Has recibido datos de dos estadísticas adicionales del juego:

* Tiros libres

* Intento de tiros libres

Necesita crear tres gráficos que representen las siguientes ideas:

* Intentos de Trows gratis por juego

* Garantía de Trhows gratis

* Estilo de juego del jugador (preferencia de 2 vs 3 puntos) excluyendo los tiros libres

* Cada tiro libre vale 1 punto

Los datos se han proporcionado en forma de vectores. Deberá crear las matrices antes de continuar con el análisis.

Codigo:

```
#Seasons
Seasons <- c("2005","2006","2007","2008","2009","2010","2011","2012","2013","2014")
print(Seasons)
#Players
Players <- c("KobeBryant","JoeJohnson","LeBronJames","CarmeloAnthony","DwightHoward","ChrisBosh","ChrisPaul","KevinDurant","DerrickRose","DwayneWade")

#Free Throws
KobeBryant_FT <- c(696,667,623,483,439,483,381,525,18,196)
JoeJohnson_FT <- c(261,235,316,299,220,195,158,132,159,141)
LeBronJames_FT <- c(601,489,549,594,593,503,387,403,439,375)
CarmeloAnthony_FT <- c(573,459,464,371,508,507,295,425,459,189)
DwightHoward_FT <- c(356,390,529,504,483,546,281,355,349,143)
ChrisBosh_FT <- c(474,463,472,504,470,384,229,241,223,179)
ChrisPaul_FT <- c(394,292,332,455,161,337,260,286,295,289)
KevinDurant_FT <- c(209,209,391,452,756,594,431,679,703,146)
DerrickRose_FT <- c(146,146,146,197,259,476,194,0,27,152)
DwayneWade_FT <- c(629,432,354,590,534,494,235,308,189,284)

#Matrix for Free Throws
#Bind the given vectors to form the matrix

FreeThrows <-rbind(KobeBryant_FT, JoeJohnson_FT, LeBronJames_FT, CarmeloAnthony_FT, DwightHoward_FT, ChrisBosh_FT, ChrisPaul_FT, KevinDurant_FT, DerrickRose_FT, DwayneWa
#Rename the columns
colnames(FreeThrows)<- Seasons
#Rename the rows
rownames(FreeThrows)<- Players
#

#Free Throw Attempts
KobeBryant_FTA <- c(819,768,742,564,541,583,451,626,21,241)
JoeJohnson_FTA <- c(330,314,379,362,269,243,186,161,195,176)
LeBronJames_FTA <- c(814,701,771,762,773,663,502,535,585,528)
CarmeloAnthony_FTA <- c(709,568,590,468,612,605,367,512,541,237)
DwightHoward_FTA <- c(598,666,897,849,816,916,572,721,638,271)
ChrisBosh_FTA <- c(581,590,559,617,590,471,279,302,272,232)
ChrisPaul_FTA <- c(465,357,390,524,190,384,302,323,345,321)
KevinDurant_FTA <- c(256,256,448,524,840,675,501,750,805,171)
DerrickRose_FTA <- c(205,205,205,250,338,555,239,0,32,187)
DwayneWade_FTA <- c(803,535,467,771,702,652,297,425,258,370)

#Matrix Free Throw Attempts
##Bind the given vectors to form the matrix
FreeThrowAttempts<- rbind(KobeBryant_FTA, JoeJohnson_FTA, LeBronJames_FTA, CarmeloAnthony_FTA, DwightHoward_FTA, ChrisBosh_FTA, ChrisPaul_FTA, KevinDurant_FTA, DerrickRo
#Rename the columns
colnames(FreeThrowAttempts)<- Seasons
#Rename the rows
rownames(FreeThrowAttempts)<- Players




#Check the matrix
print(FreeThrows)
print(FreeThrowAttempts)

```

```
#Check the matrix
print(FreeThrows)
print(FreeThrowAttempts)



#Re-create the plotting function
myplot <- function(z, who=1:10) {
  matplot(t(z[who,,drop=F]), type="b", pch=15:18, col=c(1:4,6), main="Basketball Players Analysis")
  legend("bottomleft", inset=0.01, legend=Players[who], col=c(1:4,6), pch=15:18, horiz=F)
}

#Visualize the new matrices
print(FreeThrows)
print(FreeThrowAttempts)

#Part 1 - Free Throw Attempts Per Game
#(You will need the Games matrix)
myplot(_/_)
#Notice how Chris Paul gets few attempts per game

#Part 2 - Free Throw Accuracy
myplot(_/_)
#And yet Chris Paul's accuracy is one of the highest
#Chances are his team would get more points if he had more FTA's
#Also notice that Dwight Howard's FT Accuracy is extremely poor
#compared to other players. If you recall, Dwight Howard's
#Field Goal Accuracy was exceptional:
myplot(FieldGoals/FieldGoalAttempts)
#How could this be? Why is there such a drastic difference?
#We will see just now...

#Part 3 - Player Style Patterns Excluding Free Throws
myplot((_-_)/_)
#Because we have excluded free throws, this plot now shows us
#the true representation of player style change. We can verify
#that this is the case because all the marks without exception
#on this plot are between 2 and 3. That is because Field Goals
#can only be for either 2 points or 3 points.
#Insights:
#1. You can see how players' preference for 2 or 3 point shots
#   changes throughout their career. We can see that almost all
#   players in this dataset experiment with their style throughout
#   their careers. Perhaps, the most drastic change in style has
#   been experienced by Joe Johnson.
#2. There is one exception. You can see that one player has not
#   changed his style at all - almost always scoring only 2-pointers.
#   Who is this mystert player? It's Dwight Howard!
#   Now that explains a lot. The reason that Dwight Howard's
#   Field Goal accuracy is so good is because he almost always
#   scores 2-pointers only. That means he can be close to the basket
#   or even in contact with it. Free throws, on the other hand require
#   the player to stand 15ft (4.57m) away from the hoop. That's
#   probably why Dwight Howard's Free Throw Accuracy is poor.
```