Ingeniería en sistemas computaciones

Data Mining

Practica 4

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Desarrollo

Create the tables and matices
In this part we make the tables and the matrices, only the comlums and rows, basically the information with

which we work

```
#Games
KobeBryant_G <- c(80,77,82,82,73,82,58,78,6,35)
JoeJohnson_G <- c(82,57,82,79,76,72,60,72,79,80)
LeBronJames_G <- c(79,78,75,81,76,79,62,76,77,69)
CarmeloAnthony_G <- c(80,65,77,66,69,77,55,67,77,40)
DwightHoward_G <- c(82,82,82,79,82,78,54,76,71,41)
ChrisBosh_G <- c(70,69,67,77,70,77,57,74,79,44)
ChrisPaul_G <- c(78,64,80,78,45,80,60,70,62,82)
KevinDurant_G <- c(35,35,80,74,82,78,66,81,81,27)
DerrickRose_G <- c(40,40,40,81,78,81,39,0,10,51)
DwayneWade_G <- c(75,51,51,79,77,76,49,69,54,62)
#Matrix
Games <- rbind(KobeBryant_G, JoeJohnson_G, LeBronJames_G, CarmeloAnthony_G,
DwightHoward_G, ChrisBosh_G, ChrisPaul_G, KevinDurant_G, DerrickRose_G,
DwayneWade_G)
rm(KobeBryant_G, JoeJohnson_G, CarmeloAnthony_G, DwightHoward_G,
ChrisBosh_G, LeBronJames_G, ChrisPaul_G, DerrickRose_G, DwayneWade_G,
KevinDurant_G)
colnames(Games) <- Seasons
rownames(Games) <- Players

is.na(Games)

#Points
KobeBryant_PTS <- c(2832,2430,2323,2201,1970,2078,1616,2133,83,782)
JoeJohnson_PTS <- c(1653,1426,1779,1688,1619,1312,1129,1170,1245,1154)
LeBronJames_PTS <- c(2478,2132,2250,2304,2258,2111,1683,2036,2089,1743)
CarmeloAnthony_PTS <- c(2122,1881,1978,1504,1943,1970,1245,1920,2112,966)
DwightHoward_PTS <- c(1292,1443,1695,1624,1503,1784,1113,1296,1297,646)
ChrisBosh_PTS <- c(1572,1561,1496,1746,1678,1438,1025,1232,1281,928)
ChrisPaul_PTS <- c(1258,1104,1684,1781,841,1268,1189,1186,1185,1564)
KevinDurant_PTS <- c(903,903,1624,1871,2472,2161,1850,2280,2593,686)
DerrickRose_PTS <- c(597,597,597,1361,1619,2026,852,0,159,904)
DwayneWade_PTS <- c(2040,1397,1254,2386,2045,1941,1082,1463,1028,1331)
#Matrix
Points <- rbind(KobeBryant_PTS, JoeJohnson_PTS, LeBronJames_PTS,
CarmeloAnthony_PTS, DwightHoward_PTS, ChrisBosh_PTS, ChrisPaul_PTS,
KevinDurant_PTS, DerrickRose_PTS, DwayneWade_PTS)
rm(KobeBryant_PTS, JoeJohnson_PTS, LeBronJames_PTS, CarmeloAnthony_PTS,
DwightHoward_PTS, ChrisBosh_PTS, ChrisPaul_PTS, KevinDurant_PTS,
DerrickRose_PTS, DwayneWade_PTS)
colnames(Points) <- Seasons
rownames(Points) <- Players


#Field Goals
KobeBryant_FG <- c(978,813,775,800,716,740,574,738,31,266)
JoeJohnson_FG <- c(632,536,647,620,635,514,423,445,462,446)
LeBronJames_FG <- c(875,772,794,789,768,758,621,765,767,624)
```

```r
CarmeloAnthony_FG <- c(756,691,728,535,688,684,441,669,743,358)
DwightHoward_FG <- c(468,526,583,560,510,619,416,470,473,251)
ChrisBosh_FG <- c(549,543,507,615,600,524,393,485,492,343)
ChrisPaul_FG <- c(407,381,630,631,314,430,425,412,406,568)
KevinDurant_FG <- c(306,306,587,661,794,711,643,731,849,238)
DerrickRose_FG <- c(208,208,208,574,672,711,302,0,58,338)
DwayneWade_FG <- c(699,472,439,854,719,692,416,569,415,509)
#Matrix
FieldGoals <- rbind(KobeBryant_FG, JoeJohnson_FG, LeBronJames_FG,
CarmeloAnthony_FG, DwightHoward_FG, ChrisBosh_FG, ChrisPaul_FG,
KevinDurant_FG, DerrickRose_FG, DwayneWade_FG)
rm(KobeBryant_FG, JoeJohnson_FG, LeBronJames_FG, CarmeloAnthony_FG,
DwightHoward_FG, ChrisBosh_FG, ChrisPaul_FG, KevinDurant_FG,
DerrickRose_FG, DwayneWade_FG)
colnames(FieldGoals) <- Seasons
rownames(FieldGoals) <- Players


#Seasons
Seasons <-
c("2005","2006","2007","2008","2009","2010","2011","2012","2013","2014")

#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
FreeThrows <- rbind(KobeBryant_FT, JoeJohnson_FT, LeBronJames_FT,
CarmeloAnthony_FT, DwightHoward_FT, ChrisBosh_FT, ChrisPaul_FT,
KevinDurant_FT, DerrickRose_FT, DwayneWade_FT)
rm(KobeBryant_FT, JoeJohnson_FT, CarmeloAnthony_FT, DwightHoward_FT,
ChrisBosh_FT, LeBronJames_FT, ChrisPaul_FT, DerrickRose_FT, DwayneWade_FT,
KevinDurant_FT)
colnames(FreeThrows) <- Seasons
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
        TrowsAtt <- rbind(KobeBryant_FTA, JoeJohnson_FTA, LeBronJames_FTA,
        CarmeloAnthony_FTA, DwightHoward_FTA, ChrisBosh_FTA, ChrisPaul_FTA,
        KevinDurant_FTA, DerrickRose_FTA, DwayneWade_FTA)
        rm(KobeBryant_FTA, JoeJohnson_FTA, CarmeloAnthony_FTA, DwightHoward_FTA,
        ChrisBosh_FTA, LeBronJames_FTA, ChrisPaul_FTA, DerrickRose_FTA,
        DwayneWade_FTA, KevinDurant_FTA)
        colnames(TrowsAtt) <- Seasons
        rownames(TrowsAtt) <- Players
        #
```

Hit 1 for the player playing style

```
        Tab1 <- (Points-FreeThrows)/FieldGoals
```

Hit 2 fill the Blanks

```
        which(is.na(Tab1[9 , 8]))
        Tab1[9 , 8] <- 0
```

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, DwayneWade_FT)
```

Remove vectors - we don't need them anymore

```
        rm(KobeBryant_FT, JoeJohnson_FT, CarmeloAnthony_FT, DwightHoward_FT,
        ChrisBosh_FT, LeBronJames_FT, ChrisPaul_FT, DerrickRose_FT, DwayneWade_FT,
```

```
    KevinDurant_FT)
```

Rename the columns

```
colnames(FreeThrows) <-
c("año1","año2","año3","año4","año5","año6","año7","año8","año9","año10")
```

Rename the rows and check matrix

```
rownames (FreeThrows) <-
c("JKobeBryant","JJoeJohnson","JLeBronJames","JCarmeloAnthony","JDwightHowa
rd","JChrisBosh","JChrisPaul","JKevinDurant","JDerrickRose","JDwayneWade")
FreeThrows
```

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

```
new1<- (FreeThrows)
new2<- (TrowsAtt)
```

Part 1

```
myplot(TrowsAtt/Games)
```

Part 2

```
myplot(FreeThrows/TrowsAtt)
```

Part 3

For this part is need to create the nex table and matrix, with your function

```
myplot((Points-FreeThrows)/FieldGoals)

#Field Goals
KobeBryant_FG <- c(978,813,775,800,716,740,574,738,31,266)
JoeJohnson_FG <- c(632,536,647,620,635,514,423,445,462,446)
LeBronJames_FG <- c(875,772,794,789,768,758,621,765,767,624)
CarmeloAnthony_FG <- c(756,691,728,535,688,684,441,669,743,358)
DwightHoward_FG <- c(468,526,583,560,510,619,416,470,473,251)
ChrisBosh_FG <- c(549,543,507,615,600,524,393,485,492,343)
ChrisPaul_FG <- c(407,381,630,631,314,430,425,412,406,568)
KevinDurant_FG <- c(306,306,587,661,794,711,643,731,849,238)
DerrickRose_FG <- c(208,208,208,574,672,711,302,0,58,338)
DwayneWade_FG <- c(699,472,439,854,719,692,416,569,415,509)
#Matrix
FieldGoals <- rbind(KobeBryant_FG, JoeJohnson_FG, LeBronJames_FG,
CarmeloAnthony_FG, DwightHoward_FG, ChrisBosh_FG, ChrisPaul_FG,
KevinDurant_FG, DerrickRose_FG, DwayneWade_FG)
rm(KobeBryant_FG, JoeJohnson_FG, LeBronJames_FG, CarmeloAnthony_FG,
DwightHoward_FG, ChrisBosh_FG, ChrisPaul_FG, KevinDurant_FG,
DerrickRose_FG, DwayneWade_FG)
colnames(FieldGoals) <- Seasons
rownames(FieldGoals) <- Players

#Points
KobeBryant_PTS <- c(2832,2430,2323,2201,1970,2078,1616,2133,83,782)
JoeJohnson_PTS <- c(1653,1426,1779,1688,1619,1312,1129,1170,1245,1154)
LeBronJames_PTS <- c(2478,2132,2250,2304,2258,2111,1683,2036,2089,1743)
CarmeloAnthony_PTS <- c(2122,1881,1978,1504,1943,1970,1245,1920,2112,966)
DwightHoward_PTS <- c(1292,1443,1695,1624,1503,1784,1113,1296,1297,646)
ChrisBosh_PTS <- c(1572,1561,1496,1746,1678,1438,1025,1232,1281,928)
ChrisPaul_PTS <- c(1258,1104,1684,1781,841,1268,1189,1186,1185,1564)
KevinDurant_PTS <- c(903,903,1624,1871,2472,2161,1850,2280,2593,686)
DerrickRose_PTS <- c(597,597,597,1361,1619,2026,852,0,159,904)
DwayneWade_PTS <- c(2040,1397,1254,2386,2045,1941,1082,1463,1028,1331)
#Matrix
Points <- rbind(KobeBryant_PTS, JoeJohnson_PTS, LeBronJames_PTS,
CarmeloAnthony_PTS, DwightHoward_PTS, ChrisBosh_PTS, ChrisPaul_PTS,
```

```
    KevinDurant_PTS, DerrickRose_PTS, DwayneWade_PTS)
    rm(KobeBryant_PTS, JoeJohnson_PTS, LeBronJames_PTS, CarmeloAnthony_PTS,
    DwightHoward_PTS, ChrisBosh_PTS, ChrisPaul_PTS, KevinDurant_PTS,
    DerrickRose_PTS, DwayneWade_PTS)
    colnames(Points) <- Seasons
    rownames(Points) <- Players
```

KevinDurant_PTS, DerrickRose_PTS, DwayneWade_PTS)
rm(KobeBryant_PTS, JoeJohnson_PTS, LeBronJames_PTS, CarmeloAnthony_PTS,
DwightHoward_PTS, ChrisBosh_PTS, ChrisPaul_PTS, KevinDurant_PTS,
DerrickRose_PTS, DwayneWade_PTS)
colnames(Points) <- Seasons
rownames(Points) <- Players