



Instituto Tecnológico de Tijuana
Ingeniería en Tecnologías de la información y
comunicaciones

Nombre de la Materia:

Minería de datos

Actividad:

Práctica 4

Profesor:

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Alumno(s):

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Free Throws

You have been supplied data for two additional in-game statics:

- * Free Throws

- * Free Throws Attempt

You need to create three plots that portray the following insights:

- * Free Throws Attempts per game

- * Accuracy of Free Throws

- * Player playing style (2 vs 3 points preference) excluding Free Throws

*Each Free Throw is worth 1 Point

```
> #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

```
> #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

```
#Matrix
Games <- 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, LeBronJames_FT, CarmeloAnthony_FT, DwightHoward_FT,
   ChrisBosh_FT, ChrisPaul_FT, KevinDurant_FT, DerrickRose_FT, DwayneWade_FT)

colnames(Games) <- Seasons
rownames(Games) <- Players

Games
```

#Games

```
> Games
```

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
KobeBryant	696	667	623	483	439	483	381	525	18	196
JoeJohnson	261	235	316	299	220	195	158	132	159	141
LeBronJames	601	489	549	594	593	503	387	403	439	375
CarmeloAnthony	573	459	464	371	508	507	295	425	459	189
DwightHoward	356	390	529	504	483	546	281	355	349	143
ChrisBosh	474	463	472	504	470	384	229	241	223	179
ChrisPaul	394	292	332	455	161	337	260	286	295	289
KevinDurant	209	209	391	452	756	594	431	679	703	146
DerrickRose	146	146	146	197	259	476	194	0	27	152
DwayneWade	629	432	354	590	534	494	235	308	189	284

```
> |
```



#Free throws attempts

```
#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)

> #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)
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> Dwaynewade_FTA <- c(803,535,467,771,702,652,297,425,258,370)
> |
```

#Matrix de ThrowsAttempts

```
#Matrix
ThrowAttempts <- 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, LeBronJames_FTA, CarmeloAnthony_FTA, DwightHoward_FTA,
  ChrisBosh_FTA, ChrisPaul_FTA, KevinDurant_FTA, DerrickRose_FTA, Dwaynewade_FTA)

colnames(ThrowAttempts) <- Seasons
rownames(ThrowAttempts) <- Players
|
ThrowAttempts

> ThrowAttempts
      2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
KobeBryant      819 768 742 564 541 583 451 626 21 241
JoeJohnson      330 314 379 362 269 243 186 161 195 176
LeBronJames      814 701 771 762 773 663 502 535 585 528
CarmeloAnthony    709 568 590 468 612 605 367 512 541 237
DwightHoward      598 666 897 849 816 916 572 721 638 271
ChrisBosh         581 590 559 617 590 471 279 302 272 232
ChrisPaul         465 357 390 524 190 384 302 323 345 321
KevinDurant       256 256 448 524 840 675 501 750 805 171
DerrickRose       205 205 205 250 338 555 239 0 32 187
Dwaynewade        803 535 467 771 702 652 297 425 258 370
> |
```



#Matrix for free throws

```
#Matrix for Free Throws

KobeBryant_FTH <- c(819,768,742,564,541,583,451,626,21,241)
JoeJohnson_FTH <- c(330,314,379,362,269,243,186,161,195,176)
LeBronJames_FTH <- c(814,701,771,762,773,663,502,535,585,528)
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ChrisBosh_FTH <- c(581,590,559,617,590,471,279,302,272,232)
ChrisPaul_FTH <- c(465,357,390,524,190,384,302,323,345,321)
KevinDurant_FTH <- c(256,256,448,524,840,675,501,750,805,171)
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Dwaynewade_FTH <- c(803,535,467,771,702,652,297,425,258,370)

> KobeBryant_FTH <- c(819,768,742,564,541,583,451,626,21,241)
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> DerrickRose_FTH <- c(205,205,205,250,338,555,239,0,32,187)
> Dwaynewade_FTH <- c(803,535,467,771,702,652,297,425,258,370)
```

#Remove vectors

```
#Remove vectors - we don't need them anymore
rm(KobeBryant_FTH, JoeJohnson_FTH, CarmeloAnthony_FTH, DwightHoward_FTH, ChrisBosh_FTH,
    LeBronJames_FTH, ChrisPaul_FTH, DerrickRose_FTH, Dwaynewade_FTH, KevinDurant_FTH)
```

#Bind the given vectors to form the matrix

```
#Bind the given vectors to form the matrix
FreeThrows <- rbind(KobeBryant_FTH, JoeJohnson_FTH, LeBronJames_FTH, CarmeloAnthony_FTH, DwightHoward_FTH,
    ChrisBosh_FTH, ChrisPaul_FTH, KevinDurant_FTH, DerrickRose_FTH, Dwaynewade_FTH)
```

#Rename the columns and the rows

```
#Rename the columns
colnames(FreeThrowAttempts) <- Seasons
#Rename the rows
rownames(FreeThrowAttempts) <- Players
```

#Vizualize the new matrices

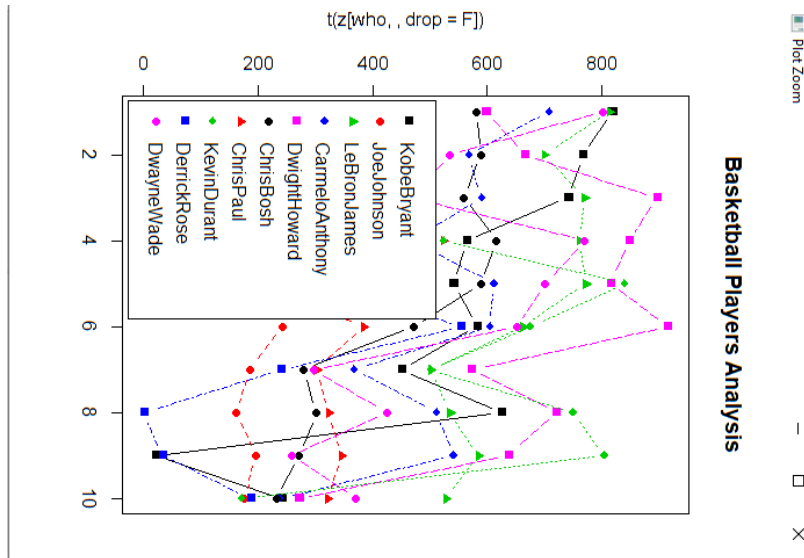
```
#visualize the new matrices
myplot(FreeThrows)
myplot(FreeThrowsAttempts)
```

#Part 1 - Free Throw Attempts Per Game

```
> myplot(FreeThrows)
> myplot(FreeThrowsAttempts)
> |
```

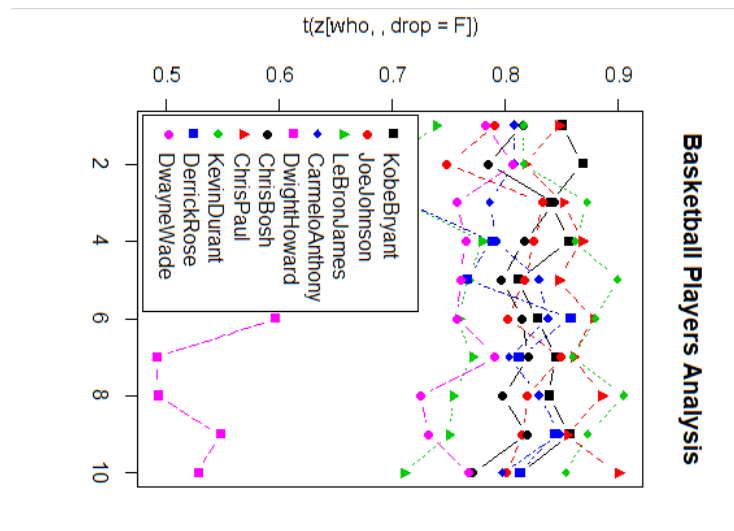
```
#1 - Free Throw Attempts Per Game
myplot (FreeThrowsAttempts / Games)
```

```
-- .
```



#Part 2 - Free Throw Accuracy

```
#2 - Free Throw Accuracy
myplot (FreeThrows / FreeThrowsAttempts)
```



#Part 3 - Player Style Patterns Excluding Free Throws

```
#3 - Player Style Patterns Excluding Free Throws
myplot ((Points-FreeThrows) / FieldGoals)
```

```
> #3 - Player Style Patterns Excluding Free Throws
> myplot ((Points-FreeThrows) / FieldGoals)
> |
```



Basketball Players Analysis

