getwd()

setwd("/Users/devottambhattacharya/Documents/IPL data/IPL Bowlers")

a <- read.csv("bowler\_dump\_2008.csv")

b <- read.csv("bowler\_dump\_2009.csv")

c <- read.csv("bowler\_dump\_2010.csv")

d <- read.csv("bowler\_dump\_2012.csv")

e <- read.csv("bowler\_dump\_2013.csv")

f <- read.csv("bowler\_dump\_2014.csv")

g <- read.csv("bowler\_dump\_2015.csv")

h <- read.csv("bowler\_dump\_2016.csv")

i <- read.csv("bowler\_dump\_2017.csv")

new <- read.csv("bowler\_dump\_2018 latest.csv")

install.packages("forecast")

head(g)

head(a)

par(mfrow=c(1,1))

j <- rbind(a,b,c,d,e,f,g,h,i,new)

j

y <- 3

install.packages("ggplot2")

library(ggplot2)

#j$points <- (j$W \* 10) + (j$M \* 4) + if(j$Econ < 4,3, else(j$Econ > 4 | j$Econ <5, 2, else(j$Econ>5 | j$Econ <6, 1,0)))

j$Econ <- double(j$Econ)

str(j$Econ)

j$points <- ifelse(j$Econ < 4,3,

ifelse(j$Econ > 4 & j$Econ < 5 , 2, ifelse(j$Econ > 5 & j$Econ < 6,1,0)))

j$Econ <- as.numeric(j$Econ)

which(is.na(j$Econ))

j[!complete.cases(j),]

j <- j[!is.na(j$Econ),]

which(is.na(j))

j$points <- j$M\*4 +j$W \* 10+ifelse(j$Econ < 4,3,

ifelse(j$Econ > 4 & j$Econ < 5 , 2, ifelse(j$Econ > 5 & j$Econ < 6,1,ifelse(j$Econ>9 & j$Econ<10, -1, ifelse(j$Econ>10 & j$Econ<11, -2, ifelse(j$Econ>11, -3, 0)))))) + ifelse(j$W==4,4,ifelse(j$W==5,5,0))

data\_bowl <- j[c(3,14)]

data\_bowl

#Functions for time series plotting

col\_add <- function(Name, row){

Name <- cbind(data.frame(seq(1,row,1)), Name)

colnames(Name)[1] <- "seq"

return(as.data.frame(Name))

}

plot\_add <- function(Name){

ggplot(data = Name, aes(x=seq, y= points)) + geom\_point() + geom\_line()+stat\_smooth()

}

Predict <- function(Name){

Point\_forecasts <- HoltWinters(Name$points, beta = F, gamma = F)

Point\_forecasts

Point\_forecasts\_value <- forecast(Point\_forecasts, h=1)

Point\_forecasts\_value

}

Fitted <- function(name){

plot.ts(name$points)

lines(HoltWinters(name$points, gamma=F)$fitted[,2], col = "red")

}

#Alphabetical order

Names\_bowl <-data.frame(levels(data\_bowl$Bowling))

Names\_bowl

Alphabetical\_names\_bowler <- with(Names\_bowl, Names\_bowl[order(Names\_bowl$levels.data\_bowl.Bowling.),])

Alphabetical\_names\_bowler <- data.frame(Alphabetical\_names\_bowler)

Alphabetical\_names\_bowler

#Bumrah

Bumrah <- data\_bowl[data\_bowl$Bowling=="JJ Bumrah",]

Bumrah

Bumrah <- col\_add(Bumrah,57)

plot\_add(Bumrah)

Predict(Bumrah)

Fitted(Bumrah)

#SP Narine

Narine\_bowl <- data\_bowl[data\_bowl$Bowling=="SP Narine",]

Narine\_bowl <- col\_add(Narine, 91)

plot\_add(Narine)

Predict(Narine)

Fitted(Narine)

#Rashid Khan

Rashid <- data\_bowl[data\_bowl$Bowling=="Rashid Khan",]

hist(Rashid$points)

Predict(Rashid)

Rashid <- col\_add(Rashid, 23)

Rashid

plot\_add(Rashid)

Fitted(Rashid)

#Rahman

Rahman<- data\_bowl[data\_bowl$Bowling=="Mustafizur Rahman",]

hist(Rahman$points)

Rahman <- col\_add(Rahman,23)

plot\_add(Rahman)

Predict(Rahman)

Fitted(Rahman)

#Kumar

Kumar <- data\_bowl[data\_bowl$Bowling=="B Kumar",]

hist(Kumar$points)

Kumar <- col\_add(Kumar, 91)

plot\_add(Kumar)

Predict(Kumar)

#Mitchell McClenaghan

McClenaghan <- j[j$Bowling=="MJ McClenaghan",]

hist(McClenaghan$points)

McClenaghan <- col\_add(McClenaghan,40)

plot\_add(McClenaghan)

#Washington Sundar

Washington <- data\_bowl[data\_bowl$Bowling=="Washington Sundar",]

hist(Washington$points)

Washington <- col\_add(Washington, 17)

plot\_add(Washington)

Predict(Washington)

#Billy Stanlake

Stanlake <- j[j$Bowling=="B Stanlake",]

#Mayank Markande

Markande <- j[j$Bowling=="M Markande",]

#YS Chahal

Chahal <- data\_bowl[data\_bowl$Bowling=="YS Chahal",]

Chahal <- col\_add(Chahal,64)

plot\_add(Chahal)

Predict(Chahal)

#Imran Tahir

Tahir <- j[j$Bowling=="Imran Tahir",]

Tahir <- col\_add(Tahir, 32)

plot\_add(Tahir)

#Mohammed Shami

Shami <- data\_bowl[data\_bowl$Bowling=="Mohammed Shami",]

Shami <- col\_add(Shami, 35)

plot\_add(Shami)

Predict(Shami)

Fitted(Shami)

#Harbhajan Singh

Harbhajan <- j[j$Bowling=="Harbhajan Singh",]

Harbhajan <- col\_add(Harbhajan, 114)

plot\_add(Harbhajan)

#SN Thakur

Thakur <- j[j$Bowling=="SN Thakur",]

Thakur <- col\_add(Thakur, 17)

plot\_add(Thakur)

#Umesh Yadav

Umesh <- data\_bowl[data\_bowl$Bowling=="UT Yadav",]

Umesh <- col\_add(Umesh, 93)

plot\_add(Umesh)

Predict(Umesh)

#Shakib Al Hasan

Shakib\_bowl <- data\_bowl[data\_bowl$Bowling=="Shakib Al Hasan",]

Shakib\_bowl <- col\_add(Shakib\_bowl, 44)

plot\_add(Shakib\_bowl)

Predict(Shakib\_bowl)

#Y K Pathan

Y\_Pathan\_bowl <- data\_bowl[data\_bowl$Bowling=="YK Pathan",]

Y\_Pathan\_bowl <- col\_add(Y\_Pathan\_bowl, 61)

plot\_add(Y\_Pathan\_bowl)

Predict(Y\_Pathan\_bowl)

#SL Malinga

library(forecast)

Malinga <- j[j$Bowling=="SL Malinga",]

Malinga <- col\_add(Malinga, 88)

plot\_add(Malinga)

Malinga\_forecasts <- HoltWinters(Malinga$points, beta = F, gamma = F)

Malinga\_forecasts

Malinga\_forecasts\_value <- forecast(Malinga\_forecasts, h=2)

Malinga\_forecasts\_value

coef(Malinga\_forecasts)

plot(Malinga\_forecasts)

Malinga\_ts <- ts(Malinga$points, start = c(1))

plot.ts(x=Malinga\_ts)

#Mitchell Johnson

Mitchell <- data\_bowl[data\_bowl$Bowling=="MG Johnson",]

Mitchell <- col\_add(Mitchell, 50)

plot\_add(Mitchell)

Predict(Mitchell)

Fitted(Mitchell)

#Piyush Chawla

Alphabetical\_names\_bowler

Piyush <- data\_bowl[data\_bowl$Bowling=="PP Chawla",]

Piyush <- col\_add(Piyush, 115)

plot\_add(Piyush)

Predict(Piyush)

Fitted(Piyush)

#Andre Russel

Russel\_bowl <- data\_bowl[data\_bowl$Bowling=="AD Russell",]

Russel\_bowl <- col\_add(Russel\_bowl, 39)

plot\_add(Russel\_bowl)

Predict(Russel\_bowl)

Fitted(Russel\_bowl)

#Kuldeep yadav

Kuldeep <- data\_bowl[data\_bowl$Bowling=="Kuldeep Yadav",]

Kuldeep <- col\_add(Kuldeep, 20)

plot\_add(Kuldeep)

Predict(Kuldeep)

Fitted(Kuldeep)

#Daniel Christian

DTChristian\_bowl <- data\_bowl[data\_bowl$Bowling=="DT Christian",]

DTChristian\_bowl <- col\_add(DTChristian\_bowl, 25)

plot\_add(DTChristian\_bowl)

Predict(DTChristian\_bowl)

Fitted(DTChristian\_bowl)

#Glen Maxwell

Maxwell\_bowl <- data\_bowl[data\_bowl$Bowling=="GJ Maxwell",]

Maxwell\_bowl <- col\_add(Maxwell\_bowl, 36)

plot\_add(Maxwell\_bowl)

Predict(Maxwell\_bowl)

Fitted(Maxwell\_bowl)

#Trent Boult

Trent <- data\_bowl[data\_bowl$Bowling=="TA Boult",]

Trent <- col\_add(Trent, 20)

plot\_add(Trent)

Predict(Trent)

Fitted(Trent)

#Shahbaz Nadeem

Nadeem <- data\_bowl[data\_bowl$Bowling=="S Nadeem",]

Nadeem <- col\_add(Nadeem, 52)

plot\_add(Nadeem)

Predict(Nadeem)

Fitted(Nadeem)

#Rahul Tewatia

Tewatia <- data\_bowl[data\_bowl$Bowling=="R Tewatia",]

Tewatia <- col\_add(Tewatia, 13)

plot\_add(Tewatia)

Predict(Tewatia)

#Chris Morris

Morris\_bowl <- data\_bowl[data\_bowl$Bowling=="CH Morris",]

Morris\_bowl <- col\_add(Morris\_bowl, 52)

plot\_add(Morris\_bowl)

Predict(Morris\_bowl)

Fitted(Morris\_bowl)

#S Sharma

Alphabetical\_names\_bowler

data\_bowl

S\_Sharma <- data\_bowl[data\_bowl$Bowling=="Sandeep Sharma",]

S\_Sharma <- col\_add(S\_Sharma, 61)

plot\_add(S\_Sharma)

Predict(S\_Sharma)

#S Kaul

Kaul <- data\_bowl[data\_bowl$Bowling=="S Kaul",]

Kaul <- col\_add(Kaul, 30)

plot\_add(Kaul)

Predict(Kaul)

#M Siraj

Siraj <- data\_bowl[data\_bowl$Bowling=="Mohammed Siraj",]

Alphabetical\_names\_bowler

Siraj <- col\_add(Siraj, 12)

plot\_add(Siraj)

Predict(Siraj)

#Basil Thampi

Thampi <- data\_bowl[data\_bowl$Bowling=="Basil Thampi",]

Alphabetical\_names\_bowler

Thampi <- col\_add(Thampi, 15)

plot\_add(Thampi)

Predict(Thampi)

#Tim Southee

Southee <- data\_bowl[data\_bowl$Bowling=="TG Southee",]

Alphabetical\_names\_bowler

Southee <- col\_add(Southee, 27)

plot\_add(Southee)

Predict(Southee)

#Grandhomme

Grandhomme\_bowl <- data\_bowl[data\_bowl$Bowling=="C de Grandhomme",]

Grandhomme\_bowl <- col\_add(Grandhomme\_bowl, 11)

plot\_add(Grandhomme\_bowl)

Predict(Grandhomme\_bowl)

#M Ashwin

M\_Ashwin <- data\_bowl[data\_bowl$Bowling=="M Ashwin",]

M\_Ashwin <- col\_add(M\_Ashwin, 12)

Predict(M\_Ashwin)