**[SELECTED DESCRIPTIVE AND INFERENTIAL STATISTICS IN R FOR UNDERGRADUATE PROJECT](https://www.meetup.com/fedpofa-r-users-group/events/293393837/)**

BEING A PRACTICAL AND DEMONSTRATION SESSSION HELD ON THURSDAY, 18TH MAY, 2023 AT STATISTICS DEPARTMENT, THE FEDERAL POLYTECHNIC **OFFA**

**BY**

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**# Descriptives Statistics simulation**

x=rnorm(100)

mean(x)

var(x)

sd(x)

median(x)

summary(x)

barplot(x)

hist(x)

qqnorm(x)

boxplot(x)

dotchart(x)

**#Real life data**

x=c(1,3,5,6,7,8,9,3,2,4)

y=c(2,3,5,6,7,8,4,3,2,1)

z=c(2,3,4,1,2,5,6,7,8,9)

boxplot(x,y,z)

boxplot(x,y,z,horizontal=T)

boxplot(x,y,z,horizontal=T,names=c("A","B","C"))

boxplot(x,y,z,horizontal=T,names=c("A","B","C"),col=c("red","black","blue"))

par(mfrow=c(2,2))

barplot(x,y,z)

hist(x)

**# Inferential Statistics**

**# chi sqaure**

data <- matrix(c(100, 70, 20, 90, 75, 25), ncol=3, byrow=TRUE)

colnames(data) <- c("Rep","Dem","Ind")

rownames(data) <- c("Male","Female")

data <- as.table(data)

data

chisq.test(data)

**# one sample t.test**

daily.sales=c(5260,5470,5640,6180,6390,6515,6805,7515,7515,8230,8770)

mean(daily.sales)

sd(daily.sales)

quantile(daily.sales)

t.test(daily.sales)

t.test(daily.sales,mu=7000)

**# Two sample**

dat=read.csv("hnd.csv")

View(dat)

attach(dat)

dat

t.test(student~sex)

t.test(exp~time,var.equal=T

var.test(exp~time,var.equal=T)

**# Paired sample t-test**

t.test(pre,post,paired=T)

**# Regression**

x1=runif(50,2,3)

x2=rnorm(50,4,1)

y=2\*x1+x2

dat=data.frame(y,x1,x2)

reg=lm(y~x1+x2,dat)

summary(reg)

plot(y,x1)

abline(lm(y~x1))

predict(reg)

anova(lm(y~x1))

**# correlation**

x1=rnorm(100,2,1)

x2=rnorm(100,2,4)

cor.test(x1,x2)

cor.test(x1,x2,method="spearman")

cor.test(x1,x2,method="kendall")

**# One way ANOVA**

x1=runif(50,2,3)

y=2\*x1+x2

anova(lm(y~x1))

**# two way ANOVA**

heart.rate=data.frame(hr=c(96,110,89,95,128,100,72,79,100,

92,106,86,78,124, 98,68,75,106,

86,108,85,78,118,100,67,74,104,

92,114,83,83,118,94,71,74,102),

subj=gl(9,1,36),

time=gl(4,9,36,labels=c(0,30,60,120)))

anova(lm(hr~subj+time))

gl(9,1,36)

gl(4,9,36,labels=c(0,30,60,120))

**# Two way Anova**

x1=runif(50,2,3)

x2=rnorm(50,4,1)

y=2\*x1+x2

dat=data.frame(y,x1,x2)

reg=lm(y~x1+x2,dat)

anova(lm(y~x1+x2,dat))

**# Two way Anova with replication**

x1=runif(50,2,3)

x2=rnorm(50,4,1)

y=2\*x1+x2

dat=data.frame(y,x1,x2)

reg=lm(y~x1\*x2,dat)

anova(lm(y~x1\*x2,dat))

**# Time series**

Infla=ts(c(13.8,15.7,3.2,5.4,13.2,34.4,23.7,15.6,16.6),start= c(1970,1))

plot(Infla)

acf(Infla)

pacf(Infla)

library(tseries)

adf.test(Infla)

adf.test(diff(Infla))

**# Moving average**

InflaSMA2<-SMA(Infla, n=2)

InflaSMA2

plot(InflaSMA2)

dat=read.csv("kay.csv")

dat2=write.csv(dat,"jm.csv")

YOU ALL HAVE DONE WONDERFULLY WELL

IT HAS BEEN NICE BEING WITH YOU

KEEP IT UP