#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#

# Statistical analysis of Academic Performance of Students #

# coming from different Backgrounds in IIT Bombay #

# As Course Project in #

# BM602: Biostatistics #

# Performed By: Pinaki Dey, Praveen Kumar, Hitendra Sahu and Durga Kumari #

# Code Developed By: Pinaki Dey #

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#Source of data

datafilename="C://Data.txt"

#Reading the data into a table

data.ex1=read.table(datafilename,header=T)

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#

# Performing 1-way ANOVA to determine the role of \*Stream in UG\* on Student's Academic Performances in PG #

#Doing the ANOVA-1

aov.ex1 = aov(PG\_CPI~UGStream,data=data.ex1)

#Showing the summary table

summary(aov.ex1)

#Report the means and the number of subjects/cell

print(model.tables(aov.ex1,"means"),digits=10)

#Graphical summary

boxplot(PG\_CPI~UGStream,data=data.ex1)

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#

# Performing 1-way ANOVA to determine the role of \*UG University status\* on Student's Academic Performances in PG #

#Doing the ANOVA-1

aov.ex1 = aov(PG\_CPI~Utype,data=data.ex1)

#Showing the summary table

summary(aov.ex1)

#Report the means and the number of subjects/cell

print(model.tables(aov.ex1,"means"),digits=10)

#Graphical summary

boxplot(PG\_CPI~Utype,data=data.ex1)

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#

# Performing 1-way ANOVA to determine the role of \*Gender\* on Student's Academic Performances in PG #

#Doing the ANOVA-1

aov.ex1 = aov(PG\_CPI~Gender,data=data.ex1)

#Showing the summary table

summary(aov.ex1)

#Report the means and the number of subjects/cell

print(model.tables(aov.ex1,"means"),digits=10)

#Graphical summary

boxplot(PG\_CPI~Gender,data=data.ex1)

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#

# Performing 2-way ANOVA to find if the \*GATE percentile and UG\_CPI\* can really predict a Student's Academic Performances in PG #

#Doing the ANOVA-2

aov.ex2 = aov(PG\_CPI~GATE\_Class\*UG\_CPI\_Class,data=data.ex1)

#Showing the summary table

summary(aov.ex2)

#Report the means and the number of subjects/cell

print(model.tables(aov.ex2,"means"),digits=10)

#Graphical summary

boxplot(PG\_CPI~GATE\_Class\*UG\_CPI\_Class,data=data.ex1)

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#

# Performing 2-way ANOVA to determine the combined effect of \*Gender and UG-Stream\* on Student's Academic Performances in PG #

#Doing the ANOVA-2

aov.ex2 = aov(PG\_CPI~Gender\*UGStream,data=data.ex1)

#Showing the summary table

summary(aov.ex2)

#Report the means and the number of subjects/cell

print(model.tables(aov.ex2,"means"),digits=10)

#Graphical summary

boxplot(PG\_CPI~Gender\*UGStream,data=data.ex1)

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#

# Performing 2-way ANOVA to determine the combined effect of \*Gender and UG-University status\* on Student's Academic Performances in PG #

#Doing the ANOVA-2

aov.ex2 = aov(PG\_CPI~Gender\*Utype,data=data.ex1)

#Showing the summary table

summary(aov.ex2)

#Report the means and the number of subjects/cell

print(model.tables(aov.ex2,"means"),digits=10)

#Graphical summary

boxplot(PG\_CPI~Gender\*Utype,data=data.ex1)

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#

# Performing 2-way ANOVA to determine the combined effect of \*Gender and PG\_CPI\* on Student's Satisfaction level in PG #

#Doing the ANOVA-2

aov.ex2 = aov(S\_index~Gender\*PG\_CPI\_Class,data=data.ex1)

#Showing the summary table

summary(aov.ex2)

#Report the means and the number of subjects/cell

print(model.tables(aov.ex2,"means"),digits=10)

#Graphical summary

boxplot(S\_index~Gender\*PG\_CPI\_Class,data=data.ex1)

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#

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# Regression Analysis #

# Code Developed By: Praveen Kumar & Hitendra Sahu #

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#

attach(data.ex1)

plot(UG\_CPI, PG\_CPI)

abline(lm(UG\_CPI~PG\_CPI))

summary(data.ex1['UG\_CPI'])

summary(data.ex1['PG\_CPI'])

plot(GATE, PG\_CPI)

abline(lm(GATE~PG\_CPI))

summary(data.ex1['GATE'])

summary(data.ex1['PG\_CPI'])

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#