**Plotting bar and line graphs in R**

1. Create a data frame with two column as:

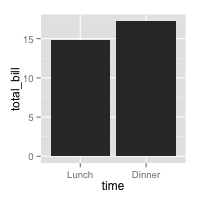
time total\_bill

Lunch 14.89

Dinner 17.23

Then use and write functions to draw four graphs, respectively. (30 points)

(a)



#**Creation of dataframe:**

library(ggplot2)

time <- c("Lunch", "Dinner")

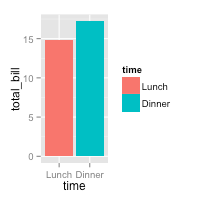
total\_bill <- c(14.89,17.23)

Bill <- data.frame(time, total\_bill)

#Bill

ggplot(Bill, aes(x=time,y=total\_bill)) + geom\_bar(stat="identity")

(b)



library(ggplot2)

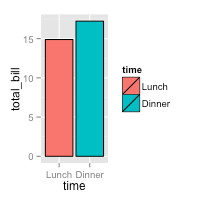
time <- c( "Dinner","Lunch" )

total\_bill <- c(17.23,14.89 )

Bill <- data.frame(time, total\_bill )

ggplot(Bill,aes(x=time, y=total\_bill, fill=time)) + geom\_bar(stat="identity", **position="dodge")**

(c)



library(ggplot2)

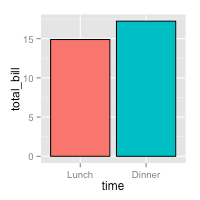
time <- c( "Lunch","Dinner" )

total\_bill <- c(14.89,17.23 )

Bill <- data.frame(time, total\_bill )

ggplot(Bill,aes(x=time,y=total\_bill,fill=time))+geom\_bar(**colour="black",**stat="identity")

(d)



library(ggplot2)

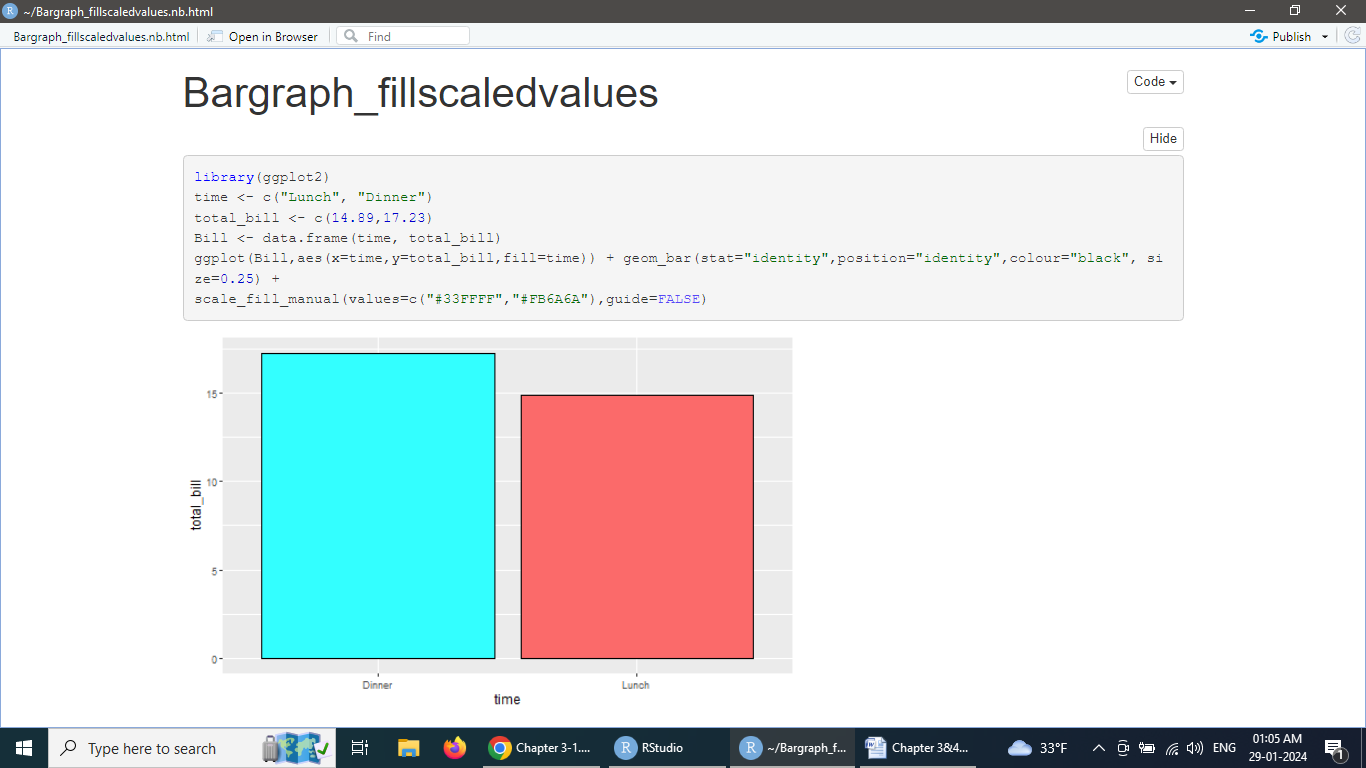
time <- c("Lunch", "Dinner")

total\_bill <- c(14.89,17.23)

Bill <- data.frame(time, total\_bill)

ggplot(Bill,aes(x=time,y=total\_bill,fill=time)) + geom\_bar(stat="identity",position="identity",colour="black", size=0.25) +

scale\_fill\_manual(values=c("#33FFFF","#FB6A6A"),**guide=FALSE**)



1. Create a data frame with three column as:

| sex | time | total\_bill |
| --- | --- | --- |
| Female | Lunch | 13.53 |
| Female | Dinner | 16.81 |
| Male | Lunch | 16.24 |
| Male | Dinner | 17.42 |

Then use and write functions to draw four graphs, respectively. (30 points)

(a)

library(ggplot2)

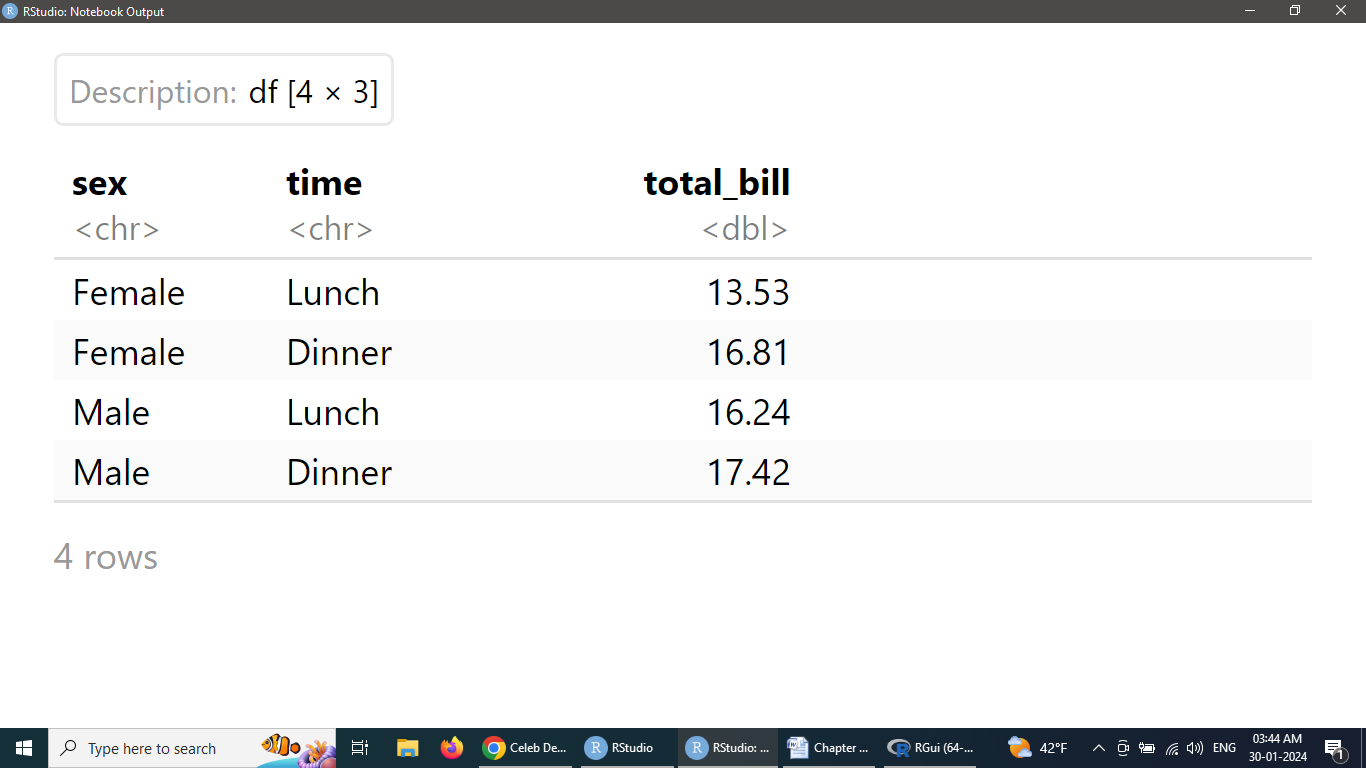
sex <- c("Female", "Female", “Male”,”Male”)

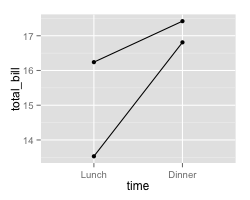
time <- c(“Lunch”,”Dinner”,”Lunch”,”Dinner”)

total\_bill <- c(13.53,16.81,16.24,17.42)

Bill <- data.frame(sex,time, total\_bill)

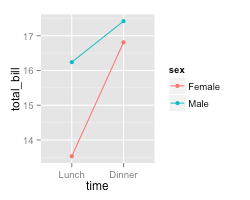
#Bill





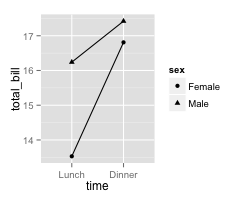
ggplot(Bill,aes(x=time,y=total\_bill,**group=sex**)) +geom\_line(size=1) + geom\_point(size=2)

(b)



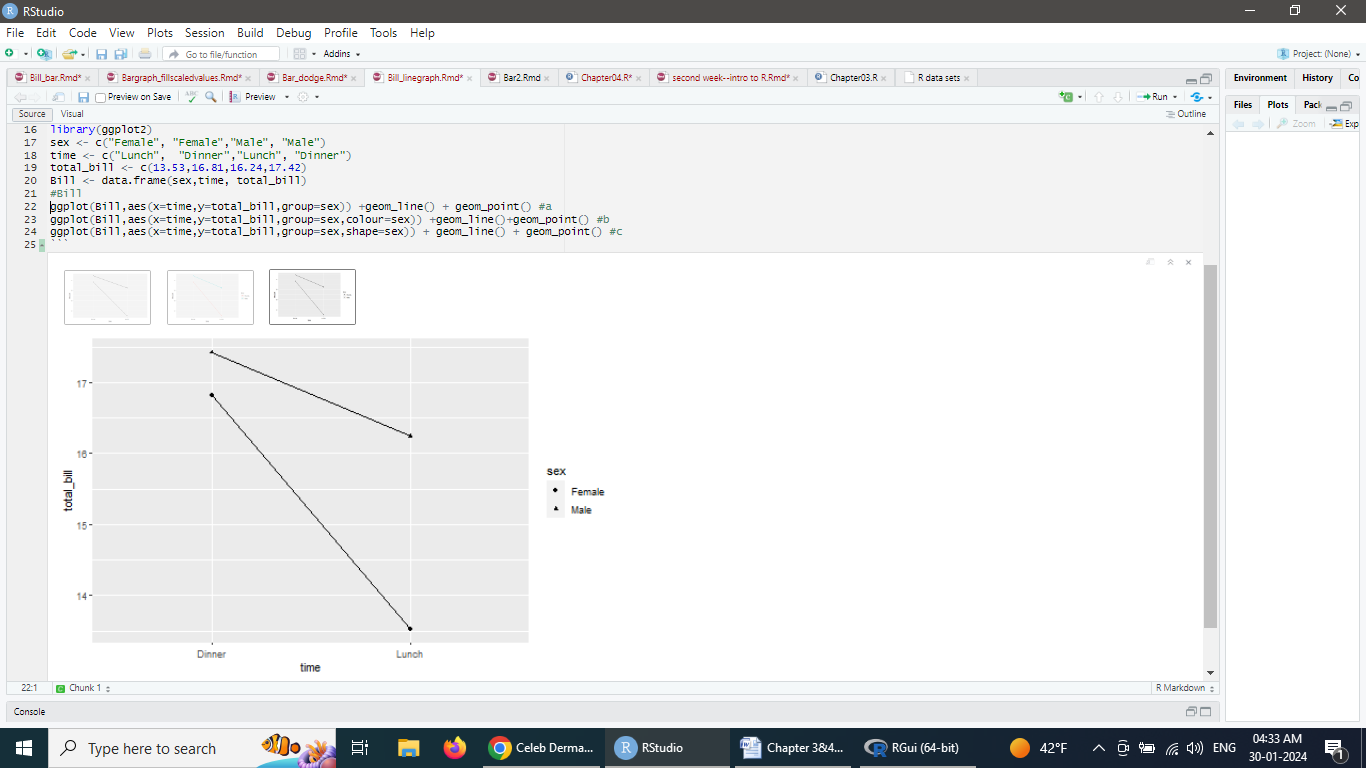
ggplot(Bill, aes(x=time, y=total\_bill, group=sex, **colour=sex**)) +geom\_line(size=1) +geom\_point(size=2) #b

(c)



ggplot(Bill, aes(x=time, y=total\_bill, group=sex, **shape=sex**)) + geom\_line() + geom\_point()

Executed result of above three codes:



1. Use the data frame ToothGrowth to draw three graphs, respectively. (40 points)

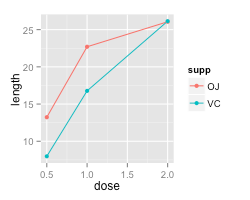
install.packages("plyr")

library(ggplot2)

library(plyr)

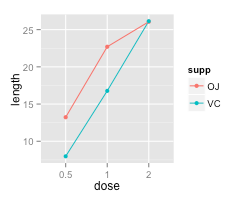
tg <-ddply(ToothGrowth,c("supp", "dose"),summarise,length=mean(len))

(a)



ggplot(tg, aes(x=dose, y=length, **colour =supp**)) + geom\_line(size=1) + geom\_point(size=2)#a

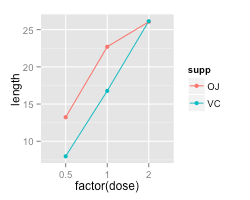
(b)



**tg1<- tg**

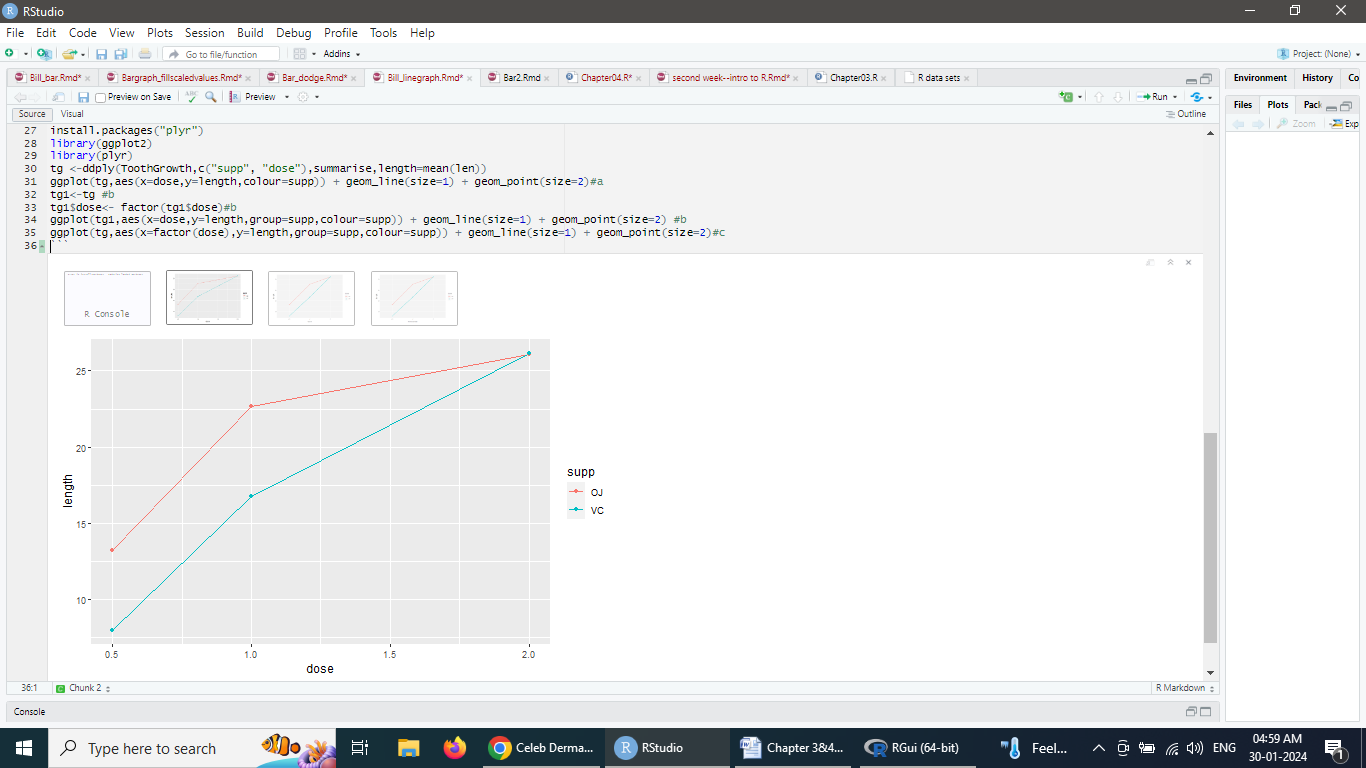
**tg1$dose<- factor(tg1$dose)**

ggplot(tg1,aes(x=dose, y=length, group=supp, colour=supp)) + geom\_line(size=1) + geom\_point(size=2)

(c)

ggplot(tg, aes(**x=factor(dose**), y=length, group=supp, colour=supp)) + geom\_line(size=1) + geom\_point(size=2) #c

**Execution of the above codes and their results:**



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