Assignment-Chapter 3&4 (100 points)

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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)

library(gcookbook)

library(ggplot2)

total\_bill <- c(14.89,17.23)

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

factored\_time = factor(time, levels = time)

table <- data.frame(factored\_time, total\_bill)

colnames(table) = c("time", "total\_bill")

#A. Basic Plot

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

#B. Add Color

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

#C. Create boarder

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

#D. Remove Legend

ggplot(table, aes(x=time, y=total\_bill, fill=time)) + geom\_bar(stat = "identity", position = "dodge", colour = "black") + theme(legend.position="none")

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)

library(gcookbook)

library(ggplot2)

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

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

factored\_sex = factor(sex, levels = c("Female","Male"))

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

factored\_time = factor(time, levels = c("Lunch","Dinner"))

table <- data.frame(factored\_sex, factored\_time, total\_bill)

colnames(table) = c("sex", "time", "total\_bill")

#A. Basic Plot

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

#B. Add Color

ggplot(table, aes(x=time, y=total\_bill, group=sex, colour=sex)) + geom\_point() +geom\_line()

#C. Add Shape. Remove Color.

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

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

library(plyr)

types = c("supp", "dose")

tooth\_growth <- ddply(ToothGrowth, types, summarise, length = mean(len))

#A. Scale 0.5 from 0.5 to 2

ggplot(tooth\_growth, aes(x=dose, y=length, color=supp)) + geom\_line() + geom\_point()

#B. Scale 0.5, 1, 2

ggplot(tooth\_growth, aes(x=factor(dose), y=length, colour=supp, group=supp, xlab="dose")) + geom\_line() + geom\_point()

#C. Factor dose

ggplot(tooth\_growth, aes(x=factor(dose), y=length, colour=supp, group=supp)) + geom\_line() + geom\_point() + labs(x = "dose")