Data Visualization Homework 4

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Problem 1

Please write down two ways to set the range of an axis in a plot. (4 points)

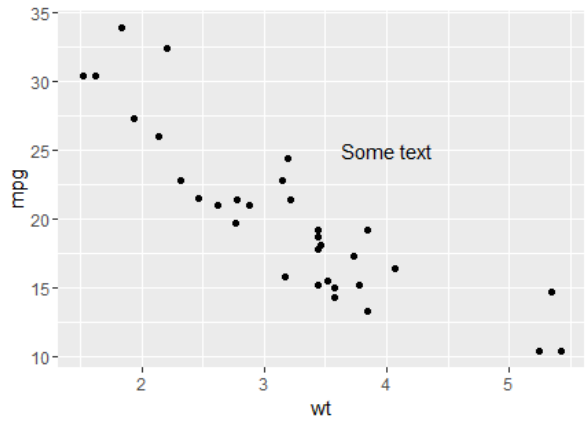
```
g + xlim(3,4) + ylim(5,6)
%% or
g + scale_x_continuous(limits = c(3,4)) + scale_y_discrete(limits= c(5,6))
```

Problem 2

Use the mtcars data frame to draw four graphs, respectively. Write down the used functions in ggplot2 (30 points)

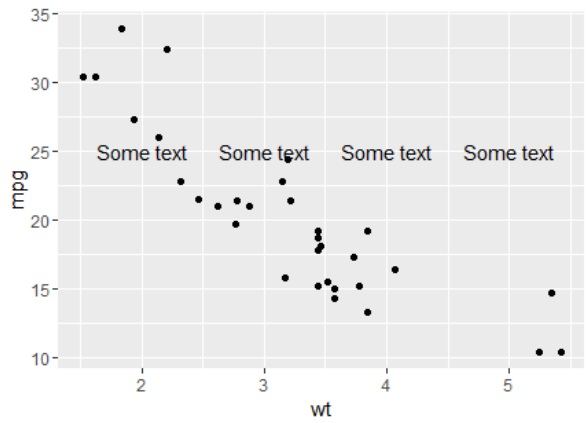
(**a**)

```
library(gcookbook)
df <- mtcars
g <- ggplot(df, aes(x=wt,y=mpg))
g + geom_point() + annotate("text", label="Some text", x=4, y=25)
```



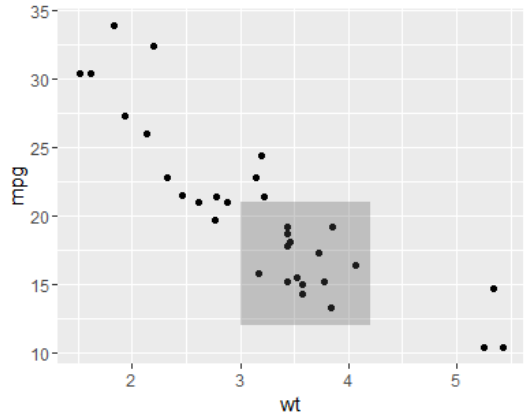
(**b**)

```
g + geom_point() + annotate("text", label="Some text", x=c(2,3,4,5), y=25)
```



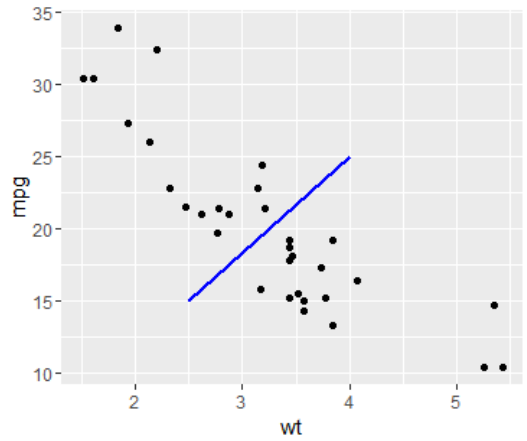
(c)

```
g + geom_point() + annotate("rect", xmin=3, xmax=4.2, ymin=12 ,ymax=21, alpha=.3)
```



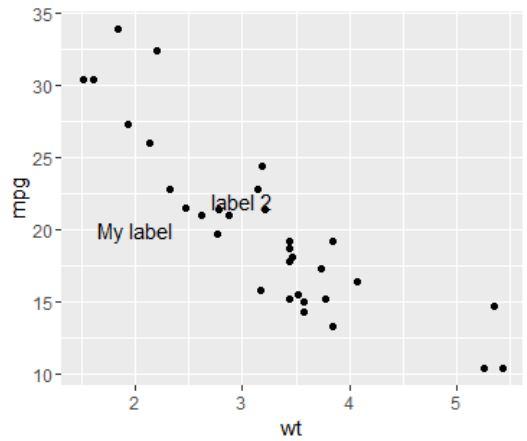
(d)

```
g + geom_point() + annotate("segment", x=2.5, xend=4, y=15, yend=25, color="blue", si
```



(e)

```
g + geom_point() + annotate("text", label="My label", x=2, y=20) + annotate("text", l
```

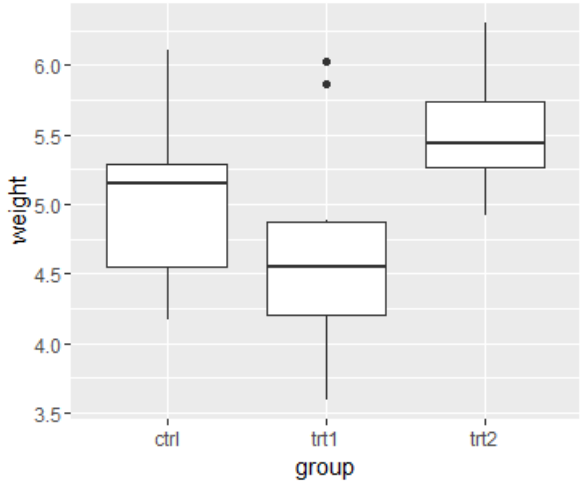


Problem 3

Use data frame PlantGrowth and write functions to draw graphs, respectively. (30 points)

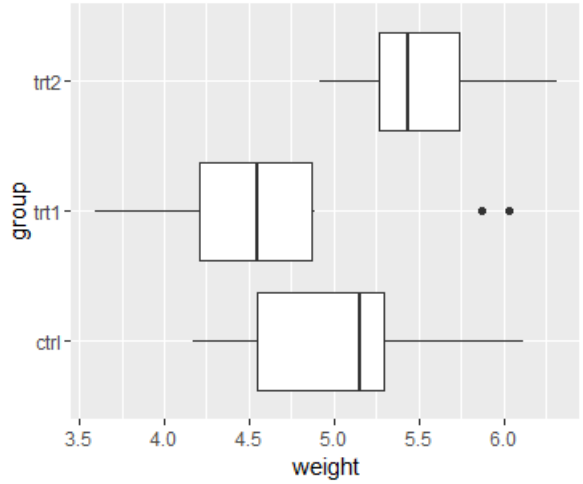
(**a**)

```
p <- ggplot(PlantGrowth, aes(x=group, y=weight)) + geom_boxplot()
```



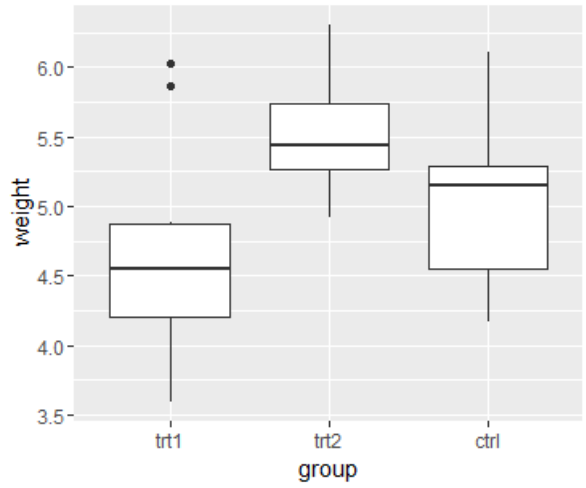
(**b**)

```
p + coord_flip()
```



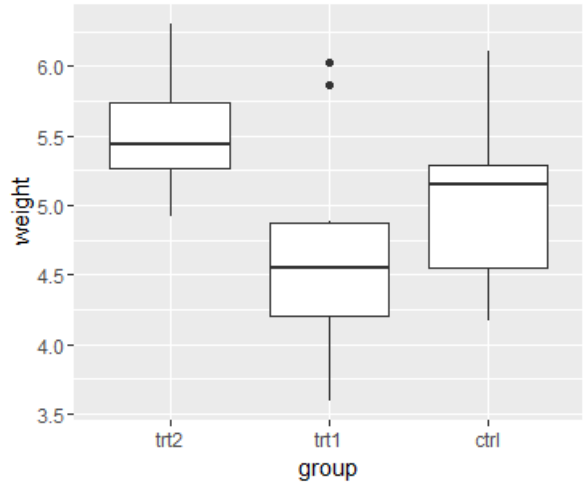
(**c**)

```
p + scale_x_discrete(limits= c("trt1", "trt2", "ctrl"))
```



(**d**)

```
p + scale_x_discrete(limits= rev(levels(PlantGrowth$group)))
```

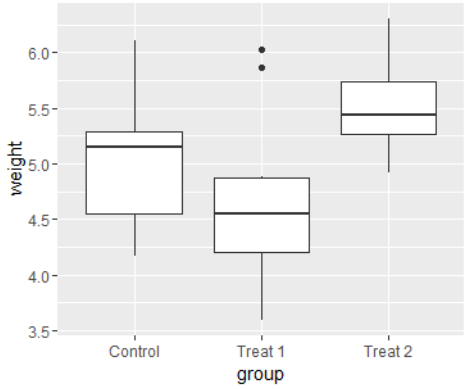


Problem 4

Following the same data frame PlantGrowth, and use and write functions to draw the following graphs, respectively. (18 points)

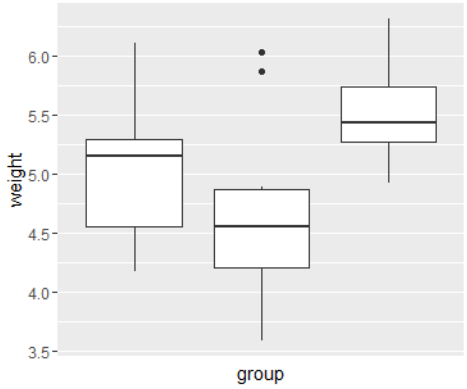
(**a**)

```
p + scale_x_discrete(labels= c("Control", "Treat 1", "Treat 2"))
```



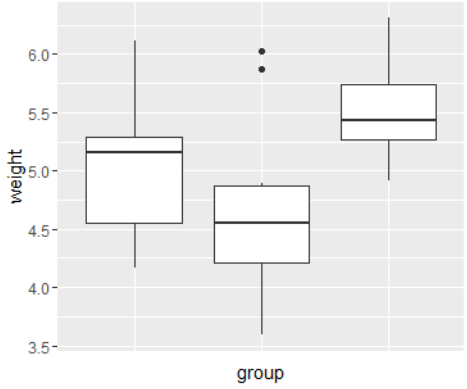
(**b**)

```
p + scale_x_discrete(labels= NULL, breaks= NULL)
```



(**c**)

```
p + theme(axis.text.x=element_blank(), axis.ticks.x=element_blank())
```

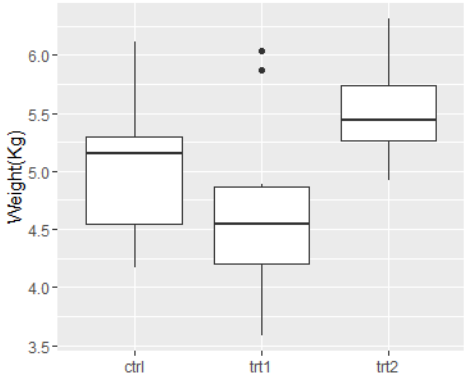


Problem 5

Following the same data frame PlantGrowth, and use and write functions to draw the following graphs, respectively. (18 points)

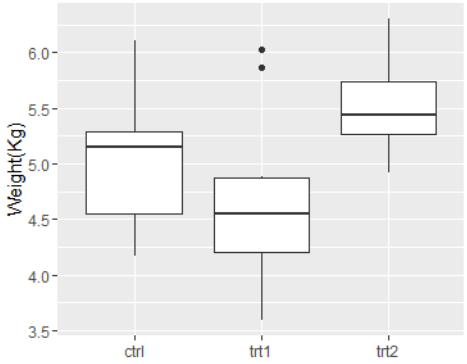
(**a**)

```
p + labs(y="Weight(Kg)", x=element_blank())
```



(**b**)

```
p + ylab("Weight(Kg)") + xlab("")
```



(**c**)

```
p + theme(axis.title.x=element_text(face = "bold", color = "maroon", size = 20))
```