R Notebook

```
#Arjun Bhan
library(MASS)
library(RColorBrewer)
library(ggridges)
library(ggplot2)
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.0 --
```

```
## v tibble  3.0.6     v dplyr   1.0.4
## v tidyr   1.1.2     v stringr 1.4.0
## v readr   1.4.0     v forcats 0.5.1
## v purrr   0.3.4
```

```
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## x dplyr::select() masks MASS::select()
```

```
anorexia
```

	Treat <fct>	Prewt <dbl>	Postwt <dbl>
1	Cont	80.7	80.2
2	Cont	89.4	80.1
3	Cont	91.8	86.4
4	Cont	74.0	86.3
5	Cont	78.1	76.1
6	Cont	88.3	78.1
7	Cont	87.3	75.1
8	Cont	75.1	86.7
9	Cont	80.6	73.5
10	Cont	78.4	84.6

1-10 of 72 rows Previous **1** 2 3 4 5 6 … 8 Next

```
summary(anorexia)
```

```
##   Treat        Prewt           Postwt
##  CBT :29   Min.   :70.00   Min.   : 71.30
##  Cont:26   1st Qu.:79.60   1st Qu.: 79.33
##  FT  :17   Median :82.30   Median : 84.05
##            Mean   :82.41   Mean   : 85.17
##            3rd Qu.:86.00   3rd Qu.: 91.55
##            Max.   :94.90   Max.   :103.60
```

```
structure(anorexia)
```

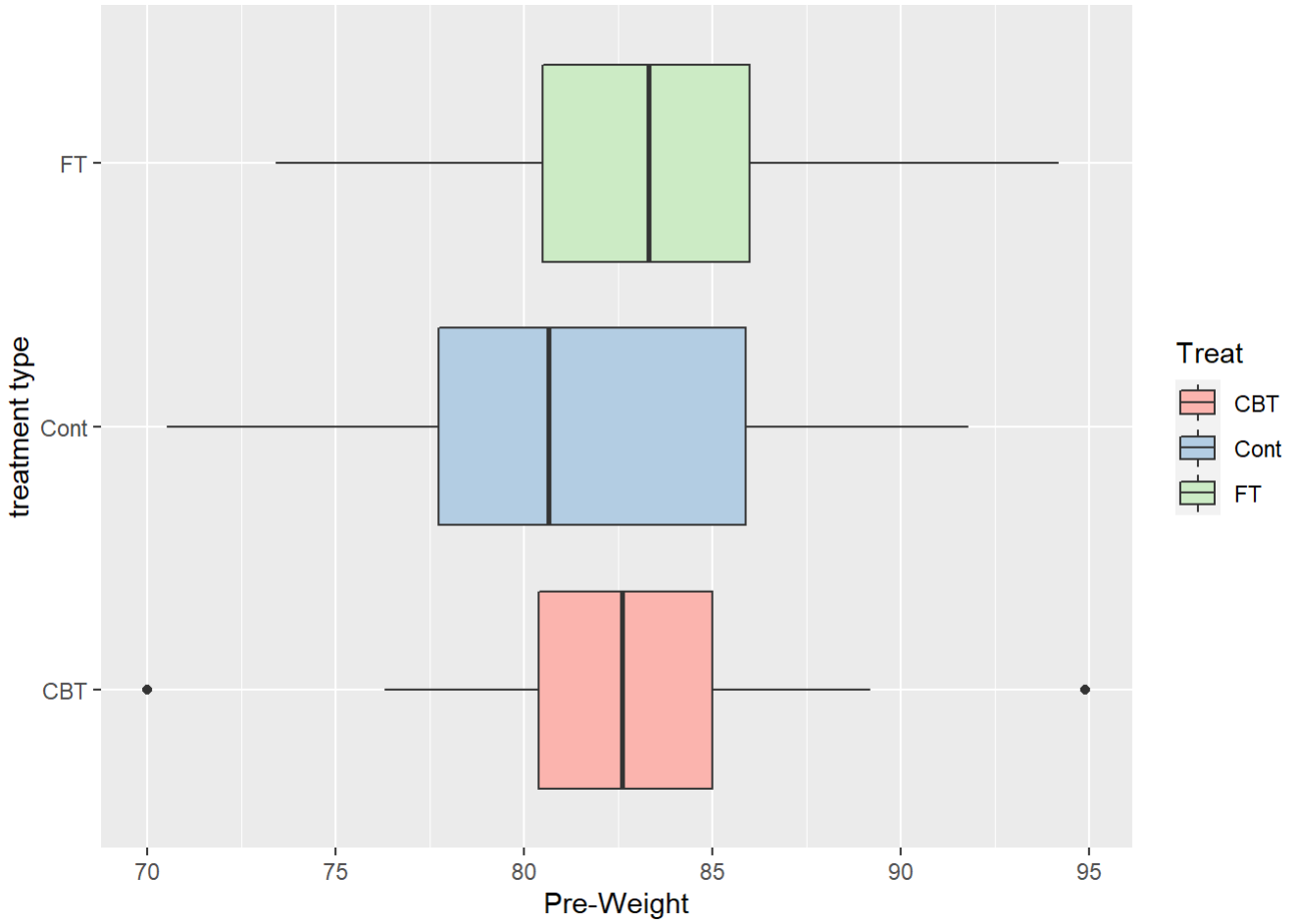
	Treat <fct>	Prewt <dbl>	Postwt <dbl>
1	Cont	80.7	80.2
2	Cont	89.4	80.1
3	Cont	91.8	86.4
4	Cont	74.0	86.3
5	Cont	78.1	76.1
6	Cont	88.3	78.1
7	Cont	87.3	75.1
8	Cont	75.1	86.7
9	Cont	80.6	73.5
10	Cont	78.4	84.6

1-10 of 72 rows Previous **1** 2 3 4 5 6 … 8 Next

```
help("anorexia")
```

```
## starting httpd help server ... done
```

```
y<-ggplot(anorexia, aes(Prewt,Treat, group=Treat))
y+ geom_boxplot(aes(fill=Treat))+scale_fill_brewer(palette="Pastel1")+xlab("Pre-Weight")+ylab("t
reatment type")
```



 # This graph is showing that people who are in the control group for anorexia treatment testing on average weigh less than those who are in other treatment types before the start of the study period. People in the family treatment for anorexia have slightly more weight on average than th ose in the cognitive behavioral treatment before the study period.

```
anorexia1 <- anorexia %>%mutate(diff=Postwt-Prewt)
anorexia2 <- anorexia1 %>%group_by(Treat)%>% summarize( Prewt=mean(Prewt), Postwt=mean(Postwt), diff=mean(diff))
anorexia2
```

	Treat <fct>	Prewt <dbl>	Postwt <dbl>	diff <dbl>
1	CBT	82.68966	85.69655	3.006897
2	Cont	81.55769	81.10769	-0.450000
3	FT	83.22941	90.49412	7.264706

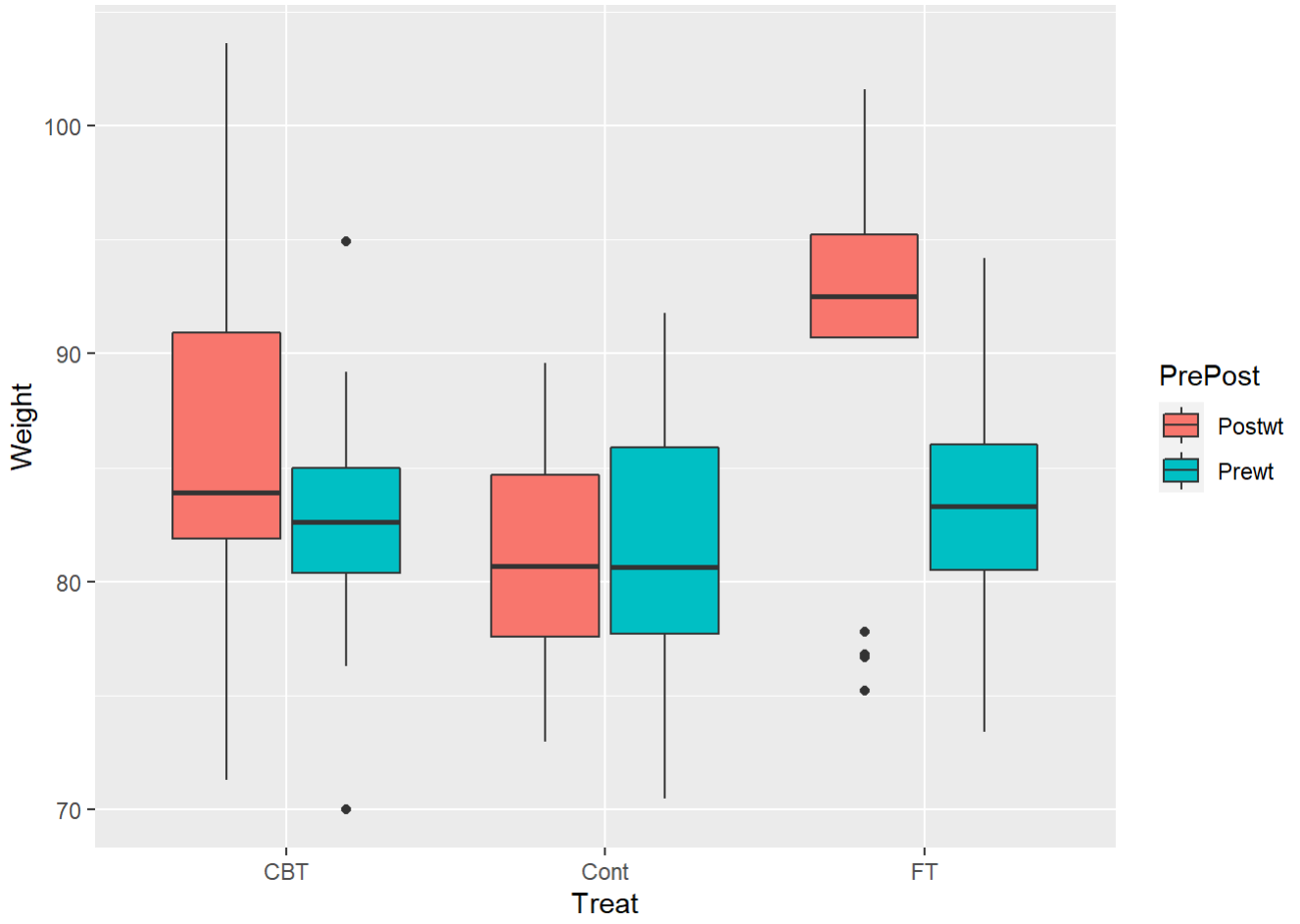
3 rows

```
anorexiaGraph2 <- anorexia%>% gather(
  Prewt:Postwt, key = "PrePost",
  value = "Weight",
  na.rm = TRUE
)
anorexiaGraph2
```

Treat <fct>	PrePost <chr>	Weight <dbl>
Cont	Prewt	80.7
Cont	Prewt	89.4
Cont	Prewt	91.8
Cont	Prewt	74.0
Cont	Prewt	78.1
Cont	Prewt	88.3
Cont	Prewt	87.3
Cont	Prewt	75.1
Cont	Prewt	80.6
Cont	Prewt	78.4

1-10 of 144 rows Previous **1** 2 3 4 5 6 … 15 Next

```
y<-ggplot(anorexiaGraph2, aes(Treat, Weight, fill=PrePost))
y+ geom_boxplot()
```




```
# I combined the data of the two weights together and made a single weight variable. This allowe
d me to make a bar graph that effectivly illustrated the weights of patients before and after th
e study period from the different types of treatment groups. As we can see from the graph, on av
erage the family treatment plan is the most effective at helping people with anorexia gain weigh
t. The control group seems to be on average having barley any change in weight. This make sense
 as the control group likely received no treatment to help them with there anorexia. The cogniti
ve behavioral treatment on average seems to be helping people with anorexia gain weight but, not
nearly as well as the family treatment plan. Overall, it seems that the treatments for anorexia
 are helping patients gain weight. We can tell this by how much better the treated groups on ave
rage are doing than the control groups. In addition patients weights on average increase after t
reatments. This shows that they are effective.
```