

# Legends

Daven

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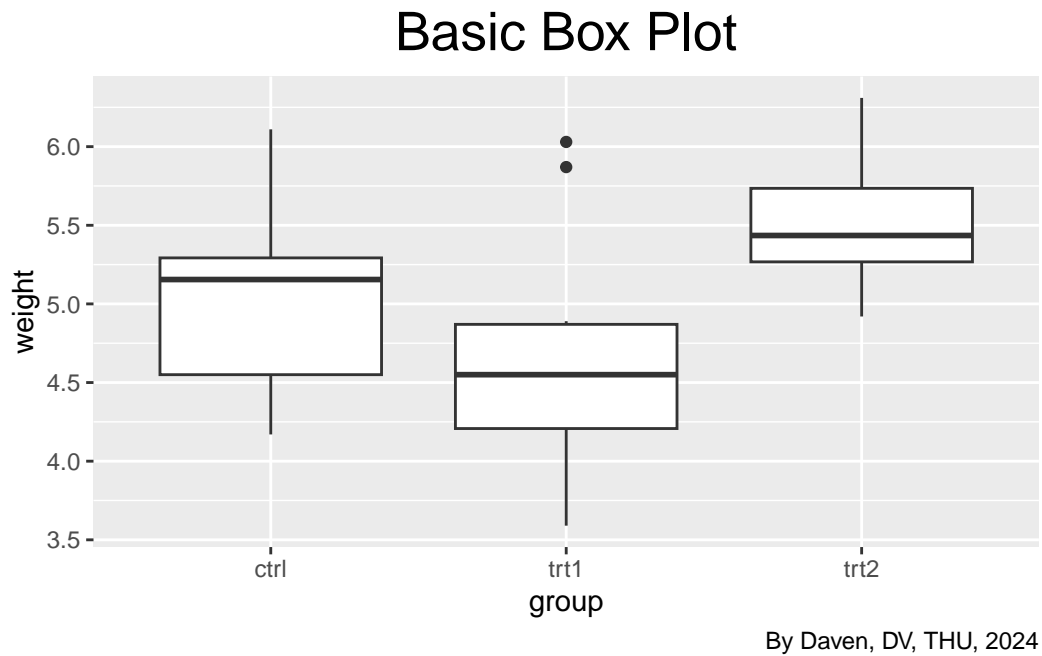
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## 1 Basic Box Plot

- `library(ggplot2)`: This loads the `ggplot2` library.
- `ggplot(PlantGrowth, aes(x = group, y = weight))`:
  - Uses the built-in `PlantGrowth` dataset
  - Creates a plot with `group` on the x-axis and `weight` on the y-axis
  - `aes()` defines the aesthetic mappings of the plot
- `geom_boxplot()`: Adds a box plot geometry to visualize the distribution of weights across different groups
- `labs(title = 'Basic Box Plot', caption = 'By Daven, DV, THU, 2024')`: Adds a title and caption to the plot
- `theme(plot.title = element_text(hjust = 0.5, size = 20))`: Centers the title horizontally (`hjust = 0.5`) and size of the text to `size = 20`

```
library(ggplot2)

ggplot(PlantGrowth, aes (x = group, y = weight)) +
  geom_boxplot() +
  labs(title = 'Basic Box Plot',
       caption = 'By Daven, DV, THU, 2024') +
  theme(plot.title = element_text(hjust = 0.5, size = 20))
```



## 2 Add a Legend

- `library(gridExtra)`: this load the `gridExtra` library
- `fill`: to add color inside the area of the box
- `color`: to add color around the outline of the box
- `grid.arrange()`: used to arrange multiple grid-based plots on a single page
- `ncol`: used to determine the number of column within the box plot chart
- `top`: Adds title into the box plot chart
- `bottom`: Adds caption into the box plot chart

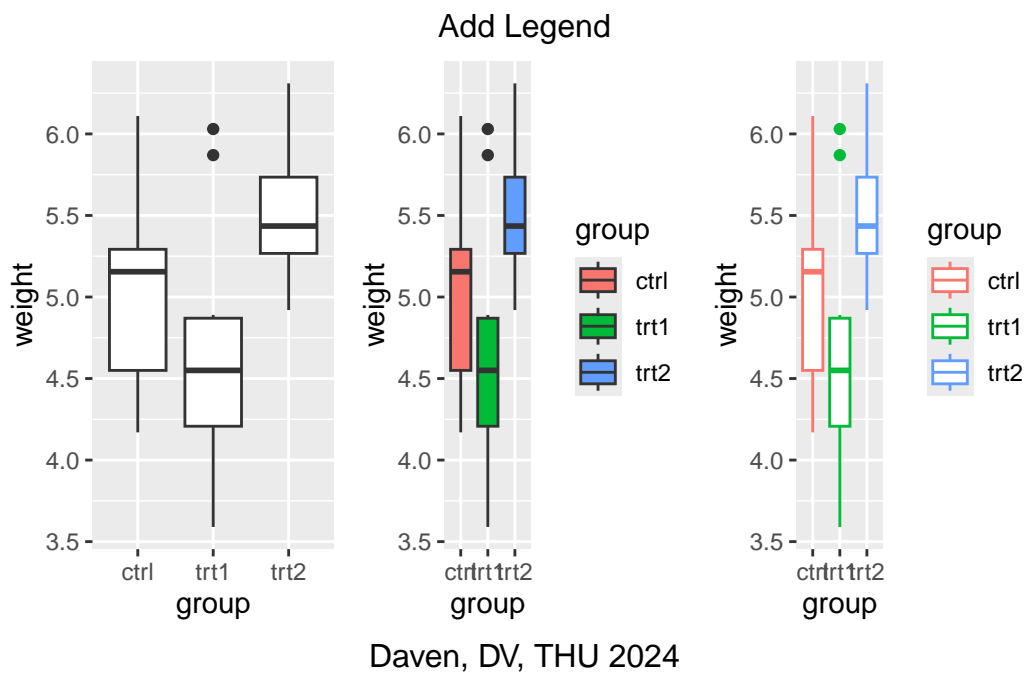
```
library(ggplot2)
library(gridExtra)
```

```
p1 <- ggplot(PlantGrowth, aes(x = group, y = weight)) +
  geom_boxplot()

p2 <- ggplot(PlantGrowth, aes(x = group, y = weight, fill = group)) +
  geom_boxplot()

p3 <- ggplot(PlantGrowth, aes(x = group, y = weight, color = group)) +
  geom_boxplot()

grid.arrange(p1, p2, p3, ncol = 3, top = 'Add Legend',
             bottom = 'Daven, DV, THU 2024')
```



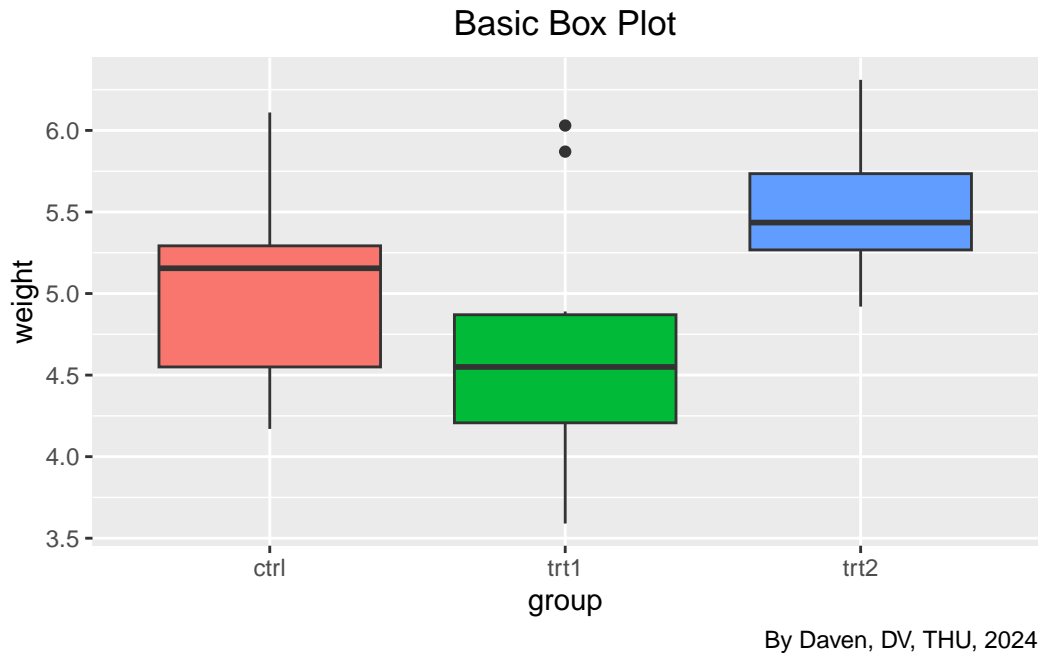
### 3 Remove Legend

Using the same chart in [Basic Box Plot](#), The legend is removed by `guides(fill = FALSE)`

- `guides(fill)`: use to activating/disabling legends

```
ggplot(PlantGrowth, aes(x = group, y = weight, fill = group)) +
  geom_boxplot() +
  guides(fill = FALSE) +
```

```
labs(title = 'Basic Box Plot',
      caption = 'By Daven, DV, THU, 2024') +
theme(plot.title = element_text(hjust=0.5))
```

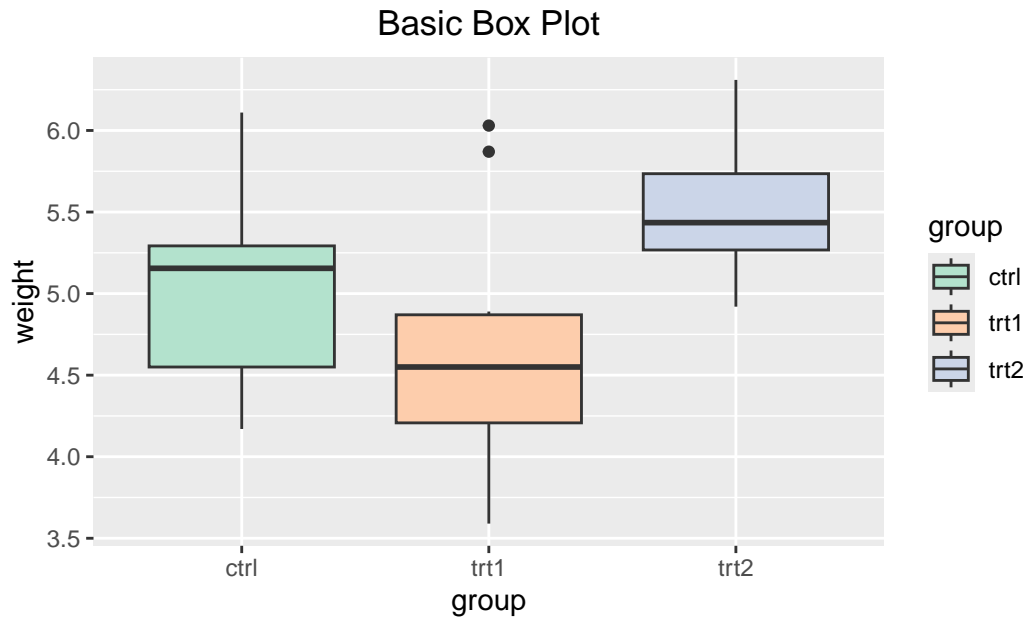


## 4 Change Color of Legend

Using the same chart in [Basic Box Plot](#), we'll change the box plot's fill using "Pastel2"

- `scale_fill_brewer(palette = "Pastel2")`:
  - `scale_fill_brewer()`: add aesthetically pleasing color palettes to the box plot
  - `palette = "Pastel2"`: give "Pastel2" color palette to the box plot

```
ggplot(PlantGrowth, aes(x = group, y = weight, fill = group)) +
  geom_boxplot() +
  scale_fill_brewer(palette = "Pastel2") +
  labs(title = 'Basic Box Plot',
        caption = 'By Daven, DV, THU, 2024') +
  theme(plot.title = element_text(hjust=0.5))
```



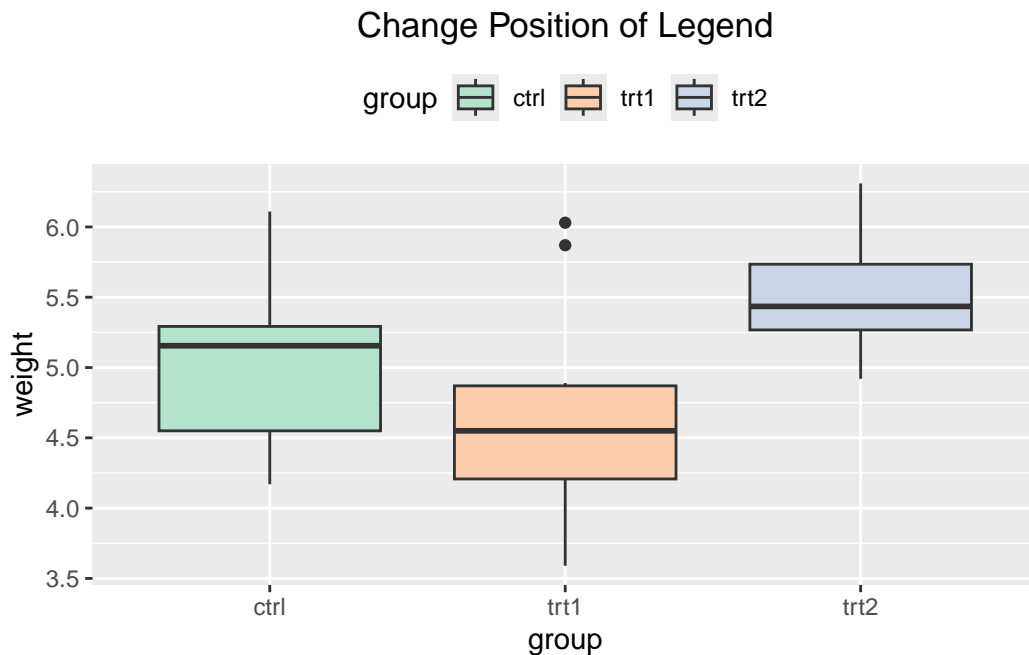
By Daven, DV, THU, 2024

## 5 Change Position of Legend

Continuing from [Change Color of Legend](#), we'll change the legend's position to the top

- `theme(plot.title = element_text(hjust = 0.5), legend.position = 'top')`:
  - Centers the title horizontally (`hjust=0.5`)
  - Putting the legend's position on top of the box plot chart `legend.position = 'top'`

```
ggplot(PlantGrowth, aes(x = group, y = weight, fill = group)) +
  geom_boxplot() +
  scale_fill_brewer(palette = "Pastel2") +
  ggtitle('Change Position of Legend') +
  theme(plot.title = element_text(hjust=0.5),
        legend.position = 'top')
```



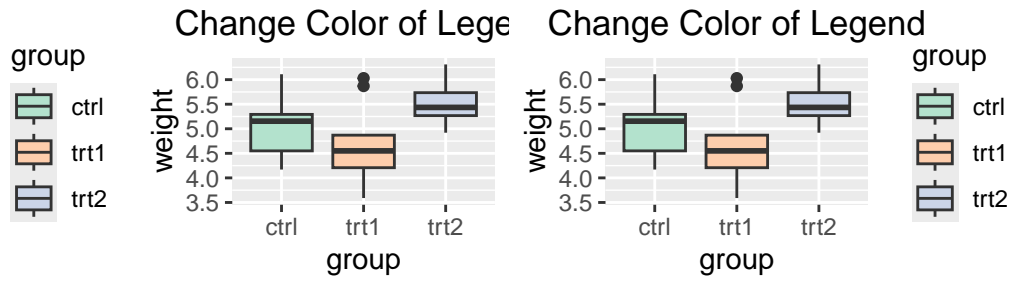
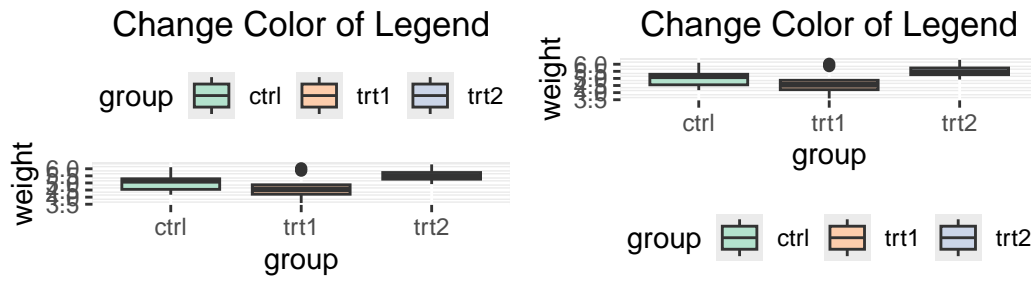
## 6 Practice

Change legend position to top, bottom, left, and right.

```
p1 <- ggplot(PlantGrowth, aes(x = group, y = weight, fill = group)) +
  geom_boxplot() +
  scale_fill_brewer(palette = "Pastel2") +
  ggtitle('Change Color of Legend') +
  theme(plot.title = element_text(hjust = 0.5),
        legend.position = 'top')
p2 <- p1 + theme(legend.position = 'bottom')
p3 <- p1 + theme(legend.position = 'left')
p4 <- p1 + theme(legend.position = 'right')

grid.arrange(p1, p2, p3, p4, ncol=2,
             top = 'Changing Position of Legend',
             bottom = 'Daven, DV, THU 2024')
```

## Changing Position of Legend



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