

## 1. Visualizing Amounts and Distributions

```
setwd("D:/DSA0613")
```

```
getwd()
```

```
tips <- read.csv("tips.csv")
```

```
head(tips)
```

```
#import libraries
```

```
library(ggplot2)
```

```
library(dplyr)
```

```
library(ggthemes)
```

```
#Bar plot
```

```
ggplot(tips, aes(x = day, y = tip, fill = day)) +
```

```
  stat_summary(fun = mean, geom = "bar") +
```

```
  labs(title = "Average Tip by Day",
```

```
        x = "Day",
```

```
        y = "Average Tip") +
```

```
  theme_minimal()
```

```
#Grouped Bar Plot
```

```
ggplot(tips, aes(x = day, y = tip, fill = gender)) +
```

```
  stat_summary(fun = mean, geom = "bar", position = "dodge")
```

```
#Stacked bar plot
```

```
ggplot(tips, aes(x = day, y = tip, fill = gender)) +
```

```
  stat_summary(fun = sum, geom = "bar")
```

```
#Dot plot
```

```
ggplot(tips, aes(x = tip, y = day)) +
```

```
  geom_point()
```

## #Heatmap

```
ggplot(tips, aes(x = day, y = time, fill = tip)) +  
  stat_summary(fun = mean, geom = "tile")
```

## #Violin Plot

```
ggplot(tips, aes(x = day, y = tip)) +  
  geom_violin(fill = "lightgreen")
```

## #Ridgeline Plot

```
ggplot(tips, aes(x = tip, y = day)) +  
  geom_density_ridges()
```

## #Histogram

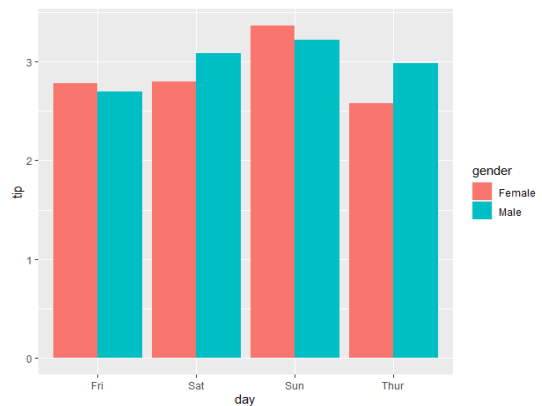
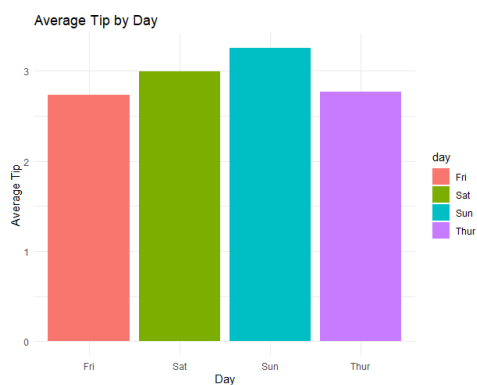
```
ggplot(tips, aes(x = tip)) +  
  geom_histogram(binwidth = 1, fill = "red", color = "black")
```

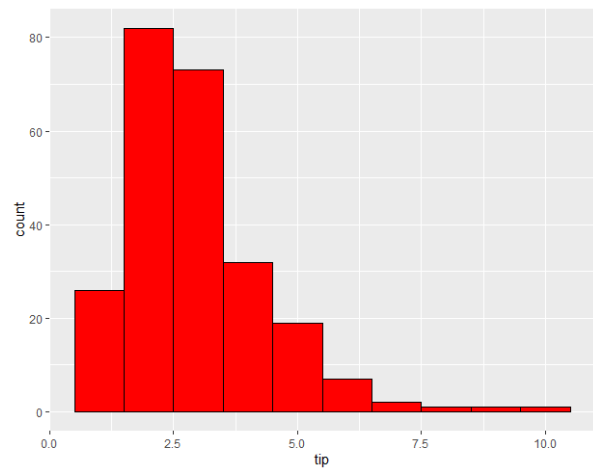
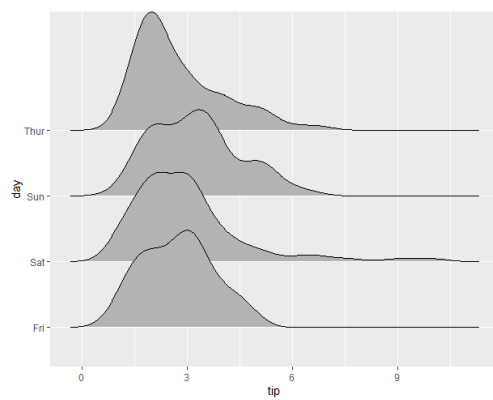
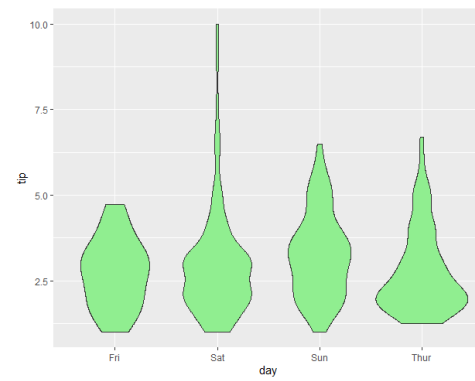
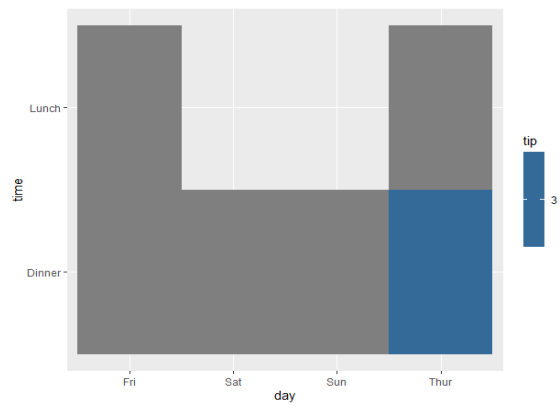
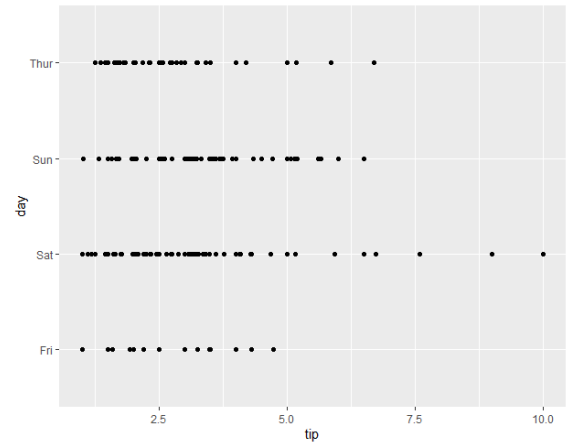
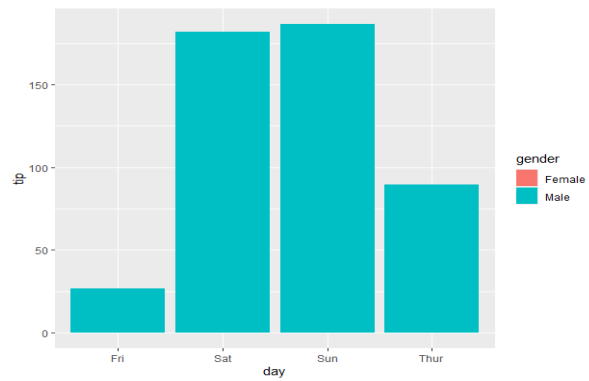
## #Density Plot

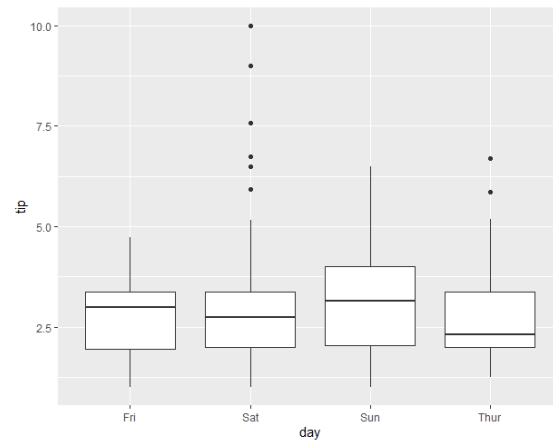
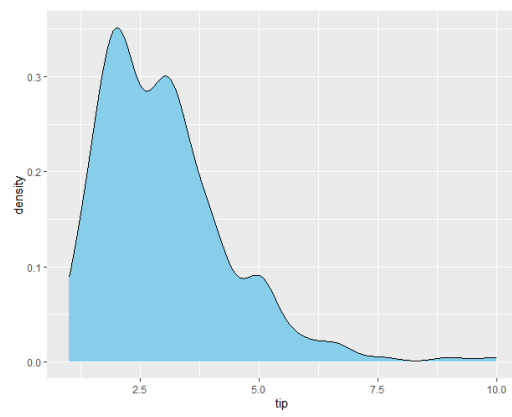
```
ggplot(tips, aes(x = tip)) +  
  geom_density(fill = "skyblue")
```

## #Boxplot

```
ggplot(tips, aes(x = day, y = tip)) +  
  geom_boxplot()
```







## 2. Visualizing Proportions

```
setwd("D:/DSA0613")
```

```
getwd()
```

```
tips <- read.csv("tips.csv")
```

```
head(tips)
```

```
#import libraries
```

```
library(ggplot2)
```

```
library(dplyr)
```

```
library(treemapify)
```

```
library(ggalluvial)
```

```
library(networkD3)
```

```
#pie chart
```

```
pie_data <- tips %>%
```

```
  group_by(day) %>%
```

```
  summarise(Value = sum(tip))
```

```
ggplot(pie_data, aes(x = "", y = Value, fill = day)) +
```

```
  geom_bar(stat = "identity", width = 1) +
```

```
  coord_polar("y") +
```

```
  labs(fill = "Day")
```

```
#tree map
```

```
ggplot(pie_data,
```

```
  aes(area = Value, fill = day, label = day)) +
```

```
  geom_treemap() +
```

```
  geom_treemap_text(colour = "white", place = "centre")
```

```

#sunburst chart

# Load libraries

library(dplyr)

library(sunburstR)


# Create hierarchical data (required for sunburst)

sunburst_data <- tips %>%

  group_by(day, gender) %>%

  summarise(Value = sum(tip), .groups = "drop") %>%

  mutate(path = paste(day, gender, sep = "-"))


# Draw sunburst chart

sunburst(sunburst_data[, c("path", "Value")])


#parallel sets

parallel_data <- tips %>%

  count(day, time)


ggplot(parallel_data,

  aes(axis1 = day, axis2 = time, y = n)) +

  geom_alluvium(aes(fill = day)) +

  geom_stratum() +

  geom_text(stat = "stratum", aes(label = after_stat(stratum)))


#Sankey diagram

links <- tips %>%

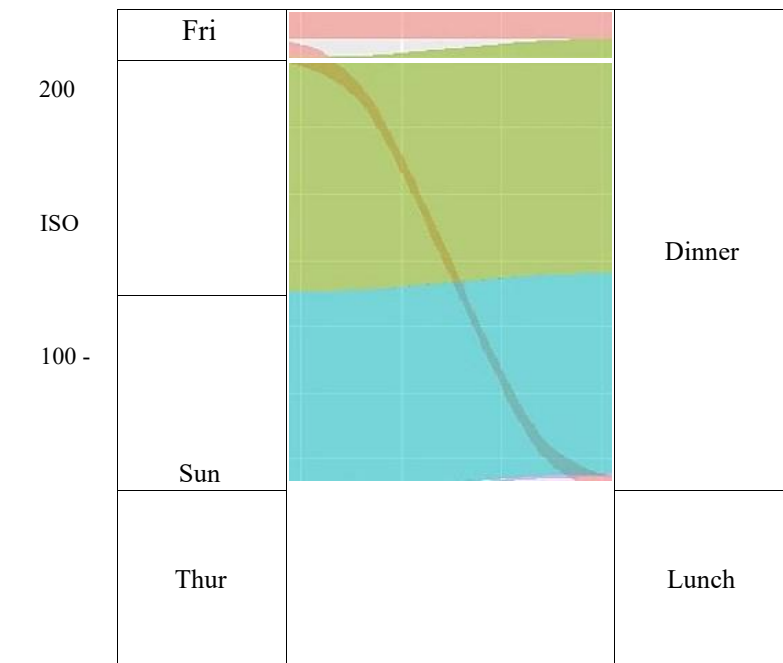
  count(day, time)

```

```
nodes <- data.frame(
  name = unique(c(links$day, links$time))
)

links$source <- match(links$day, nodes$name) - 1
links$target <- match(links$time, nodes$name) - 1

sankeyNetwork(
  Links = links,
  Nodes = nodes,
  Source = "source",
  Target = "target",
  Value = "n",
  NodeID = "name"
)
```

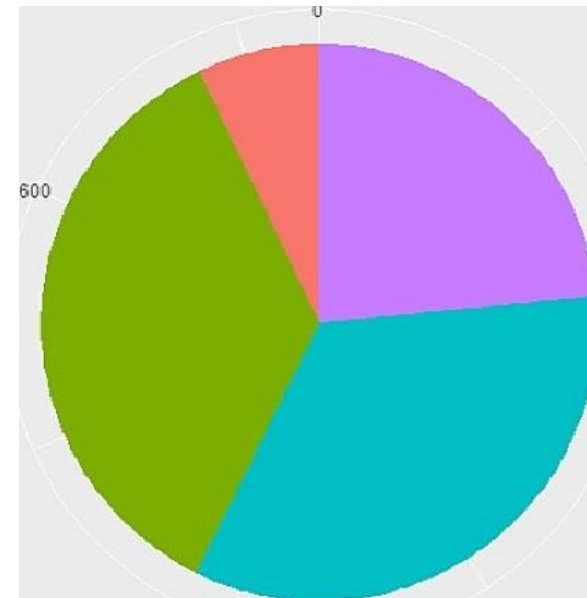


day  
Fri  
Sat  
Sun  
Thur



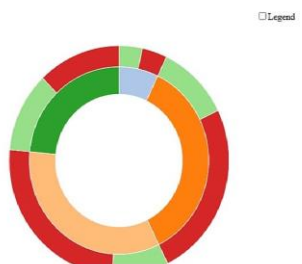
day  
Fri  
Sat  
Sun  
Thur

400



Day  
Fri  
Sat  
Sun  
Thur





### 3. Visualizing Relationships and Associations

```
setwd("D:/DSA0613")
```

```
getwd()
```

```
tips <- read.csv("tips.csv")
```

```
head(tips)
```

```
library(ggplot2)
```

```
library(hexbin)
```

```
library(corrplot)
```

```
library(igraph)
```

```
library(ggfortify)
```

```
library(dplyr)
```

```
#Scatterplot
```

```
ggplot(tips, aes(x = total_bill, y = tip)) +  
  geom_point()
```

```
#Bubble Chart
```

```
ggplot(tips, aes(x = total_bill, y = tip, size = size)) +  
  geom_point(alpha = 0.6)
```

```
# Hexbin Plot
```

```
ggplot(tips, aes(x = total_bill, y = tip)) +  
  geom_hex()
```

```
#Correlogram
```

```
numeric_data <- tips %>%
```

```
select(total_bill, tip, size)
```

```
corrplot(cor(numeric_data))
```

```
#Network Graph
```

```
edges <- tips %>%
```

```
  count(day, time)
```

```
graph <- graph_from_data_frame(edges, directed = FALSE)
```

```
plot(graph)
```

```
#PCA
```

```
pca_data <- tips %>%
```

```
  select(total_bill, tip, size)
```

```
autoplot(prcomp(pca_data, scale. = TRUE))
```

