

```

#Data Visualization
#Install ggplot2
install.packages("ggplot2")
library(ggplot2)

#Install pscl package
install.packages("pscl")
library(pscl)

#DATA
data()

#Load Data mtcars
mtcars=mtcars
View(mtcars)

#Load Data admitt
admitt=admitt
View(admitt)

#Histogram
ggplot(admitt, aes(gre. quant))
ggplot(admitt, aes(gre. quant))+geom_histogram()
ggplot(admitt, aes(gre. quant))+geom_histogram(binwidth = 10)
ggplot(admitt, aes(gre. quant))+geom_histogram(binwidth = 50)
ggplot(admitt, aes(gre. quant))+geom_histogram(binwidth =
50)+ggtitle("Distribution of GRE Quant")
ggplot(admitt, aes(gre. quant))+geom_histogram(binwidth =
50)+ggtitle("Distribution of GRE Quant")+ylab("Frequency")
ggplot(admitt, aes(gre. quant))+geom_histogram(binwidth =
50)+ggtitle("Distribution of GRE Quant")+ylab("Frequency")+xlab("GRE
Quantitative Test")
ggplot(admitt, aes(gre. quant))+geom_histogram(binwidth =
50)+ggtitle("Distribution of GRE Quant")+ylab("Frequency")+xlab("GRE
Quantitative Test")+xlim(0, 1000)
ggplot(admitt, aes(gre. quant))+geom_histogram(binwidth =
50, color="red")+ggtitle("Distribution of GRE
Quant")+ylab("Frequency")+xlab("GRE Quantitative Test")+xlim(0, 1000)

```

```
ggplot(admit, aes(gre. quant)) + geom_histogram(binwidth =
50, color="red", fill="green") + ggtitle("Distribution of GRE
Quant") + ylab("Frequency") + xlab("GRE Quantitative Test") + xlim(0, 1000)
```

```
#Scatter Plot
```

```
ggplot(admit, aes(x=gre. quant, y=gre. verbal))
```

```
ggplot(admit, aes(x=gre. quant, y=gre. verbal)) + geom_point()
```

```
ggplot(admit, aes(x=gre. quant, y=gre. verbal)) + geom_point() + ggtitle("Correlation
of GRE Quant and GRE Verbal")
```

```
ggplot(admit, aes(x=gre. quant, y=gre. verbal)) + geom_point(size=5) + ggtitle("Corre
lation of GRE Quant and GRE Verbal")
```

```
ggplot(admit, aes(x=gre. quant, y=gre. verbal)) + geom_point(size=5, color="blue") + gg
title("Correlation of GRE Quant and GRE Verbal")
```

```
ggplot(admit, aes(x=gre. quant, y=gre. verbal, color=score)) + geom_point(size=5, col
or="blue") + ggtitle("Correlation of GRE Quant and GRE Verbal")
```

```
ggplot(admit, aes(x=gre. quant, y=gre. verbal, color=as.character(score))) + geom_po
int(size=5, color="blue") + ggtitle("Correlation of GRE Quant and GRE Verbal")
```

```
ggplot(admit, aes(x=gre. quant, y=gre. verbal, color=as.character(score))) + geom_po
int(size=5) + ggtitle("Correlation of GRE Quant and GRE Verbal")
```

```
ggplot(admit, aes(x=gre. quant, y=gre. verbal, color=score)) + geom_point(size=5) + gg
title("Correlation of wt and mpg")
```

```
#Sum gre. quant and gre. verbal
```

```
ss<-admit$gre. quant+admit$gre. verbal
```

```
ggplot(admit, aes(x=ss, y=score)) + geom_point(size=5) + ggtitle("Correlation of ss
and Score")
```

```
mean(ss)
```

```
# Correlations with significance levels
```

```
cor(admit$gre. verbal, admit$gre. quant) # type can be pearson or spearman
```

```
cor(admit$gre. verbal, admit$score) # type can be pearson or spearman
```

```
#Box Plot for admit
```

```
ggplot(admit, aes(x=score, y=gre. quant)) + geom_boxplot()
```

```
ggplot(admit, aes(x=as.character(score), y=gre. quant)) + geom_boxplot()
```

```
ggplot(admit, aes(x=as.character(score), y=gre. quant)) + geom_boxplot() + xlab("Sco
re")
```

```
ggplot(admit, aes(x=as.character(score), y=gre. quant)) + geom_boxplot() + xlab("Sco
re") + ggtitle("Boxplots for GRE Quantitative Test")
```

```
ggplot(admit, aes(x=as.character(score), y=gre. quant, color=as.character(score))
) + geom_boxplot() + xlab("Score") + ggtitle("Boxplots for GRE Quantitative Test")
```

```
ggplot(admit, aes(x=as.character(score), y=gre.quant, color=as.character(score),
fill=as.character(score)))+geom_boxplot()+xlab("Score")+ggtitle("Boxplots for
GRE Quantitative Test")
```

```
#Violin Plot
```

```
ggplot(admit, aes(x=as.character(score), y=gre.quant, color=as.character(score),
fill=as.character(score)))+geom_violin()+xlab("Score")+ggtitle("Boxplots for
GRE Quantitative Test")
```

```
#Install Plotly
```

```
install.packages("plotly")
```

```
library(plotly)
```

```
#Plotly
```

```
aa<-admit[sample(nrow(admit), 100), ]
```

```
plot_ly(aa, x=~gre.quant, y=~gre.verbal, color=~score, size=~gre.verbal, text=~paste("ap", ap))
```

```
#Plotly
```

```
d<-diamonds[sample(nrow(diamonds), 1000), ]
```

```
plot_ly(d, x=~carat, y=~price, color=~carat, size=~carat, text=~paste("Clarity", clarity))
```

```
#Arithmetic in R
```

```
max(mtcars[, 1])
```

```
which.max(mtcars$mpg)
```

```
index=which.max(mtcars$mpg)
```

```
rownames(mtcars)[index]
```

```
which(mtcars$mpg>30)
```

```
which(mtcars$mpg==max(mtcars$mpg))
```

```
getwd()
```

```
mdec17=read.csv("mdec17.csv") #read csv file
```

```
getwd()
```

```
mdec17
```

```
which.max(mdec17$Count)
```