```
install.packages("xlsx")
```

```
Installing package into ‘/usr/local/lib/R/site-library’
(as ‘lib’ is unspecified)

also installing the dependencies ‘rJava’, ‘xlsxjars’
```

+ Code + Text

```
install.packages("ggplot2")
```

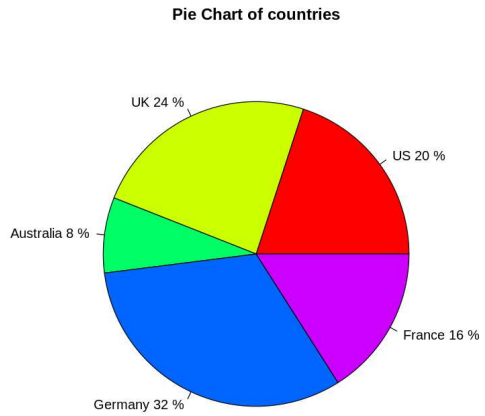
```
Installing package into ‘/usr/local/lib/R/site-library’
(as ‘lib’ is unspecified)
```

```
library("ggplot2")
```

```
library("xlsx")
```

Pie Chart

```
# pie chart
slices=c(10,12,4,16,8)
lbls=c("US","UK","Australia","Germany","France")
pct=round(slices/sum(slices)*100)
lbls=paste(lbls,pct,"%")# adding percentage to labels
pie(slices,labels=lbls,col=rainbow(length(lbls)),main="Pie Chart of countries")#rainbow(5) gives 5 colours
```



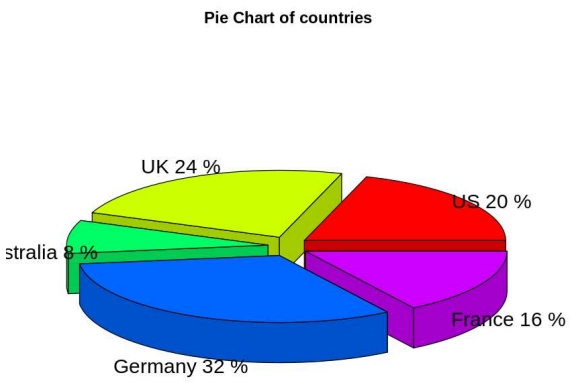

```
install.packages("plotrix")
```

```
Installing package into ‘/usr/local/lib/R/site-library’
(as ‘lib’ is unspecified)
```

Pie Chart using plotrix

```
library(plotrix)
```

```
# pie chart
slices=c(10,12,4,16,8)
lbls=c("US","UK","Australia","Germany","France")
pct=round(slices/sum(slices)*100)
lbls=paste(lbls,pct,"%")# adding percentage to labels
pie3D(slices,labels=lbls,col=rainbow(length(lbls)),main="Pie Chart of countries",explode=0.1)#explode will determine the distance from th
```




```
data(mtcars)
```

```
head(mtcars)
```

A data.frame: 6 × 11

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>
Mazda RX4	21.0	6	160	110	3.90	2.620	16.46	0	1	4	4
Mazda RX4 Wag	21.0	6	160	110	3.90	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108	93	3.85	2.320	18.61	1	1	4	1
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1
Hornet Sportabout	18.7	8	360	175	3.15	3.440	17.02	0	0	3	2
Valiant	18.1	6	225	105	2.76	3.460	20.22	1	0	3	1

```
unique(mtcars$gear)
```

```
4 · 3 · 5
```

```
factor(mtcars$gear)
```

```
4 · 4 · 4 · 3 · 3 · 3 · 3 · 4 · 4 · 4 · 4 · 3 · 3 · 3 · 3 · 3 · 3 · 4 · 4 · 4 · 3 · 3 · 3 · 3 · 3 · 4 · 5 · 5 · 5 · 5 · 5 · 4
▶ Levels:
```

```
table(mtcars$gear)
```

```
 3  4  5
15 12  5
```

```
df=data(mtcars)
```

```
unique(df['gear'])#not working
unique(df$gear)#not working
```

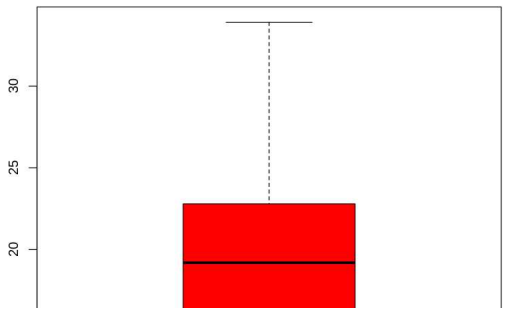
```
NA
Error in df$gear: $ operator is invalid for atomic vectors
Traceback:

1. unique(df$gear)
```

SEARCH STACK OVERFLOW

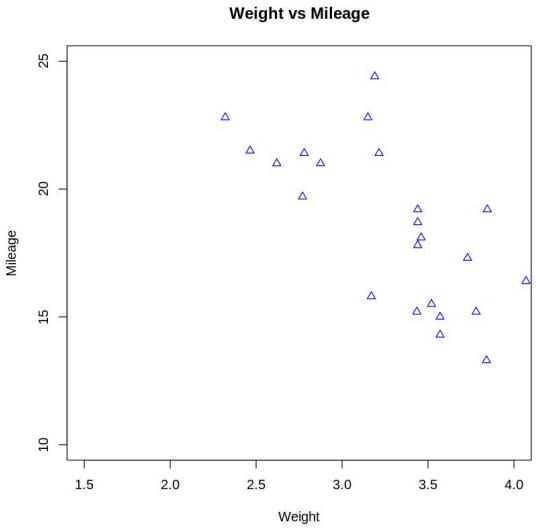
Box Plot

```
boxplot(mtcars$mpg,col="red",fill="blue")
```



Scatter Plot

```
# scatter plot
plot(x=mtcars$wt,y=mtcars$mpg,
  xlab="Weight",ylab="Mileage",
  xlim=c(1.5,4),ylim=c(10,25),# x and y axis limits
  main="Weight vs Mileage",col="blue", #fill not there
  pch=2 #different shapes 0-25
)
```




```
install.packages("scatterplot3d")
```

```
Installing package into ‘/usr/local/lib/R/site-library’
(as ‘lib’ is unspecified)
```

```
library(scatterplot3d)
```

```
head(mtcars)
```

A data.frame: 6 × 11

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>
Mazda RX4	21.0	6	160	110	3.90	2.620	16.46	0	1	4	4
Mazda RX4 Wag	21.0	6	160	110	3.90	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108	93	3.85	2.320	18.61	1	1	4	1
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1
Hornet Sportabout	18.7	8	360	175	3.15	3.440	17.02	0	0	3	2
Valiant	18.1	6	225	105	2.76	3.460	20.22	1	0	3	1

```
attach(mtcars)
```

```
The following object is masked from package:ggplot2:

    mpg
```

```
scatterplot3d(mpg,cyl, main="3D Scatter Plot")
```