

## Lec30\_feb1\_stat123

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```
#The min() function returns the minimum value of a vector or data frame.
#The max() function returns the maximum value of a vector or data frame.
numbers <- c(3,1,2,1,10)
min(numbers)  # 1

## [1] 1

characters <- c("s", "a", "p", "b")
max(characters)  # "a"

## [1] "s"

#=====

grades = c("A", "B", "C", "D", "F")
grades

## [1] "A" "B" "C" "D" "F"

#or

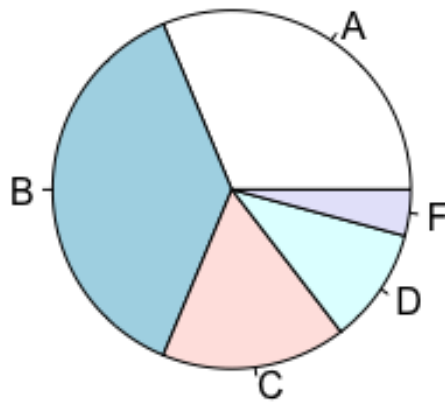
grades = c(LETTERS[1:4], "F")    #Letters give small letters

number = c(15,18,8,5,2)

# we can create a pie chart by using pie() function

pie(number, labels = grades, main = "Simple Pie Chart for Stat 123")
```

## Simple Pie Chart for Stat 123



```
?pie

percents = round((number/sum(number))*100, digits = 2)
percents

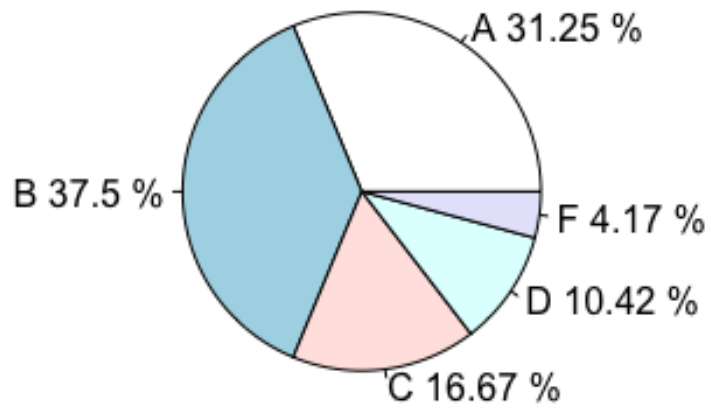
## [1] 31.25 37.50 16.67 10.42  4.17

grades2 = paste(grades, percents, "%")
grades2

## [1] "A 31.25 %" "B 37.5 %"  "C 16.67 %" "D 10.42 %" "F 4.17 %"

pie(number, labels = grades2, main = "Simple Pie Chart for Stat 123")
```

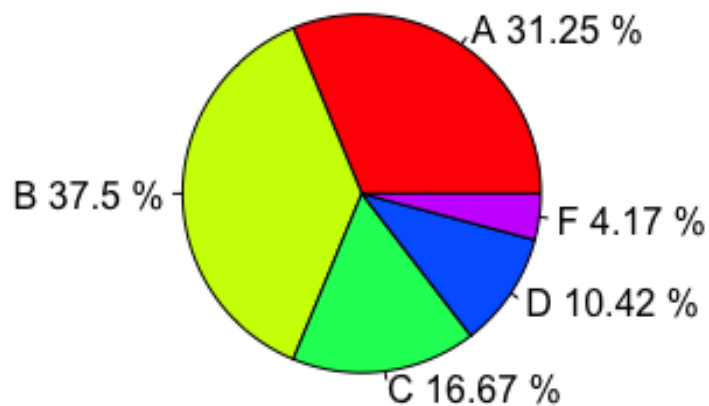
## Simple Pie Chart for Stat 123



*#add col = rainbow(length(grades)) for more vibrant colours*

```
pie(number, labels = grades2, col = rainbow(length(grades)), main = "Simple  
Pie Chart for Stat 123")
```

## Simple Pie Chart for Stat 123



#=====

?mtcars

mtcars

##	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
## Mazda RX4	21.0	6	160.0	110	3.90	2.620	16.46	0	1	4	4
## Mazda RX4 Wag	21.0	6	160.0	110	3.90	2.875	17.02	0	1	4	4
## Datsun 710	22.8	4	108.0	93	3.85	2.320	18.61	1	1	4	1
## Hornet 4 Drive	21.4	6	258.0	110	3.08	3.215	19.44	1	0	3	1
## Hornet Sportabout	18.7	8	360.0	175	3.15	3.440	17.02	0	0	3	2
## Valiant	18.1	6	225.0	105	2.76	3.460	20.22	1	0	3	1
## Duster 360	14.3	8	360.0	245	3.21	3.570	15.84	0	0	3	4
## Merc 240D	24.4	4	146.7	62	3.69	3.190	20.00	1	0	4	2
## Merc 230	22.8	4	140.8	95	3.92	3.150	22.90	1	0	4	2
## Merc 280	19.2	6	167.6	123	3.92	3.440	18.30	1	0	4	4
## Merc 280C	17.8	6	167.6	123	3.92	3.440	18.90	1	0	4	4
## Merc 450SE	16.4	8	275.8	180	3.07	4.070	17.40	0	0	3	3
## Merc 450SL	17.3	8	275.8	180	3.07	3.730	17.60	0	0	3	3
## Merc 450SLC	15.2	8	275.8	180	3.07	3.780	18.00	0	0	3	3
## Cadillac Fleetwood	10.4	8	472.0	205	2.93	5.250	17.98	0	0	3	4
## Lincoln Continental	10.4	8	460.0	215	3.00	5.424	17.82	0	0	3	4

## Chrysler Imperial	14.7	8	440.0	230	3.23	5.345	17.42	0	0	3	4
## Fiat 128	32.4	4	78.7	66	4.08	2.200	19.47	1	1	4	1
## Honda Civic	30.4	4	75.7	52	4.93	1.615	18.52	1	1	4	2
## Toyota Corolla	33.9	4	71.1	65	4.22	1.835	19.90	1	1	4	1
## Toyota Corona	21.5	4	120.1	97	3.70	2.465	20.01	1	0	3	1
## Dodge Challenger	15.5	8	318.0	150	2.76	3.520	16.87	0	0	3	2
## AMC Javelin	15.2	8	304.0	150	3.15	3.435	17.30	0	0	3	2
## Camaro Z28	13.3	8	350.0	245	3.73	3.840	15.41	0	0	3	4
## Pontiac Firebird	19.2	8	400.0	175	3.08	3.845	17.05	0	0	3	2
## Fiat X1-9	27.3	4	79.0	66	4.08	1.935	18.90	1	1	4	1
## Porsche 914-2	26.0	4	120.3	91	4.43	2.140	16.70	0	1	5	2
## Lotus Europa	30.4	4	95.1	113	3.77	1.513	16.90	1	1	5	2
## Ford Pantera L	15.8	8	351.0	264	4.22	3.170	14.50	0	1	5	4
## Ferrari Dino	19.7	6	145.0	175	3.62	2.770	15.50	0	1	5	6
## Maserati Bora	15.0	8	301.0	335	3.54	3.570	14.60	0	1	5	8
## Volvo 142E	21.4	4	121.0	109	4.11	2.780	18.60	1	1	4	2

```
gearCounts = table(mtcars$gear)
```

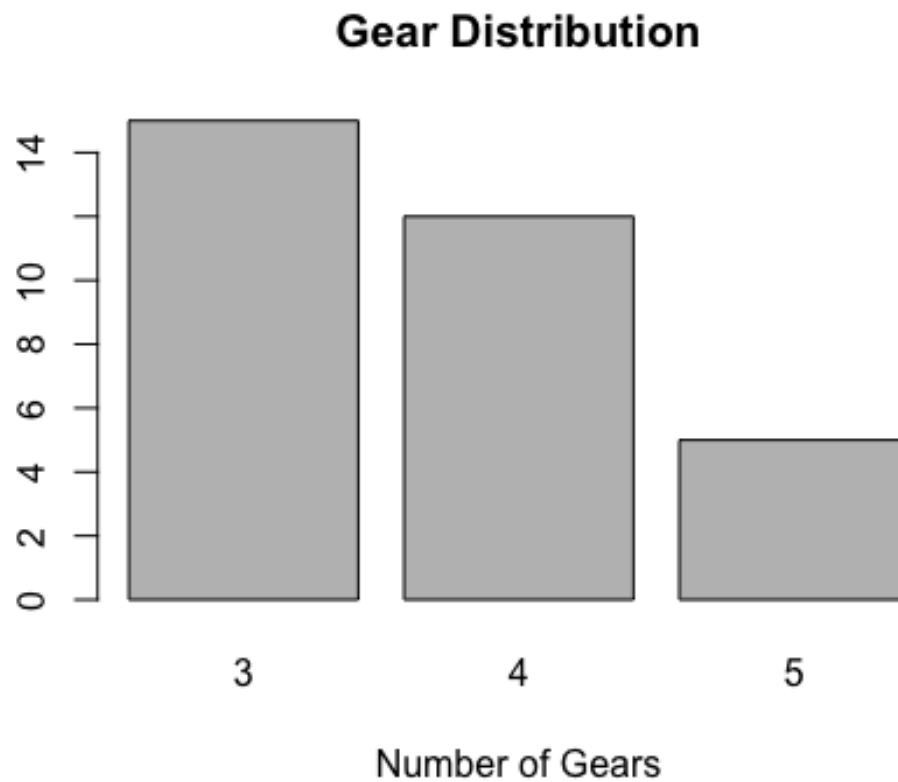
```
gearCounts
```

```
##
```

```
## 3 4 5
```

```
## 15 12 5
```

```
barplot(gearCounts, main = "Gear Distribution", xlab = "Number of Gears")
```



```
?barplot
```

```
autvsman = table(mtcars$am)  
autvsman
```

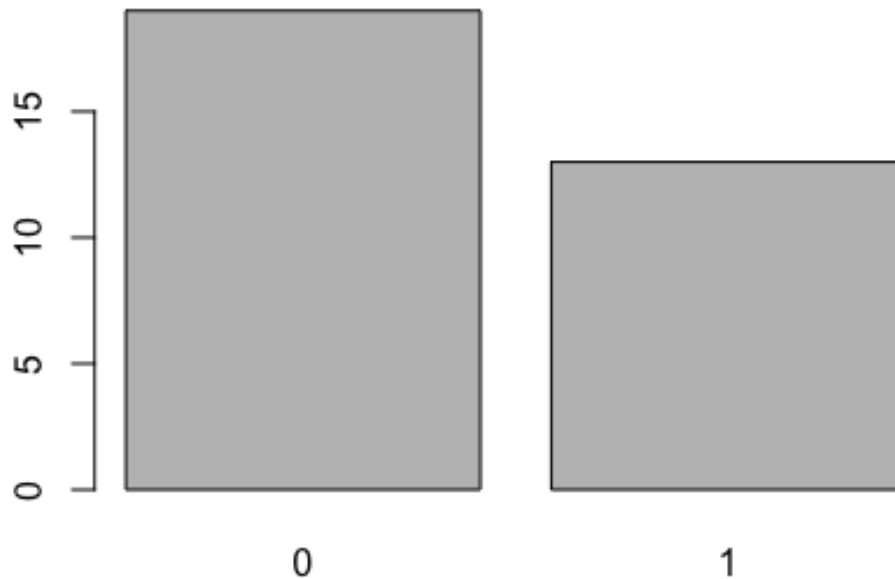
```
##
```

```
##  0  1
```

```
## 19 13
```

```
barplot(autvsman, main = "Bar Graph of Auto. vs Man. Cars")
```

## Bar Graph of Auto. vs Man. Cars



```
groupCounts = table(mtcars$am, mtcars$gear)
groupCounts

##
##      3  4  5
##  0 15  4  0
##  1  0  8  5

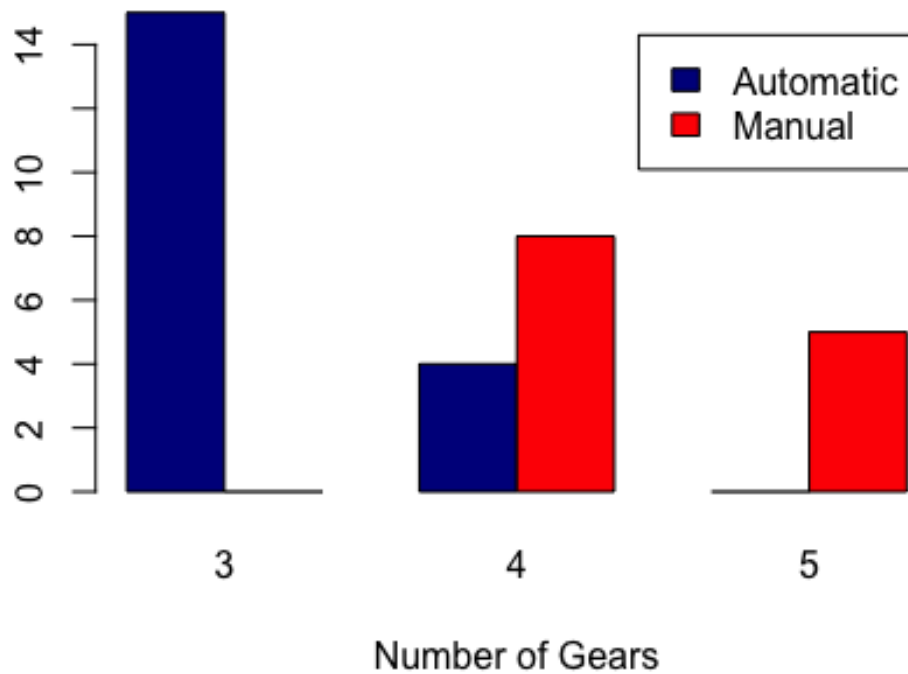
class(groupCounts)

## [1] "table"

rownames(groupCounts) = c("Automatic", "Manual")

barplot(groupCounts, main = "Distribution of Gears and Transmission", xlab =
"Number of Gears", col = c("darkblue", "red"), legend =
rownames(groupCounts), beside = TRUE)
```

## Distribution of Gears and Transmission



```
#=====
?lynx

class(lynx)

## [1] "ts"

plot(lynx, main = "Line Graph for Lynx Data", xlab = "Year", ylab = "Number
of Trappings")
```



**Line Graph for Lynx Data**

