

# Practical Exam in CS 101

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```
data("mtcars")
```

```
#there are 32 observations  
#there are 11 columns  
# the columns are ( mpg cyl  disp  hp  drat    wt  qsec vs am gear carb)
```

```
install.packages("tibble")
```

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.3'  
## (as 'lib' is unspecified)
```

```
head(mtcars)
```

```
##           mpg  cyl  disp  hp  drat    wt  qsec vs am gear carb  
## 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
```

```
head(mtcars)
```

```
##           mpg  cyl  disp  hp  drat    wt  qsec vs am gear carb  
## Mazda RX4      21.0   6  160 110 3.90 2.620 16.46 0  1   4   4  
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## 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
```

```
summary (mtcars)
```

```
##           mpg           cyl           disp           hp  
## Min.      :10.40   Min.      :4.000   Min.      : 71.1   Min.      : 52.0  
## 1st Qu.:15.43   1st Qu.:4.000   1st Qu.:120.8   1st Qu.: 96.5  
## Median :19.20   Median :6.000   Median :196.3   Median :123.0  
## Mean     :20.09   Mean     :6.188   Mean     :230.7   Mean     :146.7  
## 3rd Qu.:22.80   3rd Qu.:8.000   3rd Qu.:326.0   3rd Qu.:180.0  
## Max.     :33.90   Max.     :8.000   Max.     :472.0   Max.     :335.0  
##           drat           wt           qsec           vs  
## Min.      :2.760   Min.      :1.513   Min.      :14.50   Min.      :0.0000  
## 1st Qu.:3.080   1st Qu.:2.581   1st Qu.:16.89   1st Qu.:0.0000  
## Median :3.695   Median :3.325   Median :17.71   Median :0.0000  
## Mean     :3.597   Mean     :3.217   Mean     :17.85   Mean     :0.4375  
## 3rd Qu.:3.920   3rd Qu.:3.610   3rd Qu.:18.90   3rd Qu.:1.0000
```

##	Max.	:4.930	Max.	:5.424	Max.	:22.90	Max.	:1.0000
##	am		gear		carb			
##	Min.	:0.0000	Min.	:3.000	Min.	:1.000		
##	1st Qu.	:0.0000	1st Qu.	:3.000	1st Qu.	:2.000		
##	Median	:0.0000	Median	:4.000	Median	:2.000		
##	Mean	:0.4062	Mean	:3.688	Mean	:2.812		
##	3rd Qu.	:1.0000	3rd Qu.	:4.000	3rd Qu.	:4.000		
##	Max.	:1.0000	Max.	:5.000	Max.	:8.000		