

Week 2 - DESCRIPTIVE STATISTICS IN R

- a. Write an R script to find basic descriptive statistics using summary, str, quartile function on mtcars& cars datasets.

```
>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
```

```
>summary(mtcars)
```

```
mpg cyl disp hp drat          wt  qsec vs am gear carb
Min.:10.40  Min.   :4.000  Min.   : 71.1  Min.: 52.0  Min.:2.760
1st Qu.:15.43 1st Qu.:4.000 1st Qu.:120.8 1st Qu.: 96.5 1st
Qu.:3.080
Median :19.20 Median :6.000 Median :196.3 Median :123.0 Median
:3.695
Mean   :20.09 Mean   :6.188 Mean   :230.7 Mean   :146.7 Mean
:3.597
3rd Qu.:22.80 3rd Qu.:8.000 3rd Qu.:326.0 3rd Qu.:180.0 3rd
```

```

Qu.:3.920
  Max.   :33.90   Max.   :8.000   Max.   :472.0   Max.   :335.0   Max.
:4.930
wtqsec           vs           am           gear
Min.:1.513   Min.   :14.50   Min.   :0.0000   Min.   :0.0000   Min.
:3.000
  1st Qu.:2.581   1st Qu.:16.89   1st Qu.:0.0000   1st Qu.:0.0000   1st
Qu.:3.000
Median :3.325   Median :17.71   Median :0.0000   Median :0.0000
Median :4.000
  Mean   :3.217   Mean   :17.85   Mean   :0.4375   Mean   :0.4062
Mean   :3.688
  3rd Qu.:3.610   3rd Qu.:18.90   3rd Qu.:1.0000   3rd Qu.:1.0000   3rd
Qu.:4.000
  Max.   :5.424   Max.   :22.90   Max.   :1.0000   Max.   :1.0000
Max.   :5.000
carb
Min.:1.000
  1st Qu.:2.000
Median :2.000
  Mean   :2.812
  3rd Qu.:4.000
  Max.   :8.000

```

```

>str(mtcars)
'data.frame': 32 obs. of 11 variables:
 $ mpg :num  21 21 22.8 21.4 18.7 18.1 14.3 24.4 22.8 19.2 ...
 $ cyl :num   6 6 4 6 8 6 8 4 4 6 ...
 $ disp:num  160 160 108 258 360 ...
 $ hp  :num  110 110 93 110 175 105 245 62 95 123 ...
 $ drat:num   3.9 3.9 3.85 3.08 3.15 2.76 3.21 3.69 3.92 3.92 ...
 $ wt  :num   2.62 2.88 2.32 3.21 3.44 ...
 $ qsec:num  16.5 17 18.6 19.4 17 ...
 $ vs  :num   0 0 1 1 0 1 0 1 1 1 ...
 $ am  :num   1 1 1 0 0 0 0 0 0 0 ...
 $ gear:num   4 4 4 3 3 3 3 4 4 4 ...
 $ carb:num   4 4 1 1 2 1 4 2 2 4 ...

```

```

>quantile(mtcars$mpg)

 0%    25%    50%    75%   100%
10.400 15.425 19.200 22.800 33.900

```

```

>cars
speeddist 1
4      2
2      4    10
3      7     4
4      7    22
5      8    16
6      9    10
7     10    18

```

8	10	26
9	10	34
10	11	17
11	11	28
12	12	14
13	12	20
14	12	24
15	12	28
16	13	26
17	13	34
18	13	34
19	13	46
20	14	26
21	14	36
22	14	60
23	14	80
24	15	20
25	15	26
26	15	54
27	16	32
28	16	40
29	17	32
30	17	40
31	17	50
32	18	42
33	18	56
34	18	76
35	18	84
36	19	36
37	19	46
38	19	68
39	20	32
40	20	48
41	20	52
42	20	56
43	20	64
44	22	66
45	23	54
46	24	70
47	24	92
48	24	93
49	24	120
50	25	85

```
>summary(cars)
```

```
speeddist
```

Min.: 4.0	Min. : 2.00
1st Qu.:12.0	1st Qu.: 26.00
Median :15.0	Median : 36.00
Mean :15.4	Mean : 42.98
3rd Qu.:19.0	3rd Qu.: 56.00
Max. :25.0	Max. :120.00

```
>class(cars)
[1] "data.frame"

>dim(cars)

[1] 50  2

>str(cars)

'data.frame': 50 obs. of  2 variables:
 $ speed: num  4 4 7 7 8 9 10 10 10 11 ...
 $ dist :num  2 10 4 22 16 10 18 26 34 17 ...
```

```
>quantile(cars$speed)

 0%   25%   50%   75%  100%
 4    12    15    19    25
```

B. Write an R script to find subset of dataset by using subset (), aggregate () functions on iris dataset.

```
>aggregate(. ~ Species, data = iris, mean)
```

Output:

```
Species Sepal.LengthSepal.WidthPetal.LengthPetal.Width
1  setosa          5.006         3.428         1.462         0.246
2  versicolor      5.936         2.770         4.260         1.326
3  virginica       6.588         2.974         5.552         2.026
>subset(iris,iris$Sepal.Length==5.0)
```

Output:

```
Sepal.LengthSepal.WidthPetal.LengthPetal.WidthSpecies
5              5          3.6          1.4          0.2    setosa
8              5          3.4          1.5          0.2    setosa
26             5          3.0          1.6          0.2    setosa
27             5          3.4          1.6          0.4    setosa
36             5          3.2          1.2          0.2    setosa
41             5          3.5          1.3          0.3    setosa
44             5          3.5          1.6          0.6    setosa
50             5          3.3          1.4          0.2    setosa
61             5          2.0          3.5          1.0 versicolor
94             5          2.3          3.3          1.0 versicolor
```

