Assignment 1

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```
######Q1:What are the measures of central tendency of data? What is the order
of these measures for skewed data?
#Ans: mean, mode and meadian are the measures of central tendency. For skewed
data median is the measure of data.

######Q2:How can you measure variation of data?
#Ans: variance, range, quartile and interquartile

######Q3:Create a vector of positive odd integers less than 100
int<- c(1:100)
odd_int<-seq(1, 100 , 2); odd_int
```

```
##  [1]  1  3  5  7  9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45
## [24] 47 49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 83 85 87 89 91
## [47] 93 95 97 99
```

```
######Q4:Remove the values greater than 60 and less than 80
int[int>60 & int<80]
```

```
##  [1] 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79
```

```
######Q5:Find the five number summary of the remaining set of values
fivenum(int)
```

```
## [1]   1.0  25.5  50.5  75.5 100.0
```

```
######Q6:Consider the following vector of values.
X <- c(8, 14, 9, 15, NA, 8,13,2,9, NA)
#Write an R program to return the positions of the missing values
which(is.na(X))
```

```
## [1]  5 10
```

```
######Q7:Write an R program to count the number of non-missing values
sum(!is.na(X))
```

```
## [1] 8
```

```
######Q8:Write an R program to replace the missing values with the mean of
the non-missing values.
X[is.na(X)] = mean(X, na.rm=TRUE); X
```

```
##  [1]  8.00 14.00  9.00 15.00  9.75  8.00 13.00  2.00  9.00  9.75
```

```
######Q9:Load mtcars data. Write an R program that will rearrange the rows of
the data frame so that they are sorted by the value of Horsepower and
Cylinders
mtcars[order(mtcars$hp, mtcars$cyl),]
```

```
##                      mpg cyl  disp  hp drat    wt  qsec vs am gear carb
## Honda Civic         30.4   4  75.7  52 4.93 1.615 18.52  1  1    4    2
## Merc 240D           24.4   4 146.7  62 3.69 3.190 20.00  1  0    4    2
## Toyota Corolla      33.9   4  71.1  65 4.22 1.835 19.90  1  1    4    1
## Fiat 128            32.4   4  78.7  66 4.08 2.200 19.47  1  1    4    1
## 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
## Datsun 710          22.8   4 108.0  93 3.85 2.320 18.61  1  1    4    1
## Merc 230            22.8   4 140.8  95 3.92 3.150 22.90  1  0    4    2
## Toyota Corona       21.5   4 120.1  97 3.70 2.465 20.01  1  0    3    1
## Valiant             18.1   6 225.0 105 2.76 3.460 20.22  1  0    3    1
## Volvo 142E          21.4   4 121.0 109 4.11 2.780 18.60  1  1    4    2
## 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
## Hornet 4 Drive      21.4   6 258.0 110 3.08 3.215 19.44  1  0    3    1
## Lotus Europa        30.4   4  95.1 113 3.77 1.513 16.90  1  1    5    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
## 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
## Ferrari Dino        19.7   6 145.0 175 3.62 2.770 15.50  0  1    5    6
## Hornet Sportabout   18.7   8 360.0 175 3.15 3.440 17.02  0  0    3    2
## Pontiac Firebird    19.2   8 400.0 175 3.08 3.845 17.05  0  0    3    2
## 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
## Duster 360          14.3   8 360.0 245 3.21 3.570 15.84  0  0    3    4
## Camaro Z28          13.3   8 350.0 245 3.73 3.840 15.41  0  0    3    4
## Ford Pantera L      15.8   8 351.0 264 4.22 3.170 14.50  0  1    5    4
## Maserati Bora       15.0   8 301.0 335 3.54 3.570 14.60  0  1    5    8
```

```
######Q10:Write an R program to count the number of observations with
cylinders greater than 4 and gear greater than 3.
length(which(mtcars$cyl > 4& mtcars$gear>3))
```

```
## [1] 7
```