

> install.packages('installr') #Updates R; run library(installr) then updateR()

WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:

https://cran.rstudio.com/bin/windows/Rtools/

Installing package into ‘C:/Users/SohagMaitra/OneDrive - Amitech Solutions, Inc/Documents/R/win-library/4.1’

(as ‘lib’ is unspecified)

trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.1/installr\_0.23.2.zip'

Content type 'application/zip' length 350387 bytes (342 KB)

downloaded 342 KB

package ‘installr’ successfully unpacked and MD5 sums checked

The downloaded binary packages are in

C:\Users\SohagMaitra\AppData\Local\Temp\RtmpUx5Ohw\downloaded\_packages

> install.packages("psych") #Perform descriptive statistics

WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:

https://cran.rstudio.com/bin/windows/Rtools/

Installing package into ‘C:/Users/SohagMaitra/OneDrive - Amitech Solutions, Inc/Documents/R/win-library/4.1’

(as ‘lib’ is unspecified)

trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.1/psych\_2.1.6.zip'

Content type 'application/zip' length 4144805 bytes (4.0 MB)

downloaded 4.0 MB

package ‘psych’ successfully unpacked and MD5 sums checked

The downloaded binary packages are in

C:\Users\SohagMaitra\AppData\Local\Temp\RtmpUx5Ohw\downloaded\_packages

> install.packages("tidyverse") #For advanced figures, plots, charts

WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:

https://cran.rstudio.com/bin/windows/Rtools/

Installing package into ‘C:/Users/SohagMaitra/OneDrive - Amitech Solutions, Inc/Documents/R/win-library/4.1’

(as ‘lib’ is unspecified)

trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.1/tidyverse\_1.3.1.zip'

Content type 'application/zip' length 430255 bytes (420 KB)

downloaded 420 KB

package ‘tidyverse’ successfully unpacked and MD5 sums checked

The downloaded binary packages are in

C:\Users\SohagMaitra\AppData\Local\Temp\RtmpUx5Ohw\downloaded\_packages

> install.packages("Hmisc") #Provides correlation matrix with significance values

WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:

https://cran.rstudio.com/bin/windows/Rtools/

Installing package into ‘C:/Users/SohagMaitra/OneDrive - Amitech Solutions, Inc/Documents/R/win-library/4.1’

(as ‘lib’ is unspecified)

trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.1/Hmisc\_4.5-0.zip'

Content type 'application/zip' length 3250643 bytes (3.1 MB)

downloaded 3.1 MB

package ‘Hmisc’ successfully unpacked and MD5 sums checked

The downloaded binary packages are in

C:\Users\SohagMaitra\AppData\Local\Temp\RtmpUx5Ohw\downloaded\_packages

> install.packages("RODBC") #Provides an ODBC interface for R

WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:

https://cran.rstudio.com/bin/windows/Rtools/

Installing package into ‘C:/Users/SohagMaitra/OneDrive - Amitech Solutions, Inc/Documents/R/win-library/4.1’

(as ‘lib’ is unspecified)

trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.1/RODBC\_1.3-18.zip'

Content type 'application/zip' length 892871 bytes (871 KB)

downloaded 871 KB

package ‘RODBC’ successfully unpacked and MD5 sums checked

The downloaded binary packages are in

C:\Users\SohagMaitra\AppData\Local\Temp\RtmpUx5Ohw\downloaded\_packages

> library(foreign)

> library(ggplot2)

>

> setwd("C:\\Users\\SohagMaitra\\OneDrive - Amitech Solutions, Inc\\Desktop\\using-data-ice-sohagma\\data")

>

> workingdirectory = "C:\Users\SohagMaitra\OneDrive - Amitech Solutions, Inc\Desktop\using-data-ice-sohagma\data"

Error: '\U' used without hex digits in character string starting ""C:\U"

> acct\_dir = "C:\\Users\\SohagMaitra\\AccountingData"

> mark\_dir = "C:\\MarketingData"

> setwd(workingdirectory)

Error in setwd(workingdirectory) : object 'workingdirectory' not found

> file.exists("C:\\Users\\SohagMaitra\\OneDrive - Amitech Solutions, Inc\\Desktop\\using-data-ice-sohagma\\data\\car.test.frame.txt")

[1] TRUE

>

> data = read.table("C:\\Users\\SohagMaitra\\OneDrive - Amitech Solutions, Inc\\Desktop\\using-data-ice-sohagma\\data\\car.test.frame.txt", header=T, sep="\t")

>

> data

Price Country Reliability Mileage Type Weight Disp. HP

1 8895 USA 4 33 Small 2560 97 113

2 7402 USA 2 33 Small 2345 114 90

3 6319 Korea 4 37 Small 1845 81 63

4 6635 Japan/USA 5 32 Small 2260 91 92

5 6599 Japan 5 32 Small 2440 113 103

6 8672 Mexico 4 26 Small 2285 97 82

7 7399 Japan/USA 5 33 Small 2275 97 90

8 7254 Korea 1 28 Small 2350 98 74

9 9599 Japan 5 25 Small 2295 109 90

10 5866 Japan NA 34 Small 1900 73 73

11 8748 Japan/USA 5 29 Small 2390 97 102

12 6488 Japan 5 35 Small 2075 89 78

13 9995 Germany 3 26 Small 2330 109 100

14 11545 USA 1 20 Sporty 3320 305 170

15 9745 USA 1 27 Sporty 2885 153 100

16 12164 USA 1 19 Sporty 3310 302 225

17 11470 USA 3 30 Sporty 2695 133 110

18 9410 Japan 5 33 Sporty 2170 97 108

19 13945 Japan 5 27 Sporty 2710 125 140

20 13249 Japan 3 24 Sporty 2775 146 140

21 10855 USA NA 26 Sporty 2840 107 92

22 13071 Japan NA 28 Sporty 2485 109 97

23 18900 Germany NA 27 Compact 2670 121 108

24 10565 USA 2 23 Compact 2640 151 110

25 10320 USA 1 26 Compact 2655 133 95

26 10945 USA 4 25 Compact 3065 181 141

27 9483 USA 2 24 Compact 2750 141 98

28 12145 Japan/USA 5 26 Compact 2920 132 125

29 12459 Japan/USA 4 24 Compact 2780 133 110

30 10989 Japan 5 25 Compact 2745 122 102

31 17879 Japan 4 21 Compact 3110 181 142

32 11650 Japan 5 21 Compact 2920 146 138

33 9995 USA 2 23 Compact 2645 151 110

34 15930 France NA 24 Compact 2575 116 120

35 11499 Japan/USA 5 23 Compact 2935 135 130

36 11588 Japan/USA 5 27 Compact 2920 122 115

37 18450 Sweden 3 23 Compact 2985 141 114

38 24760 Japan 5 20 Medium 3265 163 160

39 13150 USA 3 21 Medium 2880 151 110

40 12495 USA 2 22 Medium 2975 153 150

41 16342 USA 3 22 Medium 3450 202 147

42 15350 USA 2 22 Medium 3145 180 150

43 13195 USA 3 22 Medium 3190 182 140

44 14980 USA 1 23 Medium 3610 232 140

45 9999 Korea NA 23 Medium 2885 143 110

46 23300 Japan 5 21 Medium 3480 180 158

47 17899 Japan 5 22 Medium 3200 180 160

48 13150 USA 2 21 Medium 2765 151 110

49 14495 USA NA 21 Medium 3220 189 135

50 21498 Japan 3 23 Medium 3480 180 190

51 16145 USA 3 23 Large 3325 231 165

52 14525 USA 1 18 Large 3855 305 170

53 17257 USA 3 20 Large 3850 302 150

54 13995 USA NA 18 Van 3195 151 110

55 15395 USA 3 18 Van 3735 202 150

56 12267 USA 3 18 Van 3665 182 145

57 14944 Japan 5 19 Van 3735 181 150

58 14929 Japan NA 20 Van 3415 143 107

59 13949 Japan NA 20 Van 3185 146 138

60 14799 Japan NA 19 Van 3690 146 106

>

> names(data)

[1] "Price" "Country" "Reliability" "Mileage" "Type" "Weight" "Disp." "HP"

> ncol(data) #Number of columns

[1] 8

>

> nrow(data) #Number of rows

[1] 60

>

> str(data)

'data.frame': 60 obs. of 8 variables:

$ Price : int 8895 7402 6319 6635 6599 8672 7399 7254 9599 5866 ...

$ Country : chr "USA" "USA" "Korea" "Japan/USA" ...

$ Reliability: int 4 2 4 5 5 4 5 1 5 NA ...

$ Mileage : int 33 33 37 32 32 26 33 28 25 34 ...

$ Type : chr "Small" "Small" "Small" "Small" ...

$ Weight : int 2560 2345 1845 2260 2440 2285 2275 2350 2295 1900 ...

$ Disp. : int 97 114 81 91 113 97 97 98 109 73 ...

$ HP : int 113 90 63 92 103 82 90 74 90 73 ...

> unique(data$Type)

[1] "Small" "Sporty" "Compact" "Medium" "Large" "Van"

> unique(data$Country)

[1] "USA" "Korea" "Japan/USA" "Japan" "Mexico" "Germany" "France" "Sweden"

> data[57,3]

[1] 5

> data[24,]

Price Country Reliability Mileage Type Weight Disp. HP

24 10565 USA 2 23 Compact 2640 151 110

> data[29,1:3]

Price Country Reliability

29 12459 Japan/USA 4

> data[29,c(1,2,3)]

Price Country Reliability

29 12459 Japan/USA 4

> data[29,c("Price","Country","Reliability")]

Price Country Reliability

29 12459 Japan/USA 4

> data[45,c(3,7)]

Reliability Disp.

45 NA 143

> data[45,c("Reliability","Disp.")]

Reliability Disp.

45 NA 143

> hp.data = data[,c(1)]

> names(hp.data)

NULL

> edit(hp.data)

> hp.data1 = data[,1]

> hp.data2 = data$hp

> data[data$Type=="Compact" & data$Reliability >=4,]

Price Country Reliability Mileage Type Weight Disp. HP

NA NA <NA> NA NA <NA> NA NA NA

26 10945 USA 4 25 Compact 3065 181 141

28 12145 Japan/USA 5 26 Compact 2920 132 125

29 12459 Japan/USA 4 24 Compact 2780 133 110

30 10989 Japan 5 25 Compact 2745 122 102

31 17879 Japan 4 21 Compact 3110 181 142

32 11650 Japan 5 21 Compact 2920 146 138

NA.1 NA <NA> NA NA <NA> NA NA NA

35 11499 Japan/USA 5 23 Compact 2935 135 130

36 11588 Japan/USA 5 27 Compact 2920 122 115

>

> data[data$Type=="Compact" & data$Country=="Japan" & data$Reliability >=3,]

Price Country Reliability Mileage Type Weight Disp. HP

30 10989 Japan 5 25 Compact 2745 122 102

31 17879 Japan 4 21 Compact 3110 181 142

32 11650 Japan 5 21 Compact 2920 146 138

>

> data[data$Country=="Japan" | data$Country=="USA",]

Price Country Reliability Mileage Type Weight Disp. HP

1 8895 USA 4 33 Small 2560 97 113

2 7402 USA 2 33 Small 2345 114 90

5 6599 Japan 5 32 Small 2440 113 103

9 9599 Japan 5 25 Small 2295 109 90

10 5866 Japan NA 34 Small 1900 73 73

12 6488 Japan 5 35 Small 2075 89 78

14 11545 USA 1 20 Sporty 3320 305 170

15 9745 USA 1 27 Sporty 2885 153 100

16 12164 USA 1 19 Sporty 3310 302 225

17 11470 USA 3 30 Sporty 2695 133 110

18 9410 Japan 5 33 Sporty 2170 97 108

19 13945 Japan 5 27 Sporty 2710 125 140

20 13249 Japan 3 24 Sporty 2775 146 140

21 10855 USA NA 26 Sporty 2840 107 92

22 13071 Japan NA 28 Sporty 2485 109 97

24 10565 USA 2 23 Compact 2640 151 110

25 10320 USA 1 26 Compact 2655 133 95

26 10945 USA 4 25 Compact 3065 181 141

27 9483 USA 2 24 Compact 2750 141 98

30 10989 Japan 5 25 Compact 2745 122 102

31 17879 Japan 4 21 Compact 3110 181 142

32 11650 Japan 5 21 Compact 2920 146 138

33 9995 USA 2 23 Compact 2645 151 110

38 24760 Japan 5 20 Medium 3265 163 160

39 13150 USA 3 21 Medium 2880 151 110

40 12495 USA 2 22 Medium 2975 153 150

41 16342 USA 3 22 Medium 3450 202 147

42 15350 USA 2 22 Medium 3145 180 150

43 13195 USA 3 22 Medium 3190 182 140

44 14980 USA 1 23 Medium 3610 232 140

46 23300 Japan 5 21 Medium 3480 180 158

47 17899 Japan 5 22 Medium 3200 180 160

48 13150 USA 2 21 Medium 2765 151 110

49 14495 USA NA 21 Medium 3220 189 135

50 21498 Japan 3 23 Medium 3480 180 190

51 16145 USA 3 23 Large 3325 231 165

52 14525 USA 1 18 Large 3855 305 170

53 17257 USA 3 20 Large 3850 302 150

54 13995 USA NA 18 Van 3195 151 110

55 15395 USA 3 18 Van 3735 202 150

56 12267 USA 3 18 Van 3665 182 145

57 14944 Japan 5 19 Van 3735 181 150

58 14929 Japan NA 20 Van 3415 143 107

59 13949 Japan NA 20 Van 3185 146 138

60 14799 Japan NA 19 Van 3690 146 106

>

> data[data$Country=="USA" | data$Country=="Japan",]

Price Country Reliability Mileage Type Weight Disp. HP

1 8895 USA 4 33 Small 2560 97 113

2 7402 USA 2 33 Small 2345 114 90

5 6599 Japan 5 32 Small 2440 113 103

9 9599 Japan 5 25 Small 2295 109 90

10 5866 Japan NA 34 Small 1900 73 73

12 6488 Japan 5 35 Small 2075 89 78

14 11545 USA 1 20 Sporty 3320 305 170

15 9745 USA 1 27 Sporty 2885 153 100

16 12164 USA 1 19 Sporty 3310 302 225

17 11470 USA 3 30 Sporty 2695 133 110

18 9410 Japan 5 33 Sporty 2170 97 108

19 13945 Japan 5 27 Sporty 2710 125 140

20 13249 Japan 3 24 Sporty 2775 146 140

21 10855 USA NA 26 Sporty 2840 107 92

22 13071 Japan NA 28 Sporty 2485 109 97

24 10565 USA 2 23 Compact 2640 151 110

25 10320 USA 1 26 Compact 2655 133 95

26 10945 USA 4 25 Compact 3065 181 141

27 9483 USA 2 24 Compact 2750 141 98

30 10989 Japan 5 25 Compact 2745 122 102

31 17879 Japan 4 21 Compact 3110 181 142

32 11650 Japan 5 21 Compact 2920 146 138

33 9995 USA 2 23 Compact 2645 151 110

38 24760 Japan 5 20 Medium 3265 163 160

39 13150 USA 3 21 Medium 2880 151 110

40 12495 USA 2 22 Medium 2975 153 150

41 16342 USA 3 22 Medium 3450 202 147

42 15350 USA 2 22 Medium 3145 180 150

43 13195 USA 3 22 Medium 3190 182 140

44 14980 USA 1 23 Medium 3610 232 140

46 23300 Japan 5 21 Medium 3480 180 158

47 17899 Japan 5 22 Medium 3200 180 160

48 13150 USA 2 21 Medium 2765 151 110

49 14495 USA NA 21 Medium 3220 189 135

50 21498 Japan 3 23 Medium 3480 180 190

51 16145 USA 3 23 Large 3325 231 165

52 14525 USA 1 18 Large 3855 305 170

53 17257 USA 3 20 Large 3850 302 150

54 13995 USA NA 18 Van 3195 151 110

55 15395 USA 3 18 Van 3735 202 150

56 12267 USA 3 18 Van 3665 182 145

57 14944 Japan 5 19 Van 3735 181 150

58 14929 Japan NA 20 Van 3415 143 107

59 13949 Japan NA 20 Van 3185 146 138

60 14799 Japan NA 19 Van 3690 146 106

>

> data[data$Country=="USA" | (data$Country=="Japan" & data$Reliability>=4),]

Price Country Reliability Mileage Type Weight Disp. HP

1 8895 USA 4 33 Small 2560 97 113

2 7402 USA 2 33 Small 2345 114 90

5 6599 Japan 5 32 Small 2440 113 103

9 9599 Japan 5 25 Small 2295 109 90

NA NA <NA> NA NA <NA> NA NA NA

12 6488 Japan 5 35 Small 2075 89 78

14 11545 USA 1 20 Sporty 3320 305 170

15 9745 USA 1 27 Sporty 2885 153 100

16 12164 USA 1 19 Sporty 3310 302 225

17 11470 USA 3 30 Sporty 2695 133 110

18 9410 Japan 5 33 Sporty 2170 97 108

19 13945 Japan 5 27 Sporty 2710 125 140

21 10855 USA NA 26 Sporty 2840 107 92

NA.1 NA <NA> NA NA <NA> NA NA NA

24 10565 USA 2 23 Compact 2640 151 110

25 10320 USA 1 26 Compact 2655 133 95

26 10945 USA 4 25 Compact 3065 181 141

27 9483 USA 2 24 Compact 2750 141 98

30 10989 Japan 5 25 Compact 2745 122 102

31 17879 Japan 4 21 Compact 3110 181 142

32 11650 Japan 5 21 Compact 2920 146 138

33 9995 USA 2 23 Compact 2645 151 110

38 24760 Japan 5 20 Medium 3265 163 160

39 13150 USA 3 21 Medium 2880 151 110

40 12495 USA 2 22 Medium 2975 153 150

41 16342 USA 3 22 Medium 3450 202 147

42 15350 USA 2 22 Medium 3145 180 150

43 13195 USA 3 22 Medium 3190 182 140

44 14980 USA 1 23 Medium 3610 232 140

46 23300 Japan 5 21 Medium 3480 180 158

47 17899 Japan 5 22 Medium 3200 180 160

48 13150 USA 2 21 Medium 2765 151 110

49 14495 USA NA 21 Medium 3220 189 135

51 16145 USA 3 23 Large 3325 231 165

52 14525 USA 1 18 Large 3855 305 170

53 17257 USA 3 20 Large 3850 302 150

54 13995 USA NA 18 Van 3195 151 110

55 15395 USA 3 18 Van 3735 202 150

56 12267 USA 3 18 Van 3665 182 145

57 14944 Japan 5 19 Van 3735 181 150

NA.2 NA <NA> NA NA <NA> NA NA NA

NA.3 NA <NA> NA NA <NA> NA NA NA

NA.4 NA <NA> NA NA <NA> NA NA NA

> split.num = round(nrow(data)\*.70,0)

> nrow(data)

[1] 60

> x = 1:60

> data.split = data[sample(x,split.num,replace=F),]

> nrow(data.split)

[1] 42

> samp.size = nrow(data) / 8

> samp.size

[1] 7.5

> indices.one = sort(sample(seq\_len(nrow(data)), size=samp.size))

> indices.not\_1 = setdiff(seq\_len(nrow(data)), indices.one)

> indices.two = sort(sample(indices.not\_1, size=samp.size))

> indices.not\_12 = setdiff(indices.not\_1, indices.two)

> indices.three = sort(sample(indices.not\_12, size=samp.size))

> indices.not\_123 = setdiff(indices.not\_12, indices.three)

> indices.four = sort(sample(indices.not\_123, size=samp.size))

> indices.not\_1234 = setdiff(indices.not\_123, indices.four)

> indices.five = sort(sample(indices.not\_1234, size=samp.size))

> indices.not\_12345 = setdiff(indices.not\_1234, indices.five)

> indices.six = sort(sample(indices.not\_12345, size=samp.size))

> indices.not\_123456 = setdiff(indices.not\_12345, indices.six)

> indices.seven = sort(sample(indices.not\_123456, size=samp.size))

> indices.eight = setdiff(indices.not\_123456, indices.seven)

>

> indices.one

[1] 6 7 24 32 36 38 57

> indices.two

[1] 19 23 26 35 39 45 51

> indices.three

[1] 5 8 22 33 48 54 58

> indices.four

[1] 1 4 10 11 31 37 43

> indices.five

[1] 9 12 20 29 34 52 60

> indices.six

[1] 3 14 21 30 41 46 53

> indices.seven

[1] 2 13 15 25 47 49 56

> indices.eight

[1] 16 17 18 27 28 40 42 44 50 55 59

>

> data.1 = data[indices.one,]

> data.2 = data[indices.two,]

> data.3 = data[indices.three,]

> data.4 = data[indices.four,]

> data.5 = data[indices.five,]

> data.6 = data[indices.six,]

> data.7 = data[indices.seven,]

> data.8 = data[indices.eight,]

>

> data.1

Price Country Reliability Mileage Type Weight Disp. HP

6 8672 Mexico 4 26 Small 2285 97 82

7 7399 Japan/USA 5 33 Small 2275 97 90

24 10565 USA 2 23 Compact 2640 151 110

32 11650 Japan 5 21 Compact 2920 146 138

36 11588 Japan/USA 5 27 Compact 2920 122 115

38 24760 Japan 5 20 Medium 3265 163 160

57 14944 Japan 5 19 Van 3735 181 150

> data.2

Price Country Reliability Mileage Type Weight Disp. HP

19 13945 Japan 5 27 Sporty 2710 125 140

23 18900 Germany NA 27 Compact 2670 121 108

26 10945 USA 4 25 Compact 3065 181 141

35 11499 Japan/USA 5 23 Compact 2935 135 130

39 13150 USA 3 21 Medium 2880 151 110

45 9999 Korea NA 23 Medium 2885 143 110

51 16145 USA 3 23 Large 3325 231 165

> data.3

Price Country Reliability Mileage Type Weight Disp. HP

5 6599 Japan 5 32 Small 2440 113 103

8 7254 Korea 1 28 Small 2350 98 74

22 13071 Japan NA 28 Sporty 2485 109 97

33 9995 USA 2 23 Compact 2645 151 110

48 13150 USA 2 21 Medium 2765 151 110

54 13995 USA NA 18 Van 3195 151 110

58 14929 Japan NA 20 Van 3415 143 107

> data.4

Price Country Reliability Mileage Type Weight Disp. HP

1 8895 USA 4 33 Small 2560 97 113

4 6635 Japan/USA 5 32 Small 2260 91 92

10 5866 Japan NA 34 Small 1900 73 73

11 8748 Japan/USA 5 29 Small 2390 97 102

31 17879 Japan 4 21 Compact 3110 181 142

37 18450 Sweden 3 23 Compact 2985 141 114

43 13195 USA 3 22 Medium 3190 182 140

> data.5

Price Country Reliability Mileage Type Weight Disp. HP

9 9599 Japan 5 25 Small 2295 109 90

12 6488 Japan 5 35 Small 2075 89 78

20 13249 Japan 3 24 Sporty 2775 146 140

29 12459 Japan/USA 4 24 Compact 2780 133 110

34 15930 France NA 24 Compact 2575 116 120

52 14525 USA 1 18 Large 3855 305 170

60 14799 Japan NA 19 Van 3690 146 106

> data.6

Price Country Reliability Mileage Type Weight Disp. HP

3 6319 Korea 4 37 Small 1845 81 63

14 11545 USA 1 20 Sporty 3320 305 170

21 10855 USA NA 26 Sporty 2840 107 92

30 10989 Japan 5 25 Compact 2745 122 102

41 16342 USA 3 22 Medium 3450 202 147

46 23300 Japan 5 21 Medium 3480 180 158

53 17257 USA 3 20 Large 3850 302 150

> data.7

Price Country Reliability Mileage Type Weight Disp. HP

2 7402 USA 2 33 Small 2345 114 90

13 9995 Germany 3 26 Small 2330 109 100

15 9745 USA 1 27 Sporty 2885 153 100

25 10320 USA 1 26 Compact 2655 133 95

47 17899 Japan 5 22 Medium 3200 180 160

49 14495 USA NA 21 Medium 3220 189 135

56 12267 USA 3 18 Van 3665 182 145

> data.8

Price Country Reliability Mileage Type Weight Disp. HP

16 12164 USA 1 19 Sporty 3310 302 225

17 11470 USA 3 30 Sporty 2695 133 110

18 9410 Japan 5 33 Sporty 2170 97 108

27 9483 USA 2 24 Compact 2750 141 98

28 12145 Japan/USA 5 26 Compact 2920 132 125

40 12495 USA 2 22 Medium 2975 153 150

42 15350 USA 2 22 Medium 3145 180 150

44 14980 USA 1 23 Medium 3610 232 140

50 21498 Japan 3 23 Medium 3480 180 190

55 15395 USA 3 18 Van 3735 202 150

59 13949 Japan NA 20 Van 3185 146 138

> data[,sapply(data,is.numeric)] #Price, Reliability, Mileage, Weight, Disp. HP

Price Reliability Mileage Weight Disp. HP

1 8895 4 33 2560 97 113

2 7402 2 33 2345 114 90

3 6319 4 37 1845 81 63

4 6635 5 32 2260 91 92

5 6599 5 32 2440 113 103

6 8672 4 26 2285 97 82

7 7399 5 33 2275 97 90

8 7254 1 28 2350 98 74

9 9599 5 25 2295 109 90

10 5866 NA 34 1900 73 73

11 8748 5 29 2390 97 102

12 6488 5 35 2075 89 78

13 9995 3 26 2330 109 100

14 11545 1 20 3320 305 170

15 9745 1 27 2885 153 100

16 12164 1 19 3310 302 225

17 11470 3 30 2695 133 110

18 9410 5 33 2170 97 108

19 13945 5 27 2710 125 140

20 13249 3 24 2775 146 140

21 10855 NA 26 2840 107 92

22 13071 NA 28 2485 109 97

23 18900 NA 27 2670 121 108

24 10565 2 23 2640 151 110

25 10320 1 26 2655 133 95

26 10945 4 25 3065 181 141

27 9483 2 24 2750 141 98

28 12145 5 26 2920 132 125

29 12459 4 24 2780 133 110

30 10989 5 25 2745 122 102

31 17879 4 21 3110 181 142

32 11650 5 21 2920 146 138

33 9995 2 23 2645 151 110

34 15930 NA 24 2575 116 120

35 11499 5 23 2935 135 130

36 11588 5 27 2920 122 115

37 18450 3 23 2985 141 114

38 24760 5 20 3265 163 160

39 13150 3 21 2880 151 110

40 12495 2 22 2975 153 150

41 16342 3 22 3450 202 147

42 15350 2 22 3145 180 150

43 13195 3 22 3190 182 140

44 14980 1 23 3610 232 140

45 9999 NA 23 2885 143 110

46 23300 5 21 3480 180 158

47 17899 5 22 3200 180 160

48 13150 2 21 2765 151 110

49 14495 NA 21 3220 189 135

50 21498 3 23 3480 180 190

51 16145 3 23 3325 231 165

52 14525 1 18 3855 305 170

53 17257 3 20 3850 302 150

54 13995 NA 18 3195 151 110

55 15395 3 18 3735 202 150

56 12267 3 18 3665 182 145

57 14944 5 19 3735 181 150

58 14929 NA 20 3415 143 107

59 13949 NA 20 3185 146 138

60 14799 NA 19 3690 146 106

> num.data = data[,c(1,3,4,6,7,8)]

> names(num.data)

[1] "Price" "Reliability" "Mileage" "Weight" "Disp." "HP"

> edit(num.data)

Price Reliability Mileage Weight Disp. HP

1 8895 4 33 2560 97 113

2 7402 2 33 2345 114 90

3 6319 4 37 1845 81 63

4 6635 5 32 2260 91 92

5 6599 5 32 2440 113 103

6 8672 4 26 2285 97 82

7 7399 5 33 2275 97 90

8 7254 1 28 2350 98 74

9 9599 5 25 2295 109 90

10 5866 NA 34 1900 73 73

11 8748 5 29 2390 97 102

12 6488 5 35 2075 89 78

13 9995 3 26 2330 109 100

14 11545 1 20 3320 305 170

15 9745 1 27 2885 153 100

16 12164 1 19 3310 302 225

17 11470 3 30 2695 133 110

18 9410 5 33 2170 97 108

19 13945 5 27 2710 125 140

20 13249 3 24 2775 146 140

21 10855 NA 26 2840 107 92

22 13071 NA 28 2485 109 97

23 18900 NA 27 2670 121 108

24 10565 2 23 2640 151 110

25 10320 1 26 2655 133 95

26 10945 4 25 3065 181 141

27 9483 2 24 2750 141 98

28 12145 5 26 2920 132 125

29 12459 4 24 2780 133 110

30 10989 5 25 2745 122 102

31 17879 4 21 3110 181 142

32 11650 5 21 2920 146 138

33 9995 2 23 2645 151 110

34 15930 NA 24 2575 116 120

35 11499 5 23 2935 135 130

36 11588 5 27 2920 122 115

37 18450 3 23 2985 141 114

38 24760 5 20 3265 163 160

39 13150 3 21 2880 151 110

40 12495 2 22 2975 153 150

41 16342 3 22 3450 202 147

42 15350 2 22 3145 180 150

43 13195 3 22 3190 182 140

44 14980 1 23 3610 232 140

45 9999 NA 23 2885 143 110

46 23300 5 21 3480 180 158

47 17899 5 22 3200 180 160

48 13150 2 21 2765 151 110

49 14495 NA 21 3220 189 135

50 21498 3 23 3480 180 190

51 16145 3 23 3325 231 165

52 14525 1 18 3855 305 170

53 17257 3 20 3850 302 150

54 13995 NA 18 3195 151 110

55 15395 3 18 3735 202 150

56 12267 3 18 3665 182 145

57 14944 5 19 3735 181 150

58 14929 NA 20 3415 143 107

59 13949 NA 20 3185 146 138

60 14799 NA 19 3690 146 106

> num.data = subset(num.data,select=-c(HP, Price))

> num.data

Reliability Mileage Weight Disp.

1 4 33 2560 97

2 2 33 2345 114

3 4 37 1845 81

4 5 32 2260 91

5 5 32 2440 113

6 4 26 2285 97

7 5 33 2275 97

8 1 28 2350 98

9 5 25 2295 109

10 NA 34 1900 73

11 5 29 2390 97

12 5 35 2075 89

13 3 26 2330 109

14 1 20 3320 305

15 1 27 2885 153

16 1 19 3310 302

17 3 30 2695 133

18 5 33 2170 97

19 5 27 2710 125

20 3 24 2775 146

21 NA 26 2840 107

22 NA 28 2485 109

23 NA 27 2670 121

24 2 23 2640 151

25 1 26 2655 133

26 4 25 3065 181

27 2 24 2750 141

28 5 26 2920 132

29 4 24 2780 133

30 5 25 2745 122

31 4 21 3110 181

32 5 21 2920 146

33 2 23 2645 151

34 NA 24 2575 116

35 5 23 2935 135

36 5 27 2920 122

37 3 23 2985 141

38 5 20 3265 163

39 3 21 2880 151

40 2 22 2975 153

41 3 22 3450 202

42 2 22 3145 180

43 3 22 3190 182

44 1 23 3610 232

45 NA 23 2885 143

46 5 21 3480 180

47 5 22 3200 180

48 2 21 2765 151

49 NA 21 3220 189

50 3 23 3480 180

51 3 23 3325 231

52 1 18 3855 305

53 3 20 3850 302

54 NA 18 3195 151

55 3 18 3735 202

56 3 18 3665 182

57 5 19 3735 181

58 NA 20 3415 143

59 NA 20 3185 146

60 NA 19 3690 146

> country.weight.data = data[,c("Country", "Weight")]

> country.weight.data

Country Weight

1 USA 2560

2 USA 2345

3 Korea 1845

4 Japan/USA 2260

5 Japan 2440

6 Mexico 2285

7 Japan/USA 2275

8 Korea 2350

9 Japan 2295

10 Japan 1900

11 Japan/USA 2390

12 Japan 2075

13 Germany 2330

14 USA 3320

15 USA 2885

16 USA 3310

17 USA 2695

18 Japan 2170

19 Japan 2710

20 Japan 2775

21 USA 2840

22 Japan 2485

23 Germany 2670

24 USA 2640

25 USA 2655

26 USA 3065

27 USA 2750

28 Japan/USA 2920

29 Japan/USA 2780

30 Japan 2745

31 Japan 3110

32 Japan 2920

33 USA 2645

34 France 2575

35 Japan/USA 2935

36 Japan/USA 2920

37 Sweden 2985

38 Japan 3265

39 USA 2880

40 USA 2975

41 USA 3450

42 USA 3145

43 USA 3190

44 USA 3610

45 Korea 2885

46 Japan 3480

47 Japan 3200

48 USA 2765

49 USA 3220

50 Japan 3480

51 USA 3325

52 USA 3855

53 USA 3850

54 USA 3195

55 USA 3735

56 USA 3665

57 Japan 3735

58 Japan 3415

59 Japan 3185

60 Japan 3690

> names(country.weight.data)[1] = "Country\_1"

> names(country.weight.data)[2] = "Weight\_2"

> country.weight.data

Country\_1 Weight\_2

1 USA 2560

2 USA 2345

3 Korea 1845

4 Japan/USA 2260

5 Japan 2440

6 Mexico 2285

7 Japan/USA 2275

8 Korea 2350

9 Japan 2295

10 Japan 1900

11 Japan/USA 2390

12 Japan 2075

13 Germany 2330

14 USA 3320

15 USA 2885

16 USA 3310

17 USA 2695

18 Japan 2170

19 Japan 2710

20 Japan 2775

21 USA 2840

22 Japan 2485

23 Germany 2670

24 USA 2640

25 USA 2655

26 USA 3065

27 USA 2750

28 Japan/USA 2920

29 Japan/USA 2780

30 Japan 2745

31 Japan 3110

32 Japan 2920

33 USA 2645

34 France 2575

35 Japan/USA 2935

36 Japan/USA 2920

37 Sweden 2985

38 Japan 3265

39 USA 2880

40 USA 2975

41 USA 3450

42 USA 3145

43 USA 3190

44 USA 3610

45 Korea 2885

46 Japan 3480

47 Japan 3200

48 USA 2765

49 USA 3220

50 Japan 3480

51 USA 3325

52 USA 3855

53 USA 3850

54 USA 3195

55 USA 3735

56 USA 3665

57 Japan 3735

58 Japan 3415

59 Japan 3185

60 Japan 3690

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