



REPORT SERIES WITH DLOOKR

Data Quality Diagnosis Report

Author: dlookr package

Version: 0.3.12

Contents

1	Dia	gnose l	Data
	1.1	Overvi	iew of Diagnosis
		1.1.1	List of all variables quality
		1.1.2	Diagnosis of missing data
		1.1.3	Diagnosis of unique data(Text and Category)
		1.1.4	Diagnosis of unique data(Numerical)
	1.2	Detaile	ed data diagnosis
		1.2.1	Diagnosis of categorical variables
		1.2.2	Diagnosis of numerical variables
		1.2.3	List of numerical diagnosis (zero)
		1.2.4	List of numerical diagnosis (minus)
2	Dia	gnose (Outliers
			iew of Diagnosis
		2.1.1	Diagnosis of numerical variable outliers
	2.2	Detaile	ed outliers diagnosis

Chapter 1

Diagnose Data

1.1 Overview of Diagnosis

1.1.1 List of all variables quality

Table 1.1: Data quality overview table

variables	type	missing (n)	missing (%)	unique (n)	unique (n/N)
manufacturer	factor	0	0	15	0.064
model	factor	0	0	38	0.162
displ	numeric	0	0	35	0.150
year	integer	0	0	2	0.009
cyl	integer	0	0	4	0.017
trans	factor	0	0	10	0.043
drv	factor	0	0	3	0.013
cty	integer	0	0	21	0.090
hwy	integer	0	0	27	0.115
fl	factor	0	0	5	0.021
class	factor	0	0	7	0.030

1.1.2 Diagnosis of missing data

No variables including missing values

1.1.3 Diagnosis of unique data(Text and Category)

No variable with a high proportion greater than 0.5

1.1.4 Diagnosis of unique data(Numerical)

Table 1.2: Variables where the proportion of unique data is less than 0.1

variables	type	missing (n)	missing $(\%)$	unique (n)	unique (n/N)
cty	integer	0	0	21	0.090
cyl	integer	0	0	4	0.017
year	integer	0	0	2	0.009

1.2 Detailed data diagnosis

1.2.1 Diagnosis of categorical variables

Table 1.3: Categorical variable level top 10

manufacturer dodge 234 37 15.812 11 manufacturer toyota 234 34 14.530 2 manufacturer rollyota 234 27 11.538 3 manufacturer ford 234 25 10.684 4 manufacturer chevrolet 234 18 7.692 6 manufacturer audi 234 14 5.983 7 manufacturer nissan 234 14 5.983 8 manufacturer nissan 234 13 5.556 9 manufacturer honda 234 13 5.556 9 manufacturer honda 234 19 3.846 10 model caravan 2wd 234 19 3.846 10 model rautatopickup 4wd 234 9 3.846 4 model jetta 234 9 3.846 6 <t< th=""><th>variables</th><th>levels</th><th>N</th><th>freq</th><th>ratio(%)</th><th>rank</th></t<>	variables	levels	N	freq	ratio(%)	rank
manufacturer toyota 234 34 14.530 2 manufacturer volkswagen 234 27 11.538 3 manufacturer ford 234 25 10.684 4 manufacturer chevrolet 234 19 8.120 5 manufacturer mudi 234 14 5.983 7 manufacturer subaru 234 14 5.983 8 manufacturer nissan 234 13 5.556 9 manufacturer honda 234 11 4.701 1 model caravan 2wd 234 10 4.274 2 model caravan 2wd 234 10 4.274 2 model caravan 2wd 234 10 4.274 2 model dakota pickup 4wd 234 9 3.846 5 model mustang 234 9 3.846 6						
manufacturer manufacturer manufacturer manufacturer manufacturer manufacturer chevrolet 234 25 10.684 4 manufacturer missan 234 14 5.983 8 manufacturer manufacturer manufacturer manufacturer manufacturer missan 234 13 5.556 9 model caravan 2wd 234 11 4.701 1 model caravan 2wd 234 10 4.274 2 model caravan 2wd 234 10 4.274 2 model caravan 2wd 234 9 3.846 3 model dakota pickup 4wd 234 9 3.846 3 model mustang 234 9 3.846 4 model mustang 234 8 3.419 7 model mustang 234 8 3.419 7 model mustang		_				
manufacturer ford 234 25 10.684 4 manufacturer chevrolet 234 19 8.120 5 manufacturer audi 234 18 7.692 6 manufacturer hyundai 234 14 5.983 7 manufacturer honda 234 13 5.556 9 manufacturer honda 234 13 5.556 9 manufacturer honda 234 11 4.701 1 model caravan 2wd 234 10 4.274 2 model ram 1500 pickup 4wd 234 9 3.846 3 model dakota pickup 4wd 234 9 3.846 3 model mustang 234 9 3.846 5 model mustang 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 9 m						
manufacturer chevrolet 234 19 8.120 5 manufacturer audi 234 14 5.983 7 manufacturer hyundai 234 14 5.983 8 manufacturer nissan 234 13 5.556 9 manufacturer honda 234 10 4.274 2 model caravan 2wd 234 10 4.274 2 model dakota pickup 4wd 234 9 3.846 3 model dakota pickup 4wd 234 9 3.846 4 model mustang 234 9 3.846 4 model grand cherokee 4wd 234 8 3.419 9		© .				
manufacturer audi 234 18 7.692 6 manufacturer hyundai 234 14 5.983 7 manufacturer subaru 234 14 5.983 8 manufacturer honda 234 13 5.556 9 manufacturer honda 234 13 5.556 9 manufacturer honda 234 11 4.701 1 model caravan 2wd 234 10 4.274 2 model dakota pickup 4wd 234 9 3.846 4 model mustang 234 9 3.846 5 model mustang 234 8 3.419 9 model						
manufacturer hyundai 234 14 5.983 7 manufacturer subaru 234 14 5.983 8 manufacturer honda 234 13 5.556 9 manufacturer honda 234 13 5.556 9 model caravan 2wd 234 11 4.701 1 model caravan 2wd 234 10 4.274 2 model civic 234 9 3.846 4 model dakota pickup 4wd 234 9 3.846 4 model jetta 234 9 3.846 4 model mustang 234 9 3.846 6 model mustang 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 9 model grand cherokee 4wd 234 7 2.991 10 model <						
manufacturer subaru 234 14 5.983 8 manufacturer nissan 234 13 5.556 9 manufacturer honda 234 9 3.846 10 model caravan 2wd 234 10 4.274 2 model civic 234 9 3.846 3 model dakota pickup 4wd 234 9 3.846 3 model mustang 234 9 3.846 5 model mustang 234 9 3.846 6 model mustang 234 9 3.846 6 model au quattro 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 8 model grand cherokee 4wd 234 7 2.991 10 model camry 234 7 2.991 11 model camry						
manufacturer nissan 234 13 5.556 9 manufacturer honda 234 9 3.846 10 model caravan 2wd 234 11 4.701 1 model ram 1500 pickup 4wd 234 10 4.274 2 model dakota pickup 4wd 234 9 3.846 3 model jetta 234 9 3.846 4 model mustang 234 9 3.846 6 model mustang 234 9 3.846 6 model mustang 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 8 model grand cherokee 4wd 234 8 3.419 9 model aut 234 7 2.991 10 model camry 234 7 2.991 12 model durang		v				
manufacturer honda 234 9 3.846 10 model caravan 2wd 234 11 4.701 1 model ram 1500 pickup 4wd 234 10 4.274 2 model civic 234 9 3.846 3 model dakota pickup 4wd 234 9 3.846 4 model jetta 234 9 3.846 5 model mustang 234 9 3.846 6 model a4 quattro 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 9 model impreza awd 234 8 3.419 9 model camry 234 7 2.991 10 model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 15 model sonat						
model caravan 2wd 234 11 4.701 1 model ram 1500 pickup 4wd 234 10 4.274 2 model civic 234 9 3.846 3 model dakota pickup 4wd 234 9 3.846 4 model mustang 234 9 3.846 5 model mustang 234 9 3.846 6 model a4 quattro 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 9 model impreza awd 234 8 3.419 9 model camry 234 7 2.991 10 model camry 234 7 2.991 11 model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model sonata <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
model ram 1500 pickup 4wd 234 10 4.274 2 model civic 234 9 3.846 3 model dakota pickup 4wd 234 9 3.846 4 model jetta 234 9 3.846 6 model mustang 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 9 model grand cherokee 4wd 234 8 3.419 9 model impreza awd 234 8 3.419 9 model impreza awd 234 7 2.991 10 model camry 234 7 2.991 10 model camry 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model passat 234 7 2.991 15 model tojota tac	manufacturer	honda	234	9	3.846	10
model civic 234 9 3.846 4 model dakota pickup 4wd 234 9 3.846 4 model mustang 234 9 3.846 5 model mustang 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 8 model impreza awd 234 8 3.419 9 model impreza awd 234 8 3.419 9 model impreza awd 234 7 2.991 10 model camry 234 7 2.991 10 model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model f150 pickup 4wd 234 7 2.991 15 model sonata 234 7 2.991 15 model titility sol	model	caravan 2wd	234	11	4.701	1
model dakota pickup 4wd 234 9 3.846 5 model mustang 234 9 3.846 5 model mustang 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 8 model impreza awd 234 8 3.419 9 model impreza awd 234 8 3.419 9 model impreza awd 234 7 2.991 10 model camry 234 7 2.991 10 model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model passat 234 7 2.991 15 model sonata 234 7 2.991 15 model tiburon 234 7 2.991 15 model toyota tacoma 4wd<	model	ram 1500 pickup 4 wd	234	10	4.274	2
model jetta 234 9 3.846 5 model mustang 234 9 3.846 6 model a4 quattro 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 9 model impreza awd 234 8 3.419 9 model impreza awd 234 7 2.991 10 model camry 234 7 2.991 10 model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model f150 pickup 4wd 234 7 2.991 14 model passat 234 7 2.991 15 model sonata 234 7 2.991 15 model tiburon 234 7 2.991 15 trans auto(14)	model	civic	234	9	3.846	3
model mustang 234 9 3.846 6 model a4 quattro 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 9 model impreza awd 234 8 3.419 9 model impreza awd 234 7 2.991 10 model camry 234 7 2.991 10 model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model f150 pickup 4wd 234 7 2.991 14 model passat 234 7 2.991 15 model sonata 234 7 2.991 15 model toyota tacoma 4wd 234 7 2.991 18 trans auto(14) 234 83 35.470 1 trans auto(15	model	dakota pickup 4wd	234	9	3.846	4
model a4 quattro 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 8 model impreza awd 234 8 3.419 9 model a4 234 7 2.991 10 model camry 234 7 2.991 11 model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model passat 234 7 2.991 14 model passat 234 7 2.991 15 model sonata 234 7 2.991 15 model tiburon 234 7 2.991 16 model tiburon 234 7 2.991 18 trans auto(14) 234 83 35.470 1 trans auto(15) 234	model	jetta	234	9	3.846	5
model a4 quattro 234 8 3.419 7 model grand cherokee 4wd 234 8 3.419 8 model impreza awd 234 8 3.419 9 model a4 234 7 2.991 10 model camry 234 7 2.991 11 model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model passat 234 7 2.991 14 model passat 234 7 2.991 15 model sonata 234 7 2.991 15 model sonata 234 7 2.991 15 model tiburon 234 7 2.991 18 trans auto(14) 234 83 35.470 1 trans auto(15) 234	model	mustang	234	9	3.846	6
model grand cherokee 4wd 234 8 3.419 9 model a4 234 8 3.419 9 model a4 234 7 2.991 10 model camry 234 7 2.991 11 model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model passat 234 7 2.991 14 model passat 234 7 2.991 15 model sonata 234 7 2.991 15 model tiburon 234 7 2.991 16 model tiburon 234 7 2.991 17 model tiburon 234 7 2.991 18 trans auto(14) 234 83 35.470 1 trans auto(15) 234 <t< td=""><td>model</td><td>_</td><td>234</td><td>8</td><td>3.419</td><td>7</td></t<>	model	_	234	8	3.419	7
model impreza awd 234 8 3.419 9 model a4 234 7 2.991 10 model camry 234 7 2.991 11 model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model f150 pickup 4wd 234 7 2.991 14 model passat 234 7 2.991 15 model sonata 234 7 2.991 15 model tiburon 234 7 2.991 15 model tiburon 234 7 2.991 17 model tiburon 234 7 2.991 18 trans auto(14) 234 8 35.470 1 trans auto(15) 234 38 24.786 2 trans auto(s6) 234	model	_	234			8
model a4 234 7 2.991 10 model camry 234 7 2.991 11 model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model f150 pickup 4wd 234 7 2.991 14 model sonata 234 7 2.991 15 model sonata 234 7 2.991 15 model tiburon 234 7 2.991 17 model tiburon 234 7 2.991 18 trans auto(14) 234 83 35.470 1 trans auto(15) 234	model	_	234	8	3.419	9
model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model f150 pickup 4wd 234 7 2.991 14 model passat 234 7 2.991 15 model sonata 234 7 2.991 16 model tiburon 234 7 2.991 17 model toyota tacoma 4wd 234 7 2.991 18 trans auto(14) 234 83 35.470 1 trans auto(14) 234 83 35.470 1 trans auto(15) 234 39 16.667 3 trans auto(15) 234 39 16.667 3 trans auto(s6) 234 16 6.838 5 trans auto(s6) 234 6 2.564 6 trans auto(a)						
model camry solara 234 7 2.991 12 model durango 4wd 234 7 2.991 13 model f150 pickup 4wd 234 7 2.991 14 model passat 234 7 2.991 15 model sonata 234 7 2.991 16 model tiburon 234 7 2.991 17 model toyota tacoma 4wd 234 7 2.991 18 trans auto(14) 234 83 35.470 1 trans auto(14) 234 83 35.470 1 trans auto(15) 234 39 16.667 3 trans auto(15) 234 39 16.667 3 trans auto(s6) 234 16 6.838 5 trans auto(s6) 234 6 2.564 6 trans auto(a)	model	camry	234	7	2 991	11
model durango 4wd 234 7 2.991 13 model f150 pickup 4wd 234 7 2.991 14 model passat 234 7 2.991 15 model sonata 234 7 2.991 16 model tiburon 234 7 2.991 17 model toyota tacoma 4wd 234 7 2.991 18 trans auto(14) 234 83 35.470 1 trans auto(15) 234 58 24.786 2 trans auto(15) 234 39 16.667 3 trans manual(m6) 234 19 8.120 4 trans auto(s6) 234 16 6.838 5 trans auto(av) 234 5 2.137 7 trans auto(av) 234 3 1.282 8 trans auto(s5)		•				
model f150 pickup 4wd 234 7 2.991 14 model passat 234 7 2.991 15 model sonata 234 7 2.991 16 model tiburon 234 7 2.991 17 model toyota tacoma 4wd 234 7 2.991 18 trans auto(14) 234 83 35.470 1 trans manual(m5) 234 58 24.786 2 trans auto(15) 234 39 16.667 3 trans manual(m6) 234 19 8.120 4 trans auto(s6) 234 16 6.838 5 trans auto(l6) 234 6 2.564 6 trans auto(av) 234 5 2.137 7 trans auto(s4) 234 3 1.282 9 trans auto(s5)						
model passat 234 7 2.991 15 model sonata 234 7 2.991 16 model tiburon 234 7 2.991 17 model toyota tacoma 4wd 234 7 2.991 18 trans auto(14) 234 83 35.470 1 trans manual(m5) 234 58 24.786 2 trans auto(15) 234 39 16.667 3 trans manual(m6) 234 19 8.120 4 trans auto(s6) 234 16 6.838 5 trans auto(av) 234 6 2.564 6 trans auto(av) 234 5 2.137 7 trans auto(s4) 234 3 1.282 8 trans auto(s5) 234 3 1.282 9 trans auto(s5) 234<						
model sonata 234 7 2.991 16 model tiburon 234 7 2.991 17 model toyota tacoma 4wd 234 7 2.991 18 trans auto(14) 234 83 35.470 1 trans manual(m5) 234 58 24.786 2 trans auto(15) 234 39 16.667 3 trans manual(m6) 234 19 8.120 4 trans auto(s6) 234 16 6.838 5 trans auto(l6) 234 6 2.564 6 trans auto(av) 234 5 2.137 7 trans auto(s4) 234 3 1.282 8 trans auto(s5) 234 3 1.282 9 trans auto(s5) 234 2 0.855 10 drv f 234						
model tiburon 234 7 2.991 17 model toyota tacoma 4wd 234 7 2.991 18 trans auto(l4) 234 83 35.470 1 trans manual(m5) 234 58 24.786 2 trans auto(l5) 234 39 16.667 3 trans manual(m6) 234 19 8.120 4 trans auto(s6) 234 16 6.838 5 trans auto(l6) 234 6 2.564 6 trans auto(av) 234 5 2.137 7 trans auto(s4) 234 3 1.282 8 trans auto(s5) 234 3 1.282 9 trans auto(l3) 234 2 0.855 10 drv f 234 106 45.299 1 drv r 234		-				
model toyota tacoma 4wd 234 7 2.991 18 trans auto(14) 234 83 35.470 1 trans manual(m5) 234 58 24.786 2 trans auto(15) 234 39 16.667 3 trans manual(m6) 234 19 8.120 4 trans auto(s6) 234 16 6.838 5 trans auto(l6) 234 6 2.564 6 trans auto(av) 234 5 2.137 7 trans auto(s4) 234 3 1.282 8 trans auto(s5) 234 3 1.282 9 trans auto(l3) 234 2 0.855 10 drv f 234 106 45.299 1 drv f 234 103 44.017 2 drv r 234 1						
trans auto(14) 234 83 35.470 1 trans manual(m5) 234 58 24.786 2 trans auto(15) 234 39 16.667 3 trans manual(m6) 234 19 8.120 4 trans auto(s6) 234 16 6.838 5 trans auto(16) 234 6 2.564 6 trans auto(av) 234 5 2.137 7 trans auto(s4) 234 3 1.282 8 trans auto(s5) 234 3 1.282 9 trans auto(13) 234 2 0.855 10 drv f 234 106 45.299 1 drv 4 234 103 44.017 2 drv r 234 25 10.684 3 fl r 234 168 71.795 1 fl p 234 52 22.222 2						
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$						
trans auto(l5) 234 39 16.667 3 trans manual(m6) 234 19 8.120 4 trans auto(s6) 234 16 6.838 5 trans auto(l6) 234 6 2.564 6 trans auto(av) 234 5 2.137 7 trans auto(s4) 234 3 1.282 8 trans auto(s5) 234 3 1.282 9 trans auto(l3) 234 2 0.855 10 drv f 234 106 45.299 1 drv q 234 103 44.017 2 drv r 234 25 10.684 3 fl r 234 168 71.795 1 fl p 234 52 22.222 2						
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	trans	` '				
trans auto(s6) 234 16 6.838 5 trans auto(l6) 234 6 2.564 6 trans auto(av) 234 5 2.137 7 trans auto(s4) 234 3 1.282 8 trans auto(s5) 234 3 1.282 9 trans auto(l3) 234 2 0.855 10 drv f 234 106 45.299 1 drv 4 234 103 44.017 2 drv r 234 25 10.684 3 fl r 234 168 71.795 1 fl p 234 52 22.222 2	trans	· /				
trans auto(l6) 234 6 2.564 6 trans auto(av) 234 5 2.137 7 trans auto(s4) 234 3 1.282 8 trans auto(s5) 234 3 1.282 9 trans auto(l3) 234 2 0.855 10 drv f 234 106 45.299 1 drv 4 234 103 44.017 2 drv r 234 25 10.684 3 fl r 234 168 71.795 1 fl p 234 52 22.222 2	trans	,				
trans auto(av) 234 5 2.137 7 trans auto(s4) 234 3 1.282 8 trans auto(s5) 234 3 1.282 9 trans auto(l3) 234 2 0.855 10 drv f 234 106 45.299 1 drv 4 234 103 44.017 2 drv r 234 25 10.684 3 fl r 234 168 71.795 1 fl p 234 52 22.222 2	trans					
trans auto(s4) 234 3 1.282 8 trans auto(s5) 234 3 1.282 9 trans auto(l3) 234 2 0.855 10 drv f 234 106 45.299 1 drv q 234 103 44.017 2 drv r 234 25 10.684 3 fl r 234 168 71.795 1 fl p 234 52 22.222 2	trans					
trans auto(s5) 234 3 1.282 9 trans auto(l3) 234 2 0.855 10 drv f 234 106 45.299 1 drv 4 234 103 44.017 2 drv r 234 25 10.684 3 fl r 234 168 71.795 1 fl p 234 52 22.222 2	trans	auto(av)	234	5	2.137	7
trans auto(l3) 234 2 0.855 10 drv f 234 106 45.299 1 drv 4 234 103 44.017 2 drv r 234 25 10.684 3 fl r 234 168 71.795 1 fl p 234 52 22.222 2	trans	auto(s4)	234	3	1.282	8
drv f 234 106 45.299 1 drv 4 234 103 44.017 2 drv r 234 25 10.684 3 fl r 234 168 71.795 1 fl p 234 52 22.222 2	trans	auto(s5)	234	3	1.282	9
drv 4 234 103 44.017 2 drv r 234 25 10.684 3 fl r 234 168 71.795 1 fl p 234 52 22.222 2	trans	auto(13)	234	2	0.855	10
drv r 234 25 10.684 3 fl r 234 168 71.795 1 fl p 234 52 22.222 2	drv	f	234	106	45.299	1
fl r 234 168 71.795 1 fl p 234 52 22.222 2	drv	4	234	103	44.017	2
fl r 234 168 71.795 1 fl p 234 52 22.222 2	drv	r	234	25	10.684	3
fl p 234 52 22.222 2	fl	r	234			
-	fl	p	234	52		2
	fl		234	8	3.419	3

Table 1.3: Categorical variable level top 10 (continued)

variables	levels	N	freq	ratio(%)	rank
fl	d	234	5	2.137	4
fl	c	234	1	0.427	5
class	suv	234	62	26.496	1
class	compact	234	47	20.085	2
class	midsize	234	41	17.521	3
class	subcompact	234	35	14.957	4
class	pickup	234	33	14.103	5
class	minivan	234	11	4.701	6
class	2seater	234	5	2.137	7

1.2.2 Diagnosis of numerical variables

Table 1.4: General list of numerical diagnosis

variables	min	Q1	mean	median	Q3	max	zero	minus	outlier
displ	1.6	2.4	3.472	3.3	4.6	7	0	0	0
year	1,999.0	1,999.0	2,003.500	2,003.5	2,008.0	2,008	0	0	0
cyl	4.0	4.0	5.889	6.0	8.0	8	0	0	0
cty	9.0	14.0	16.859	17.0	19.0	35	0	0	5
hwy	12.0	18.0	23.440	24.0	27.0	44	0	0	3

1.2.3 List of numerical diagnosis (zero)

No numeric variable with zero value

1.2.4 List of numerical diagnosis (minus)

No numeric variable with negative value

Chapter 2

Diagnose Outliers

2.1 Overview of Diagnosis

2.1.1 Diagnosis of numerical variable outliers

Table 2.1: Diagnosis of numerical variable outliers

variables	min	median	max	outlier	outlier $\mathrm{ratio}(\%)$
cty	9	17	35	5	2.137
hwy	12	24	44	3	1.282

2.2 Detailed outliers diagnosis

variable: cty

Table 2.2: Outliers information of cty

Measures	Values
Outliers count	5.00
Outliers ratio (%)	2.14
Mean of outliers	30.60
Mean with outliers	16.86
Mean without outliers	16.56

Outlier Diagnosis Plot (cty)

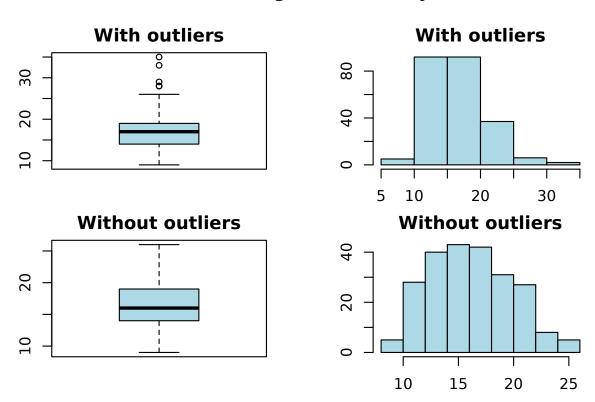


Figure 2.1: Distribution of cty

variable: hwy

Table 2.3: Outliers information of hwy

Measures	Values
Outliers count	3.00
Outliers ratio (%)	1.28
Mean of outliers	43.00
Mean with outliers	23.44
Mean without outliers	23.19

Outlier Diagnosis Plot (hwy)

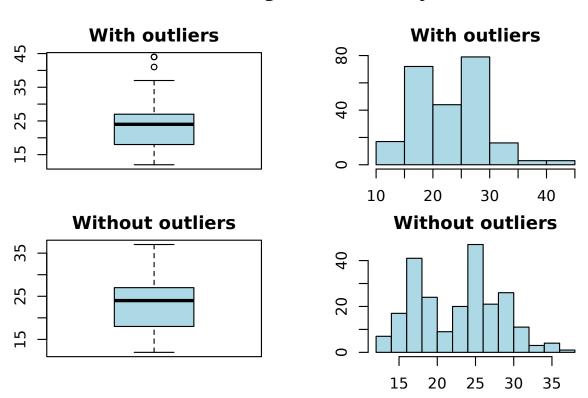


Figure 2.2: Distribution of hwy