

## **ACADGILD**

# SESSION 8: Exploratory Data Analytics

Assignment 2

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#### Data Analytics

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#### 1. Problem Statement

### library(RcmdrPlugin.IPSUR) data(RcmdrTestDrive)

Perform the below operations: -

- a. Compute the measures of central tendency for salary and reduction which variable has highest center?
- b. Which measure of center is more appropriate for before and after?

#### 2. Solution

a. Compute the measures of central tendency for salary and reduction which variable has highest center?

#### The R-script for the given problem is as follows:

```
library(Rcmdr)
library(RcmdrPlugin.IPSUR)
data(RcmdrTestDrive)
RcmdrTestDrive
str(RcmdrTestDrive)
library(psych)
describe(RcmdrTestDrive$salary)
describe(RcmdrTestDrive$reduction)
```

#### The output of the R-Script (from Console window) is given as follows:

- > library(Rcmdr)
- > library(RcmdrPlugin.IPSUR)
- > data(RcmdrTestDrive)
- > RcmdrTestDrive

	Kemar res	CDITIVE							
	order	smoking	gender	race	before	after	salary	reduction	parking
1	1	Nonsmoker	Female	Caucasian	72.6	75.2	618.65	9	2
2	2	Nonsmoker	Male	AfricanAmer	75.3	73.2	544.56	62	1
3	3	Nonsmoker	Female	Caucasian	75.5	74.5	550.24	19	4
4	4	Nonsmoker	Female	Caucasian	71.3	74.6	616.16	30	1
5	5	Nonsmoker	Female	ніѕрапіс	74.3	73.8	543.39	105	1
6	6	Nonsmoker	Male	Caucasian	73.0	73.6	692.09	43	1
7	7	Smoker	Male	ніѕрапіс	72.4	70.7	800.48	229	5
8	8	Nonsmoker	Male	ніѕрапіс	73.6	74.0	703.79	40	1
9	9	Nonsmoker	Female	Caucasian	73.7	75.9	540.06	101	2
10	10	Nonsmoker	Female	ніѕрапіс	74.6	74.8	522.28	440	1
13	11	Nonsmoker	Female	AfricanAmer	75.8	73.1	377.17	213	1
12	2 12	Nonsmoker	Female	Caucasian	75.3	72.1	525.96	474	2

13   Nonsmoker   Female   Caucasian   75.0   72.5   548.88   1.44   14   14   14   15   15   Nonsmoker   Male   Asian   72.8   72.7   537.70   179   2.2   15   15   Nonsmoker   Female   Hispanic   72.9   73.1   597.73   570   1.1   17   Nonsmoker   Female   Hispanic   72.9   73.1   577.73   570   1.1   17   Nonsmoker   Female   Hispanic   72.9   73.1   577.73   570   1.1   18   18   Nonsmoker   Male   Caucasian   74.0   74.6   690.06   62   2.2   20   Nonsmoker   Male   Caucasian   73.1   72.8   748.98   437   2.2   22   Nonsmoker   Male   ArfricanAmer   74.0   76.1   811.71   60   1.1   1.2										
15   Nonsmoker   Male   Asian   74,4   75,7   500,20   63   3   16   Nonsmoker   Female   Hispanic   72,9   73,1   597,73   570   1   17   Nonsmoker   Male   Caucasian   74,0   74,6   690,06   62   2   2   20   Nonsmoker   Male   Caucasian   74,0   74,6   690,06   62   2   2   20   Nonsmoker   Male   Africanamer   74,0   76,1   811,71   60   1   1   1   1   1   1   1   1   1	13	13	Nonsmoker	Female		75.0	72.5	548.88	144	
16         16         Nonsmoker Female         Hispanic         72.9         73.1         597.73         570         1           17         17         Nonsmoker         Male         Hispanic         72.3         74.0         758.95         437         4           18         18         Nonsmoker         Male         Caucasian         73.1         72.8         788.98         437         2           20         20         Nonsmoker         Male         Africanamer         74.0         76.1         81.1         71         60         1           21         21         Nonsmoker         Male         Africanamer         73.0         73.6         76.5         566.29         133         4           23         Nonsmoker         Male         Africanamer         73.0         73.0         387.59         88         1           24         24         Nonsmoker         Male         Africanamer         74.5         75.4         536.87         48         3           25         25         Nonsmoker         Male         Africanamer         74.5         75.2         595.70         497         1           26         26         Nonsmoker         Ma										
17   Nonsmoker Female   Hispanic   72.3   74.0   578.95   437   4   18   Nonsmoker   Male   Caucasian   73.1   72.8   748.98   437   2   2   2   20   Nonsmoker   Male   AfricanAmer   74.0   76.1   811.71   60   1   1   1   1   1   2   2   2   2   2					Asian					
18         18         Nonsmoker Male         Caucasian         74.0         74.6         690.06         62         2           19         19         Nonsmoker Male         Male Caucasian         73.1         72.8         748.98         437         2           20         20         Nonsmoker Male         Male Africanamer         74.0         76.1         811.71         60         1           21         21         Nonsmoker Male         Male Hispanic         73.4         75.0         586.29         133         4           23         23         Nonsmoker Male         Male Africanamer         73.9         74.0         387.59         88         1           24         24         Nonsmoker Female         Hispanic         73.0         75.0         586.29         133         4           26         26         Nonsmoker Female         Hispanic         73.6         75.4         503.64         365         1           27         Smosmoker         Male Africanamer         74.6         68.1         496.09         73         1           28         28         Nonsmoker         Male Africanamer         74.6         77.5         772.6         701.91         306 <td< td=""><td></td><td>16</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>		16								
19		17	Nonsmoker		Hispanic		74.0			
20	18	18	Nonsmoker	маlе	Caucasian	74.0	74.6	690.06	62	
21	19	19	Nonsmoker	Male	Caucasian	73.1	72.8	748.98	437	2
22   22   Nonsmoker   Male   Hispanic   73.4   75.0   586.29   133   4   23   23   Nonsmoker   Male   AfricanAmer   73.9   74.0   387.59   88   116   1   1   1   1   1   1   1   1	20	20	Nonsmoker	Male	AfricanAmer	74.0	76.1	811.71	60	1
23   23   Nonsmoker   Male   Africanamer   73,9   74,0   387.59   88   1	21	21	Nonsmoker	маlе	Other	73.6	74.5	660.58	255	1
24         24 Nonsmoker Female Hispanic         73.0         73.9         524.54         116         1           25         25 Nonsmoker Female Hispanic         74.2         75.7         356.87         48         3           26         26 Nonsmoker Male Caucasian         73.6         75.4         503.64         365         1           27         27 Smoker Male AfricanAmer         74.6         68.1         496.09         73         1           28         28 Nonsmoker Male AfricanAmer         74.6         68.1         496.09         73         1           30         30 Nonsmoker Female Hispanic         72.6         73.2         595.70         497         1           30         30 Nonsmoker Female Hispanic         72.1         73.7         717.91         497         1           31         31 Nonsmoker Female Hispanic         72.1         73.7         717.91         497         1           33         33 Smoker Male AfricanAmer         73.2         70.0         682.60         291         1           34         34 Nonsmoker Male AfricanAmer         75.5         72.9         646.25         100         8           37         37 Nonsmoker Female AfricanAmer         75.5         72.9 <td>22</td> <td>22</td> <td>Nonsmoker</td> <td>маlе</td> <td>Hispanic</td> <td>73.4</td> <td>75.0</td> <td>586.29</td> <td>133</td> <td>4</td>	22	22	Nonsmoker	маlе	Hispanic	73.4	75.0	586.29	133	4
25	23	23	Nonsmoker	маlе	AfricanAmer	73.9	74.0	387.59	88	1
26         26 Nonsmoker         Male Caucasian         73.6         75.4         503.64         365         1           27         Zm Smoker         Male AfricanAmer         74.6         68.1         496.09         73         1           28         28 Nonsmoker         Male AfricanAmer         74.5         72.6         701.91         300         55           29         29 Nonsmoker         Female         Caucasian         72.6         73.2         595.70         497         1           30         Nonsmoker         Male         Asian         73.2         73.5         808.63         21         2           31         31 Nonsmoker         Male         Asian         73.2         70.0         682.60         291         1           34         34 Nonsmoker         Male         Asian         74.3         75.2         623.09         83         1           35         35 Smoker         Male AfricanAmer         74.0         68.7         550.28         55         2           36         36 Nonsmoker         Male AfricanAmer         75.5         72.9         646.25         100         8           37 37 Nonsmoker         Female         Caucasian         74.4	24	24	Nonsmoker	Male	Caucasian	73.0	73.9	524.54	116	1
27         Smoker         Male AfricanAmer         74.6         68.1         496.09         73         1           28         28         Nonsmoker         Male AfricanAmer         74.5         72.6         701.91         306         5           29         29         Nonsmoker         Female Caucasian         72.6         74.1         759.30         32         1           30         30         Nonsmoker         Male Asian         72.1         73.7         717.91         497         1           31         31         Nonsmoker         Male Asian         73.2         70.0         682.60         291         1           34         34         Nonsmoker         Male AfricanAmer         74.3         75.2         623.09         83         1           35         35         Smoker         Male AfricanAmer         75.5         72.9         646.25         100         8           37         37         Nonsmoker         Female AfricanAmer         75.4         72.6         635.43         439         4           38         38         Nonsmoker         Male Caucasian         75.5         72.9         646.25         100         8           37	25	25	Nonsmoker	Female	Hispanic	74.2	75.7	536.87	48	3
27         Smoker         Male AfricanAmer         74.6         68.1         496.09         73         1           28         28         Nonsmoker         Male AfricanAmer         74.5         72.6         701.91         306         5           29         29         Nonsmoker         Female Caucasian         72.6         74.1         759.30         32         1           30         30         Nonsmoker         Male Asian         72.1         73.7         717.91         497         1           31         31         Nonsmoker         Male Asian         73.2         70.0         682.60         291         1           34         34         Nonsmoker         Male AfricanAmer         74.3         75.2         623.09         83         1           35         35         Smoker         Male AfricanAmer         75.5         72.9         646.25         100         8           37         37         Nonsmoker         Female AfricanAmer         75.4         72.6         635.43         439         4           38         38         Nonsmoker         Male Caucasian         75.5         72.9         646.25         100         8           37	26	26	Nonsmoker	Male		73.6	75.4	503.64	365	1
28         28         Nonsmoker Pemale Caucasian 72.6         72.6         701.91         306         5           29         29         Nonsmoker Male Asian 72.6         73.2         595.70         497         1           30         30         Nonsmoker Male Asian 72.6         74.1         759.30         32         1           31         31         Nonsmoker Male Asian 73.2         73.5         808.63         21         2           33         33         Smoker Male Caucasian 73.2         70.0         682.60         291         1           34         34         Nonsmoker Male Asian 74.3         75.2         623.09         83         1           35         35         Smoker Male AfricanAmer 74.0         68.7         550.28         55         2           36         36         Nonsmoker Male AfricanAmer 75.5         72.9         646.25         100         8           37         37         Nonsmoker Female AfricanAmer 75.5         75.2         6635.43         439         4           48         38         Nonsmoker Female Caucasian 75.5         72.5         473.6         619.29         23         2           40         40         Nonsmoker Male AfricanAmer 75.8         73.1<		27	Smoker	Male			68.1	496.09		
29         29 Nonsmoker Female         Caucasian         72.6         73.2         595.70         497         1           30         30 Nonsmoker         Male         Asian         72.6         73.1         755.30         32         1           31         31 Nonsmoker         Male         Asian         72.1         73.7         717.91         497         1           32         32 Nonsmoker         Male         Asian         73.2         70.0         682.60         291         1           34         34 Nonsmoker         Male         Asian         73.2         70.0         682.60         291         1           35         Smoker         Male         Asian         73.2         70.0         682.60         291         1           36         36 Nonsmoker         Male         Asian         73.7         75.0         682.76         623.09         83         1           36         36 Nonsmoker         Male         AfricanAmer         75.5         72.9         646.25         100         8           37 Nonsmoker         Female         Caucasian         75.5         72.9         646.25         100         8           38         38 Nonsm		28	Nonsmoker					701.91	306	
30   30   Nonsmoker   Male   Asian   72.6   74.1   759.30   32   1   31   Nonsmoker   Female   Hispanic   72.1   73.7   717.91   497   1   20   23   32   Nonsmoker   Male   Asian   73.2   73.5   808.63   21   2   2   2   33   33   Smoker   Male   Caucasian   74.3   75.2   623.09   83   1   35   35   Smoker   Male   AfricanAmer   74.0   68.7   550.28   55   2   36   36   Nonsmoker   Male   AfricanAmer   75.5   72.9   646.25   100   8   37   Nonsmoker   Female   AfricanAmer   75.5   72.9   646.25   100   8   38   Nonsmoker   Male   Caucasian   75.5   72.5   437.19   419   1   3   39   Nonsmoker   Male   Caucasian   74.4   73.6   619.29   23   2   2   2   2   2   2   2   2		29								
31   31   Nonsmoker   Female   Hispanic   72.1   73.7   717.91   497   1   32   32   Nonsmoker   Male   Asian   73.2   73.5   808.63   21   2   2   33   3   Smoker   Male   Caucasian   73.2   73.5   808.63   21   2   2   3   3   3   3   5   5   5   5   5   5										
32         32 Nonsmoker         Male         Asian         73.2         73.5         808.63         21         2           33         33 Smoker         Male         Caucasian         73.2         70.0         682.60         291         1           34         34 Nonsmoker         Male         Asian         74.3         75.2         623.09         83         1           35         Smoker         Male         AfricanAmer         74.0         68.7         550.28         55         2           36         36 Nonsmoker         Male         AfricanAmer         75.5         72.6         635.43         439         4           38         38 Nonsmoker         Male         Caucasian         75.5         72.5         547.19         419         1           39         39 Nonsmoker         Female         Caucasian         75.5         75.0         593.68         71         1           41         41 Nonsmoker         Male         AfricanAmer         75.0         593.68         71         1           42         42 Nonsmoker         Male         Caucasian         74.7         73.1         764.15         78         1           43         43 Non										
33         33         Smoker         Male         Caucasian         73.2         70.0         682.60         291         1           34         34         Nonsmoker         Male         Asian         74.3         75.2         623.09         83         1           35         35         Smoker         Male AfricanAmer         75.5         72.9         646.25         100         8           36         36         Nonsmoker         Male AfricanAmer         75.4         72.6         635.43         439         4           38         38         Nonsmoker         Male         Caucasian         75.5         72.5         437.19         419         1           39         39         Nonsmoker         Male         Caucasian         73.7         75.0         593.68         71         1           41         41         Nonsmoker         Male         Caucasian         74.7         73.1         546.26         109         4           42         42         Nonsmoker         Female         Caucasian         74.7         73.1         754.26         20         257         3           45         45         Nonsmoker         Female         Caucasia										
34         34 Nonsmoker         Male         Asian         74.3         75.2         623.09         83         1           35         35 Smoker         Male AfricanAmer         74.0         68.7         550.28         55         2           36         36 Nonsmoker         Male AfricanAmer         75.5         72.9         646.25         100         8           37 Nonsmoker         Female AfricanAmer         75.5         72.9         646.25         100         8           38 Nonsmoker         Female AfricanAmer         75.5         72.9         646.25         100         8           38 Nonsmoker         Female Caucasian         75.5         72.5         437.19         419         1           39 Nonsmoker         Male Caucasian         73.7         75.0         693.68         71         1           41 H Nonsmoker         Male AfricanAmer         75.8         73.1         546.26         109         4           42 L Nonsmoker         Female Caucasian         74.3         72.2         704.83         98         1           43 A3 Nonsmoker         Male AfricanAmer         75.3         76.2         724.25         487         1           44 Nonsmoker         Female Afr										
35										
36         36 Nonsmoker         Male AfricanAmer         75.5         72.9         646.25         100         8           37         37 Nonsmoker         Female AfricanAmer         75.4         72.6         635.43         439         4           38         38 Nonsmoker         Male Caucasian         75.5         72.5         437.19         419         1           39         39 Nonsmoker         Male Caucasian         74.4         73.6         619.29         23         2           40         40 Nonsmoker         Male Caucasian         73.7         75.0         593.68         71         1           41         41 Nonsmoker         Female Caucasian         74.3         72.2         704.83         98         1           43         43 Nonsmoker         Female Caucasian         74.7         73.1         764.15         78         1           44         44 Nonsmoker Female AfricanAmer         75.3         76.2         724.25         487         1           45         45 Nonsmoker Female AfricanAmer         75.6         75.0         631.62         213         3           47         47 Nonsmoker Female Caucasian         73.8         71.9         555.66         1632         2 <td></td>										
37 Nonsmoker Female AfricanAmer 75.4 72.6 635.43 439 438 38 Nonsmoker Male Caucasian 75.5 72.5 437.19 419 1 1 3 39 Nonsmoker Female Caucasian 74.4 73.6 619.29 23 2 2 40 40 Nonsmoker Male Caucasian 73.7 75.0 593.68 71 1 41 41 Nonsmoker Male AfricanAmer 75.8 73.1 546.26 109 4 42 42 Nonsmoker Female Caucasian 74.3 72.2 704.83 98 1 43 43 Nonsmoker Female Caucasian 74.7 73.1 764.15 78 1 44 44 Nonsmoker Female Caucasian 74.9 72.0 859.67 257 3 45 45 Nonsmoker Female AfricanAmer 75.3 76.2 724.25 487 1 46 46 Nonsmoker Female Hispanic 72.7 73.4 478.39 383 1 48 48 Nonsmoker Female Caucasian 75.6 75.0 631.62 213 3 47 47 Nonsmoker Female Caucasian 75.6 75.0 631.62 213 3 48 48 Nonsmoker Male Caucasian 75.6 75.0 652.79 116 1 1 49 49 Nonsmoker Male Caucasian 75.6 75.0 652.79 116 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1										
38         38         Nonsmoker         Male         Caucasian         75.5         72.5         437.19         419         1           39         39         Nonsmoker         Female         Caucasian         74.4         73.6         619.29         23         2           40         40         Nonsmoker         Male         Caucasian         75.8         75.0         593.68         71         1           41         41         Nonsmoker         Male         AfricanAmer         75.8         73.1         546.26         109         4           42         42         Nonsmoker         Female         Caucasian         74.7         73.1         764.15         78         1           44         44         Nonsmoker         Female         Caucasian         74.7         73.1         764.15         78         1           44         44         Nonsmoker         Female         AfricanAmer         75.0         631.62         213         3           45         45         Nonsmoker         Female         Caucasian         75.6         75.0         631.62         213         3           47         47         Nonsmoker         Female										
39										
40										
41       41 Nonsmoker       Male Africanamer       75.8       73.1       546.26       109       4         42       42 Nonsmoker       Female       Caucasian       74.3       72.2       704.83       98       1         43       43 Nonsmoker       Male       Caucasian       74.7       73.1       764.15       78       1         44       44 Nonsmoker       Female       Caucasian       74.7       73.1       764.15       78       1         45       45 Nonsmoker       Female       Caucasian       74.9       72.0       859.67       257       3         46       46 Nonsmoker       Male Africanamer       75.6       75.0       631.62       213       3         47       47 Nonsmoker       Female       Hispanic       72.7       73.4       478.39       383       1         48       48 Nonsmoker       Female       Caucasian       75.6       74.9       652.79       116       1         49       49 Nonsmoker       Male       Caucasian       74.7       75.8       515.95       151       1         51       51 Nonsmoker       Male       AfricanAmer       75.4       74.8       612.27       152										
42         42 Nonsmoker         Female         Caucasian         74.3         72.2         704.83         98         1           43         43 Nonsmoker         Male         Caucasian         74.7         73.1         764.15         78         1           44         44 Nonsmoker         Female         Caucasian         74.9         72.0         859.67         257         3           45         45 Nonsmoker         Female         AfricanAmer         75.6         75.0         631.62         213         3           46         46 Nonsmoker         Female         Hispanic         72.7         73.4         478.39         383         1           47         47 Nonsmoker         Female         Caucasian         75.6         75.0         631.62         213         3           48         48 Nonsmoker         Female         Caucasian         75.6         74.9         652.79         116         1           49         49 Nonsmoker         Male         Caucasian         74.7         75.8         515.95         151         1           51         50 Nonsmoker         Male         AfricanAmer         75.4         74.8         612.27         152         3 <td></td>										
43       A3 Nonsmoker       Male       Caucasian       74.7       73.1       764.15       78       1         44       44 Nonsmoker       Female       Caucasian       74.9       72.0       859.67       257       3         45       45 Nonsmoker       Female       AfricanAmer       75.3       76.2       724.25       487       1         46       46 Nonsmoker       Male       AfricanAmer       75.6       75.0       631.62       213       3         47       47 Nonsmoker       Female       Hispanic       72.7       73.4       478.39       383       1         48       48 Nonsmoker       Female       Caucasian       75.6       74.9       652.79       116       1         49       49 Nonsmoker       Male       Caucasian       74.7       75.8       515.95       151       1         50       50 Nonsmoker       Male       AfricanAmer       75.4       74.8       612.27       152       3         51       51 Nonsmoker       Male       AfricanAmer       75.0       73.2       671.35       64       1         54       54 Nonsmoker       Female       AfricanAmer       75.3       73.8										
44         44 Nonsmoker Female Caucasian         74.9         72.0         859.67         257         3           45         45 Nonsmoker Female AfricanAmer         75.3         76.2         724.25         487         1           46         46 Nonsmoker Male AfricanAmer         75.6         75.0         631.62         213         3           47 Nonsmoker Female Hispanic         72.7         73.4         478.39         383         1           48 Nonsmoker Female Caucasian         75.6         74.9         652.79         116         1           49 Ay Nonsmoker Male Caucasian         73.8         71.9         545.66         1632         2           50 SO Nonsmoker Male Caucasian         74.7         75.8         515.95         151         1           51 SI Nonsmoker Male AfricanAmer         75.4         74.8         612.27         152         3           52 Nonsmoker Female Hispanic         74.3         73.8         633.12         390         2           53 Si Nonsmoker Female AfricanAmer         75.0         73.2         671.35         64         1           54 Si Nonsmoker Female AfricanAmer         75.3         73.8         643.83         85         1           55 Nonsmoker Female Caucasian										
45										
46       46       Nonsmoker       Male AfricanAmer       75.6       75.0       631.62       213       3         47       47       Nonsmoker       Female       Hispanic       72.7       73.4       478.39       383       1         48       48       Nonsmoker       Female       Caucasian       75.6       74.9       652.79       116       1         49       49       Nonsmoker       Male       Caucasian       73.8       71.9       545.66       1632       2         50       50       Nonsmoker       Male       Caucasian       74.7       75.8       515.95       151       1         51       51       Nonsmoker       Male       AfricanAmer       75.4       74.8       612.27       152       3         52       52       Nonsmoker       Female       Hispanic       74.3       73.8       633.12       390       2         53       53       Nonsmoker       Female       AfricanAmer       75.0       73.2       671.35       64       1         54       54       Nonsmoker       Female       Asian       73.2       70.6       888.00       37       1         55										
47       Nonsmoker       Female       Hispanic       72.7       73.4       478.39       383       1         48       48       Nonsmoker       Female       Caucasian       75.6       74.9       652.79       116       1         49       49       Nonsmoker       Male       Caucasian       73.8       71.9       545.66       1632       2         50       50       Nonsmoker       Male       Caucasian       74.7       75.8       515.95       151       1         51       51       Nonsmoker       Male       AfricanAmer       75.4       74.8       612.27       152       3         52       52       Nonsmoker       Female       Hispanic       74.3       73.8       633.12       390       2         53       53       Nonsmoker       Female       AfricanAmer       75.0       73.2       671.35       64       1         54       54       Nonsmoker       Female       AfricanAmer       75.3       73.8       643.83       85       1         55       55       Nonsmoker       Female       Caucasian       73.2       70.6       888.00       37       1         57										
48       48 Nonsmoker Female       Caucasian       75.6       74.9       652.79       116       1         49       49 Nonsmoker       Male       Caucasian       73.8       71.9       545.66       1632       2         50       50 Nonsmoker       Male       Caucasian       74.7       75.8       515.95       151       1         51       51 Nonsmoker       Male       AfricanAmer       75.4       74.8       612.27       152       3         52       52 Nonsmoker       Female       Hispanic       74.3       73.8       633.12       390       2         53       53 Nonsmoker       Male       AfricanAmer       75.0       73.2       671.35       64       1         54       54 Nonsmoker       Female       AfricanAmer       75.3       73.8       643.83       85       1         55       55 Nonsmoker       Male       Hispanic       74.8       73.6       794.66       71       2         56       56       Smoker       Female       Caucasian       75.5       74.3       716.78       172       1         57       57 Nonsmoker       Male       Caucasian       75.5       74.3       716.7										
49       49       Nonsmoker       Male       Caucasian       73.8       71.9       545.66       1632       2         50       50       Nonsmoker       Male       Caucasian       74.7       75.8       515.95       151       1         51       51       Nonsmoker       Male       AfricanAmer       75.4       74.8       612.27       152       3         52       52       Nonsmoker       Female       Hispanic       74.3       73.8       633.12       390       2         53       53       Nonsmoker       Male       AfricanAmer       75.0       73.2       671.35       64       1         54       54       Nonsmoker       Female       AfricanAmer       75.3       73.8       643.83       85       1         55       55       Nonsmoker       Male       Hispanic       74.8       73.6       794.66       71       2         56       56       Smoker       Female       Caucasian       73.2       70.6       888.00       37       1         57       57       Nonsmoker       Male       Caucasian       75.5       74.3       716.78       172       1         59 </td <td></td>										
50         50         Nonsmoker         Male         Caucasian         74.7         75.8         515.95         151         1           51         51         Nonsmoker         Male         AfricanAmer         75.4         74.8         612.27         152         3           52         52         Nonsmoker         Female         Hispanic         74.3         73.8         633.12         390         2           53         53         Nonsmoker         Male         AfricanAmer         75.0         73.2         671.35         64         1           54         54         Nonsmoker         Female         AfricanAmer         75.3         73.8         643.83         85         1           55         55         Nonsmoker         Male         Hispanic         74.8         73.6         794.66         71         2           56         56         Smoker         Female         Caucasian         73.2         70.6         888.00         37         1           57         57         Nonsmoker         Female         Caucasian         75.5         74.3         716.78         172         1           59         59         Nonsmoker         Male <td></td>										
51       51       Nonsmoker       Male AfricanAmer       75.4       74.8       612.27       152       3         52       52       Nonsmoker       Female       Hispanic       74.3       73.8       633.12       390       2         53       53       Nonsmoker       Male       AfricanAmer       75.0       73.2       671.35       64       1         54       54       Nonsmoker       Female       AfricanAmer       75.3       73.8       643.83       85       1         55       55       Nonsmoker       Male       Hispanic       74.8       73.6       794.66       71       2         56       56       Smoker       Female       Asian       73.2       70.6       888.00       37       1         57       57       Nonsmoker       Female       Caucasian       74.0       75.8       602.94       89       2         58       58       Smoker       Male       Caucasian       75.5       74.3       716.78       172       1         59       59       Nonsmoker       Male       Caucasian       75.3       72.8       606.12       3       1         60       60										
52         52         Nonsmoker         Female         Hispanic         74.3         73.8         633.12         390         2           53         53         Nonsmoker         Male         AfricanAmer         75.0         73.2         671.35         64         1           54         54         Nonsmoker         Female         AfricanAmer         75.3         73.8         643.83         85         1           55         55         Nonsmoker         Male         Hispanic         74.8         73.6         794.66         71         2           56         56         Smoker         Female         Asian         73.2         70.6         888.00         37         1           57         Nonsmoker         Female         Caucasian         74.0         75.8         602.94         89         2           58         Smoker         Male         Caucasian         75.5         74.3         716.78         172         1           59         Sonsmoker         Male         Caucasian         75.3         72.8         606.12         3         1           60         60         Nonsmoker         Male         Caucasian         71.7         72.5 <td></td>										
53       53       Nonsmoker       Male AfricanAmer       75.0       73.2       671.35       64       1         54       54       Nonsmoker       Female AfricanAmer       75.3       73.8       643.83       85       1         55       55       Nonsmoker       Male       Hispanic       74.8       73.6       794.66       71       2         56       56       Smoker       Female       Asian       73.2       70.6       888.00       37       1         57       57       Nonsmoker       Female       Caucasian       74.0       75.8       602.94       89       2         58       58       Smoker       Male       Caucasian       75.5       74.3       716.78       172       1         59       59       Nonsmoker       Male       Caucasian       75.3       72.8       606.12       3       1         60       60       Nonsmoker       Male       Caucasian       71.7       72.5       620.32       127       2         61       61       Nonsmoker       Male       Caucasian       73.6       74.7       515.92       337       1         63       63       Nonsmoker<										
54       54 Nonsmoker Female AfricanAmer       75.3       73.8       643.83       85       1         55       55 Nonsmoker Male       Hispanic       74.8       73.6       794.66       71       2         56       56 Smoker Female       Asian       73.2       70.6       888.00       37       1         57 Nonsmoker Female       Caucasian       74.0       75.8       602.94       89       2         58 Smoker Male       Caucasian       75.5       74.3       716.78       172       1         59 Sy Nonsmoker Male       Caucasian       75.3       72.8       606.12       3       1         60 60 Nonsmoker Male AfricanAmer       73.9       73.7       704.90       247       5         61 61 Nonsmoker Male Caucasian       71.7       72.5       620.32       127       2         62 62 Nonsmoker Male Caucasian       73.6       74.7       515.92       337       1         63 63 Nonsmoker Female AfricanAmer       72.1       73.7       655.72       123       1         64 64 Nonsmoker Female Hispanic       72.7       73.1       619.44       205       4         65 65 Nonsmoker Male Caucasian       74.5       71.9       640.48       61					•					
55         55         Nonsmoker         Male         Hispanic         74.8         73.6         794.66         71         2           56         56         Smoker         Female         Asian         73.2         70.6         888.00         37         1           57         57         Nonsmoker         Female         Caucasian         74.0         75.8         602.94         89         2           58         58         Smoker         Male         Caucasian         75.5         74.3         716.78         172         1           59         59         Nonsmoker         Male         Caucasian         75.3         72.8         606.12         3         1           60         60         Nonsmoker         Male         Caucasian         75.3         72.8         606.12         3         1           61         61         Nonsmoker         Male         Caucasian         71.7         72.5         620.32         127         2           62         62         Nonsmoker         Male         Caucasian         73.6         74.7         515.92         337         1           63         63         Nonsmoker         Female         Hi										
56         56         Smoker Female         Asian         73.2         70.6         888.00         37         1           57         57         Nonsmoker Female         Caucasian         74.0         75.8         602.94         89         2           58         58         Smoker         Male         Caucasian         75.5         74.3         716.78         172         1           59         59         Nonsmoker         Male         Caucasian         75.3         72.8         606.12         3         1           60         60         Nonsmoker         Male         Caucasian         73.7         704.90         247         5           61         61         Nonsmoker         Male         Caucasian         71.7         72.5         620.32         127         2           62         62         Nonsmoker         Male         Caucasian         73.6         74.7         515.92         337         1           63         63         Nonsmoker         Female         AfricanAmer         72.1         73.7         655.72         123         1           64         64         Nonsmoker         Female         Caucasian         74.5         7		_								
57       S7       Nonsmoker       Female       Caucasian       74.0       75.8       602.94       89       2         58       58       Smoker       Male       Caucasian       75.5       74.3       716.78       172       1         59       59       Nonsmoker       Male       Caucasian       75.3       72.8       606.12       3       1         60       60       Nonsmoker       Male       AfricanAmer       73.9       73.7       704.90       247       5         61       61       Nonsmoker       Male       Caucasian       71.7       72.5       620.32       127       2         62       62       Nonsmoker       Male       Caucasian       73.6       74.7       515.92       337       1         63       63       Nonsmoker       Female       AfricanAmer       72.1       73.7       655.72       123       1         64       64       Nonsmoker       Female       Hispanic       72.7       73.1       619.44       205       4         65       65       Nonsmoker       Female       Caucasian       74.5       71.9       640.48       61       1         66 </td <td></td> <td></td> <td></td> <td></td> <td>•</td> <td></td> <td></td> <td></td> <td></td> <td></td>					•					
58       58       Smoker       Male       Caucasian       75.5       74.3       716.78       172       1         59       59       Nonsmoker       Male       Caucasian       75.3       72.8       606.12       3       1         60       60       Nonsmoker       Male       AfricanAmer       73.9       73.7       704.90       247       5         61       61       Nonsmoker       Male       Caucasian       71.7       72.5       620.32       127       2         62       62       Nonsmoker       Male       Caucasian       73.6       74.7       515.92       337       1         63       63       Nonsmoker       Female       AfricanAmer       72.1       73.7       655.72       123       1         64       64       Nonsmoker       Female       Hispanic       72.7       73.1       619.44       205       4         65       65       Nonsmoker       Female       Caucasian       74.5       71.9       640.48       61       1         66       66       Smoker       Male       Caucasian       73.2       72.8       844.32       119       2         67										
59       59       Nonsmoker       Male       Caucasian       75.3       72.8       606.12       3       1         60       60       Nonsmoker       Male       AfricanAmer       73.9       73.7       704.90       247       5         61       61       Nonsmoker       Male       Caucasian       71.7       72.5       620.32       127       2         62       62       Nonsmoker       Male       Caucasian       73.6       74.7       515.92       337       1         63       63       Nonsmoker       Female       AfricanAmer       72.1       73.7       655.72       123       1         64       64       Nonsmoker       Female       Hispanic       72.7       73.1       619.44       205       4         65       65       Nonsmoker       Female       Caucasian       74.5       71.9       640.48       61       1         66       66       Smoker       Male       Caucasian       73.2       72.8       844.32       119       2         67       Nonsmoker       Female       Caucasian       73.3       74.9       918.03       165       2										
60       60       Nonsmoker       Male AfricanAmer       73.9       73.7       704.90       247       5         61       61       Nonsmoker       Male Caucasian       71.7       72.5       620.32       127       2         62       62       Nonsmoker       Male Caucasian       73.6       74.7       515.92       337       1         63       63       Nonsmoker Female AfricanAmer       72.1       73.7       655.72       123       1         64       64       Nonsmoker Female Hispanic       72.7       73.1       619.44       205       4         65       65       Nonsmoker Female Caucasian       74.5       71.9       640.48       61       1         66       66       Smoker Male Caucasian       73.2       72.8       844.32       119       2         67       67       Nonsmoker Female Caucasian       73.3       74.9       918.03       165       2										
61       61 Nonsmoker       Male       Caucasian       71.7       72.5       620.32       127       2         62       62 Nonsmoker       Male       Caucasian       73.6       74.7       515.92       337       1         63       63 Nonsmoker       Female       AfricanAmer       72.1       73.7       655.72       123       1         64       64 Nonsmoker       Female       Hispanic       72.7       73.1       619.44       205       4         65       65 Nonsmoker       Female       Caucasian       74.5       71.9       640.48       61       1         66       66       Smoker       Male       Caucasian       73.2       72.8       844.32       119       2         67       Nonsmoker       Female       Caucasian       73.3       74.9       918.03       165       2										
62       62 Nonsmoker       Male       Caucasian       73.6       74.7       515.92       337       1         63       63 Nonsmoker       Female       AfricanAmer       72.1       73.7       655.72       123       1         64       64 Nonsmoker       Female       Hispanic       72.7       73.1       619.44       205       4         65       65 Nonsmoker       Female       Caucasian       74.5       71.9       640.48       61       1         66       66       Smoker       Male       Caucasian       73.2       72.8       844.32       119       2         67       Nonsmoker       Female       Caucasian       73.3       74.9       918.03       165       2		60	Nonsmoker							
63       63       Nonsmoker Female AfricanAmer       72.1       73.7       655.72       123       1         64       64       Nonsmoker Female Hispanic       72.7       73.1       619.44       205       4         65       65       Nonsmoker Female Caucasian       74.5       71.9       640.48       61       1         66       66       Smoker Male Caucasian       73.2       72.8       844.32       119       2         67       Nonsmoker Female Caucasian       73.3       74.9       918.03       165       2		61	Nonsmoker	Male	Caucasian	71.7	72.5	620.32	127	
64       64 Nonsmoker Female       Hispanic       72.7       73.1       619.44       205       4         65       65 Nonsmoker Female       Caucasian       74.5       71.9       640.48       61       1         66       66 Smoker       Male       Caucasian       73.2       72.8       844.32       119       2         67       67 Nonsmoker Female       Caucasian       73.3       74.9       918.03       165       2							74.7			
65       65       Nonsmoker Female       Caucasian       74.5       71.9       640.48       61       1         66       66       Smoker Male       Caucasian       73.2       72.8       844.32       119       2         67       Nonsmoker Female       Caucasian       73.3       74.9       918.03       165       2		63	Nonsmoker	Female	AfricanAmer	72.1	73.7		123	
66       66       Smoker Male Caucasian       73.2       72.8       844.32       119       2         67       67 Nonsmoker Female Caucasian       73.3       74.9       918.03       165       2		64	Nonsmoker	Female						
67 Nonsmoker Female Caucasian 73.3 74.9 918.03 165 2		65	Nonsmoker	Female	Caucasian		71.9	640.48	61	
		66	Smoker	Male	Caucasian	73.2	72.8	844.32	119	
68 68 Nonsmoker Female Asian 74.2 75.1 933.49 480 6		67	Nonsmoker	Female	Caucasian	73.3	74.9	918.03	165	
	68	68	Nonsmoker	Female	Asian	74.2	75.1	933.49	480	6

69	69	Nonsmoker	Female	Hispanic	74.7	74.2	699.63	39	3
70	70	Nonsmoker	Female	Caucasian	74.4	74.2	593.27	434	4
71	71	Smoker	Male	Caucasian	74.5	69.7	634.24	147	1
72	72		Female	Caucasian	73.0	69.3	686.98	270	2
73		Nonsmoker		Hispanic	73.5	72.5	618.68	384	1
74	74		Female	Hispanic	72.3	70.6	631.20	87	1
75		Nonsmoker		Caucasian	75.7	73.8	608.88	291	3
76	76		Female	Hispanic	75.6	69.1	686.28	31	2
77	77			AfricanAmer	75.4	70.0	715.44	549	1
78		Nonsmoker	Male	Hispanic	73.4	74.8	754.66	172	2
79	79	Nonsmoker		AfricanAmer	72.9	74.6	865.89	251	1
80		Nonsmoker		Caucasian	72.3	74.0	890.88	335	6
81	81	Smoker		AfricanAmer	74.4	70.7	777.91	319	1
82	82	Smoker	Male	Caucasian	72.8	70.5	680.56	519	1
83	83		Male	Caucasian	75.1	73.5	594.61	94	2
84	84	Nonsmoker		AfricanAmer	73.2	75.1	651.73	15	1
85	85	Smoker	Male	Caucasian	74.0	71.3	601.11	397	5
86		Nonsmoker		Asian	73.8	72.9	626.71	95	2
87	87				73.5	74.8	643.80	551	2
88	88	Smoker	Male	Hispanic	72.2	66.6	724.52	89	1
89				AfricanAmer	74.4	75.3	745.57	121	2
90	90	Smoker	Male	Caucasian	75.2	72.5	842.05	319	1
91		Nonsmoker		AfricanAmer	73.6	74.2	880.47	424	3
92	92			Caucasian	73.1		1016.21	79	2
93		Nonsmoker		AfricanAmer	73.9	73.3	726.13	372	5
94	94		Male		74.9	74.4	780.21	195	1
95		Nonsmoker		Caucasian	72.5	75.0	704.08	324	1
96		Nonsmoker		Other	75.0	73.4	785.89	532	3
97	97	Nonsmoker		AfricanAmer	73.8	75.2	662.98	91	2
98	98	Nonsmoker	ма1е	Caucasian	73.6	75.2	621.30	32	1
99	99	Smoker	Male	Asian	74.8	71.3	521.17	94	2
100	100	Nonsmoker		Caucasian	73.8	74.3	714.58	95	3
101		Nonsmoker	ма1е	Caucasian	75.8	74.6	728.94	99	5
102	102	Smoker	Male	Caucasian	75.5	71.1	812.26	275	1
103	103	Smoker		Caucasian	72.4	71.7	924.78	203	1
104				AfricanAmer	73.6		1001.31	131	3
105		Nonsmoker	ма1е	Hispanic	73.3	74.3	724.99	116	2
106		Nonsmoker	Male	Hispanic	72.9	73.3	822.35	66	1
107		Nonsmoker	Male	Hispanic	75.7	73.1	653.58	574	1
108		Nonsmoker		Asian	72.6	73.3	642.28	87	1
109		Nonsmoker		AfricanAmer	73.8	73.6	730.12	149	1
110	110			AfricanAmer	72.8	70.6	708.30	538	1
111		Nonsmoker	Male	Caucasian	73.9	71.9	629.17	419	2
112		Nonsmoker	Male	Caucasian	73.2	75.1	790.33	33	1
113		Nonsmoker		AfricanAmer	75.5	73.8	788.05	213	1
114		Nonsmoker		Caucasian	72.4	74.5	849.25	44	1
115		Nonsmoker		AfricanAmer	72.8		1036.06	814	1
116		Nonsmoker	ма1е	Hispanic	74.8		1149.92	131	2
117	117	Smoker	Male	Caucasian	75.6	72.4	854.31	100	4
118		Nonsmoker		Caucasian	74.1	74.2	768.94	688	4
119	119	Smoker	Male	Caucasian	75.3	69.6	666.74	83	1
120		Nonsmoker		Hispanic	75.1	73.2	639.72	185	1
121	121	Smoker		AfricanAmer	74.1	70.3	744.38	60	2
122		Nonsmoker		Caucasian	74.6	74.1	584.08	6	1
123		Nonsmoker	Male	Caucasian	74.1	72.5	712.00	60	2
124	124	Nonsmoker	Female	AfricanAmer	73.9	72.7	789.76	282	1

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125
      125
             Smoker
                       Male
                               Hispanic
                                           73.0
                                                 67.3
                                                        719.06
                                                                       31
                                                                                 1
                                                                                 2
126
                                           75.3
                                                  73.8
                                                        903.34
                                                                       82
      126 Nonsmoker
                       Male AfricanAmer
                                           73.5
                                                  75.3 1044.98
                                                                       65
                                                                                 1
127
      127 Nonsmoker
                       Male
                              Caucasian
                                                                                 2
128
      128 Nonsmoker
                       Male
                                   Asian
                                           72.3
                                                 74.8 1027.36
                                                                       26
129
      129 Nonsmoker Female AfricanAmer
                                           73.5
                                                  73.7
                                                        855.36
                                                                      117
                                                                                 1
130
      130 Nonsmoker
                       Male
                              Caucasian
                                           72.9
                                                  76.2
                                                        796.51
                                                                      205
                                                                                 1
131
      131
             Smoker
                       Male
                              Caucasian
                                           72.6
                                                  70.3
                                                        771.74
                                                                       99
                                                                                 3
                                                                                 1
132
      132 Nonsmoker
                       Male
                              Caucasian
                                           76.3
                                                  74.2
                                                        780.27
                                                                      401
                                                                                 2
133
      133 Nonsmoker
                       Male AfricanAmer
                                           73.0
                                                  75.2
                                                        808.65
                                                                        8
134
      134 Nonsmoker Female
                              Caucasian
                                           74.7
                                                  74.7
                                                        632.05
                                                                      469
                                                                                 4
                                                                                 4
135
      135
             Smoker Female
                                           74.5
                                                 67.5
                                                        681.58
                               Hispanic
                                                                      116
136
      136 Nonsmoker
                       Male
                              Caucasian
                                           71.4
                                                  74.6
                                                        823.38
                                                                      298
                                                                                 4
137
      137 Nonsmoker
                       Male
                               Hispanic
                                           74.4
                                                  73.9
                                                        754.55
                                                                      115
                                                                                 2
138
                                                 73.1
                                                                                 1
      138 Nonsmoker
                       Male
                                   Asian
                                           72.1
                                                        938.47
                                                                      721
139
      139 Nonsmoker
                                           73.1
                                                 76.4 1072.65
                                                                                 1
                       Male
                              Caucasian
                                                                      135
140
      140 Nonsmoker
                       Male AfricanAmer
                                           73.7
                                                  73.3 1021.69
                                                                      202
                                                                                 1
      141 Nonsmoker Female
                              Caucasian
                                           73.0
                                                  73.3
                                                                                 1
141
                                                        785.75
                                                                      642
      142 Nonsmoker Female
                                                                                 1
142
                               Hispanic
                                           73.8
                                                 74.4
                                                        882.78
                                                                       95
143
      143 Nonsmoker Female
                              Caucasian
                                           73.6
                                                 72.0
                                                        762.43
                                                                      262
                                                                                 2
144
      144 Nonsmoker
                                                                                 1
                       Male
                               Hispanic
                                           73.1
                                                 74.2
                                                        863.78
                                                                      564
145
      145 Nonsmoker
                       Male
                              Caucasian
                                           73.4
                                                  73.9
                                                        745.97
                                                                      258
                                                                                 3
146
      146 Nonsmoker Female
                                Hispanic
                                           74.0
                                                  72.4
                                                        809.26
                                                                       41
                                                                                 1
147
      147 Nonsmoker Female AfricanAmer
                                           75.8
                                                 72.9
                                                        668.26
                                                                       77
                                                                                 3
                                                                                 2
148
      148
             Smoker Female
                                   Asian
                                           74.2
                                                 67.8
                                                        780.61
                                                                      429
149
      149 Nonsmoker Female AfricanAmer
                                           75.4
                                                  73.3
                                                        749.43
                                                                      557
                                                                                 1
150
      150 Nonsmoker
                       маlе
                              Caucasian
                                           75.1
                                                  72.9
                                                        889.55
                                                                       89
                                                                                 1
                                                                                 1
151
      151 Nonsmoker Female
                              Caucasian
                                           74.6
                                                 74.9 1025.09
                                                                       59
152
      152
             Smoker
                       Male
                              Caucasian
                                           75.5
                                                  69.8 1156.16
                                                                      370
                                                                                 1
153
                                                  74.3
                                                                                 2
      153 Nonsmoker
                       Male AfricanAmer
                                           74.9
                                                        777.93
                                                                      202
                                                                                 2
154
      154 Nonsmoker
                       Male AfricanAmer
                                           73.6
                                                  74.3
                                                        835.96
                                                                      111
155
      155 Nonsmoker Female
                              Caucasian
                                           74.5
                                                  72.6
                                                        668.69
                                                                      598
                                                                                 3
                                                                                 1
156
      156 Nonsmoker Female
                              Caucasian
                                           75.7
                                                  74.6
                                                        870.52
                                                                       55
157
      157 Nonsmoker
                       Male AfricanAmer
                                           72.6
                                                 73.8
                                                        827.18
                                                                      750
                                                                                 1
158
      158
             Smoker
                       Male
                              Caucasian
                                           74.1
                                                 70.8
                                                        689.23
                                                                       83
                                                                                 2
159
      159 Nonsmoker Female AfricanAmer
                                           73.6
                                                  74.2
                                                        662.17
                                                                      257
                                                                                 1
160
      160
             Smoker Female
                              Caucasian
                                           75.0
                                                  70.3
                                                        820.52
                                                                      303
                                                                                 1
161
      161 Nonsmoker Female AfricanAmer
                                           73.1
                                                 74.8
                                                        780.51
                                                                       79
                                                                                 2
162
      162 Nonsmoker
                               Hispanic
                                           73.6
                                                 74.3
                                                        980.09
                                                                      156
                                                                                 4
                       Male
                                                                                 6
163
      163 Nonsmoker
                       Male AfricanAmer
                                           73.6
                                                 75.1 1084.21
                                                                      166
164
      164
             Smoker
                       Male
                                Hispanic
                                           73.5
                                                  72.1 1073.50
                                                                        9
                                                                                 1
                                                                                 3
165
      165 Nonsmoker
                       Male AfricanAmer
                                           73.7
                                                 72.5
                                                        908.11
                                                                      409
                                                 73.4
                                                                                 2
166
      166 Nonsmoker
                       Male
                                Hispanic
                                           73.1
                                                        793.42
                                                                      424
167
      167 Nonsmoker
                       Male
                               Hispanic
                                           74.5
                                                  74.9
                                                        804.78
                                                                      205
                                                                                 1
                                                                                 2
168
      168 Nonsmoker
                       Male AfricanAmer
                                           73.7
                                                  74.1
                                                        790.82
                                                                       47
> str(RcmdrTestDrive)
                168 obs. of 9 variables:
'data.frame':
            : int 1 2 3 4 5 6 7 8 9 10 ...
 $ order
            : Factor w/ 2 levels "Nonsmoker", "Smoker": 1 1 1 1 1 1 2 1 1 1
 $ smoking
            : Factor w/ 2 levels "Female", "Male": 1 2 1 1 1 2 2 2 1 1 ...
 $ gender
              Factor w/ 5 levels "AfricanAmer",..: 3 1 3 3 4 3 4 4 3 4 ...
 $ race
 $ before
            : num
                   72.6 75.3 75.5 71.3 74.3 73 72.4 73.6 73.7 74.6 ...
                    75.2 73.2 74.5 74.6 73.8 73.6 70.7 74 75.9 74.8 ...
 $ after
             : num
 $ salary
             : num
                    619 545 550 616 543 ...
 $ reduction: int
                    9 62 19 30 105 43 229 40 101 440 ...
                    2 1 4 1 1 1 5 1 2 1 ...
 $ parking
            : int
```

```
> library(psych)
Attaching package: 'psych'
The following object is masked from 'package:car':
    logit
The following objects are masked from 'package:ggplot2':
   %+%, alpha
> describe(RcmdrTestDrive$salary)
                      sd median trimmed mad
                                                min
         n
             mean
                                                        max range skew
X1
     1 168 724.52 148.86 710.15 715.53 134.6 377.17 1156.16 778.99 0.51
  kurtosis
       0.2 11.49
x1
> describe(RcmdrTestDrive$reduction)
                      sd median trimmed
                                         mad min max range skew kurtosis
         n mean
     1 168 223.63 213.06 139.5 194.43 136.4
X1
                                              3 1632 1629 2.29
                                                                    10.02
     se
X1 16.44
```

#### **Conclusion/Interpretation:**

Variable salary has the highest center

#### b. Which measure of center is more appropriate for before and after?

#### The R-script for the given problem is as follows:

```
describe(RcmdrTestDrive$before)
describe(RcmdrTestDrive$after)
```

#### The output of the R-Script (from Console window) is given as follows:

> describe(RcmdrTestDrive\$before) sd median trimmed mad min max range skew kurtosis n mean se X1 1 168 73.97 1.08 73.9 73.98 1.19 71.3 76.3 5 -0.04 -0.8 0.08 > describe(RcmdrTestDrive\$after) sd median trimmed mad min max range skew kurtosis n mean vars se 73.48 1.56 66.6 76.4 1 168 73.27 1.88 73.7 9.8 - 1.161.32 X1 0.15

#### **Conclusion/Interpretation:**

Both the variables 'before' & 'after' are negatively skewed, median is more appropriate measure of center.