

HW2.R

xboxv

2020-02-16

```
myCars <- mtcars
myCars
```

##	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
## Mazda RX4	21.0	6	160.0	110	3.90	2.620	16.46	0	1	4	4
## Mazda RX4 Wag	21.0	6	160.0	110	3.90	2.875	17.02	0	1	4	4
## Datsun 710	22.8	4	108.0	93	3.85	2.320	18.61	1	1	4	1
## Hornet 4 Drive	21.4	6	258.0	110	3.08	3.215	19.44	1	0	3	1
## Hornet Sportabout	18.7	8	360.0	175	3.15	3.440	17.02	0	0	3	2
## Valiant	18.1	6	225.0	105	2.76	3.460	20.22	1	0	3	1
## Duster 360	14.3	8	360.0	245	3.21	3.570	15.84	0	0	3	4
## Merc 240D	24.4	4	146.7	62	3.69	3.190	20.00	1	0	4	2
## Merc 230	22.8	4	140.8	95	3.92	3.150	22.90	1	0	4	2
## Merc 280	19.2	6	167.6	123	3.92	3.440	18.30	1	0	4	4
## Merc 280C	17.8	6	167.6	123	3.92	3.440	18.90	1	0	4	4
## Merc 450SE	16.4	8	275.8	180	3.07	4.070	17.40	0	0	3	3
## Merc 450SL	17.3	8	275.8	180	3.07	3.730	17.60	0	0	3	3
## Merc 450SLC	15.2	8	275.8	180	3.07	3.780	18.00	0	0	3	3
## Cadillac Fleetwood	10.4	8	472.0	205	2.93	5.250	17.98	0	0	3	4
## Lincoln Continental	10.4	8	460.0	215	3.00	5.424	17.82	0	0	3	4
## Chrysler Imperial	14.7	8	440.0	230	3.23	5.345	17.42	0	0	3	4
## Fiat 128	32.4	4	78.7	66	4.08	2.200	19.47	1	1	4	1
## Honda Civic	30.4	4	75.7	52	4.93	1.615	18.52	1	1	4	2
## Toyota Corolla	33.9	4	71.1	65	4.22	1.835	19.90	1	1	4	1
## Toyota Corona	21.5	4	120.1	97	3.70	2.465	20.01	1	0	3	1
## Dodge Challenger	15.5	8	318.0	150	2.76	3.520	16.87	0	0	3	2
## AMC Javelin	15.2	8	304.0	150	3.15	3.435	17.30	0	0	3	2
## Camaro Z28	13.3	8	350.0	245	3.73	3.840	15.41	0	0	3	4
## Pontiac Firebird	19.2	8	400.0	175	3.08	3.845	17.05	0	0	3	2
## Fiat X1-9	27.3	4	79.0	66	4.08	1.935	18.90	1	1	4	1
## Porsche 914-2	26.0	4	120.3	91	4.43	2.140	16.70	0	1	5	2
## Lotus Europa	30.4	4	95.1	113	3.77	1.513	16.90	1	1	5	2
## Ford Pantera L	15.8	8	351.0	264	4.22	3.170	14.50	0	1	5	4
## Ferrari Dino	19.7	6	145.0	175	3.62	2.770	15.50	0	1	5	6
## Maserati Bora	15.0	8	301.0	335	3.54	3.570	14.60	0	1	5	8
## Volvo 142E	21.4	4	121.0	109	4.11	2.780	18.60	1	1	4	2

```
"Steop 1"
```

```
## [1] "Steop 1"
```

```
"1- Lower Hp is best bercause you get more mielage"
```

```
## [1] "1- Lower Hp is best bercause you get more mielage"
```

```
"2= Ford Panter L"
```

```
## [1] "2= Ford Panter L"
```

```
"Step 2"
```

```
## [1] "Step 2"
```

```
max(myCars$mpg)
```

```
## [1] 33.9
```

```
myCars[which.max(myCars$mpg),]
```

```
##           mpg cyl  disp  hp drat   wt  qsec vs am gear carb
## Toyota Corolla 33.9   4  71.1  65 4.22 1.835 19.9  1  1    4    1
```

```
NewMpg <- myCars[order(myCars$mpg, decreasing=T),]
```

```
NewMpg
```

```
##           mpg cyl  disp  hp drat   wt  qsec vs am gear carb
## Toyota Corolla 33.9   4  71.1  65 4.22 1.835 19.90  1  1    4    1
## Fiat 128       32.4   4  78.7  66 4.08 2.200 19.47  1  1    4    1
## Honda Civic   30.4   4  75.7  52 4.93 1.615 18.52  1  1    4    2
## Lotus Europa  30.4   4  95.1 113 3.77 1.513 16.90  1  1    5    2
## Fiat X1-9     27.3   4  79.0  66 4.08 1.935 18.90  1  1    4    1
## Porsche 914-2 26.0   4 120.3  91 4.43 2.140 16.70  0  1    5    2
## Merc 240D     24.4   4 146.7  62 3.69 3.190 20.00  1  0    4    2
## Datsun 710    22.8   4 108.0  93 3.85 2.320 18.61  1  1    4    1
## Merc 230     22.8   4 140.8  95 3.92 3.150 22.90  1  0    4    2
## Toyota Corona 21.5   4 120.1  97 3.70 2.465 20.01  1  0    3    1
## Hornet 4 Drive 21.4   6 258.0 110 3.08 3.215 19.44  1  0    3    1
## Volvo 142E    21.4   4 121.0 109 4.11 2.780 18.60  1  1    4    2
## Mazda RX4     21.0   6 160.0 110 3.90 2.620 16.46  0  1    4    4
## Mazda RX4 Wag 21.0   6 160.0 110 3.90 2.875 17.02  0  1    4    4
## Ferrari Dino   19.7   6 145.0 175 3.62 2.770 15.50  0  1    5    6
## Merc 280      19.2   6 167.6 123 3.92 3.440 18.30  1  0    4    4
## Pontiac Firebird 19.2  8 400.0 175 3.08 3.845 17.05  0  0    3    2
## Hornet Sportabout 18.7  8 360.0 175 3.15 3.440 17.02  0  0    3    2
## Valiant       18.1   6 225.0 105 2.76 3.460 20.22  1  0    3    1
## Merc 280C     17.8   6 167.6 123 3.92 3.440 18.90  1  0    4    4
## Merc 450SL    17.3   8 275.8 180 3.07 3.730 17.60  0  0    3    3
## Merc 450SE    16.4   8 275.8 180 3.07 4.070 17.40  0  0    3    3
## Ford Pantera L 15.8   8 351.0 264 4.22 3.170 14.50  0  1    5    4
## Dodge Challenger 15.5  8 318.0 150 2.76 3.520 16.87  0  0    3    2
## Merc 450SLC   15.2   8 275.8 180 3.07 3.780 18.00  0  0    3    3
## AMC Javelin   15.2   8 304.0 150 3.15 3.435 17.30  0  0    3    2
## Maserati Bora  15.0   8 301.0 335 3.54 3.570 14.60  0  1    5    8
## Chrysler Imperial 14.7  8 440.0 230 3.23 5.345 17.42  0  0    3    4
## Duster 360    14.3   8 360.0 245 3.21 3.570 15.84  0  0    3    4
```

```
## Camaro Z28      13.3   8 350.0 245 3.73 3.840 15.41  0  0   3   4
## Cadillac Fleetwood 10.4   8 472.0 205 2.93 5.250 17.98  0  0   3   4
## Lincoln Continental 10.4   8 460.0 215 3.00 5.424 17.82  0  0   3   4
```

"Step 3"

```
## [1] "Step 3"
```

```
myCars[which.max(myCars$mpg/myCars$hp),]
```

```
##           mpg cyl disp hp drat   wt  qsec vs am gear carb
## Honda Civic 30.4   4 75.7 52 4.93 1.615 18.52  1  1   4   2
```

"Comparing the highest ratio of Mpg to Hp"

```
## [1] "Comparing the highest ratio of Mpg to Hp"
```

```
MpgtoHp <- myCars$mpg/myCars$hp
myCars[order(MpgtoHp),]
```

```
##           mpg cyl  disp  hp drat   wt  qsec vs am gear carb
## Maserati Bora    15.0   8 301.0 335 3.54 3.570 14.60  0  1   5   8
## Lincoln Continental 10.4   8 460.0 215 3.00 5.424 17.82  0  0   3   4
## Cadillac Fleetwood 10.4   8 472.0 205 2.93 5.250 17.98  0  0   3   4
## Camaro Z28      13.3   8 350.0 245 3.73 3.840 15.41  0  0   3   4
## Duster 360      14.3   8 360.0 245 3.21 3.570 15.84  0  0   3   4
## Ford Pantera L   15.8   8 351.0 264 4.22 3.170 14.50  0  1   5   4
## Chrysler Imperial 14.7   8 440.0 230 3.23 5.345 17.42  0  0   3   4
## Merc 450SLC      15.2   8 275.8 180 3.07 3.780 18.00  0  0   3   3
## Merc 450SE       16.4   8 275.8 180 3.07 4.070 17.40  0  0   3   3
## Merc 450SL       17.3   8 275.8 180 3.07 3.730 17.60  0  0   3   3
## AMC Javelin      15.2   8 304.0 150 3.15 3.435 17.30  0  0   3   2
## Dodge Challenger 15.5   8 318.0 150 2.76 3.520 16.87  0  0   3   2
## Hornet Sportabout 18.7   8 360.0 175 3.15 3.440 17.02  0  0   3   2
## Pontiac Firebird 19.2   8 400.0 175 3.08 3.845 17.05  0  0   3   2
## Ferrari Dino     19.7   6 145.0 175 3.62 2.770 15.50  0  1   5   6
## Merc 280C        17.8   6 167.6 123 3.92 3.440 18.90  1  0   4   4
## Merc 280         19.2   6 167.6 123 3.92 3.440 18.30  1  0   4   4
## Valiant          18.1   6 225.0 105 2.76 3.460 20.22  1  0   3   1
## Mazda RX4        21.0   6 160.0 110 3.90 2.620 16.46  0  1   4   4
## Mazda RX4 Wag    21.0   6 160.0 110 3.90 2.875 17.02  0  1   4   4
## Hornet 4 Drive   21.4   6 258.0 110 3.08 3.215 19.44  1  0   3   1
## Volvo 142E       21.4   4 121.0 109 4.11 2.780 18.60  1  1   4   2
## Toyota Corona    21.5   4 120.1  97 3.70 2.465 20.01  1  0   3   1
## Merc 230         22.8   4 140.8  95 3.92 3.150 22.90  1  0   4   2
## Datsun 710       22.8   4 108.0  93 3.85 2.320 18.61  1  1   4   1
## Lotus Europa     30.4   4  95.1 113 3.77 1.513 16.90  1  1   5   2
## Porsche 914-2    26.0   4 120.3  91 4.43 2.140 16.70  0  1   5   2
## Merc 240D        24.4   4 146.7  62 3.69 3.190 20.00  1  0   4   2
## Fiat X1-9        27.3   4  79.0  66 4.08 1.935 18.90  1  1   4   1
## Fiat 128         32.4   4  78.7  66 4.08 2.200 19.47  1  1   4   1
```

```
## Toyota Corolla      33.9   4  71.1  65 4.22 1.835 19.90 1 1   4   1
## Honda Civic         30.4   4  75.7  52 4.93 1.615 18.52 1 1   4   2
```

```
myCars[which.max(MpgtoHp),]
```

```
##           mpg cyl disp hp drat   wt  qsec vs am gear carb
## Honda Civic 30.4   4  75.7 52 4.93 1.615 18.52 1 1   4   2
```

"Step 4"

```
## [1] "Step 4"
```

```
NewMpg <- myCars$mpg/33.9
```

```
NewMpg <- myCars$mpg/max(myCars$mpg)
```

```
NewHp <- myCars$hp/max(myCars$hp)
```

```
NewMpgToHp <- NewMpg+NewHp
```

```
myCars[which.max(NewMpgToHp),]
```

```
##           mpg cyl disp  hp drat   wt  qsec vs am gear carb
## Maserati Bora  15   8  301 335 3.54 3.57 14.6  0  1   5   8
```