Holden Herrell IST687 HW2

```
options(width = 100)
myCars<-mtcars
max(myCars$hp)
```

```
## [1] 335
```

```
index<-which.max(myCars$hp)
myCars[index,]
```

```
##               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
```

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

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

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

```
##                 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
```

```
highMPGcars<-myCars[order(myCars$mpg),]
highMPGcars
```

```
##                      mpg cyl  disp  hp drat    wt  qsec vs am gear carb
## 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
## 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
## Chrysler Imperial   14.7   8 440.0 230 3.23 5.345 17.42  0  0    3    4
## Maserati Bora       15.0   8 301.0 335 3.54 3.570 14.60  0  1    5    8
## 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
## Dodge Challenger    15.5   8 318.0 150 2.76 3.520 16.87  0  0    3    2
## Ford Pantera L      15.8   8 351.0 264 4.22 3.170 14.50  0  1    5    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 280C           17.8   6 167.6 123 3.92 3.440 18.90  1  0    4    4
## Valiant             18.1   6 225.0 105 2.76 3.460 20.22  1  0    3    1
## Hornet Sportabout   18.7   8 360.0 175 3.15 3.440 17.02  0  0    3    2
## 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
## Ferrari Dino        19.7   6 145.0 175 3.62 2.770 15.50  0  1    5    6
## 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
## 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
## Merc 240D           24.4   4 146.7  62 3.69 3.190 20.00  1  0    4    2
## Porsche 914-2       26.0   4 120.3  91 4.43 2.140 16.70  0  1    5    2
## Fiat X1-9           27.3   4  79.0  66 4.08 1.935 18.90  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 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
```

```
best<-((myCars$mpg*myCars$hp)/myCars$cyl)
best
```

```
##  [1] 385.0000 385.0000 530.1000 392.3333 409.0625 316.7500 437.9375 378.2000 541.5000 393.6000
## [11] 364.9000 369.0000 389.2500 342.0000 266.5000 279.5000 422.6250 534.6000 395.2000 550.8750
## [21] 521.3750 290.6250 285.0000 407.3125 420.0000 450.4500 591.5000 858.8000 521.4000 574.5833
## [31] 628.1250 583.1500
```

```
NewMyCars<-cbind(myCars,best)
NewMyCars [order(NewMyCars$best),]
```

```
##                      mpg cyl  disp  hp drat    wt  qsec vs am gear carb     best
## Cadillac Fleetwood  10.4   8 472.0 205 2.93 5.250 17.98  0  0    3    4 266.5000
## Lincoln Continental 10.4   8 460.0 215 3.00 5.424 17.82  0  0    3    4 279.5000
## AMC Javelin         15.2   8 304.0 150 3.15 3.435 17.30  0  0    3    2 285.0000
## Dodge Challenger    15.5   8 318.0 150 2.76 3.520 16.87  0  0    3    2 290.6250
## Valiant             18.1   6 225.0 105 2.76 3.460 20.22  1  0    3    1 316.7500
## Merc 450SLC         15.2   8 275.8 180 3.07 3.780 18.00  0  0    3    3 342.0000
## Merc 280C           17.8   6 167.6 123 3.92 3.440 18.90  1  0    4    4 364.9000
## Merc 450SE          16.4   8 275.8 180 3.07 4.070 17.40  0  0    3    3 369.0000
## Merc 240D           24.4   4 146.7  62 3.69 3.190 20.00  1  0    4    2 378.2000
## Mazda RX4           21.0   6 160.0 110 3.90 2.620 16.46  0  1    4    4 385.0000
## Mazda RX4 Wag       21.0   6 160.0 110 3.90 2.875 17.02  0  1    4    4 385.0000
## Merc 450SL          17.3   8 275.8 180 3.07 3.730 17.60  0  0    3    3 389.2500
## Hornet 4 Drive      21.4   6 258.0 110 3.08 3.215 19.44  1  0    3    1 392.3333
## Merc 280            19.2   6 167.6 123 3.92 3.440 18.30  1  0    4    4 393.6000
## Honda Civic         30.4   4  75.7  52 4.93 1.615 18.52  1  1    4    2 395.2000
## Camaro Z28          13.3   8 350.0 245 3.73 3.840 15.41  0  0    3    4 407.3125
## Hornet Sportabout   18.7   8 360.0 175 3.15 3.440 17.02  0  0    3    2 409.0625
## Pontiac Firebird    19.2   8 400.0 175 3.08 3.845 17.05  0  0    3    2 420.0000
## Chrysler Imperial   14.7   8 440.0 230 3.23 5.345 17.42  0  0    3    4 422.6250
## Duster 360          14.3   8 360.0 245 3.21 3.570 15.84  0  0    3    4 437.9375
## Fiat X1-9           27.3   4  79.0  66 4.08 1.935 18.90  1  1    4    1 450.4500
## Toyota Corona       21.5   4 120.1  97 3.70 2.465 20.01  1  0    3    1 521.3750
## Ford Pantera L      15.8   8 351.0 264 4.22 3.170 14.50  0  1    5    4 521.4000
## Datsun 710          22.8   4 108.0  93 3.85 2.320 18.61  1  1    4    1 530.1000
## Fiat 128            32.4   4  78.7  66 4.08 2.200 19.47  1  1    4    1 534.6000
## Merc 230            22.8   4 140.8  95 3.92 3.150 22.90  1  0    4    2 541.5000
## Toyota Corolla      33.9   4  71.1  65 4.22 1.835 19.90  1  1    4    1 550.8750
## Ferrari Dino        19.7   6 145.0 175 3.62 2.770 15.50  0  1    5    6 574.5833
## Volvo 142E          21.4   4 121.0 109 4.11 2.780 18.60  1  1    4    2 583.1500
## Porsche 914-2       26.0   4 120.3  91 4.43 2.140 16.70  0  1    5    2 591.5000
## Maserati Bora       15.0   8 301.0 335 3.54 3.570 14.60  0  1    5    8 628.1250
## Lotus Europa        30.4   4  95.1 113 3.77 1.513 16.90  1  1    5    2 858.8000
```

```
#I used the logic of multiplying mpg by hp and dividing by cyl to create the column "best."
#This allows cars to be compared fairly instead of being skewed by engine size (cyl).
#The car with the highest "best" value would have the "best" combination of mpg and hp.
#The best combination score was the Lotus Europa.
#My previous logic equally weighed mpg and hp, so my answer is the same (the Lotus Europa).
```