

1 mtcars example

*Several data sets , intended as learning tools, are automatically installed when **R** is installed. Many more are installed within packages to complement learning to use those packages. One of these is the famous **mtcars** data set, which is used in many data mining exercises.*

```
> data(mtcars)
> head(mtcars)
```

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21.0	6	160	110	3.90	2.620	16.46	0	1	4	4
Mazda RX4 Wag	21.0	6	160	110	3.90	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108	93	3.85	2.320	18.61	1	1	4	1
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1
Hornet Sportabout	18.7	8	360	175	3.15	3.440	17.02	0	0	3	2
Valiant	18.1	6	225	105	2.76	3.460	20.22	1	0	3	1

Suppose we fit a model with *mpg* (miles per gallon) as the response variable and *cyl* and *wt* (number of cylinders and weight of the car) as the predictor variables. We will call this fitted model **fit**.

```
fit <- lm(mpg ~ cyl + wt, data=mtcars)
```

```
> summary(fit)
```

```
Call:
```

```
lm(formula = mpg ~ cyl + wt, data = mtcars)
```

```
Residuals:
```

Min	1Q	Median	3Q	Max
-4.2893	-1.5512	-0.4684	1.5743	6.1004

```
Coefficients:
```

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	39.6863	1.7150	23.141	< 2e-16 ***
cyl	-1.5078	0.4147	-3.636	0.001064 **
wt	-3.1910	0.7569	-4.216	0.000222 ***

```
---
```

```
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
Residual standard error: 2.568 on 29 degrees of freedom
```

```
Multiple R-squared:  0.8302,    Adjusted R-squared:  0.8185
```

```
F-statistic: 70.91 on 2 and 29 DF,  p-value: 6.809e-12
```