MLclass: an R package implementing
Machine Learning algorithms presented in Stanford ML-class

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1 Linear Regression with one variable

```
> data(ex1data1)
> theta <- c(0,0)
> linReg <- gradDescent(X, y, theta, alpha=0.01, max.iter=1500)
> getTheta(linReg)

          [,1]      [,2]
[1,] -3.630291 1.166362
```

2 K-Means algorithm

```
> data(ex7data2)
> initCentroids <- matrix(c(3,3,6,2,8,5), byrow=T,ncol=2)
> xx <- kMeans(X, centers=initCentroids)
> getClusters(xx)

  [1] 1 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
 [28] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
 [55] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
 [82] 1 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2
[109] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[136] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[163] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[190] 2 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
[217] 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 2 3 3 3 3
[244] 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 2 3 3 3 3
[271] 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
[298] 3 3 1
```

3 Session Information

The version number of R and packages loaded for generating the vignette were:
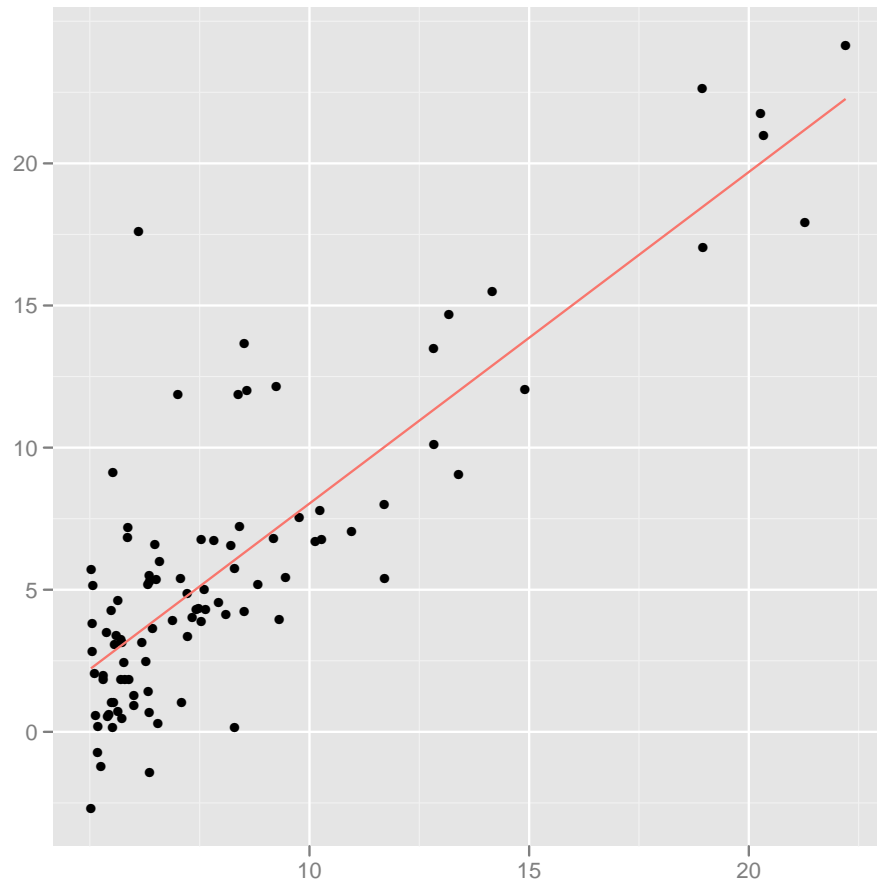
> *plot(linReg)*

Figure 1: Linear Regression with One Variable

```
> plot(xx, trace=TRUE)
```
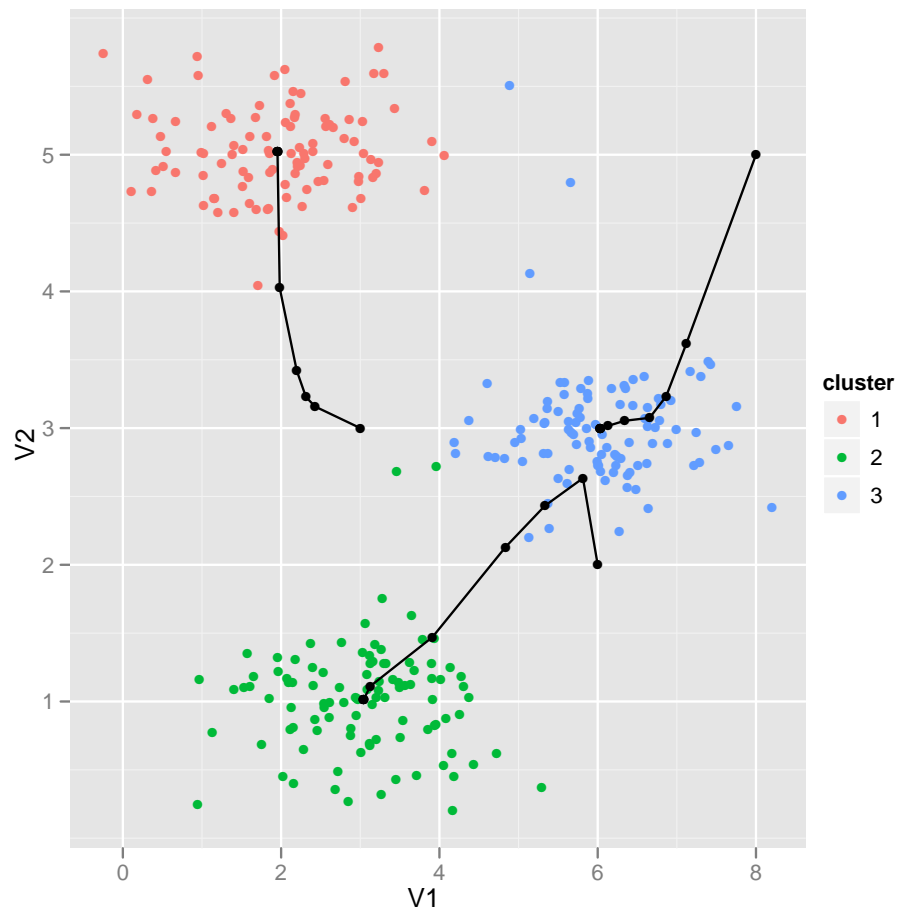

Figure 2: kMeans algorithm for clustering

```
R version 2.14.0 (2011-10-31)
Platform: i686-pc-linux-gnu (32-bit)

locale:
 [1] LC_CTYPE=en_US.UTF-8       LC_NUMERIC=C
 [3] LC_TIME=en_US.UTF-8        LC_COLLATE=C
 [5] LC_MONETARY=en_US.UTF-8    LC_MESSAGES=en_US.UTF-8
 [7] LC_PAPER=C                 LC_NAME=C
 [9] LC_ADDRESS=C               LC_TELEPHONE=C
[11] LC_MEASUREMENT=en_US.UTF-8 LC_IDENTIFICATION=C

attached base packages:
[1] grid      stats     graphics  grDevices utils
[6] datasets  methods   base

other attached packages:
[1] MLclass_0.1.2 ggplot2_0.8.9 proto_0.3-9.2 reshape_0.8.4
[5] plyr_1.6

loaded via a namespace (and not attached):
[1] digest_0.5.1 tools_2.14.0
```