

*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
[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
[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
[82] 1 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 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
[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
[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
[190] 2 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
[217] 3 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
[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
[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
[298] 3 3 1
```

### 3 Session Information

The version number of R and packages loaded for generating the vignette were:

```
> plot(linReg, xlab="Population of City in 10,000s", ylab="Profit in $10,000s")
```

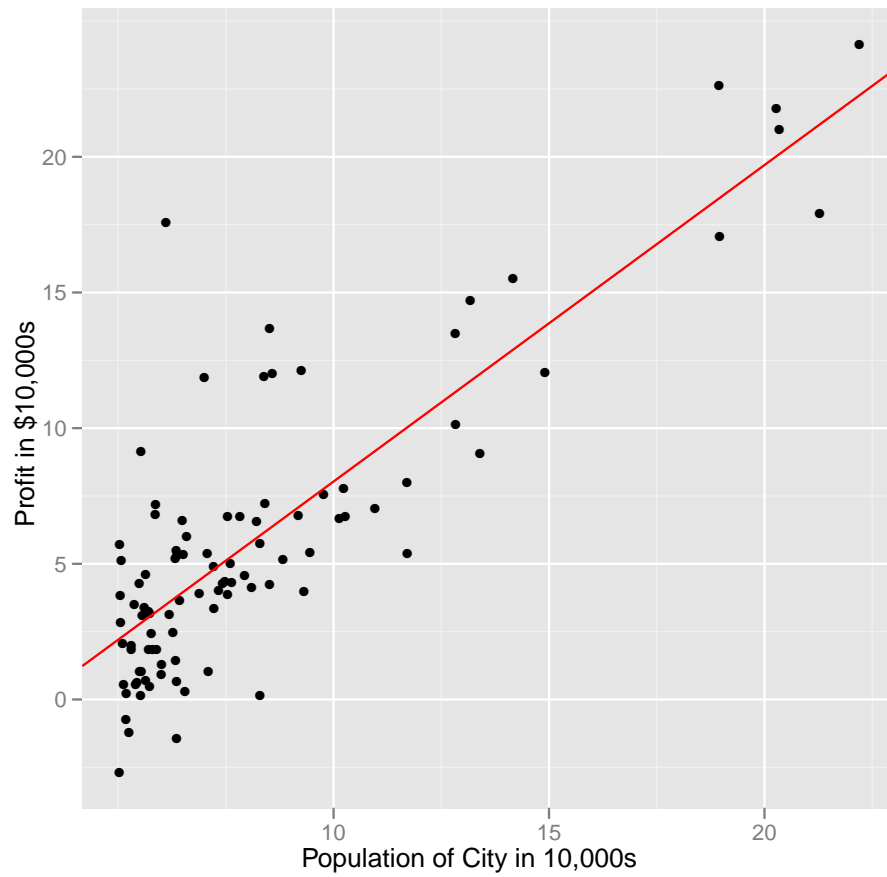


Figure 1: Linear Regression with One Variable

```
> plot(xx, trace=TRUE, title="Iteration number 10")
```

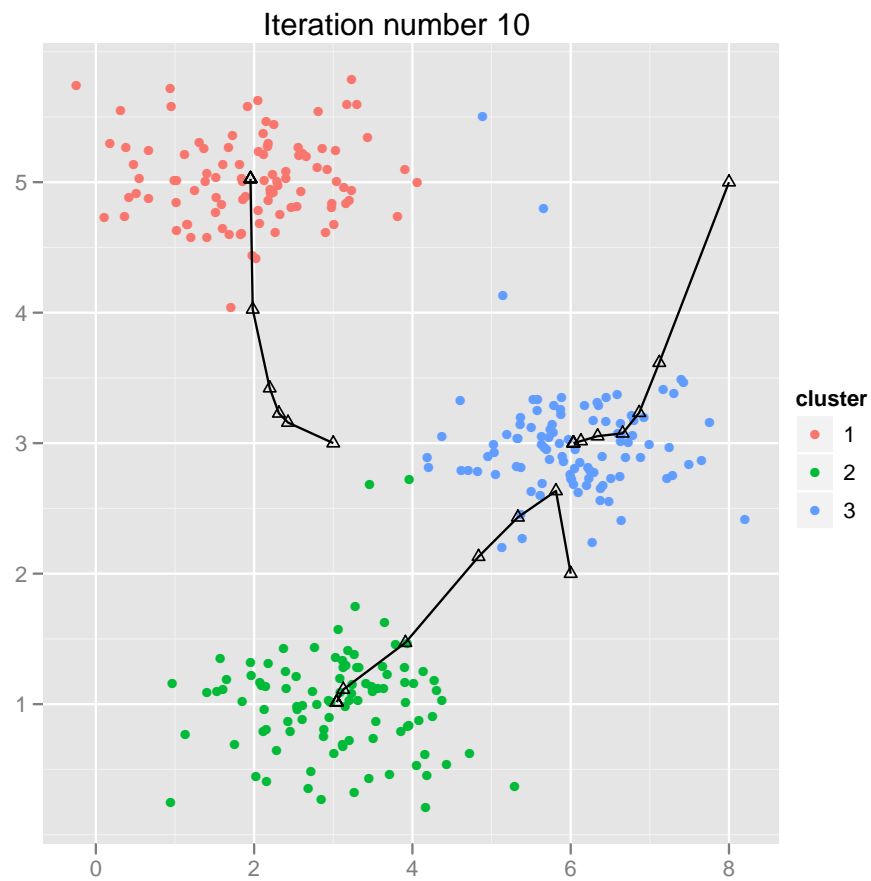


Figure 2: kMeans algorithm for clustering

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_0.2.2 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
```