```
library(gdata)
```

```
## gdata: read.xls support for 'XLS' (Excel 97-2004) files ENABLED.
```

```
##
```

```
## gdata: read.xls support for 'XLSX' (Excel 2007+) files ENABLED.
```

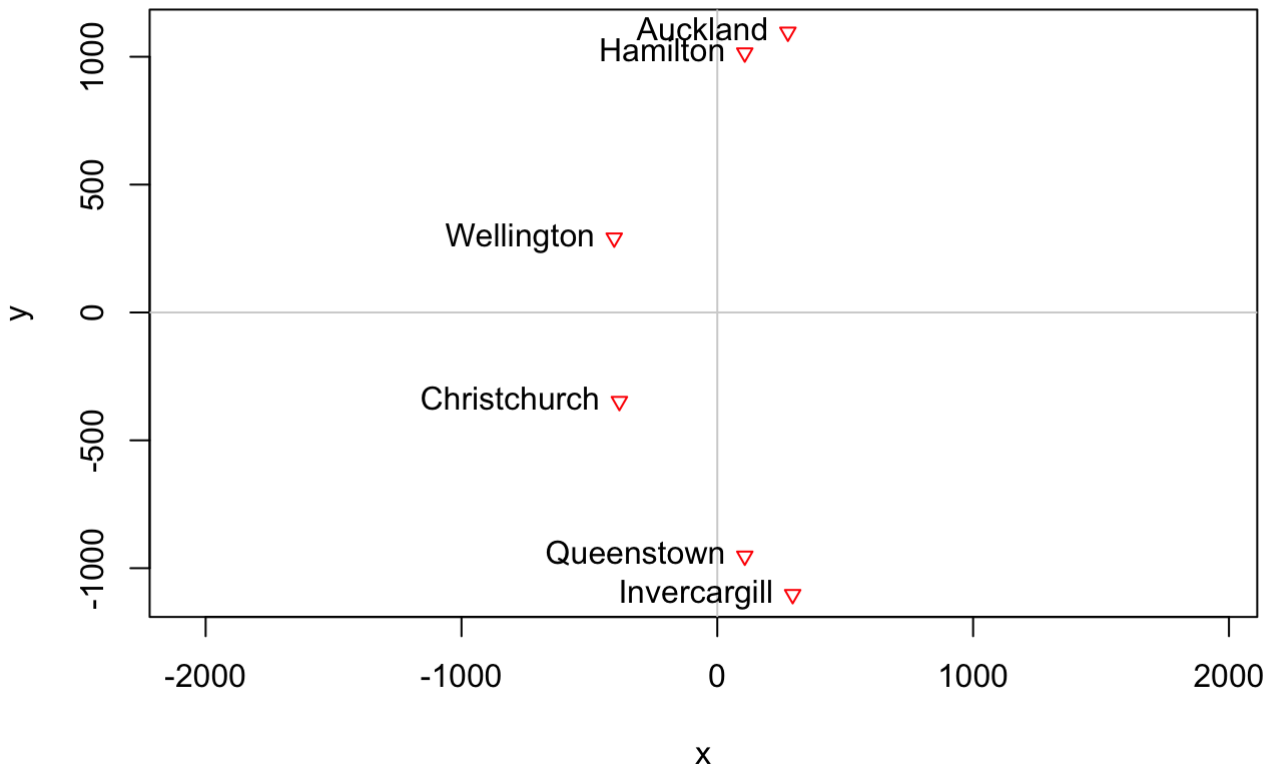
```
##
## Attaching package: 'gdata'
```

```
## The following object is masked from 'package:stats':
##
##     nobs
```

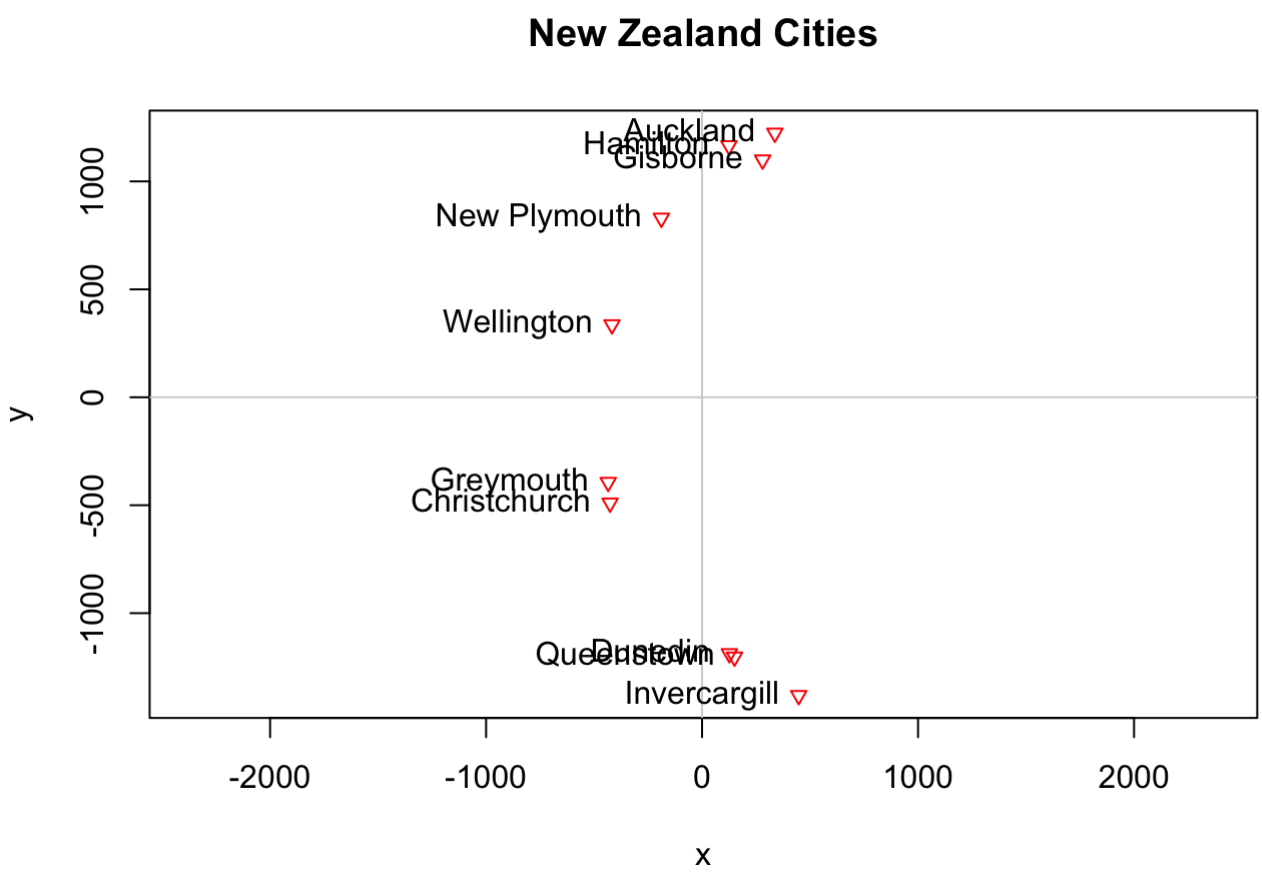
```
## The following object is masked from 'package:utils':
##
##     object.size
```

```
## The following object is masked from 'package:base':
##
##     startsWith
```

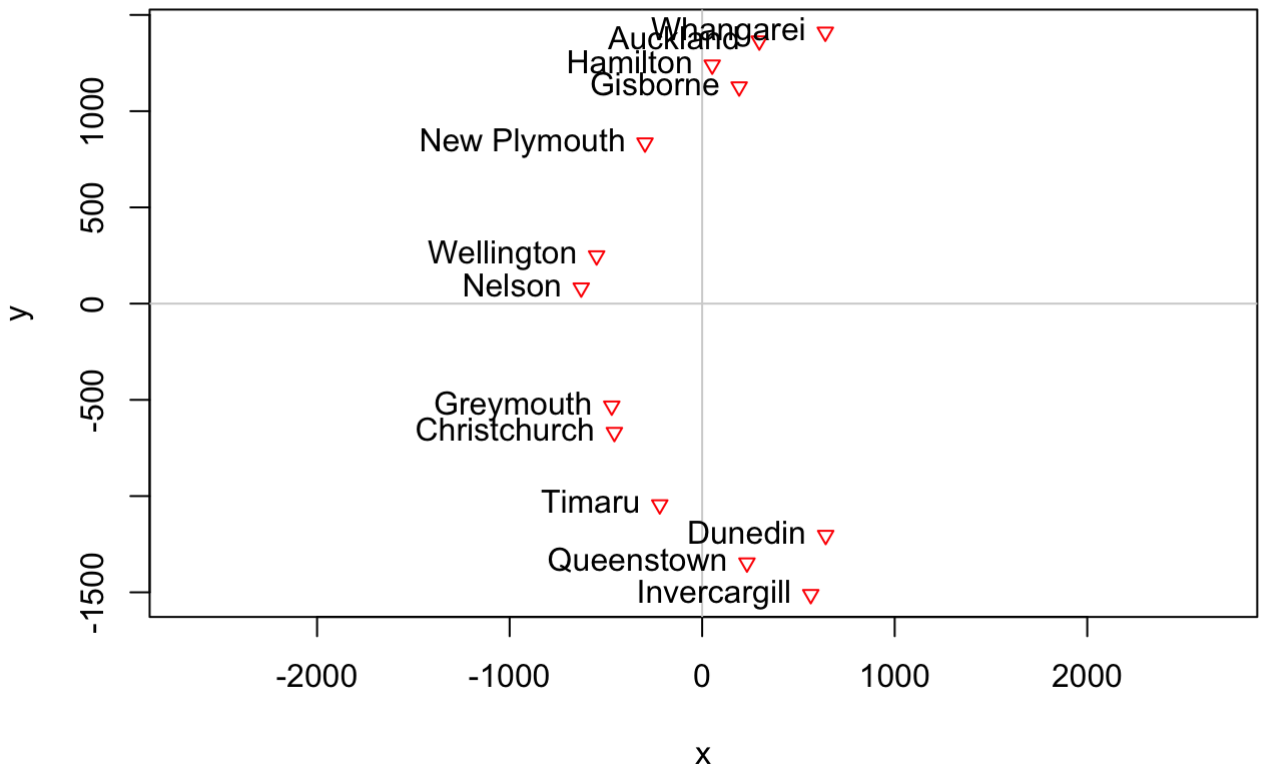
```
city = read.xls("city.xlsx", sheet = 1, header = TRUE)
citynames = city[, 1]
city = city[,-1]
city_dist = dist(city)
map = cmdscale(city_dist, k = 2)
x = map[, 2]
y = map[, 1]
plot(x, y, main = "New Zealand Cities", asp = 1, pch = 25, col = "red", cex = 0.8)
abline(h = 0, v = 0, col = "lightgray")
text(x, y, labels = citynames, pos = 2)
```




```
library(gdata)
city = read.xls("city.xlsx", sheet = 2, header = TRUE)
citynames = city[, 1]
city = city[,-1]
city_dist = dist(city)
map = cmdscale(city_dist, k = 2)
x = map[, 2]
y = map[, 1]
plot(x, y, main = "New Zealand Cities", asp = 1, pch = 25, col = "red", cex = 0.8)
abline(h = 0, v = 0, col = "lightgray")
text(x, y, labels = citynames, pos = 2)
```



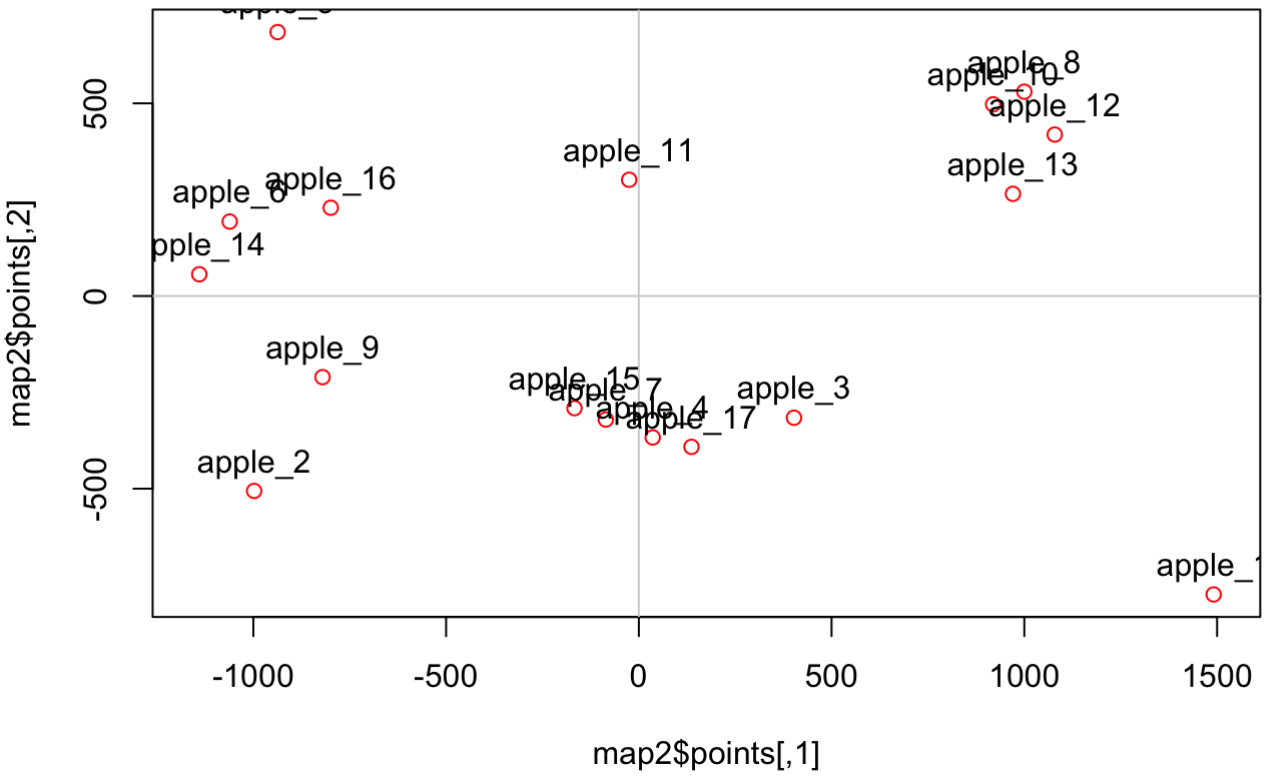

```
library(gdata)
city = read.xls("city.xlsx", sheet = 3, header = TRUE)
citynames = city[, 1]
city = city[,-1]
city_dist = dist(city)
map = cmdscale(city_dist, k = 2)
x = map[, 2]
y = map[, 1]
plot(x, y, main = "New Zealand Cities", asp = 1, pch = 25, col = "red", cex = 0.8)
abline(h = 0, v = 0, col = "lightgray")
text(x, y, labels = citynames, pos = 2)
```




```
library(MASS)
picture = read.xls("massive memory.xlsx", sheet = 1, header = TRUE)
pic.num = picture[,1]
picture = picture[,-1]
pic_dist = dist(picture)
map2 = isoMDS(pic_dist, k = 2)
```

```
## initial  value 13.934782
## final  value 13.934626
## converged
```

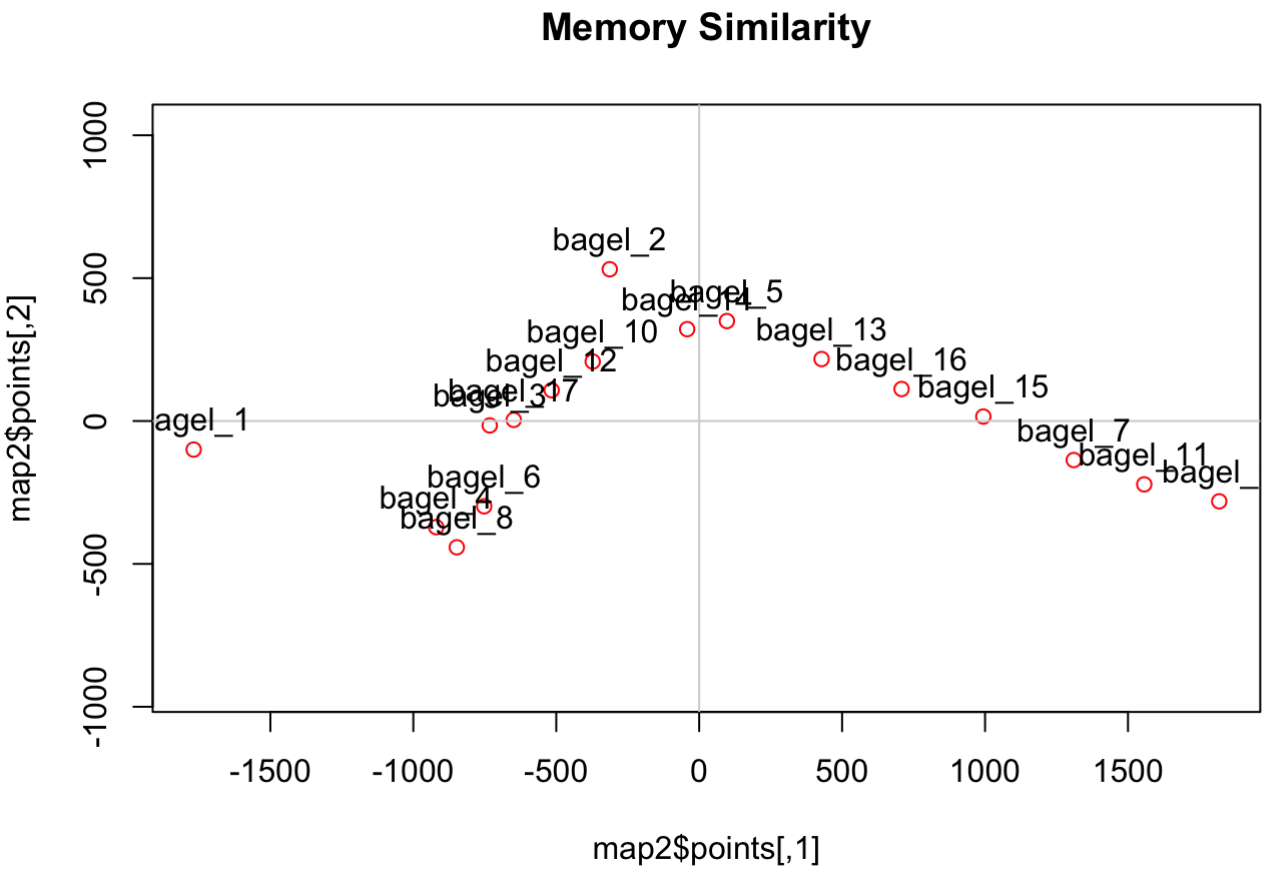
```
plot(map2$points, main = "Memory Similarity", asp = 1, pch = 21, col = "red")
abline(h = 0, v = 0, col = "lightgray")
text(map2$points, labels = pic.num, pos = 3)
```




```
library(MASS)
picture = read.xls("massive memory.xlsx", sheet = 2, header = TRUE)
pic.num = picture[,1]
picture = picture[,-1]
pic_dist = dist(picture)
map2 = isoMDS(pic_dist, k = 2)
```

```
## initial  value 6.436822
## final  value 6.436577
## converged
```

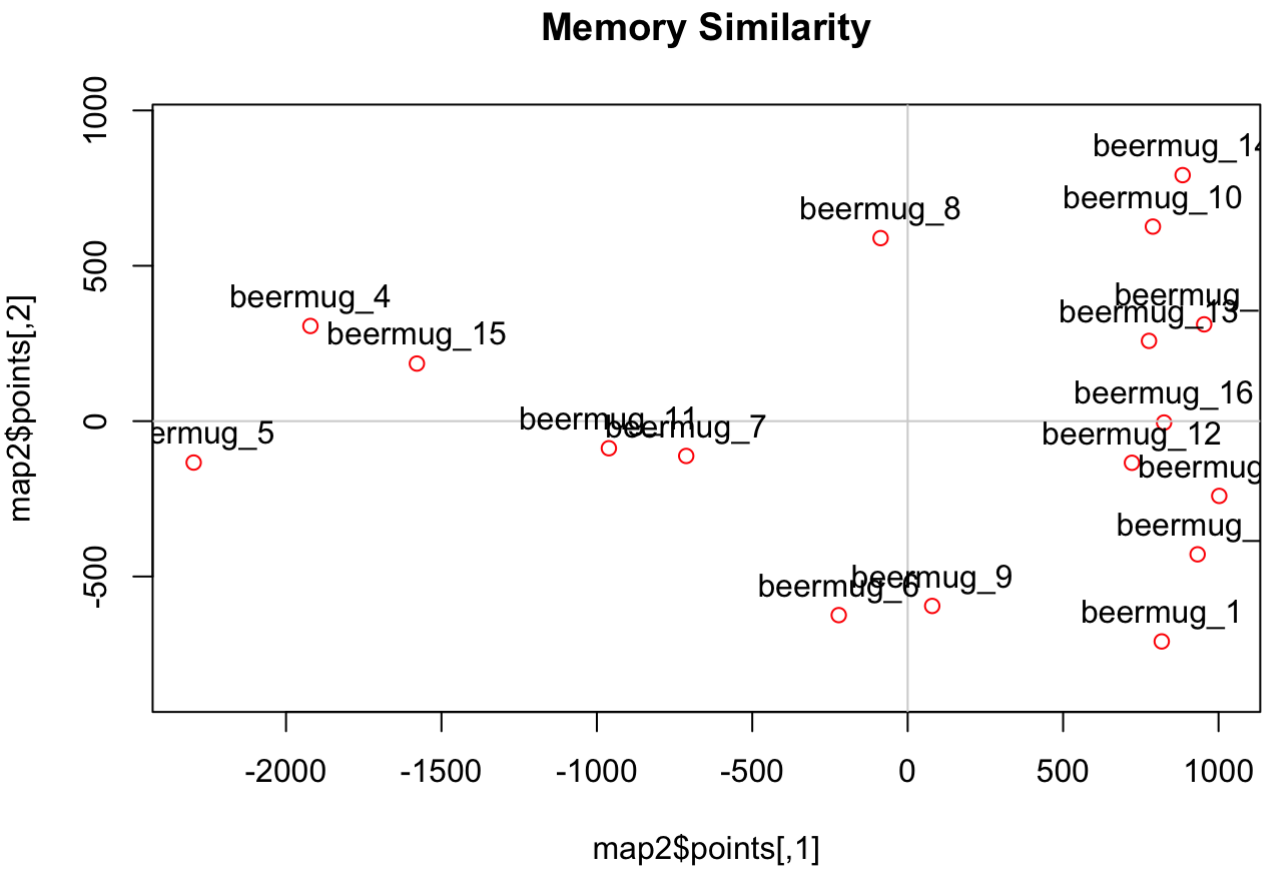
```
plot(map2$points, main = "Memory Similarity", asp = 1, pch = 21, col = "red")
abline(h = 0, v = 0, col = "lightgray")
text(map2$points, labels = pic.num, pos = 3)
```




```
library(MASS)
picture = read.xls("massive memory.xlsx", sheet = 3, header = TRUE)
pic.num = picture[,1]
picture = picture[,-1]
pic_dist = dist(picture)
map2 = isoMDS(pic_dist, k = 2)
```

```
## initial  value 4.843939
## final  value 4.843881
## converged
```

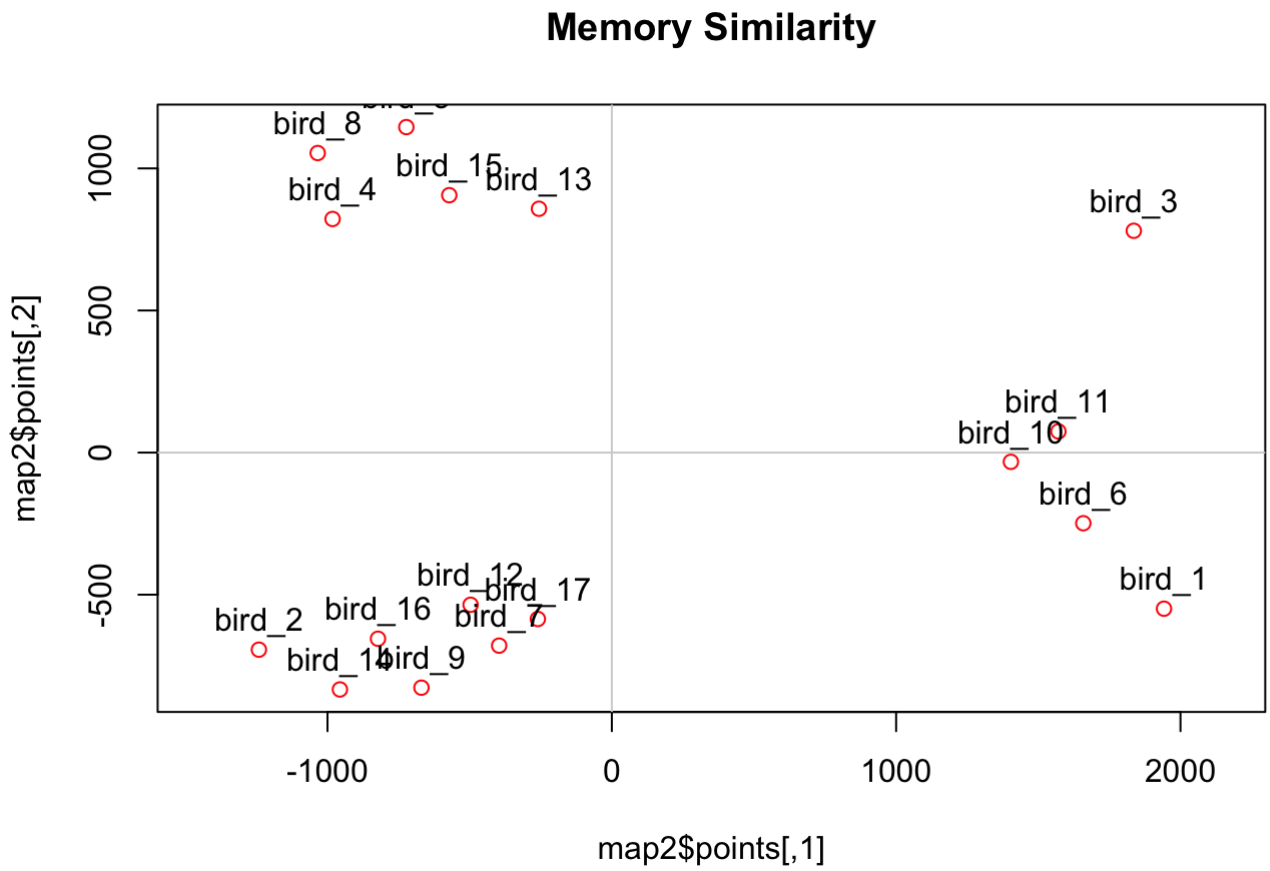
```
plot(map2$points, main = "Memory Similarity", asp = 1, pch = 21, col = "red")
abline(h = 0, v = 0, col = "lightgray")
text(map2$points, labels = pic.num, pos = 3)
```




```
library(MASS)
picture = read.xls("massive memory.xlsx", sheet = 4, header = TRUE)
pic.num = picture[,1]
picture = picture[,-1]
pic_dist = dist(picture)
map2 = isoMDS(pic_dist, k = 2)
```

```
## initial  value 4.626014
## final  value 4.625941
## converged
```

```
plot(map2$points, main = "Memory Similarity", asp = 1, pch = 21, col = "red")
abline(h = 0, v = 0, col = "lightgray")
text(map2$points, labels = pic.num, pos = 3)
```


Memory Similarity
bird_8
bird_15
bird_4
bird_13
bird_3
bird_11
bird_10
bird_6
bird_1
bird_12
bird_17
bird_2
bird_16
bird_7
bird_14
bird_9
1000
500
0
-500
map2$points[,2]
-1000
0
1000
2000
map2$points[,1]