

Lab session week 16 : Loops

Create scripts

1. Open a new R file : 'newfunction.r'
2. In 'newfunction.r'

```
newfunction<-function()  
{  
  print('Hello world!')  
}
```

3. In the console

```
source('newfunction.r')
```

Loop

Basics

- ▶ for statement

```
for(i in 1:n){  
  
}
```

- ▶ while statement

```
i<-1  
while(i<=n){  
  i<-i+1  
  
}
```

Loop

apply

```
array(1:4,dim=c(2,2))
```

```
##      [,1] [,2]  
## [1,]    1    3  
## [2,]    2    4
```

```
m<-array(1:4,dim=c(2,2))  
apply(m,c(1,2),function(x,y) y*x^2,y = 0.5)
```

```
##      [,1] [,2]  
## [1,] 0.5  4.5  
## [2,] 2.0  8.0
```

Loop

apply

```
array(1:4,dim=c(2,2))
```

```
##      [,1] [,2]  
## [1,]    1    3  
## [2,]    2    4
```

```
apply(m,1,function(x) x[1]+x[2])
```

```
## [1] 4 6
```

```
apply(m,2,function(x) x[1]+x[2])
```

```
## [1] 3 7
```

Loop

lapply, sapply

```
list('v1'=c(1,2,3), 'v2'=c(4,6))
```

```
## $v1  
## [1] 1 2 3  
##  
## $v2  
## [1] 4 6
```

```
l<-list('v1'=c(1,2,3), 'v2'=c(4,6))  
sapply(l, mean)
```

```
## v1 v2  
## 2 5
```

Loop

mapply

```
mapply(function(x,y) x*y,1:5,1:5)
```

```
## [1]  1  4  9 16 25
```