

蘇州大學

生物信息学系  
Department of Bioinformatics

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## ***Lab 2 for loop and function***

Xiaoqin Yang  
[yangxiaoqin@suda.edu.cn](mailto:yangxiaoqin@suda.edu.cn)

# The advantages of writing a function

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- Functional programming can be advantageous when you are going to be performing lots of different operations on data that has a fixed, known amount of variation.
- The benefits of Functional programming is brevity, because code can be more concise and concurrency.

<https://www.quora.com/What-are-the-advantages-of-functional-programming-over-object-oriented-programming-What-are-some-languages-that-are-mainly-functional>

<https://stackoverflow.com/questions/128057/what-are-the-benefits-of-functional-programming>

# The structure of a function

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```
myfunction <- function(arg1, arg2, ... ){  
    Statements  
    return(object)  
}
```

# A simple example

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```
> plusone <- function(a, b) {  
+ c <- a + b  
+ return(c)  
+ }  
>  
>  
> plusone(1,7)  
[1] 8  
>
```

# Example of for loop

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```
x <- c(2,5,3,9,8,11,6)
count <- 0
for (val in x) {
  if(val %% 2 == 0) count = count+1
}
print(count)
```

Output

```
[1] 3
```

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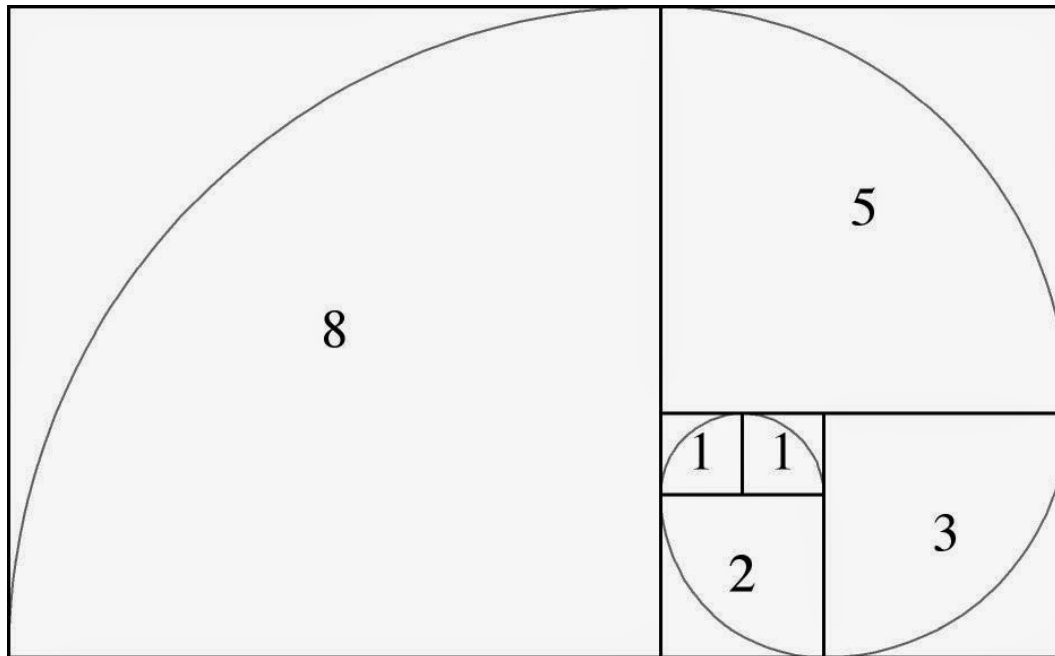
```
for (year in 2010:2015){  
  print(paste("The year is", year))  
}
```

## Output

```
[1] "The year is 2010"  
[2] "The year is 2011"  
[3] "The year is 2012"  
[4] "The year is 2013"  
[5] "The year is 2014"  
[6] "The year is 2015"
```

# ***What is fibonacci series?***

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<http://javarevisited.blogspot.com/2015/01/print-fibonacci-series-in-java-using.html>

# The example of the R script

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```
> fibonacci<-function(i){  
  ....  
}
```

- i should be the only input and must be an integer.
- This function should return a vector.



## Details for the script

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- A function should be developed to facilitate the similar calculation.
- Exceptional case should be taken into account. You need to check whether your input is numeric, positive integer, or character, and give error information.
- *if .... else* statement should be used.
- Pay more attention to your comments.

# Outline of this Lab

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- Write a function for fibonacci series.
- This function have only one input parameter (a positive integer).
- This function returns a vector.
- Submit your R script (e.g. James\_Bond\_Lab2.R)