

R – Flow Control

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Outline

Conditional statements: if, if-else, switch, vectorized if

Looping statements: repeat, while, for

Advanced looping: apply function

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If

- Used for conditional execution

```
if (condition) {  
  #execute body if condition evaluates to TRUE  
}
```

- **Condition**
 - Logical value e.g. TRUE, FALSE
 - Logical vector of length one e.g. [1] TRUE

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If - Else

```
if (condition) {  
#execute body if condition evaluates to TRUE  
}  
else {  
#execute body if condition evaluates to FALSE  
}
```

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Multiple If Else

```
if (condition 1) {  
#execute body if condition 1 evaluates to TRUE  
}  
else if (condition 2){  
#execute body if condition 2 evaluates to TRUE  
}  
else {  
#execute body if all conditions evaluate to FALSE  
}
```

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Switch

- Switch function

```
switch(expression,  
option1 = { #executes if expression evaluates to option1  
},  
option2 = { #executes if expression evaluates to option2  
},  
default value  
)
```

- Expression should be evaluated to a string or an integer value
- Return NULL if no default value

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Vectorized If

- Work on a logical vector
- Typically logical vector can be generated by a logical expression
- Use of **ifelse** function

```
ifelse(test vector, true vector, false vector)
```

- True and false vector will be recycled if needed
- Returns NA if test vector contains NA

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Repeat

- Used for looping

```
repeat{  
#Execute body for ever  
}
```

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Repeat With Break

- Used for looping

```
repeat{  
  #Execute body  
  if(condition) {  
    #Some task  
    break  
  }  
  #Execute body  
}
```

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Repeat With Next

```
repeat{
#Execute body
if(condition) {
    #some task
    break
}
If(condition) { #some task
    next #Skip current loop and start next
}
#Execute body
}
```

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While

- Check condition before entering the loop

```
while(condition){  
#Execute body as long as condition evaluates to TRUE  
}
```

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For

- Loop through a vector

```
for(iterator in vector){  
#Execute body  
}
```

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Apply

- **Definition :** Returns a vector or array or list of values obtained by applying a function to margins of an array or matrix.
- Margins – rows or columns or both (each element)

```
apply(data, margin, function)
```

- Margin
 - Rows – 1
 - Columns – 2
 - Both – 1:2

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Functions in Apply Family

Function	Input	Return type
lapply	list , vector	list
sapply	list, vector	vector, matrix
vapply	list, vector	vector, matrix

- **Special usage**

- rapply – recursive version of lapply
- mapply –multivariate version of sapply

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Summary

Conditional
statements

Looping statements

Advanced looping

If

If-else

Multiple If-else

Switch

Vectorized if

Repeat

Break

Next

While

For

Apply

Apply family

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