

쌩 조짜를 위한 R

정태훈

2014년 4월 15일

제3과. R 데이터 분석

(I) R 스타일 살짝 맛보기

- 여기서 쓸 데이터는 이렇습니다.
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 - 농작물에 어떤 처리를 해서 과연 생산량이 늘었는지를 확인하고 싶어 두 가지 처리를 한 경우와 아무런 처리도 하지 않은 경우에 대해 작물의 무게를 측정했습니다.

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 - 아무 처리도 하지 않은 경우: 4.17, 5.58, 5.18, 6.11, 4.5, 4.61, 5.17, 4.53, 5.33, 5.14
 - 첫번째 처리를 한 경우: 4.81, 4.17, 4.41, 3.59, 5.87, 3.83, 6.03, 4.89, 4.32, 4.69
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 - 뭘 어떻게 해야 할까요? 난감하신가요? 뭐, 지금은 그러실 수도 있는데 앞으로 하나씩 단계단계 해결하면 또 그렇게 어려운 것도 아니란 걸 아시게 될 겁니다.

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```

> (4.17 + 5.58 + 5.18 + 6.11 + 4.5 + 4.61 + 5.17 + 4.53 + 5.33 + 5.14) / 1
0
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- R은 항상 데이터를 먼저 넣어주고 그 데이터는 그대로 둔 채 거기에 함수를 적용해서 원하는 값을 얻도록 해야 합니다. 그러니까 앞에서 언급한 데이터를 R에 먼저 넣어주고 평균은 `mean()`, 중간값은 `median()`, 표준편차는 `sd()` 등의 함수를 그 데이터에 적용해 값을 구하는 겁니다.

- 데이터를 입력할 때는 R 콘솔에 바로 입력할 수도 있고 파일에 데이터를 저장한 다음 그 파일을 읽어들일 수도 있습니다.

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 - `ctrl.avg <- mean(ctrl)`
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During startup - Warning messages:

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>
>
>
```

Environment History

Import Dataset Clear

Global Environment

Values

ctrl	num [1:10] 4.17 5.58 5.18 6.11 4.5 4.61 ...
ctrl.avg	5.032
ctrl.med	5.155
ctrl.sd	0.583091378392406
trt1	num [1:10] 4.81 4.17 4.41 3.59 5.87 3.83 ...
trt1.avg	4.661
trt1.med	4.55
trt1.sd	0.793675696434703
trt2	num [1:10] 6.31 5.12 5.54 5.5 5.37 5.29 ...
trt2.avg	5.526
trt2.med	5.435
trt2.sd	0.442573283322786

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현수에 데이터를 저장하고

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원하는 결과로 계산합니다

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여기에서 1st^{st} 1st^{st} 1st^{st} 를 선택합니다
RStudio에서 편리한 71 이라고 합니다!

Files Plots Packages Help Viewer

- 하지만 RStudio를 절대 이렇게 쓰지 마십시오! RStudio를 쓰면서 R 콘솔 화면에 바로 손을 대는 건 정말 배우지 못한 무식쟁이나 하는 짓이라고 보시면 됩니다. 배운 사람은 어디까지나 배운 사람답게 써야죠!

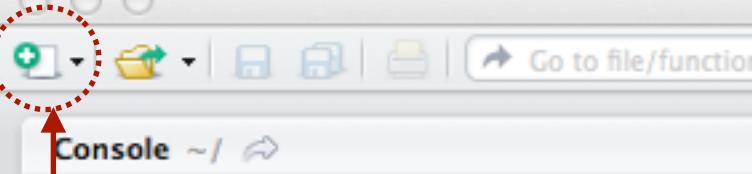
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- 그런데 그럼 어떻게 해야 하느냐?

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- 그런데 그럼 어떻게 해야 하느냐?
- 항상 스크립트 파일을 열어서 거기다 하고 싶은 내용을 쓰고 그걸 R에 옮겨서 결과를 얻어야 합니다! 스크립트의 내용을 R에 옮기는 일은 RStudio가 편리하게 해 줍니다. 그래서 사용자는 자신이 하고 싶은 일에만 집중할 수 있습니다.

- 하지만 RStudio를 절대 이렇게 쓰지 마십시오! RStudio를 쓰면서 R 콘솔 화면에 바로 손을 대는 건 정말 배우지 못한 무식쟁이나 하는 짓이라고 보시면 됩니다. 배운 사람은 어디까지나 배운 사람답게 써야죠!
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- 이렇게 하면 물론 해야 할 작업에만 집중할 수 있다는 것도 있지만 무엇보다 자신이 한 작업에 대한 온전한 기록이 남는다는 부분이 중요합니다. 그래서 언제든지 다시 돌아가 무슨 작업을 했는지 확인할 수 있고 따라서 오류를 확인하거나 혹은 분석의 재현성을 높일 수가 있습니다.

- 하지만 RStudio를 절대 이렇게 쓰지 마십시오! RStudio를 쓰면서 R 콘솔 화면에 바로 손을 대는 건 정말 배우지 못한 무식쟁이나 하는 짓이라고 보시면 됩니다. 배운 사람은 어디까지나 배운 사람답게 써야죠!
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- 이렇게 말은 했지만 사실 자신의 과거 작업 파일을 들여다 보면서 다시 되짚어 파악하기란 생각 만큼 쉽지 않습니다. 그래서 작업 파일 만드는 경험이 필요하고 무엇보다 작업 파일 중간 중간 많은 내용을 스스로 남기는 습관을 들여야 합니다.

그럼 도대체 어떻게 하라는 거야 ..?
바로 이렇게 하시면 됩니다.



여기서 콘솔 창입니다.
R 3.6.0 -- "Good Sport"
Foundation for Statistical Computing

Platform: x86_64-apple-darwin10.8.0 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:
1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"
> |

Environment History

Import Dataset Clear List

Global Environment

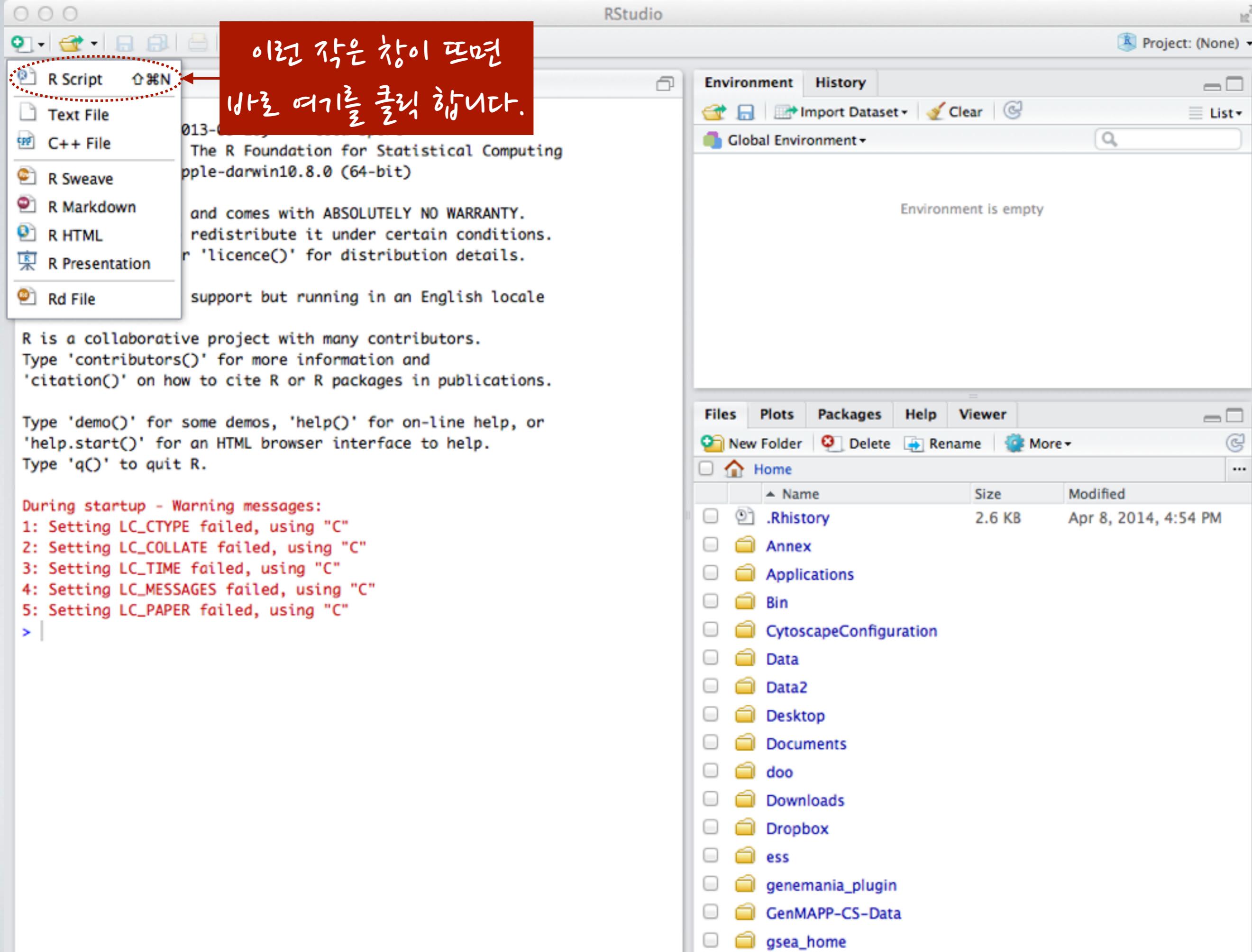
Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home

	Name	Size	Modified
	.Rhistory	2.6 KB	Apr 8, 2014, 4:54 PM
	Annex		
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	Data		
	Data2		
	Desktop		
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	ess		
	genemania_plugin		
	GenMAPP-CS-Data		
	gsea_home		



RStudio
Project: (None)

Untitled1 ×

Source on Save | Run | Source | List

1 |

Environment History

Import Dataset | Clear | Global Environment

Environment is empty

← 이제 여기에 하고 싶은 작업을 써 넣는 겁니다!
예를 들어 앞에서 했던 작업은 ...

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1:1 (Top Level) R Script

Console ~/

```
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5: Setting LC_PAPER failed, using "C"
>
```

RStudio

Project: (None)

Untitled1* | Go to file/function

Source on Save | Run | Source | List

1 (4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10 | 2

Environment | History

Import Dataset | Clear | Global Environment | List

Environment is empty

Files | Plots | Packages | Help | Viewer

New Folder | Delete | Rename | More

Home

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	.Rhistory	2.7 KB	Apr 16, 2014, 12:00 PM
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	GenMAPP-CS-Data		
	gsea_home		

1:56 | (Top Level) | R Script

Console ~/

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3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

>

RStudio

Project: (None)

Untitled1* | Environment | History

Source on Save | Run | Clear | List

1 (4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10 ← 01234711 01234761 고

2

Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home

	Name	Size	Modified
	.Rhistory	2.7 KB	Apr 16, 2014, 12:00 PM
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	Dropbox		
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	genemania_plugin		
	GenMAPP-CS-Data		
	gsea_home		

1:56 (Top Level) R Script

Console ~/

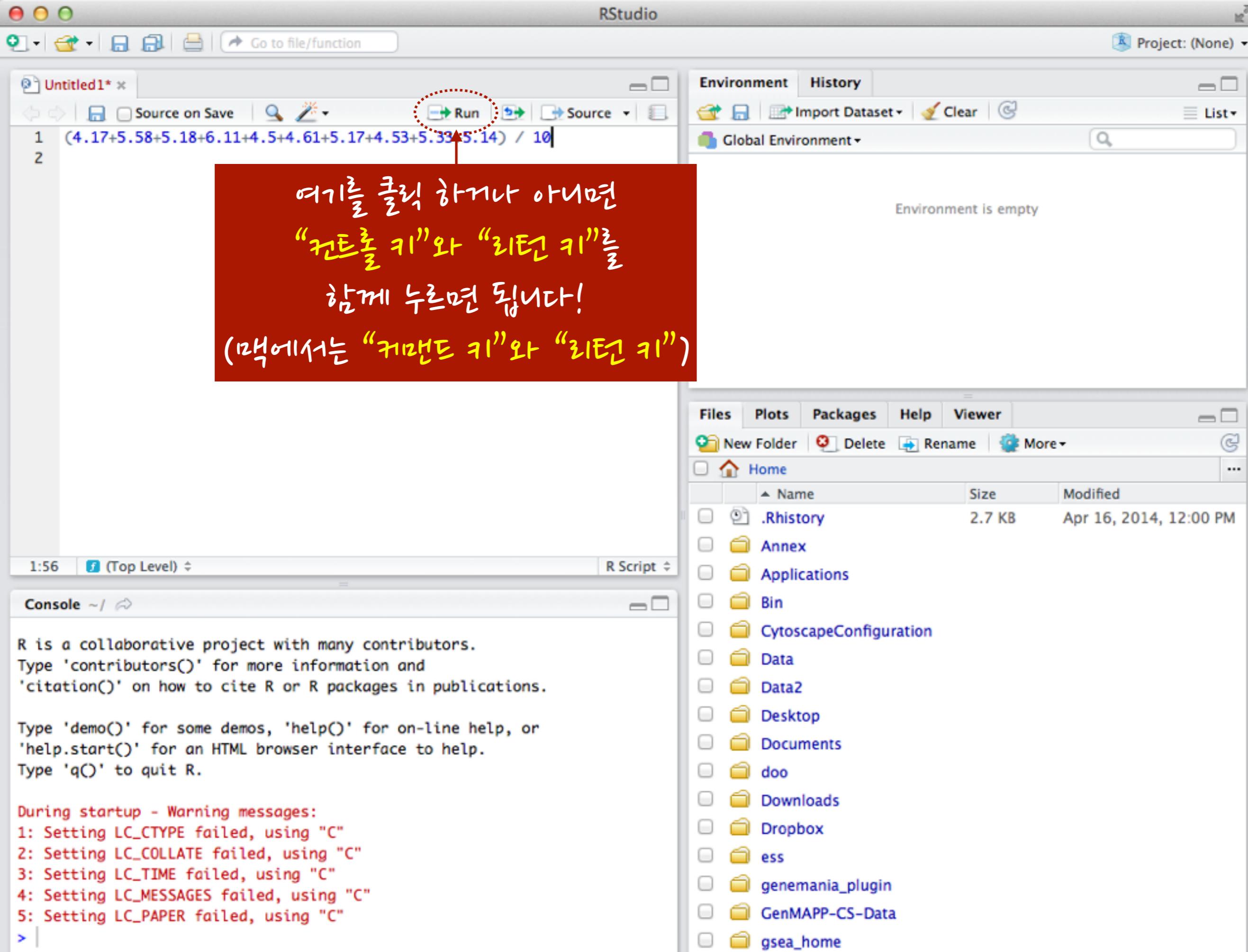
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>



Untitled1* | Go to file/function

Source on Save | Run | Source |

1 (4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10

2 |

Environment | History

Import Dataset | Clear |

Global Environment

Environment is empty

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New Folder | Delete | Rename | More

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2:1 | (Top Level) | R Script

Console ~/ ↵

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5: Setting LC_PAPER failed, using "C"

> (4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10

[1] 5.032

>

RStudio

Project: (None)

Untitled1* | Go to file/function

Source on Save | Run | Source | List

1 (4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10

2 |

Environment | History

Import Dataset | Clear | List

Global Environment

Environment is empty

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2:1 f (Top Level) R Script

Console ~/ ↵

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During startup - Warning messages:

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3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

> (4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10 ← 0.178711 72185도107 나온다!
[1] 5.032

gsea_home

Untitled1* | Go to file/function | Project: (None)

1 $(4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10$
2
3 $(4.81+4.17+4.41+3.59+5.87+3.83+6.03+4.89+4.32+4.69) / 10$
4 $(6.31+5.12+5.54+5.5+5.37+5.29+4.92+6.15+5.8+5.26) / 10$
5

5:1 f (Top Level) R Script

Console ~/ Type 'contributors()' for more information and
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4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"
> $(4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10$
[1] 5.032
>

Environment History | Import Dataset | Clear | List

Global Environment

Environment is empty

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	Name	Size	Modified
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	Downloads		
	Dropbox		
	ess		
	genemania_plugin		
	GenMAPP-CS-Data		
	gsea_home		

RStudio

Project: (None)

Untitled1* | Environment | History

Source on Save | Run | Source | Import Dataset | Clear | List

1 $(4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10$
2 $(4.81+4.17+4.41+3.59+5.87+3.83+6.03+4.89+4.32+4.69) / 10$
3 $(6.31+5.12+5.54+5.5+5.37+5.29+4.92+6.15+5.8+5.26) / 10$

이 줄에 있는 7개의 내용을 입력하고 선택한 3to1to1to2를 한 다음

Files | Plots | Packages | Help | Viewer

New Folder | Delete | Rename | More

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	Name	Size	Modified
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> $(4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10$
[1] 5.032
>

RStudio

Project: (None)

Untitled1* | Run | Source | Source on Save | Import Dataset | Clear | List | Global Environment | Environment | History |

1 $(4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10$

2

3 $(4.81+4.17+4.41+3.59+5.87+3.8)$

4 $(6.31+5.12+5.54+5.5+5.37+5.29)$

5

여기 $\frac{1}{2}$ 쯤 뒤에 합이나
곱은 $\frac{1}{2}$ + 3IE고
($\frac{1}{2}$ 은 $\frac{1}{2}$ + 3IE고)

5:1 (Top Level) R Script

Console ~/ Type 'contributors()' for more information and 'citation()' on how to cite R or R packages in publications. Type 'demo()' for some demos, 'help()' for on-line help, or 'help.start()' for an HTML browser interface to help. Type 'q()' to quit R.

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> $(4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10$

[1] 5.032

>

Environment is empty

Files Plots Packages Help Viewer

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	ess		
	genemania_plugin		
	GenMAPP-CS-Data		
	gsea_home		

Untitled1* | Go to file/function | Project: (None)

Source on Save | Run | Source | Environment | History | Import Dataset | Clear | List | Global Environment | Environment is empty

1 $(4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10$
2
3 $(4.81+4.17+4.41+3.59+5.87+3.83+6.03+4.89+4.32+4.69) / 10$
4 $(6.31+5.12+5.54+5.5+5.37+5.29+4.92+6.15+5.8+5.26) / 10$
5

5:1 f (Top Level) R Script

Console ~/ 'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

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> $(4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10$
[1] 5.032
> $(4.81+4.17+4.41+3.59+5.87+3.83+6.03+4.89+4.32+4.69) / 10$
[1] 4.661
> $(6.31+5.12+5.54+5.5+5.37+5.29+4.92+6.15+5.8+5.26) / 10$
[1] 5.526
>

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New Folder Delete Rename More

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	gsea_home		

RStudio

Project: (None)

Untitled1* | Go to file/function

Source on Save | Run | Source

1 $(4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10$
2
3 $(4.81+4.17+4.41+3.59+5.87+3.83+6.03+4.89+4.32+4.69) / 10$
4 $(6.31+5.12+5.54+5.5+5.37+5.29+4.92+6.15+5.8+5.26) / 10$
5

Environment | History

Import Dataset | Clear | List

Global Environment

Environment is empty

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5:1 f (Top Level) R Script

Console ~/ ↵

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> $(4.81+4.17+4.41+3.59+5.87+3.83+6.03+4.89+4.32+4.69) / 10$
[1] 4.661
> $(6.31+5.12+5.54+5.5+5.37+5.29+4.92+6.15+5.8+5.26) / 10$
[1] 5.526
>

← 012771 팀에서 예상치 못한 도움이!

RStudio

Project: (None)

Untitled1* | Run | Source | Environment | History | Import Dataset | Clear | List

Source on Save | Run | Source | Environment | History | Import Dataset | Clear | List

1 $(4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10$
2
3 $(4.81+4.17+4.41+3.59+5.87+3.83+6.03+4.89+4.32+4.69) / 10$
4 $(6.31+5.12+5.54+5.5+5.37+5.29+4.92+6.15+5.8+5.26) / 10$
5

Environment is empty

그린언트 이용하기 편리한 이유는?
간단하고 쉬워지고 간단 내용도 쉽게 되었
여러 모로 도움이 되는 겁니다!

5:1 f (Top Level) ▾

Console ~/ ↗

'help.start()' for an HTML browser interface to help.

Type 'q()' to quit R.

During startup - Warning messages:

1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"
> $(4.17+5.58+5.18+6.11+4.5+4.61+5.17+4.53+5.33+5.14) / 10$
[1] 5.032
> $(4.81+4.17+4.41+3.59+5.87+3.83+6.03+4.89+4.32+4.69) / 10$
[1] 4.661
> $(6.31+5.12+5.54+5.5+5.37+5.29+4.92+6.15+5.8+5.26) / 10$
[1] 5.526
>

Help | Viewer | Rename | More | ...

Size	Modified
2.7 KB	Apr 16, 2014, 12:00 PM

Applications

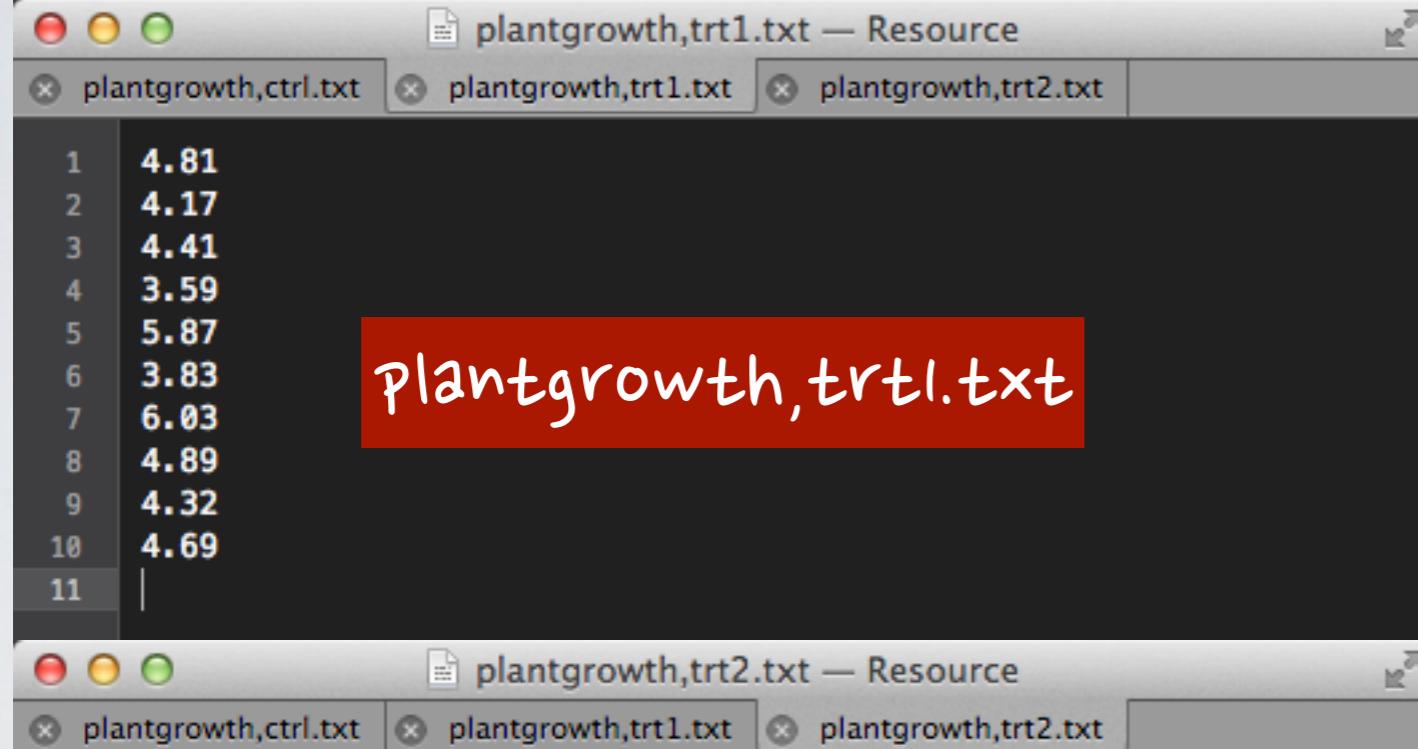
- Bin
- CytoscapeConfiguration
- Data
- Data2
- Desktop
- Documents
- doo
- Downloads
- Dropbox
- ess
- genemania_plugin
- GenMAPP-CS-Data
- gsea_home

- 이번엔 파일에 데이터를 각각 `ctrl.txt`, `trtl.txt`, `trt2.txt` 등에 넣어뒀다고 생각해 보겠습니다.
 - 예를 들어 숫자 개수가 여기처럼 열 개 남짓이라면 R에 바로 넣는다 싶을 수도 있지만 개수가 더 늘어나면 그렇게 할 수 없습니다. 이럴 땐 파일에 저장해야 합니다. 물론 이 경우처럼 적당한 개수라면 사람이 직접 파일에 넣을 수도 있을 거고 그게 아니라면 프로그램이 넣게 만들 수도 있습니다.
 - 이 땐 가급적이면 한 줄에 숫자 하나씩만 넣으십시오. 굳이 이렇게 하지 않아도 데이터만 구분이 된다면 R은 상관 없지만 사람이 헷갈릴 수 있으니까요.
 - 그런 다음 `scan()` 함수를 써서 내용을 R에 불러들입니다.
 - 이 후의 과정은 앞과 같겠죠. 그럼 한 번 볼까요?

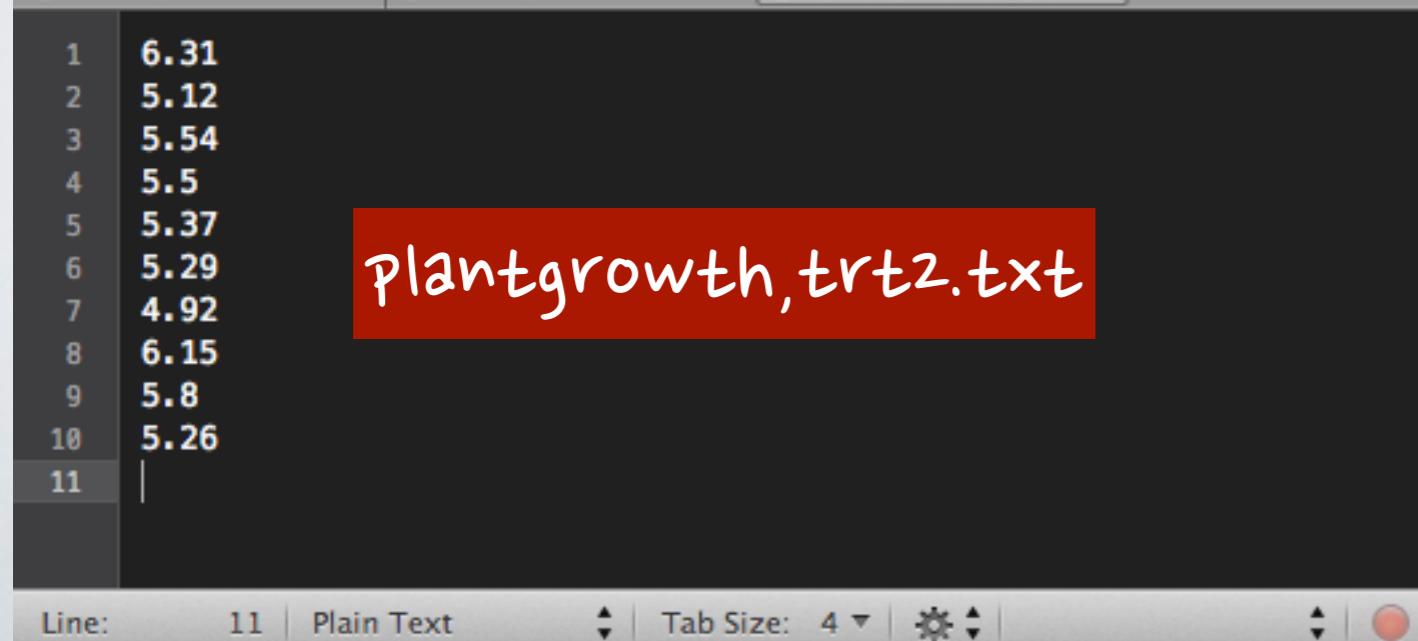
이 예에서 파일이 있는 폴더는
“Dropbox/codes/Resource”입니다만
여러분들이 파일을 제 웹 사이트에서
다운로드 받으셨다면
여러분들의 경우는 “Downloads”
폴더일 가능성이 아주 높습니다.



```
1 4.17
2 5.58
3 5.18
4 6.11
5 4.5
6 4.61
7 5.17
8 4.53
9 5.33
10 5.14
11
```



```
1 4.81
2 4.17
3 4.41
4 3.59
5 5.87
6 3.83
7 6.03
8 4.89
9 4.32
10 4.69
11
```



```
1 6.31
2 5.12
3 5.54
4 5.5
5 5.37
6 5.29
7 4.92
8 6.15
9 5.8
10 5.26
11
```

이 예제에서 파일이 있는 폴더는
“Dropbox/codes/Resource”입니다만
여러분들이 파일을 제 웹 사이트에서
다운로드 받으셨다면
여러분들의 경우는 “Downloads”
폴더일 가능성이 아주 높습니다.

파일은 Dropbox/codes/Resource 폴더에 있고
제가 작업하는 위치는 그냥 홈 폴더입니다.
이렇게 다르면 번거로운 절이 있을 수 있습니다. 그래서
우선 작업 위치를 파일이 들어 있는 폴더로 바꾸겠습니다.

RStudio

Project: (None)

Untitled1

Source on Save | Run | Source | List

1

Environment History

Import Dataset | Clear | Global Environment

Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home

	Name	Size	Modified
	.Rhistory	2.6 KB	Apr 8, 2014, 4:54 PM
	Annex		
	Applications		
	Bin		
	CytoscapeConfiguration		
	Data		
	Data2		
	Desktop		
	Documents		
	doo		
	Downloads		
	Dropbox		
	ess		
	genemania_plugin		
	GenMAPP-CS-Data		
	gsea_home		

1:1 (Top Level) R Script

Console ~/

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:

```
1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"
>
```

RStudio

Project: (None)

Untitled1

Source on Save | Run | Source

1

Environment History

Import Dataset | Clear | List

Global Environment

Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home

	Name	Size	Modified
	.Rhistory	2.6 KB	Apr 8, 2014, 4:54 PM
	Annex		
	Applications		
	Bin		
	CytoscapeConfiguration		
	Data		
	Data2		
	Desktop		
	Documents		
	doo		
	Downloads		
	Dropbox		
	ess		
	genemania_plugin		
	GenMAPP-CS-Data		
	gsea_home		

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2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

→ **저는 여기를 클릭 합니다.**

RStudio

Project: (None)

Untitled1

Source on Save | Run | Source

1

Environment History

Import Dataset | Clear | List

Global Environment

Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home

	Name	Size	Modified
	.Rhistory	2.6 KB	Apr 8, 2014, 4:54 PM
	Annex		
	Applications		
	Bin		
	CytoscapeConfiguration		
	Data		
	Data2		
	Desktop		
	Documents		
	doo		
	Downloads		
	Dropbox		
	ess		
	genemania_plugin		
	GenMAPP-CS-Data		
	gsea_home		

1:1 (Top Level) R Script

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Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
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During startup - Warning messages:

1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

여기서 'Downloads' 폴더를 찾았습니다. 왜인가요?

RStudio

Project: (None)

Untitled1* | Run | Source | Import Dataset | Clear | List

Global Environment

Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home > Dropbox

	Name	Size	Modified
	..		
	BareGits		
	Classes		
	Codes		
	Docs		
	Getting Started.pdf	124.8 KB	Nov 2, 2010, 11:54 AM
	Icon	0 B	Sep 6, 2011, 2:43 PM
	iPad intro.pdf	203.3 KB	Nov 12, 2010, 2:26 PM
	iPhone intro.pdf	307.8 KB	Nov 11, 2010, 2:15 PM
	Lab_meeting_schedule_Updated_10-03-14.xls	28 KB	Apr 14, 2014, 3:00 PM
	NotesPlus		
	OmmWriter		
	Papers		

1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

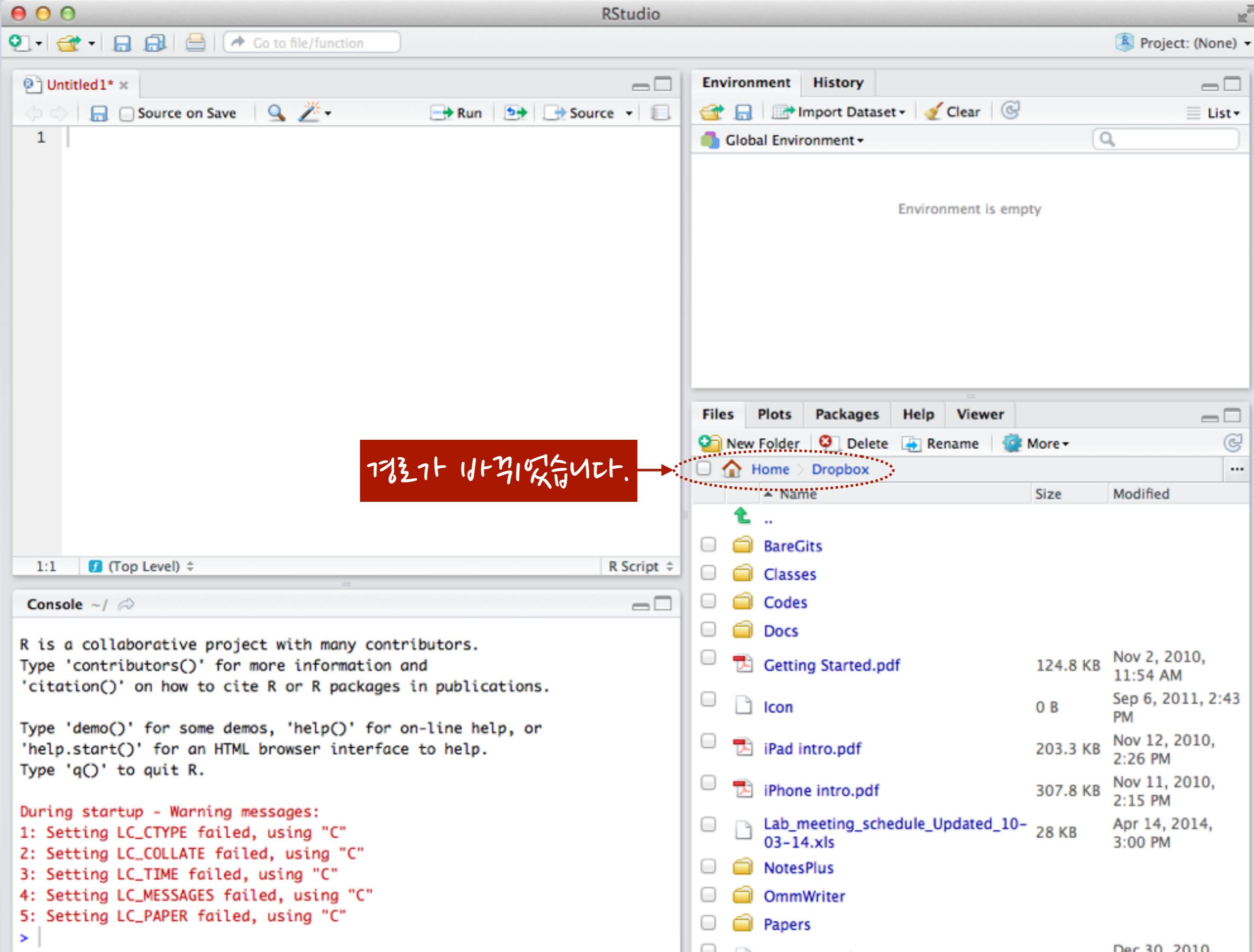
1:1 (Top Level) R Script

Console ~/

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:

Dec 30, 2010,



RStudio

Project: (None)

Untitled1* | Run | Source | Environment | History | Import Dataset | Clear | List | Global Environment | Search | Environment is empty

1 |

Source on Save | Run | Source | List | Global Environment | Search | Environment is empty

Environment is empty

Files | Plots | Packages | Help | Viewer | New Folder | Delete | Rename | More | Home > Dropbox

Name | Size | Modified

..

BareGits

Classes

Codes

Docs

Getting Started.pdf

Icon

iPad intro.pdf

iPhone intro.pdf

Lab_meeting_schedule_Updated_10-03-14.xls

NotesPlus

OmmWriter

Papers

Dec 30, 2010, 11:54 AM

Sep 6, 2011, 2:43 PM

Nov 12, 2010, 2:26 PM

Nov 11, 2010, 2:15 PM

Apr 14, 2014, 3:00 PM

1:1 | f (Top Level) | R Script |

Console ~/ R Script |

저는 다시 여기를 찾았습니다.

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Type 'contributors()' for more information and
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Type 'demo()' for some demos, 'help()' for on-line help, or
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During startup - Warning messages:
1: Setting LC_CTYPE failed, using "C"
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3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

>

RStudio

Project: (None)

Untitled1* | Run | Source | Import Dataset | Clear | List

Global Environment

Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home > Dropbox > Codes

	Name	Size	Modified
..			
	Pics		
	R4CL1.key		
	R4CL2,0.key		
	R4CL2,1.key		
	R4CL3,0.key		
	R4CL3,1.key		
	Resource		

1:1 (Top Level) R Script

Console ~/

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Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
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During startup - Warning messages:

```
1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"
>
```

RStudio

Project: (None)

Untitled1* | Run | Source | History | Import Dataset | Clear | List | Global Environment | Environment

1 | Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home > Dropbox > Codes

Name Size Modified

..

Pics

R4CL1.key

R4CL2,0.key

R4CL2,1.key

R4CL3,0.key

R4CL3,1.key

Resource

1:1 (Top Level) R Script

Console ~/

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During startup - Warning messages:

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2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

>

1:1 (Top Level) R Script

Console ~/

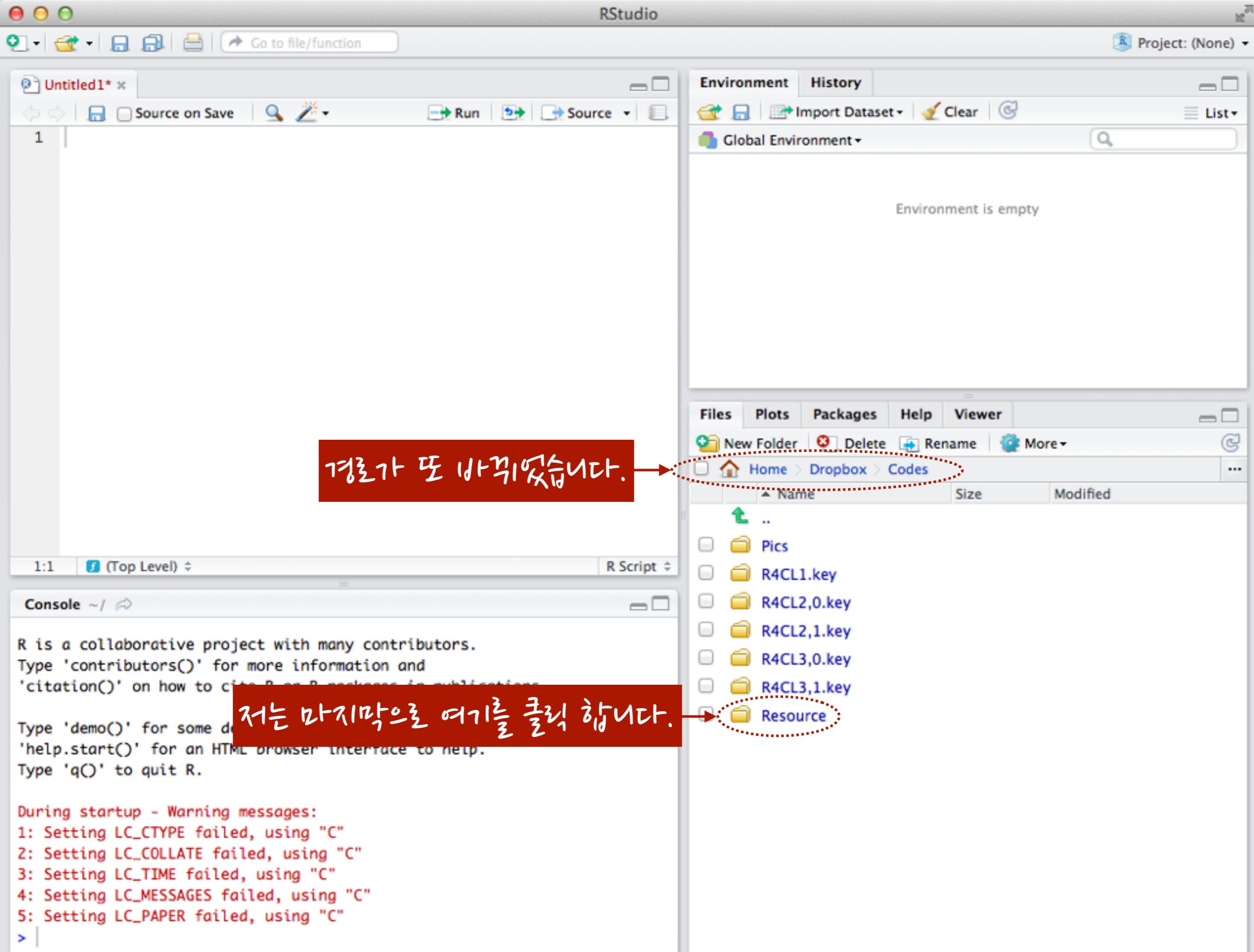
R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:

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2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

>



Untitled1* | Go to file/function

Source on Save | Run | Source | List | Global Environment | Environment | History | Import Dataset | Clear | Search

1

Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home > Dropbox > Codes > Resource

	Name	Size	Modified
..			
	plantgrowth,ctrl.txt	49 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt1.txt	50 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt2.txt	48 B	Apr 15, 2014, 11:23 AM
	plantgrowth.txt	948 B	Apr 15, 2014, 1:41 PM
	test.txt	36 B	Apr 16, 2014, 9:15 AM

1:1 f (Top Level) R Script

Console ~/

R is a collaborative project with many contributors.
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Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:

1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

Untitled1* | Run | Source | Import Dataset | Clear | List | Global Environment | Environment | History | Go to file/function

1 |

초기 설정 완료되었습니다.

1:1 (Top Level) R Script

Console ~/

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
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2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

>

Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home > Dropbox > Codes > Resource

Name	Size	Modified
plantgrowth,ctrl.txt	49 B	Apr 15, 2014, 11:22 AM
plantgrowth,trt1.txt	50 B	Apr 15, 2014, 11:22 AM
plantgrowth,trt2.txt	48 B	Apr 15, 2014, 11:23 AM
plantgrowth.txt	948 B	Apr 15, 2014, 1:41 PM
test.txt	36 B	Apr 16, 2014, 9:15 AM

RStudio

Project: (None)

Untitled1* | Run | Source | Import Dataset | Clear | List | Global Environment | Environment | History |

Source on Save | Run | Source |

1

Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home > Dropbox > Codes > Resource

	Name	Size	Modified
..	..		Apr 15, 2014, 11:22 AM
	plantgrowth,ctrl.txt	49 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt1.txt	50 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt2.txt	48 B	Apr 15, 2014, 11:23 AM
	plantgrowth.txt	948 B	Apr 15, 2014, 1:41 PM
	test.txt	36 B	Apr 16, 2014, 9:15 AM

1:1 (Top Level) R Script

Console ~/ R is a collaborative project with many contributors. Type 'contributors()' for more information and 'citation()' on how to cite R or R packages in publications. Type 'demo()' for some demos, 'help()' for on-line help, or 'help.start()' for an HTML browser interface to help. Type 'q()' to quit R.

During startup - Warning messages:

```
1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"
>
```

RStudio

Project: (None)

Untitled1* | Run | Source | Import Dataset | Clear | List

Global Environment

Environment is empty

Files | Plots | Packages | Help | Viewer

New Folder | Delete | Rename | More

Codes > Resource

Size | Modified

이제 이 폴더를 깃헙 위치로 만들겠습니다.

1:1 (Top Level) R Script

Console ~/

R is a collaborative project with many contributors.
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3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

RStudio

Project: (None)

Untitled1* | Run | Source | Environment | History | Import Dataset | Clear | List | Global Environment | Search

1

Environment is empty

여기서는 퀄리티 관리.

Files | Plots | Packages | Help | Viewer | New Folder | Delete | Rename | More | Home > Dropbox > Codes > Resource

Name Size Modified

Name	Size	Modified
..		
plantgrowth,ctrl.txt	49 B	Apr 15, 2014, 11:22 AM
plantgrowth,trt1.txt	50 B	Apr 15, 2014, 11:22 AM
plantgrowth,trt2.txt	48 B	Apr 15, 2014, 11:23 AM
plantgrowth.txt	948 B	Apr 15, 2014, 1:41 PM
test.txt	36 B	Apr 16, 2014, 9:15 AM

1:1 (Top Level) | R Script |

Console ~/

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2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

>

RStudio

Project: (None)

Untitled1* | Run | Source | Import Dataset | Clear | List | Global Environment | Environment | History |

Source on Save | Run | Source |

1

Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home

Copy... Move... Set As Working Directory Show Folder in New Window

Modified

Apr 15, 2014, 11:22 AM

Apr 15, 2014, 11:22 AM

Apr 15, 2014, 11:23 AM

Apr 15, 2014, 1:41 PM

Apr 16, 2014, 9:15 AM

1:1 f (Top Level)

Console ~/

R is a collaborative project with many contributors.
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During startup - Warning messages:

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2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

>

이걸 같은 경로에 놓면
ht로 연결되는 경로가 됩니.

Untitled1* | Go to file/function | Project: (None)

Source on Save | Run | Source | Global Environment | List | Environment | History | Import Dataset | Clear | Search

1 | Environment is empty

Files | Plots | Packages | Help | Viewer | New Folder | Delete | Rename | More | Home > Dropbox > Codes > Resource | ...

	Name	Size	Modified
..			
	plantgrowth,ctrl.txt	49 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt1.txt	50 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt2.txt	48 B	Apr 15, 2014, 11:23 AM
	plantgrowth.txt	948 B	Apr 15, 2014, 1:41 PM
	test.txt	36 B	Apr 16, 2014, 9:15 AM

1:1 | (Top Level) | R Script |

Console ~/Dropbox/codes/Resource/

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Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:

```
1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"
> setwd("~/Dropbox/Codes/Resource")
> |
```

RStudio

Project: (None)

Untitled1* | Run | Source | History | Import Dataset | Clear | List | Global Environment | Environment

Source on Save | Run | Source | Environment

1

Environment is empty

Files | Plots | Packages | Help | Viewer

New Folder | Delete | Rename | More

Home > Dropbox > Codes > Resource

	Name	Size	Modified
..	..		
	plantgrowth,ctrl.txt	49 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt1.txt	50 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt2.txt	48 B	Apr 15, 2014, 11:23 AM
	plantgrowth.txt	948 B	Apr 15, 2014, 1:41 PM
	test.txt	36 B	Apr 16, 2014, 9:15 AM

1:1 f (Top Level) R Script

Console ~/Dropbox/codes/Resource/

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:

1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"
> setwd("~/Dropbox/Codes/Resource") ← 이 줄이 완료되었습니다!
>

RSStudio

Project: (None)

Untitled1* | Go to file/function

Source on Save | Run | Source | List

1 ctrl <- scan("plantgrowth,ctrl.txt")

Environment | History

Import Dataset | Clear | Global Environment

Environment is empty

Files | Plots | Packages | Help | Viewer

New Folder | Delete | Rename | More

Home > Dropbox > Codes > Resource

Name Size Modified

	Name	Size	Modified
..			
	.Rhistory	3 KB	Apr 16, 2014, 11:56 AM
	plantgrowth,ctrl.txt	49 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt1.txt	50 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt2.txt	48 B	Apr 16, 2014, 12:26 PM
	plantgrowth.txt	948 B	Apr 15, 2014, 1:41 PM
	test.txt	36 B	Apr 16, 2014, 9:15 AM

1:37 f (Top Level) R Script

Console ~/

R is a collaborative project with many contributors.
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'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:

1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

>

Untitled1* | Go to file/function | Project: (None)

Source on Save | Import Dataset | Clear | List | Global Environment | Environment | History |

1 ctrl <- scan("plantgrowth,ctrl.txt") ← 0121711 0121717 고

Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home > Dropbox > Codes > Resource

	Name	Size	Modified
..	.Rhistory	3 KB	Apr 16, 2014, 11:56 AM
	plantgrowth,ctrl.txt	49 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt1.txt	50 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt2.txt	48 B	Apr 16, 2014, 12:26 PM
	plantgrowth.txt	948 B	Apr 15, 2014, 1:41 PM
	test.txt	36 B	Apr 16, 2014, 9:15 AM

1:37 f (Top Level) R Script

Console ~/

R is a collaborative project with many contributors.
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'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:

1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

RStudio

Project: (None)

Untitled1* | Run | Source | History | Import Dataset | Clear | List | Global Environment | Environment

1 ctrl <- scan("plantgrowth,ctrl.txt")

여기서 실행을 누르면 ...

1:37 f (Top Level) R Script

Console ~/

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:

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2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"

Environment is empty

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home > Dropbox > Codes > Resource

	Name	Size	Modified
..	.Rhistory	3 KB	Apr 16, 2014, 11:56 AM
	plantgrowth,ctrl.txt	49 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt1.txt	50 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt2.txt	48 B	Apr 16, 2014, 12:26 PM
	plantgrowth.txt	948 B	Apr 15, 2014, 1:41 PM
	test.txt	36 B	Apr 16, 2014, 9:15 AM

RSStudio

Project: (None)

Untitled1* | Go to file/function

Source on Save | Run | Source | List

```
1 ctrl <- scan("plantgrowth,ctrl.txt")
2
```

Environment | History

Import Dataset | Clear | List

Global Environment

Values

ctrl	num [1:10] 4.17 5.58 5.18 6.11 4.5 4.61 ...
------	---

Files | Plots | Packages | Help | Viewer

New Folder | Delete | Rename | More

Home > Dropbox > Codes > Resource

	Name	Size	Modified
..			
	.Rhistory	2.9 KB	Apr 16, 2014, 1:45 PM
	plantgrowth,ctrl.txt	49 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt1.txt	50 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt2.txt	48 B	Apr 16, 2014, 12:26 PM
	plantgrowth.txt	948 B	Apr 15, 2014, 1:41 PM
	test.txt	36 B	Apr 16, 2014, 9:15 AM

2:1 f (Top Level) R Script

Console ~/Dropbox/codes/Resource/

```
'citation()' on how to cite R or R packages in publications.
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:
1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"
> setwd("~/Dropbox/Codes/Resource")
> ctrl <- scan("plantgrowth,ctrl.txt")
Read 10 items
>
```

RStudio

Untitled1* | Go to file/function

Source on Save | Run | Source

```
1 ctrl <- scan("plantgrowth,ctrl.txt")
2
```

Environment | History

Import Dataset | Clear | List

Global Environment

Values

ctrl	num [1:10] 4.17 5.58 5.18 6.11 4.5 4.61 ...
------	---

Files | Plots | Packages | Help | Viewer

New Folder | Delete | Rename | More

Home > Dropbox > Codes > Resource

	Name	Size	Modified
..	.Rhistory	2.9 KB	Apr 16, 2014, 1:45 PM
	plantgrowth,ctrl.txt	49 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt1.txt	50 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt2.txt	48 B	Apr 16, 2014, 12:26 PM
	plantgrowth.txt	948 B	Apr 15, 2014, 1:41 PM
	test.txt	36 B	Apr 16, 2014, 9:15 AM

2:1 f (Top Level) R Script

Console ~/Dropbox/codes/Resource/

```
'citation()' on how to cite R or R packages in publications.
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:
1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"
> setwd("~/Dropbox/Codes/Resource")
> ctrl <- scan("plantgrowth,ctrl.txt")
Read 10 items
>
```

← 013-1711 몇몇 개 향로로 011-0711을 엿보다고 나오면 11

RStudio

Project: (None)

Untitled1* | Run | Source | Environment | History | Import Dataset | Clear | List | Global Environment | Values | ctrl num [1:10] 4.17 5.58 5.18 6.11 4.5 4.61 ...

Source on Save | Scan | Run | Source | Environment | History | Import Dataset | Clear | List | Global Environment | Values | ctrl num [1:10] 4.17 5.58 5.18 6.11 4.5 4.61 ...

1: ctrl <- scan("plantgrowth,ctrl.txt")
2: "이걸 변수가 서로 생겼다"고 여기 표시됩니다.
RStudio를 쓰는 이점이 바로 이걸 보면!

Files | Plots | Packages | Help | Viewer | New Folder | Delete | Rename | More | Home > Dropbox > Codes > Resource | Name | Size | Modified

.. .Rhistory 2.9 KB Apr 16, 2014, 1:45 PM
plantgrowth,ctrl.txt 49 B Apr 15, 2014, 11:22 AM
plantgrowth,trt1.txt 50 B Apr 15, 2014, 11:22 AM
plantgrowth,trt2.txt 48 B Apr 16, 2014, 12:26 PM
plantgrowth.txt 948 B Apr 15, 2014, 1:41 PM
test.txt 36 B Apr 16, 2014, 9:15 AM

2:1 f (Top Level) R Script

Console ~/Dropbox/codes/Resource/ citation() on how to cite R or R packages in publications.
Type 'demo()' for some demos, 'help()' for on-line help, or 'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

During startup - Warning messages:
1: Setting LC_CTYPE failed, using "C"
2: Setting LC_COLLATE failed, using "C"
3: Setting LC_TIME failed, using "C"
4: Setting LC_MESSAGES failed, using "C"
5: Setting LC_PAPER failed, using "C"
> setwd("~/Dropbox/Codes/Resource")
> ctrl <- scan("plantgrowth,ctrl.txt")
Read 10 items
>

RSudio

Project: (None)

Untitled1* | Source on Save | Run | Source | Environment | History | Import Dataset | Clear | List | Global Environment | Values

```
1 ctrl <- scan("plantgrowth,ctrl.txt")
2 trt1 <- scan("plantgrowth,trt1.txt")
3 trt2 <- scan("plantgrowth,trt2.txt")
4
5 ctrl.avg <- mean(ctrl)
6 trt1.avg <- mean(trt1)
7 trt2.avg <- mean(trt2)
8
9 ctrl.med <- median(ctrl)
10 trt1.med <- median(trt1)
11 trt2.med <- median(trt2)
12
13 ctrl.sd <- sd(ctrl)
14 trt1.sd <- sd(trt1)
15 trt2.sd <- sd(trt2)
16
```

16:1 f (Top Level) R Script

Console ~/Dropbox/codes/Resource/

```
> ctrl <- scan("plantgrowth,ctrl.txt")
Read 10 items
> trt1 <- scan("plantgrowth,trt1.txt")
Read 10 items
> trt2 <- scan("plantgrowth,trt2.txt")
Read 10 items
> ctrl.avg <- mean(ctrl)
> ctrl.med <- median(ctrl)
> ctrl.sd <- sd(ctrl)
> trt1.avg <- mean(trt1)
> trt2.avg <- mean(trt2)
> trt1.med <- median(trt1)
> trt2.med <- median(trt2)
> trt1.sd <- sd(trt1)
> trt2.sd <- sd(trt2)
>
```

Environment | History | Import Dataset | Clear | List | Global Environment | Values

	ctrl	ctrl.avg	ctrl.med	ctrl.sd	trt1	trt1.avg	trt1.med	trt1.sd	trt2	trt2.avg	trt2.med	trt2.sd
num [1:10]	4.17 5.58 5.18 6.11 4.5 4.61 ...	5.032	5.155	0.583091378392406	4.81 4.17 4.41 3.59 5.87 3.83...	4.661	4.55	0.793675696434703	6.31 5.12 5.54 5.5 5.37 5.29 ...	5.526	5.435	0.442573283322786

Files | Plots | Packages | Help | Viewer

RStudio

Untitled1* | Source on Save | Run | Source | Environment | History | Import Dataset | Clear | List | Global Environment | Search

```
1 ctrl <- scan("plantgrowth,ctrl.txt")
2 trt1 <- scan("plantgrowth,trt1.txt")
3 trt2 <- scan("plantgrowth,trt2.txt")
4
5 ctrl.avg <- mean(ctrl)
6 trt1.avg <- mean(trt1)
7 trt2.avg <- mean(trt2)
8
9 ctrl.med <- median(ctrl)
10 trt1.med <- median(trt1)
11 trt2.med <- median(trt2)
12
13 ctrl.sd <- sd(ctrl)
14 trt1.sd <- sd(trt1)
15 trt2.sd <- sd(trt2)
16
```

16:1 f (Top Level) ▾

Console ~/Dropbox/codes/Resource/

```
> ctrl <- scan("plantgrowth,ctrl.txt")
Read 10 items
> trt1 <- scan("plantgrowth,trt1.txt")
Read 10 items
> trt2 <- scan("plantgrowth,trt2.txt")
Read 10 items
> ctrl.avg <- mean(ctrl)
> ctrl.med <- median(ctrl)
> ctrl.sd <- sd(ctrl)
> trt1.avg <- mean(trt1)
> trt2.avg <- mean(trt2)
> trt1.med <- median(trt1)
> trt2.med <- median(trt2)
> trt1.sd <- sd(trt1)
> trt2.sd <- sd(trt2)
>
```

Environment | History | Import Dataset | Clear | List | Global Environment | Search

Values

ctrl	num [1:10] 4.17 5.58 5.18 6.11 4.5 4.61 ...
ctrl.avg	5.032
ctrl.med	5.155
ctrl.sd	0.583091378392406
trt1	num [1:10] 4.81 4.17 4.41 3.59 5.87 3.83...
trt1.avg	4.661
trt1.med	4.55
trt1.sd	0.793675696434703
trt2	num [1:10] 6.31 5.12 5.54 5.5 5.37 5.29 ...
trt2.avg	5.526
trt2.med	5.435
trt2.sd	0.142573283322786

작업을 끝낸 상태입니다.
스크립트 파일에 작업의 흐름이 남았고
오른쪽 작업 환경 창에는
어떤 변수가 있는지도 표시되어 있습니다.

RStudio

Project: (None)

Untitled1* | Source on Save | Run | Source | Environment | History | Import Dataset | Clear | List | Global Environment | Values

```
1 ctrl <- scan("plantgrowth,ctrl.txt")
2 trt1 <- scan("plantgrowth,trt1.txt")
3 trt2 <- scan("plantgrowth,trt2.txt")
4
5 ctrl.avg <- mean(ctrl)
6 trt1.avg <- mean(trt1)
7 trt2.avg <- mean(trt2)
8
9 ctrl.med <- median(ctrl)
10 trt1.med <- median(trt1)
11 trt2.med <- median(trt2)
12
13 ctrl.sd <- sd(ctrl)
14 trt1.sd <- sd(trt1)
15 trt2.sd <- sd(trt2)
16
```

	ctrl	ctrl.avg	ctrl.med	ctrl.sd	trt1	trt1.avg	trt1.med	trt1.sd	trt2	trt2.avg	trt2.med	trt2.sd
	num [1:10] 4.17 5.58 5.18 6.11 4.5 4.61 ...	5.032	5.155	0.583091378392406	num [1:10] 4.81 4.17 4.41 3.59 5.87 3.83...	4.661	4.55	0.793675696434703	num [1:10] 6.31 5.12 5.54 5.5 5.37 5.29 ...	5.526	5.435	0.442573283322786

16:1 f (Top Level) ▾

Console ~/Dropbox/codes/Resou...

```
> ctrl <- scan("plantgrowth,ctrl.txt")
Read 10 items
> trt1 <- scan("plantgrowth,trt1.txt")
Read 10 items
> trt2 <- scan("plantgrowth,trt2.txt")
Read 10 items
> ctrl.avg <- mean(ctrl)
> ctrl.med <- median(ctrl)
> ctrl.sd <- sd(ctrl)
> trt1.avg <- mean(trt1)
> trt2.avg <- mean(trt2)
> trt1.med <- median(trt1)
> trt2.med <- median(trt2)
> trt1.sd <- sd(trt1)
> trt2.sd <- sd(trt2)
>
```

이제 이 스크립트 파일에 어떤 일을 했는지 표시하겠습니다.
그리면 나중에 이 스크립트를 훗날에 보더라도 도움이 되겠습니다!

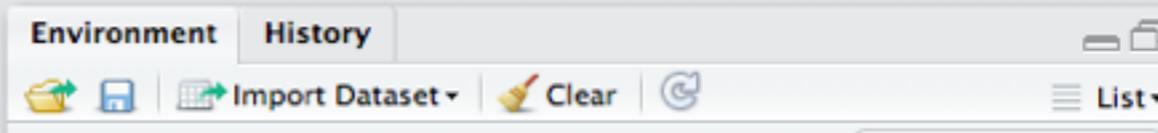
Files Plots Packages Help Viewer



```

Untitled1* | Run | Source | List
1  ##-----#
2  ## ... 데이터 입력
3  ##
4  ctrl <- scan("plantgrowth,ctrl.txt")
5  trt1 <- scan("plantgrowth,trt1.txt")
6  trt2 <- scan("plantgrowth,trt2.txt")
7
8  ##
9  ## ... 각 데이터 별 평균값 계산
10 ##
11 ctrl.avg <- mean(ctrl)
12 trt1.avg <- mean(trt1)
13 trt2.avg <- mean(trt2)
14
15 ##
16 ## ... 각 데이터 별 중간값 계산
17 ##
18 ctrl.med <- median(ctrl)
19 trt1.med <- median(trt1)
20 trt2.med <- median(trt2)
21
22 ##
23 ## ... 각 데이터 별 표준편차 계산
24 ##
25 ctrl.sd <- sd(ctrl)
26 trt1.sd <- sd(trt1)
27 trt2.sd <- sd(trt2)
28

```



Values	
ctrl	num [1:10] 4.17 5.58 5.18 6.11 4.5 4.61 ...
ctrl.avg	5.032
ctrl.med	5.155
ctrl.sd	0.583091378392406
trt1	num [1:10] 4.81 4.17 4.41 3.59 5.87 3.83 ...
trt1.avg	4.661
trt1.med	4.55
trt1.sd	0.793675696434703
trt2	num [1:10] 6.31 5.12 5.54 5.5 5.37 5.29 ...
trt2.avg	5.526
trt2.med	5.435
trt2.sd	0.442573283322786

RStudio

Project: (None)

Untitled1* | Source on Save | Run | Source | Environment | History | Import Dataset | Clear | List | Global Environment | Values

1 - ##
2 ## ... 데이터 입력
3 ##
4 ctrl <- scan("plantgrowth,ctrl.txt")
5 trt1 <- scan("plantgrowth,trt1.txt")
6 trt2 <- scan("plantgrowth,trt2.txt")
7
8 ##
9 ## ... 각 데이터 별 평균값 계산
10 ##
11 ctrl.avg <- mean(ctrl)
12 trt1.avg <- mean(trt1)
13 trt2.avg <- mean(trt2)
14
15 ##
16 ## ... 각 데이터 별 중간값 계산
17 ##
18 ctrl.med <- median(ctrl)
19 trt1.med <- median(trt1)
20 trt2.med <- median(trt2)
21
22 ##
23 ## ... 각 데이터 별 표준편차 계산
24 ##
25 ctrl.sd <- sd(ctrl)
26 trt1.sd <- sd(trt1)
27 trt2.sd <- sd(trt2)
28

ctrl num [1:10] 4.17 5.58 5.18 6.11 4.5 4.61 ...
ctrl.avg 5.032
ctrl.med 5.155
ctrl.sd 0.583091378392406
trt1 num [1:10] 4.81 4.17 4.41 3.59 5.87 3.83...
trt1.avg 4.661
trt1.med 4.55
trt1.sd 0.793675696434703
trt2 num [1:10] 6.31 5.12 5.54 5.5 5.37 5.29 ...
trt2.avg 5.526
trt2.med 5.435
trt2.sd 0.442573283322786

코멘트를 이용해서 각 줄 내용을 짐작해보았습니다.

24:34 (Untitled) R Script

Console Files Plots Packages Help Viewer

RStudio

Project: (None)

Untitled1* x

Source on Save | Run | Source

1 ##

2 ## ... 데이터 입력

이제 저장을 위해 여기를 클릭 합니다.

```
6 trt2 <- scan("plantgrowth, trt2.txt")  
7  
8 ##  
9 ## ... 각 데이터 별 평균값 계산  
10 ##  
11 ctrl.avg <- mean(ctrl)  
12 trt1.avg <- mean(trt1)  
13 trt2.avg <- mean(trt2)  
14  
15 ##  
16 ## ... 각 데이터 별 중간값 계산  
17 ##  
18 ctrl.med <- median(ctrl)  
19 trt1.med <- median(trt1)  
20 trt2.med <- median(trt2)  
21  
22 ##  
23 ## ... 각 데이터 별 표준편차 계산  
24 ##  
25 ctrl.sd <- sd(ctrl)  
26 trt1.sd <- sd(trt1)  
27 trt2.sd <- sd(trt2)  
28
```

Environment History

Import Dataset Clear

Global Environment

Values

	ctrl	ctrl.avg	ctrl.med	ctrl.sd	trt1	trt1.avg	trt1.med	trt1.sd	trt2	trt2.avg	trt2.med	trt2.sd
	num [1:10] 4.17 5.58 5.18 6.11 4.5 4.61 ...	5.032	5.155	0.583091378392406	num [1:10] 4.81 4.17 4.41 3.59 5.87 3.83...	4.661	4.55	0.793675696434703	num [1:10] 6.31 5.12 5.54 5.5 5.37 5.29 ...	5.526	5.435	0.442573283322786

24:34 (Untitled) R Script

Console Files Plots Packages Help Viewer

RStudio

Save As: Untitled

Tags: History

Project: (None)

Untitled1* | Source

1 - ##
2 ## ... 데이터
3 - ##
4 ctrl <- scan()
5 trt1 <- scan()
6 trt2 <- scan()
7
8 - ##
9 ## ... 각 데이터
10 - ##
11 ctrl.avg <- mean(ctrl)
12 trt1.avg <- mean(trt1)
13 trt2.avg <- mean(trt2)
14
15 - ##
16 ## ... 각 데이터
17 - ##
18 ctrl.med <- median(ctrl)
19 trt1.med <- median(trt1)
20 trt2.med <- median(trt2)
21
22 - ##
23 ## ... 각 데이터 별 표준편차 계산
24 - ##
25 ctrl.sd <- sd(ctrl)
26 trt1.sd <- sd(trt1)
27 trt2.sd <- sd(trt2)
28

FAVORITES

- Dropbox
- 데스크탑
- thchung
- 응용 프로그램
- 도큐멘트
- Inbox
- 다운로드
- Sync

DEVICES

- admin's iMac

Resource

Pics

- R4CL1
- R4CL2,0
- R4CL2,1.key
- R4CL3,0
- R4CL3,1

plantgrowth,ctrl.txt

plantgrowth,trt1.txt

plantgrowth,trt2.txt

plantgrowth.txt

test.txt

0.11 4.5 4.61 ...

0.59 5.87 3.83...

0.5 5.37 5.29 ...

New Folder

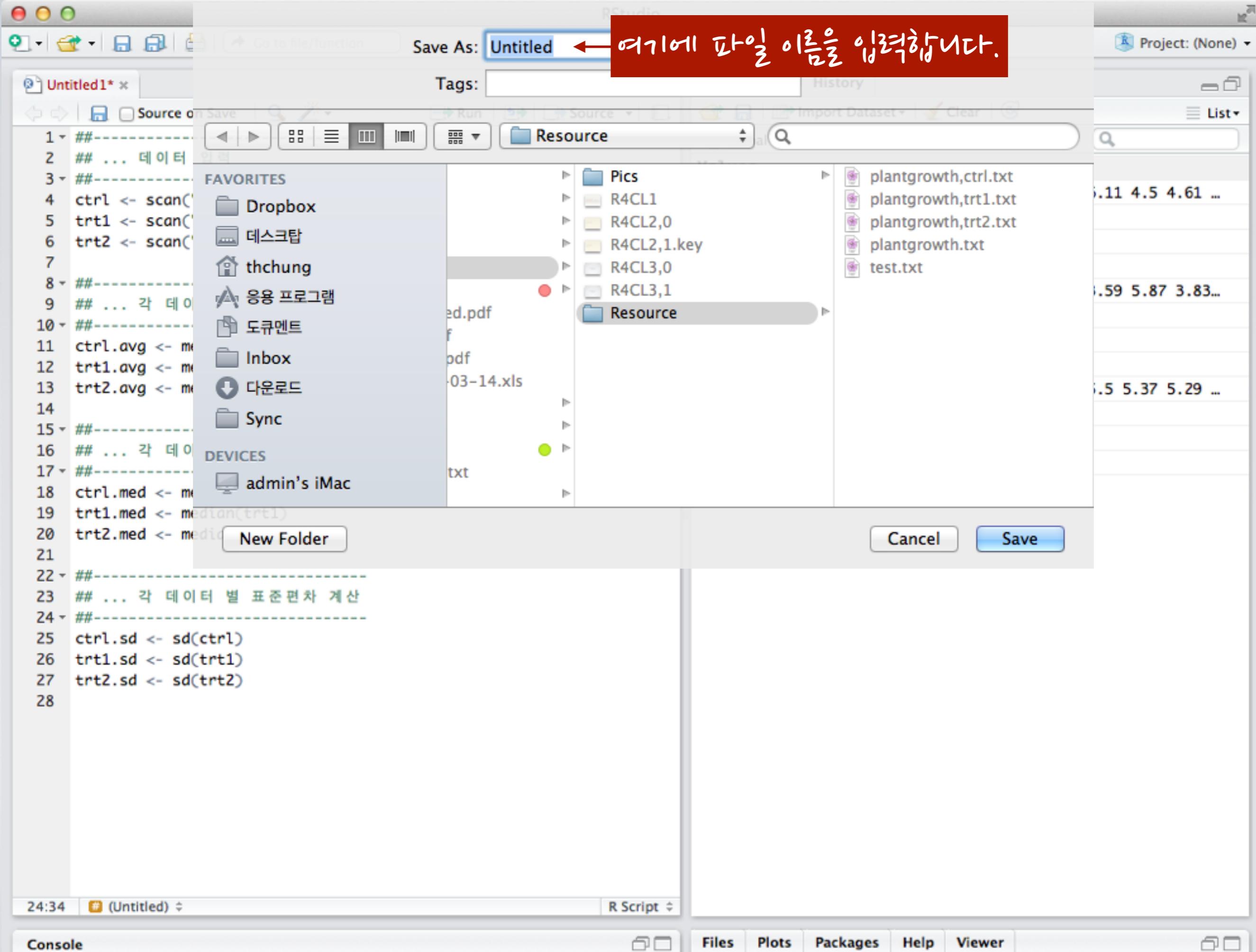
Cancel Save

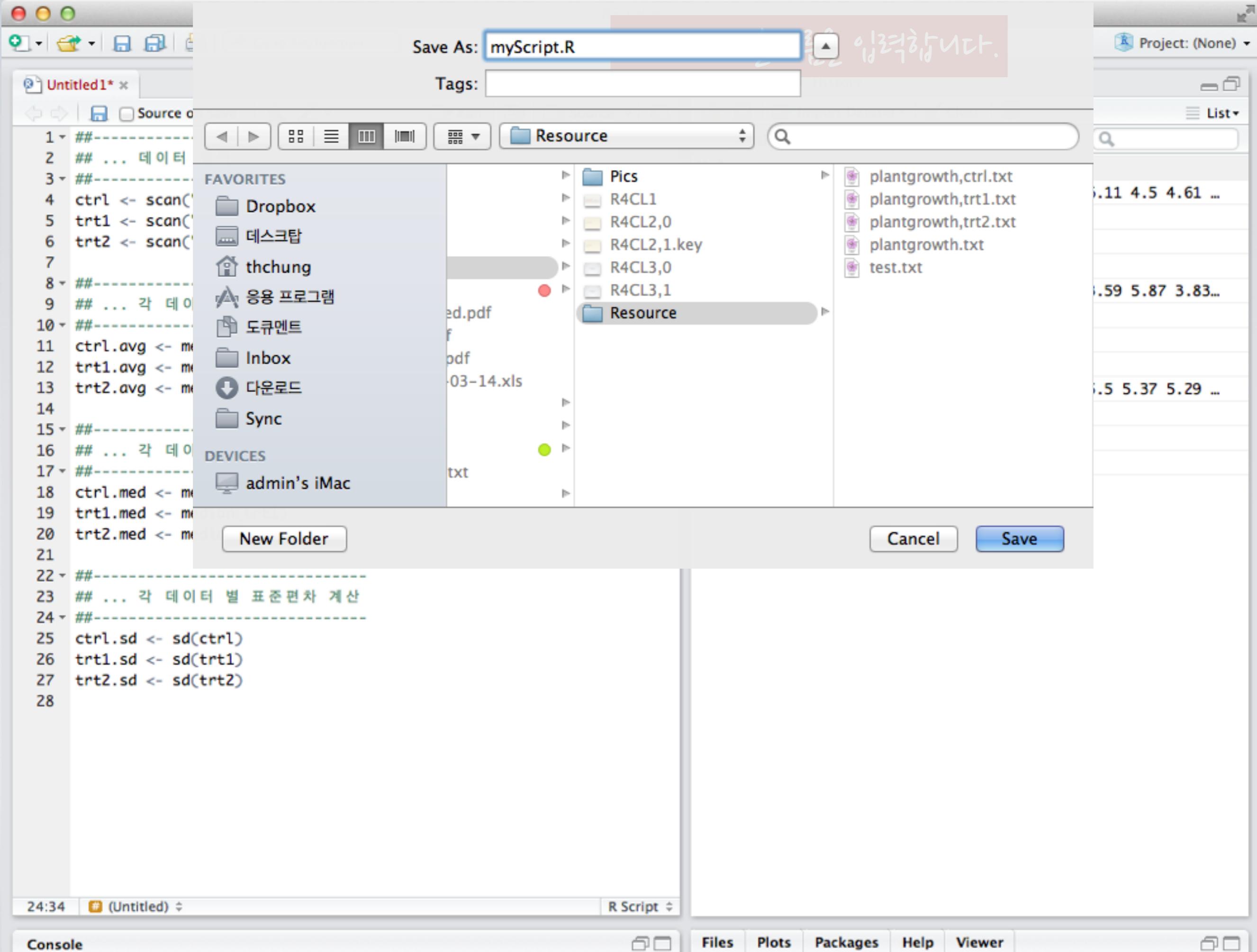
24:34 (Untitled)

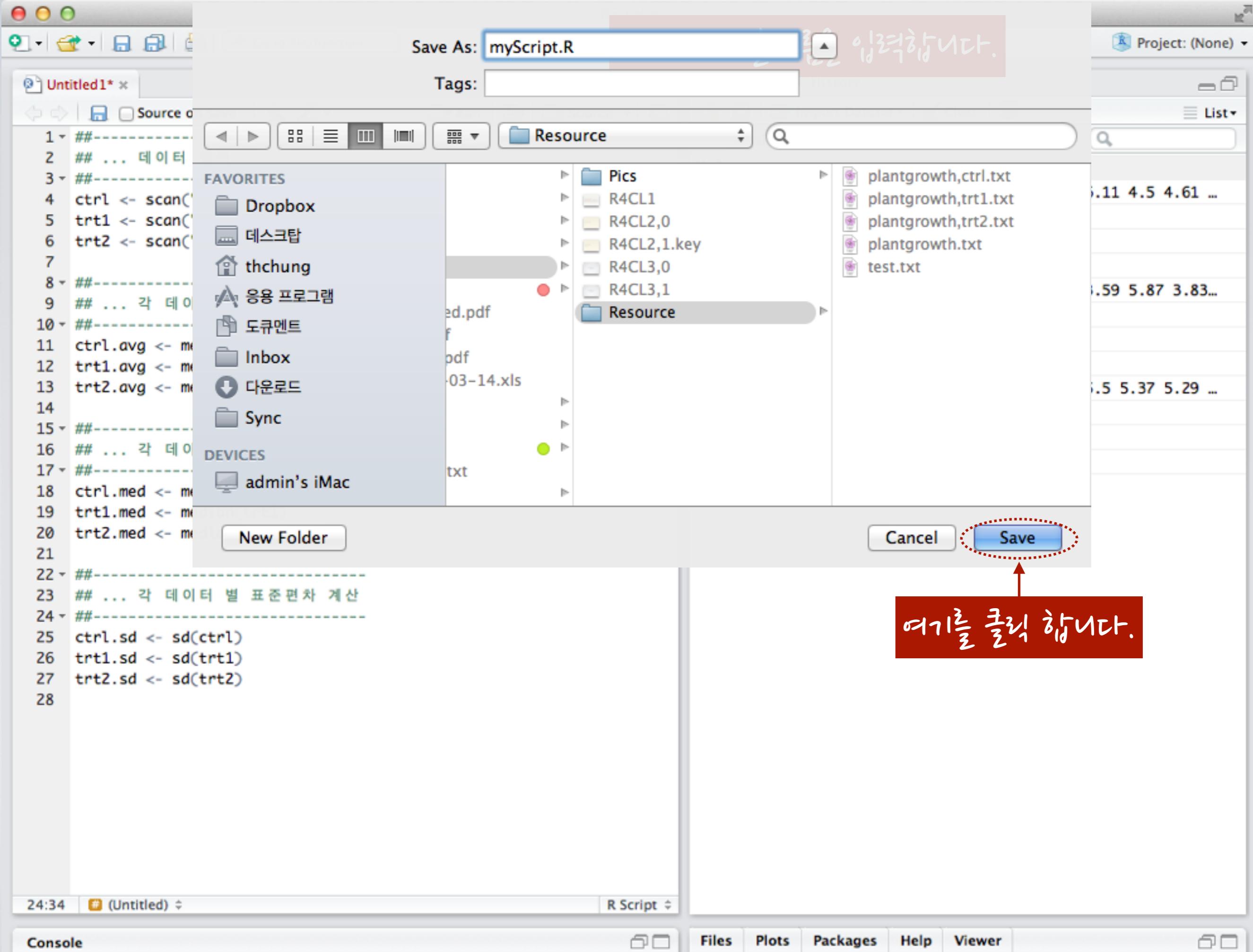
R Script

Console

Files Plots Packages Help Viewer







myScript.R x

Source on Save | Run | Source | List

```
1 ##-----  
2 ## ... 데이터 입력  
3 ##-----  
4 ctrl <- scan("plantgrowth,ctrl.txt")  
5 trt1 <- scan("plantgrowth,trt1.txt")  
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7  
8 ##-----  
9 ## ... 각 데이터별 평균값 계산  
10##-----  
11 ctrl.avg <- mean(ctrl)  
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14  
15##-----  
16 ## ... 각 데이터별 중간값 계산  
17##-----  
18 ctrl.med <- median(ctrl)  
19 trt1.med <- median(trt1)  
20 trt2.med <- median(trt2)  
21
```

24:34 # (Untitled) R Script

Console ~/Dropbox/codes/Resource/

```
> ctrl <- scan("plantgrowth,ctrl.txt")  
Read 10 items  
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> trt2 <- scan("plantgrowth,trt2.txt")  
Read 10 items  
> ctrl.avg <- mean(ctrl)  
> ctrl.med <- median(ctrl)  
> ctrl.sd <- sd(ctrl)  
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> trt2.med <- median(trt2)  
> trt1.sd <- sd(trt1)  
> trt2.sd <- sd(trt2)  
>
```

Environment History

Import Dataset Clear

Global Environment

Values

ctrl	num [1:10] 4.17 5.58 5.18 6.11 4.5 4.61 ...
ctrl.avg	5.032
ctrl.med	5.155
ctrl.sd	0.583091378392406
trt1	num [1:10] 4.81 4.17 4.41 3.59 5.87 3.83...
trt1.avg	4.661
trt1.med	4.55
trt1.sd	0.793675696434703
trt2	num [1:10] 6.31 5.12 5.54 5.5 5.22 5.20 ...

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	Name	Size	Modified
..			
	.Rhistory	2.9 KB	Apr 16, 2014, 1:45 PM
	myScript.R	743 B	Apr 16, 2014, 2:17 PM
	plantgrowth,ctrl.txt	49 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt1.txt	50 B	Apr 15, 2014, 11:22 AM
	plantgrowth,trt2.txt	48 B	Apr 16, 2014, 12:26 PM
	plantgrowth.txt	948 B	Apr 15, 2014, 1:41 PM
	test.txt	36 B	Apr 16, 2014, 9:15 AM

Project: (None)

myScript.R *

초기화적으로 파일 이름은 이렇게 바꾸고

```
1  ##-----  
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Console ~/Dropbox/codes/Resource/

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trt1.sd	0.793675696434703
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RStudio

Project: (None)

myScript.R x

Source on Save | Run | Source

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여기 를 클릭 해서 폴더의 파일 목록을 볼수 있으면 좋겠습니다.

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여기에서 나왔습니다.

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- 아하 그런데 말 그대로 킬러 함수가 있었으니 그것은 바로 ..

- 아하 그런데 말 그대로 킬러 함수가 있었으니 그것은 바로 ..
 - `summary()`
 - 이걸 이용하면 데이터의 최소값(`Min`)과 최대값(`Max`), 평균값(`Mean`)과 중간값(`Median`), 그리고 전체 데이터를 작은 값에서 큰 값까지 0%에서 100%까지로 줄을 세웠을 때 25%(`1st Qu.`)와 75%(`3rd Qu.`)에 해당하는 값 등을 바로 구해줍니다.

