Start Up

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目录

Default

R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

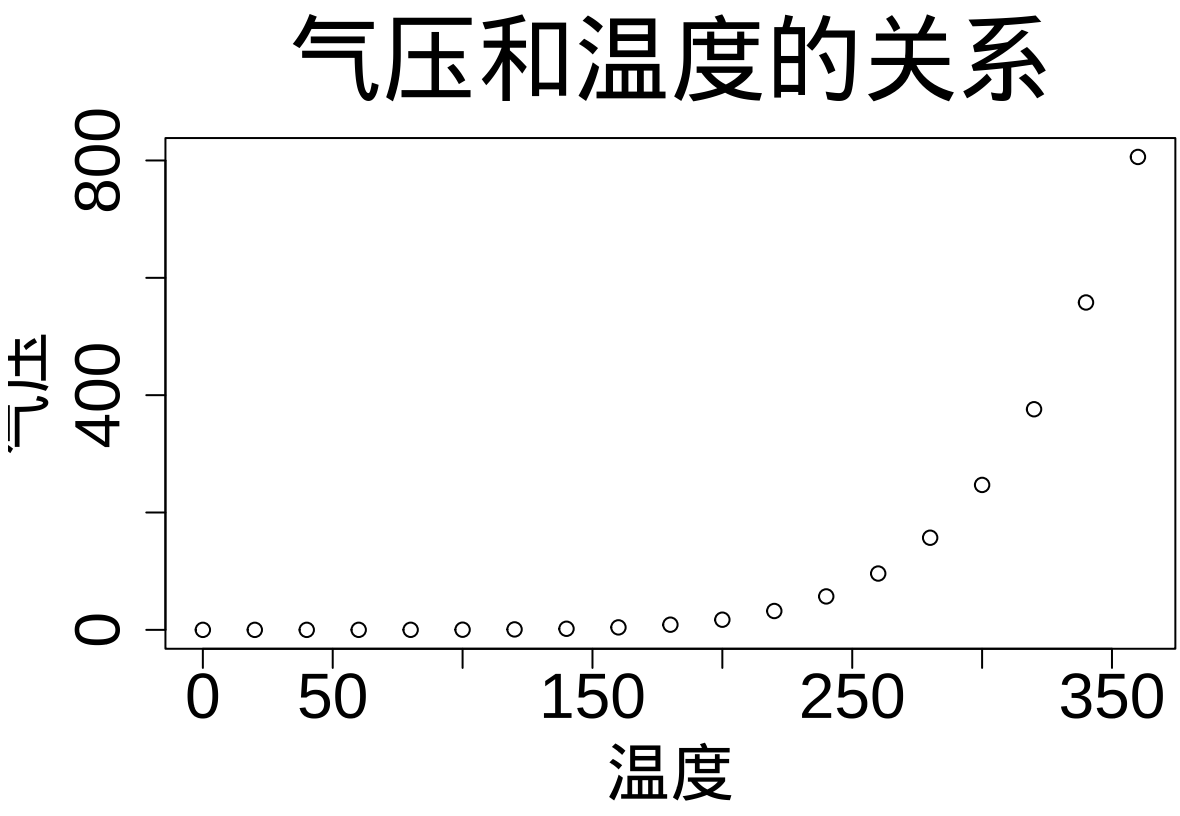
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
     speed           dist       
 Min.   : 4.0   Min.   :  2.00  
 1st Qu.:12.0   1st Qu.: 26.00  
 Median :15.0   Median : 36.00  
 Mean   :15.4   Mean   : 42.98  
 3rd Qu.:19.0   3rd Qu.: 56.00  
 Max.   :25.0   Max.   :120.00  
```

Including Plots

You can also embed plots, for example:



how to change plot() font size

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

Learning materials

How to use Rmarkdown

Test: Implement python in Rmd

Use of Library “reticulate”
Yihui-rmarkdown

You can also change the engine interpreters globally for multiple engines, e.g.,

```
knitr::opts_chunk$set(engine.path = list(
  python = '~/anaconda/bin/python',
  ruby = '/usr/local/bin/ruby'
))
```

install package:

```
# install.packages("reticulate")
```

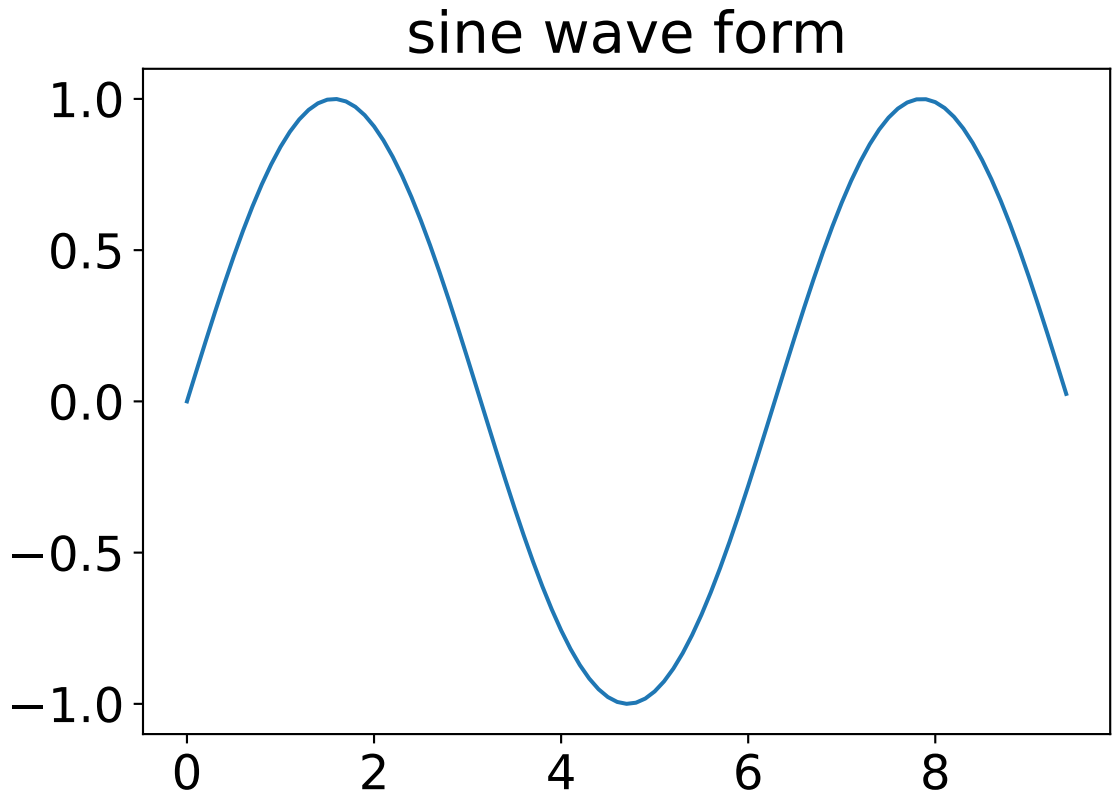
introduce library:

```
library(reticulate)
reticulate::use_condaenv('gdalcartopy') # 需要先在 Rstudio 的 Global Options 里将该 python 解释器添加
```

run python code:

```
import numpy as np
import matplotlib.pyplot as plt
# 计算正弦曲线上点的 x 和 y 坐标
x = np.arange(0,  3  * np.pi,  0.1)
y = np.sin(x)
plt.title("sine wave form")
```

```
# 使用 matplotlib 来绘制点
plt.plot(x, y)
plt.show()
```



call python variable in R code:

```
py$y
```

```
 [1]  0.00000000  0.09983342  0.19866933  0.29552021  0.38941834  0.47942554  0.56464247  0.644217
[11]  0.84147098  0.89120736  0.93203909  0.96355819  0.98544973  0.99749499  0.99957360  0.991664
[21]  0.90929743  0.86320937  0.80849640  0.74570521  0.67546318  0.59847214  0.51550137  0.427379
[31]  0.14112001  0.04158066 -0.05837414 -0.15774569 -0.25554110 -0.35078323 -0.44252044 -0.529836
[41] -0.75680250 -0.81827711 -0.87157577 -0.91616594 -0.95160207 -0.97753012 -0.99369100 -0.999923
[51] -0.95892427 -0.92581468 -0.88345466 -0.83226744 -0.77276449 -0.70554033 -0.63126664 -0.550685
[61] -0.27941550 -0.18216250 -0.08308940  0.01681390  0.11654920  0.21511999  0.31154136  0.404849
[71]  0.65698660  0.72896904  0.79366786  0.85043662  0.89870810  0.93799998  0.96791967  0.988168
[81]  0.98935825  0.96988981  0.94073056  0.90217183  0.85459891  0.79848711  0.73439710  0.662969
[91]  0.41211849  0.31909836  0.22288991  0.12445442  0.02477543
```

import python packages in R code:

```
library(reticulate)
# 导入库
os <- import("os")
#os 库的 listdir 函数
os$listdir()
```

```
 [1] ".git"                  ".Rhistory"             "docs"                  "helloworld.py"
 [6] "README.md"             "test.html"             "test1.pdf"             "test1.Rmd"
[11] "test2.Rmd"             "USGSdataRetrieval.Rmd" "_site.yml"
```

PS: 在 R 代码块中执行 Python 代码时，默认会将 Python 对象转为 R 对象。

introduce python variable from .py file in R code:

```
library(reticulate)
source_python("helloworld.py")
Hello world!
```

```
print(A)
[1] "Hello"
```

```
print(B)
[1] "world"
```

```
paste0(A, B)
[1] "Helloworld"
```

run .py file in R code:

```
library(reticulate)
py_run_file("helloworld.py")
```

```
Hello world!
```

In-line code

we can run code between text like this: date: 2024-10-08 date: 最近更新日期为 08 十月, 2024

Journal article templates for R markdown

rticles-github

Chinese not showed in PDF

Solution here

in the pdf words

Change output: latex_engine and documentclass like this:

```
title: "中文文档"
documentclass: ctexart
output:
  pdf_document:
    latex_engine: xelatex
```

in the output plot

在 Rmd 正文最开始写上

```
{r setup, include=FALSE}
library(showtext)
showtext_auto()
```

如果不喜欢 showtext 默认的字体，可以自行添加字体

```
{r setup, include=FALSE}
library(showtext)
font_add("simsun", regular = "simsun.ttc")
showtext_auto()
```

To be solved

{.tabset} example:

learn from:
rmarkdown-guide-html

输出为 pdf 时.tabset 无效，只能在 html 中使用。

Q1 无法手动生成 pdf

点击 RStudio 中的 Knit to PDF 按钮无法生成 pdf，而是会生成 html；Knit with parameters 命令则会报错显示 `Unable to edit parameters (the R session is currently busy).`

若要生成 pdf 需要在 R Console 中输入命令 `rmarkdown::render("your_file_name.Rmd", output_format = "pdf_document")`。

详见参考网站。

Q2 pdf 中图片过大

In pdf pictures would be too big. Tried some methods but not useful.

Q3 代码注释/输出超出 pdf 边界

Dataframe would exceed right limit of the pdf.
May ask gpt about this.

PS

标题标签页

同样适用于二级标题

某一级标题采用标签页模式后

可以接正常的同级或上级标题

Reference

已在文中列出