

1. R Markdown Nedir ?

R Markdown notlar,kodlar,formüller,grafikler ve resimler ile birlikte çalışma imkanı sağlayan, **.Rmd** uzantılı, bir R kütüphanesidir. R Markdown, herhangi bir HTML veya LaTeX kodunu bilmek zorunda kalmadan veya zor biçimlendirme sorunlarıyla uğraşmak zorunda kalmadan, biçimlendirilmiş bir HTML, PDF veya Word dosyası oluşturmak için R kodunun markdown metni ile birlikte çalışmasını sağlar.

Rmarkdown'da hem bilgisayar kodu hem de anlatılar aynı belgede olduğundan ve sonuçlar otomatik olarak kaynak koddan üretildiğinden, yeniden üretilebilirlik için tasarlanmıştır. R Markdown birçok statik ve dinamik/etkileşimli çıktı formatını destekler.(Word,html,pdf,books,dashboard,shiny,scientific articles vs.)

R Markdown tanıtımı için; <https://rmarkdown.rstudio.com>

R Markdown belgesinin üç temel bileşeni vardır:

- meta veriler
- metin
- kod (chunk)

R Markdown raporunda gördüğümüz ilk birkaç satır YAML olarak bilinir. Üç çizgi çifti arasında yer alan YAML (YAML, insan tarafından okunabilen bir veri serileştirme dilidir) sözdizimi Meta veriyi ifade eder. Bu satırlar, nihai raporun başında genel bir başlık üretecektir.

```
---
title: "R Markdown Demo"
author: "Vincent Van Gogh"
date: "2019-07-08"
output: html_document
---
```

R Markdown Çalışma Paneli;

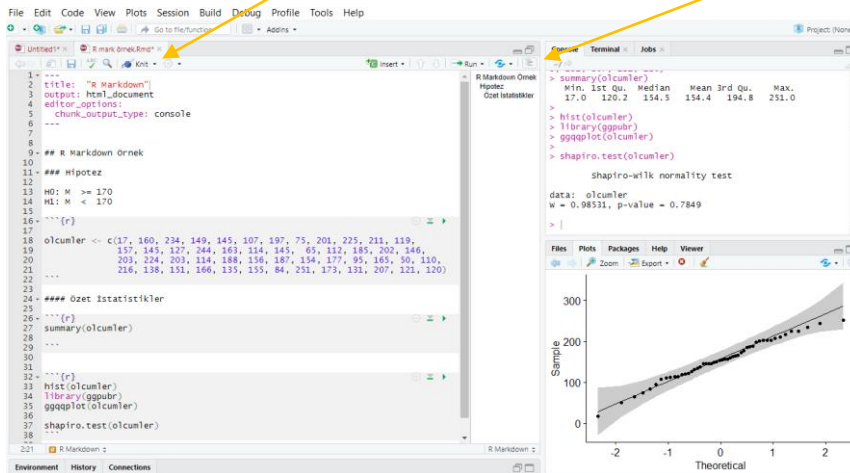
Rapor Olarak Almak İçin

Başlık / İçindekiler

Meta Veriler

Metin

Kodlar



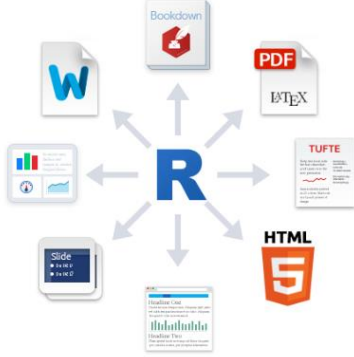
1.1. R Markdown Nasıl Çalışır ?



R Markdown ile belge oluşturmak, markdown ve R kodu parçalarının bir kombinasyonunu içeren bir .Rmd dosyası ile başlar. Knitr tüm R kodu parçalarını çalıştıran ve çıktı ile yeni bir etiketleme (.md) belgesi oluşturan .Rmd dosyasını besler.

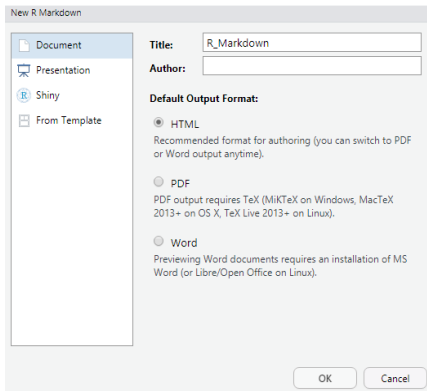
Knitr tarafından oluşturulan etiketleme dosyası daha sonra bitmiş bir web sayfası, PDF, MS Word belgesi, slayt gösterisi, çalışma kağıdı, kitap, gösterge paneli, paket skeç veya başka bir format oluşturmaktan sorumlu olan pandoc tarafından işlenir ve bitmiş bir rapor oluşturulabilir .

Çıktı Formatları;




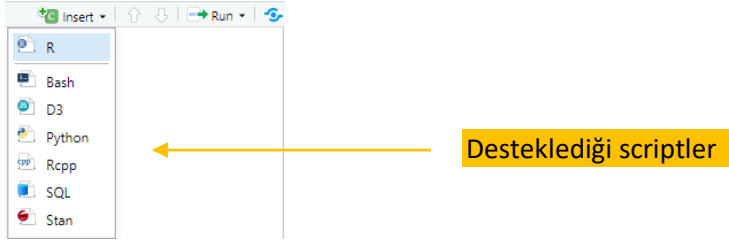
2. R Markdown Çalışma Ortamı Ayarlama

Bir R Markdown dosyası oluşturmak için **File > New File > R Markdown** öğesini seçebilir veya RStudio penceresinin sol üst köşesinde yeni bir belge oluşturmak için kısayolu seçebilirsiniz. Size bir HTML, PDF veya Word belgesi oluşturma seçeneği sunulacak; ancak, R Markdown belgenizi oluşturduktan sonra bu seçenekler arasında sorunsuz bir şekilde geçiş yapmanıza izin verir.

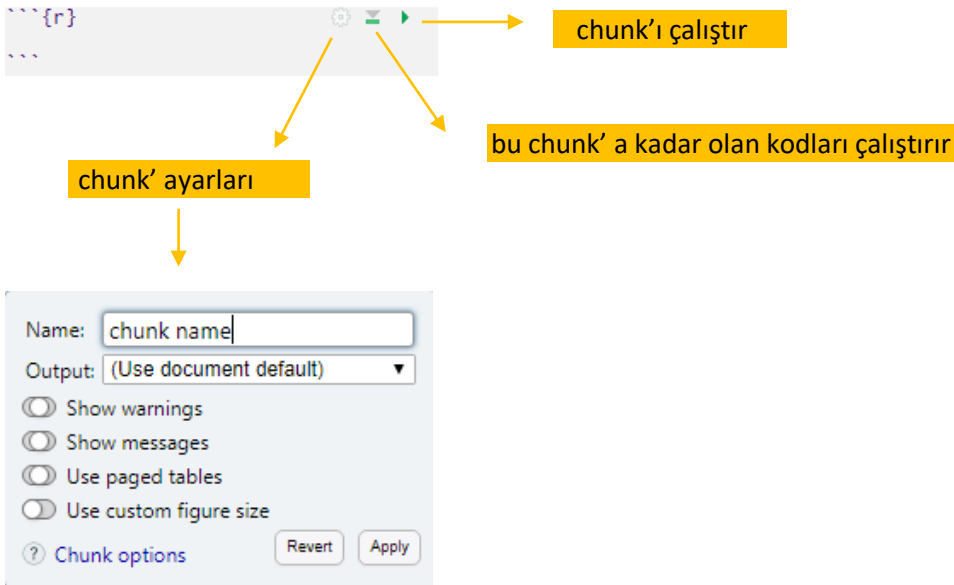


2.1. Chunk İşlemi

R çıktısını belgelere dönüştürmek ya da sadece gösterim amacıyla kodu görüntülemek için bir araç olarak kullanılabilir. R studio çalışma sayfasının sağ üst kısmında yer alan  sekmesinden veya **Ctrl + Alt + I** (windows) kısayolu ile chunk eklenir.



Chunk yapısı;



Chunk çıkışı birçok knitr seçeneğiyle özelleştirilebilir. Başlıca kullanılan özelleştirme fonksiyonları;

- **echo=FALSE** kodu gizler sonuçları gösterir.
- **eval=FALSE** kodu gösterir ancak değerlendirmez.
- **results='hide'** sonuçları gizler fakat kodu gösterir.
- **include=FALSE** kodu değerlendirir ancak kod veya çıktı göstermez.
- **warning=FALSE** ve **message=FALSE** paketleri yüklerken üretilen mesajları kaldırmak için kullanışlıdır.

3. Markdown Syntax

Syntax	Becomes												
Plain text	Plain text												
End a line with two spaces to start a new paragraph.	End a line with two spaces to start a new paragraph.												
<code>*italics*</code> and <code>_italics_</code>	<i>italics</i> and <i>italics</i>												
<code>**bold**</code> and <code>__bold__</code>	bold and bold												
superscript <code>^2^</code>	superscript ²												
<code>~~strikethrough~~</code>	strikethrough												
<code>[link](www.rstudio.com)</code>	link												
 # Header 1 ## Header 2 ### Header 3 #### Header 4 ##### Header 5 ##### Header 6	 Header 1 Header 2 Header 3 Header 4 <i>Header 5</i> <i>Header 6</i>												
endash: <code>--</code> emdash: <code>---</code>	endash: – emdash: —												
ellipsis: <code>...</code>	ellipsis: ...												
 *** > block quote * unordered list * item 2 + sub-item 1 + sub-item 2 1. ordered list 2. item 2 + sub-item 1 + sub-item 2	 <div>block quote</div> <ul style="list-style-type: none">• unordered list• item 2<ul style="list-style-type: none">◦ sub-item 1◦ sub-item 2 <ol style="list-style-type: none">1. ordered list2. item 2<ul style="list-style-type: none">◦ sub-item 1◦ sub-item 2												
<table><thead><tr><th>Table Header</th><th>Second Header</th></tr></thead><tbody><tr><td>Table Cell</td><td>Cell 2</td></tr><tr><td>Cell 3</td><td>Cell 4</td></tr></tbody></table>	Table Header	Second Header	Table Cell	Cell 2	Cell 3	Cell 4	<table><thead><tr><th>Table Header</th><th>Second Header</th></tr></thead><tbody><tr><td>Table Cell</td><td>Cell 2</td></tr><tr><td>Cell 3</td><td>Cell 4</td></tr></tbody></table>	Table Header	Second Header	Table Cell	Cell 2	Cell 3	Cell 4
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4. Knitr Chunk Options

Syntax

R Markdown Örnek

Make a code chunk with three back ticks followed by an `r` in braces.

End the chunk with three back ticks:

```
```${r}
paste("Hello", "World!")
```
```

Place code inline with a single back ticks. The first back tick must be followed by an `R`, like this ``r paste("Hello", "World!")``.

Add chunk options within braces. For example, ``echo=FALSE`` will prevent source code from being displayed:

```
```${r eval=TRUE, echo=FALSE}
paste("Hello", "World!")
```
```

Becomes

R Markdown Örnek

Make a code chunk with three back ticks followed by an `r` in braces. End the chunk with three back ticks:

```
paste("Hello", "World!")
```

```
## [1] "Hello World!"
```

Place code inline with a single back ticks. The first back tick must be followed by an `R`, like this `Hello World!`

Add chunk options within braces. For example, `echo=FALSE` will prevent source code from being displayed:

```
## [1] "Hello World!"
```

Chunk çıktısı için kullanılabilecek diğer fonksiyonlar ;

| Chunks | | |
|-----------------------|-----------------|--|
| opts.label | NULL | The label of options set in <code>knitr::opts_template()</code> to use with the chunk. |
| R.options | NULL | Local R options to use with the chunk. Options are set with <code>options()</code> at start of chunk. Defaults are restored at end. |
| ref.label | NULL | A character vector of labels of the chunks from which the code of the current chunk is inherited. |
| Cache | | |
| autodep | FALSE | If TRUE , knitr will attempt to figure out dependencies between chunks automatically by analyzing object names. |
| cache | FALSE | If TRUE , knitr will cache the results to reuse in future knits. Knitr will reuse the results until the code chunk is altered. |
| cache.comments | NULL | If FALSE , knitr will not rerun the chunk if only a code comment has changed. |
| cache.lazy | TRUE | If TRUE , knitr will use <code>lazyload()</code> to load objects in chunk. If FALSE , knitr will use <code>load()</code> to load objects in chunk. |
| cache.path | 'cache/' | A file path to the directory to store cached results in. Path should begin in the directory that the <code>.Rmd</code> file is saved in. |
| cache.vars | NULL | A character vector of object names to cache if you do not wish to cache each object in the chunk. |
| dependson | NULL | A character vector of chunk labels to specify which other chunks a chunk depends on. Knitr will update a cached chunk if its dependencies change. |
| Animation | | |
| anipots | 'controls,loop' | Extra options for animations (see the <code>animate</code> package). |
| interval | 1 | The number of seconds to pause between animation frames. |

| Chunk options | | |
|------------------------------------|---------------|---|
| option | default value | description |
| Code evaluation | | |
| chld | NULL | A character vector of filenames. Knitr will knit the files and place them into the main document. |
| code | NULL | Set to R code. Knitr will replace the code in the chunk with the code in the code option. |
| engine | 'R' | Knitr will evaluate the chunk in the named language, e.g. engine = 'python'. Run <code>names(knitr::knit_engines\$get())</code> to see supported languages. |
| eval | TRUE | If FALSE , knitr will not run the code in the code chunk. |
| include | TRUE | If FALSE , knitr will run the chunk but not include the chunk in the final document. |
| purl | TRUE | If FALSE , knitr will not include the chunk when running <code>purl()</code> to extract the source code. |
| Results | | |
| collapse | FALSE | If TRUE , knitr will collapse all the source and output blocks created by the chunk into a single block. |
| echo | TRUE | If FALSE , knitr will not display the code in the code chunk above it's results in the final document. |
| results | 'markup' | If ' hide ', knitr will not display the code's results in the final document. If ' hold ', knitr will delay displaying all output pieces until the end of the chunk. If ' asis ', knitr will pass through results without reformatting them (useful if results return raw HTML, etc.) |
| error | TRUE | If FALSE , knitr will not display any error messages generated by the code. |
| message | TRUE | If FALSE , knitr will not display any messages generated by the code. |
| warning | TRUE | If FALSE , knitr will not display any warning messages generated by the code. |
| Code Decoration | | |
| comment | '##' | A character string. Knitr will append the string to the start of each line of results in the final document. |
| highlight | TRUE | If TRUE , knitr will highlight the source code in the final output. |
| prompt | FALSE | If TRUE , knitr will add > to the start of each line of code displayed in the final document. |
| strip.white | TRUE | If TRUE , knitr will remove white spaces that appear at the beginning or end of a code chunk. |
| tidy | FALSE | If TRUE , knitr will tidy code chunks for display with the <code>tidy_source()</code> function in the formatR package. |
| Plots | | |
| dev | 'png' | The R function name that will be used as a graphical device to record plots, e.g. dev ='CairoPDF'. |
| dev.args | NULL | Arguments to be passed to the device, e.g. dev.args =list(bg='yellow', pointsize=10). |
| dpi | 72 | A number for knitr to use as the dots per inch (dpi) in graphics (when applicable). |
| external | TRUE | If TRUE , knitr will externalize tikz graphics to save LaTeX compilation time (only for the <code>tikzDevice::tikz()</code> device). |
| fig.align | 'default' | How to align graphics in the final document. One of 'left', 'right', or 'center'. |
| fig.cap | NULL | A character string to be used as a figure caption in LaTeX. |
| fig.env | 'figure' | The LaTeX environment for figures. |
| fig.ext | NULL | The file extension for figure output, e.g. fig.ext ='png'. |
| fig.height, fig.width | 7 | The width and height to use in R for plots created by the chunk (in inches). |
| fig.keep | 'high' | If ' high ', knitr will merge low-level changes into high level plots. If ' all ', knitr will keep all plots (low-level changes may produce new plots). If ' first ', knitr will keep the first plot only. If ' last ', knitr will keep the last plot only. If ' none ', knitr will discard all plots. |
| fig.lp | 'fig:' | A prefix to be used for figure labels in latex. |
| fig.path | 'figure/' | A file path to the directory where knitr should store the graphics files created by the chunk. |
| fig.pos | " | A character string to be used as the figure position arrangement in LaTeX. |
| fig.process | NULL | A function to post-process a figure file. Should take a filename and return a filename of a new figure source. |
| fig.retina | 1 | Dpi multiplier for displaying HTML output on retina screens. |
| fig.scap | NULL | A character string to be used as a short figure caption. |
| fig.subcap | NULL | A character string to be used as captions in sub-figures in LaTeX. |
| fig.show | 'asis' | If ' hide ', knitr will generate the plots created in the chunk, but not include them in the final document. If ' hold ', knitr will delay displaying the plots created by the chunk until the end of the chunk. If ' animate ', knitr will combine all of the plots created by the chunk into an animation. |
| fig.showtext | NULL | If TRUE , knitr will call <code>showtext::showtext.begin()</code> before drawing plots. |
| out.extra | NULL | A character string of extra options for figures to be passed to LaTeX or HTML. |
| out.height, out.width | NULL | The width and height to scale plots to in the final output. Can be in units recognized by output, e.g. 8\\linewidth, 50px |
| resize.height, resize.width | NULL | The width and height to resize tike graphics in LaTeX, passed to <code>\resizebox{[]}</code> . |
| sanitize | FALSE | If TRUE , knitr will sanitize tike graphics for LaTeX. |

[Buradan](#) R Markdown özet dokümanına ulaşabilirsiniz. ☺

<https://www.rstudio.com/wp-content/uploads/2015/03/rmarkdown-reference.pdf>

https://rmarkdown.rstudio.com/articles_intro.html