

# KNITR, Hooks and Language Engines

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# Agenda

## KNITR, Hooks and Language Engines

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#### Hooks

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This conference is related with the use of **Hooks** and **Language engines** on KNITR.

- Meeting, understanding, creating, and using the Chunk Hooks.

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# Introduction

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References

This conference is related with the use of **Hooks** and **Language engines** on KNITR.

- ▶ Meeting, understanding, creating, and using the Chunk Hooks.
- ▶ Working with language engines.



# Description

## KNITR, Hooks and Language Engines

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The hooks are a way to increase the capability of KNITR, providing programming options and tools to customize the code execution.



# Hook Types

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The hooks are classified in two kinds according with the propose,

1. **Chunk Hooks** Set of defined behaviors that can be included in the chunk expressions when are declared.
2. **Output Hooks**



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1. **Chunk Hooks** Set of defined behaviors that can be included in the chunk expressions when are declared.
2. **Output Hooks**

## Goal

Customize the project creating and using Chunk Hooks.



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## Structure

1. begin,
2. options, and
3. envir (environment).





# Declaration

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```
1 <<setup-hooks-customizePlot, echo = TRUE>>=
2 options(java.parameters="-Xmx2048m")
3 if (!"knitr" %in% installed.packages())
4   install.packages("knitr")
5 library(knitr)
6 knitr_hooks$set(customizePlot = function(before, options,
7   envir) {
8   par(mar=c(1,1,1,1))
9   if (before){
10     par(bg=options$plotColor)
11   } else {
12     par(bg=NULL)
13   }
14   return()
15 } )
@
```

setup-customizePlot-hook.Rnw



# Using a Chunk Hook

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```
1
2 \begin{figure}[ht]
3   \subfigure[Using the hook]{
4     <<using-hook, customizePlot=TRUE, plotColor="yellow",
5       include=TRUE, out.width="1.5in", echo=FALSE>>=
6       plot(1:10)
7     @
8   }
9   \subfigure[Without using the hook]{
10     <<without-hook, include=TRUE, out.width="1.5in", echo=
11       FALSE>>=
12     plot(1:10)
13     @
14   }
15 \end{figure}
```

invoke-customizePlot-hook.Rnw



# Plot using a Chunk Hook

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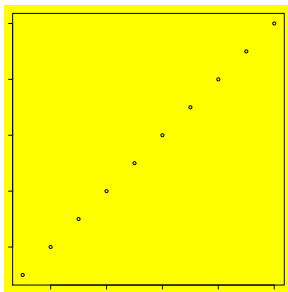
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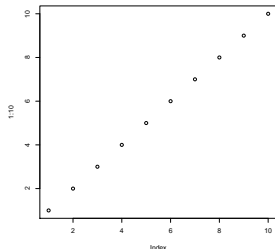
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(a) Using the hook



(b) Without using the hook



# Description

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- ▶ Until this moment the focus has been R, because it's one of the most popular tool to work with statistics, data mining, big data, machine learning, and others.
- ▶ But the reality is that R isn't the only one programming language used in reproducible research and KNITR provide us a set of available languages to integrate in the document.

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Language	Engine	Code argument
Python	python	-e
Ruby	ruby	-e
<i>gawk</i>	<i>gawk</i>	-e
sed	sed	-e
shell	sh/bash/zsh	-e
Perl	perl	-e
Haskell	haskell	-e
CoffeeScript	coffee	-e
Groovy	groovy	-e
Node.js	node	-e
Scala	scala	-e
SAS	sas	-e



# C++ example

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```
library(Rcpp) evalCpp("PI")
```

```
[1] 3.141593
```

```
cppFunction(" int fibCpp(int x) { if (x == 0 || x == 1)  
return(x); return (fibCpp(x - 1)) + fibCpp(x - 2); }")  
fibCpp(10)
```

```
[1] 55
```

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Thank you

