KNITR, Hooks and Language Engines
v. 1.4.0

Raul Alejandro Buitrago Castellanos
raulhabits@gmail.com

Maestria en ciencias de la informacion y las comunicaciones, con enfasis en ingenieria de software
Universidad Distrital Francisco Jose de Caldas
Colombia

KNITR, Hooks and
Language Engines

Raul Alejandro
Buitrago Castellanos

Introduction

Hooks
Description
Hook Types
Chunk Hooks
Creation of a Chunk Hook
Using a Chunk Hook
Plot using a Chunk Hook

Language engines
Language engines
Default available languages
C++ example

Agenda

Introduction

Hooks
Description
Hook Types
Chunk Hooks
Creation of a Chunk Hook
Using a Chunk Hook
Plot using a Chunk Hook

Language engines
Language engines
Default available languages
C++ example

Maestria en ciencias de la
informacion y las
comunicaciones, con enfasis
en ingenieria de software
Universidad Distrital
Francisco Jose de Caldas
Colombia

11

Introduction

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

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

Introduction

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.

Maestria en ciencias de la
informacion y las
comunicaciones, con enfasis
en ingenieria de software
Universidad Distrital
Francisco Jose de Caldas
Colombia   11

3

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

Maestria en ciencias de la
informacion y las
comunicaciones, con enfasis
en ingenieria de software
Universidad Distrital
Francisco Jose de Caldas
Colombia

11

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`

Maestria en ciencias de la
informacion y las
comunicaciones, con enfasis
en ingenieria de software
Universidad Distrital
Francisco Jose de Caldas
Colombia

11

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`

Goal
Customize the project creating and using Chunk Hooks.

5 ## Structure

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

Maestria en ciencias de la
informacion y las
comunicaciones, con enfasis
en ingenieria de software
Universidad Distrital
Francisco Jose de Caldas
Colombia

11

Declaration

```
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    knit_hooks$set ( customizePlot = function ( before , options ,
         envir ) {
7    par ( mar=c ( 1 , 1 , 1 , 1 ) )
8     if ( before ) {
9      par ( bg=options$plotColor )
10    } else {
11     par ( bg=NULL )
12    }
13    return ( )
14   } )
15 @
```

setup–customizePlot–hook.Rnw

Maestria en ciencias de la informacion y las comunicaciones, con enfasis en ingenieria de software Universidad Distrital Francisco Jose de Caldas Colombia

11

```
\begin{figure}[ht]
  \subfigure[Using the hook]{
    <<using-hook, customizePlot=TRUE, plotColor="yellow",
      include=TRUE, out.width="1.5in", echo=FALSE>>=
    plot(1:10)
  @
  }
  \subfigure[Without using the hook]{
    <<without-hook, include=TRUE, out.width="1.5in", echo=
      FALSE>>=
    plot(1:10)
  @
  }
\end{figure}
```

invoke–customizePlot–hook.Rnw

Maestria en ciencias de la
informacion y las
comunicaciones, con enfasis
en ingenieria de software
Universidad Distrital
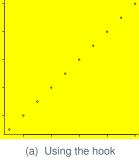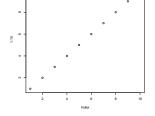Francisco Jose de Caldas
Colombia

Plot using a Chunk Hook

(a) Using the hook   (b) Without using the hook

Maestria en ciencias de la
informacion y las
comunicaciones, con enfasis
en ingenieria de software
Universidad Distrital
Francisco Jose de Caldas
Colombia   11

▶ 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.

Maestria en ciencias de la
informacion y las
comunicaciones, con enfasis
en ingenieria de software
Universidad Distrital
Francisco Jose de Caldas
Colombia

Language	Engine	Code argument
Python	python	-e
Ruby	ruby	-e
*g*awk	*g*awk	-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

Maestria en ciencias de la
informacion y las
comunicaciones, con enfasis
en ingenieria de software
Universidad Distrital
Francisco Jose de Caldas
Colombia

11

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

[1] 3.141593

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

[1] 55

Thank you