Data visualisation and statistical modelling in Shiny

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Overview

Introduction to Shiny

How to share a Shiny application

My attempts at creating Shiny applications

htmlwidgets, showmeshiny, radiant, shinystan and all that jazz
But first...
Part I: A blast from the past (aka 1997)

- Top 3 box-office hits in the world

  1. Titanic
  2. Men in Black
  3. Lost World: Jurassic Park
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What is Shiny?

Shiny is an R package that provides a web framework for building web applications. The Shiny package makes it simple for R users to turn statistical analyses into interactive web applications that anyone can use. No need to learn HTML, CSS, JavaScript.
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“Best” way to start with Shiny

1. Install (and load) the package with
   ```
   install.packages("shiny")
   library(shiny)
   ```

2. Go to the page http://shiny.rstudio.com/tutorial/

3. Read the 7 lesson tutorial and finish all its exercises.

Shiny has become increasingly popular; thus you can find lots of how-to-start tutorials online. (my personal favourite is Dean Attali's tutorial)
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Structure of a Shiny application

A Shiny application consists of two files.
1. A user-interface definition script titled `ui.R`. This script controls the appearance of your application.
2. A server script titled `server.R`. This script controls how the data are processed.

You can create a Shiny app by making a new directory and saving the `ui.R` and `server.R` files inside it.

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Sharing a Shiny application

1. Anyone can launch your app as long as they have a copy of R, Shiny, and a copy of your app's files (i.e. ui.R, server.R).
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- Each method has its own advantages.
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- Top 3 rated TV shows in the US

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2. ER
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Crimes in the communities of Chicago from 2002 to 2015

Reported incidents of crime (with the exception of murders) that occurred in the city of Chicago from 2002 to present.

Close to 6 million incidents

The app we have created allows, amongst other things, the user to select a spatio-temporal CAR model and choose the covariates to be included in the model.

Can we create a more generic application where one can upload their own spatio-temporal data set?

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General comments

- Shiny provides a quick way of presenting your data interactively.

- Great for engagement with non-statisticians/general public.

- Shiny is still in development but it has an excellent community support. (i.e. shiny-discuss Google group, shiny tag on Stack Overflow)

- Things become a bit tricky (or rather expensive) when it comes to
  - privacy and security of the data and/or
  - the amount of memory needed for your application.
And finally...
Part III: A blast from the past (aka 1997)

- Top 3 singles music chart in the UK
  
  1. I'll Be Missing You (Puff Daddy & Faith Evans)
  2. Candle In The Wind (Elton John)
  3. Barbie Girl (Aqua)
Part III: A blast from the past (aka 1997)

▶ Top 3 singles music chart in the UK

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Thanks for listening