

Building web applications with Shiny

Manchester R - August 2013



Overview

- Why put R in a webapp?
- Why Shiny?
- Shiny Demo

Why put R in a web app?

- User
- Statistician/ Programmer

User

- No need to learn R
- Access to statistical routines
- Easy to use/ less intimidating

Statistician/Programmer

- Make new statistical methods accessible
- Web app more user friendly
- Able to use the stats and graphics available in R

Web apps connected to R

We can build web-applications in other languages and connect to R:

- Java
- Python
- Javascript

Web apps written in R

We can write web-applications in R using:

- RApache
- Rook
- Shiny

Why use Shiny?

“Shiny makes it super simple for R users ... to turn analyses into interactive web applications that anyone can use.”

Extract from the Shiny homepage: <http://www.rstudio.com/shiny/>

Why use Shiny?

- Can be entirely written in R
- Consists of only two parts (ui.R and server.R)
- Can be deployed locally or on a server
- Can be easily extended using HTML/javascript

Demo - reactivity

Analysis of survey data

Plot options

Choose x axis variable:
 ▼

Choose y axis variable:
 ▼

Colour by:

No colouring

Sex

Smoking status

Panel by:

No panels

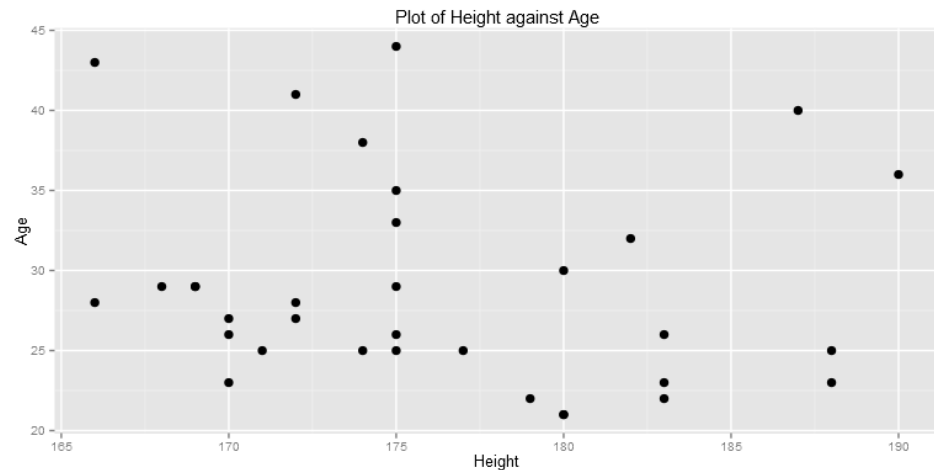
Sex

Smoking status

Data options

Subset data by Age

Smooth



	Subject	Sex	Age	Weight	Height	BMI	Smokes
1	1	M	43	57	166	20.70	No
2	2	M	22	71	179	22.20	No
3	3	F	23	72	170	25.10	No
4	4	M	25	76	188	21.40	No
5	5	M	29	82	175	26.80	No
6	6	F	29	67	169	23.50	No
7	7	M	28	69	166	25.00	Yes
8	8	M	23	73	183	21.90	No
9	9	M	40	79	187	22.60	No

Demo - dynamic UI

Analysis of survey data

Plot options

Choose x axis variable:

Choose y axis variable:

Colour by:

No colouring

Sex

Smoking status

Panel by:

No panels

Sex

Smoking status

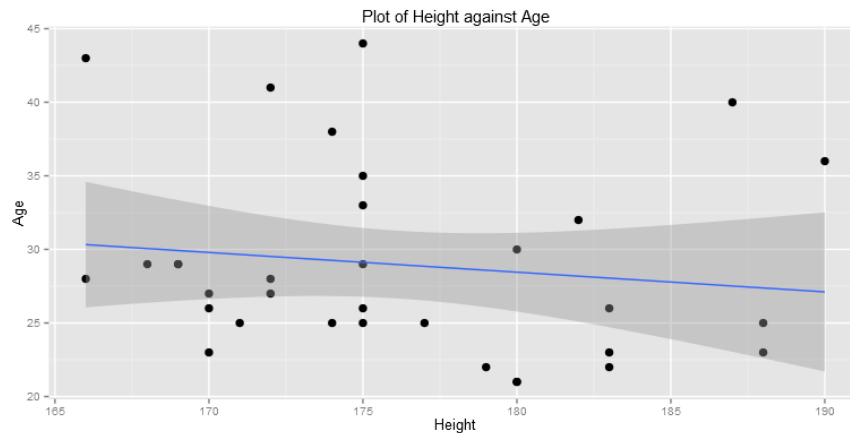
Data options

Subset data by Age

Maximum age:
 43,968

Smooth

Method



	Subject	Sex	Age	Weight	Height	BMI	Smokes
1	1	M	43	57	166	20.70	No
2	2	M	22	71	179	22.20	No
3	3	F	23	72	170	25.10	No
4	4	M	25	76	188	21.40	No
5	5	M	29	82	175	26.80	No
6	6	F	29	67	169	23.50	No
7	7	M	28	69	166	25.00	Yes
8	8	M	23	73	183	21.90	No
9	9	M	40	79	187	22.60	No
10	10	M	23	71	188	20.10	No
11	11	M	38	81	174	26.80	No

Demo - downloading data

Analysis of survey data

Plot options

Choose x axis variable:

Choose y axis variable:

Colour by:

- No colouring
- Sex
- Smoking status

Panel by:

- No panels
- Sex
- Smoking status

Data options

- Subset data by Age
- Smooth

Plot Data Save options

Plot file name:

Data file name:

Demo - googleVis

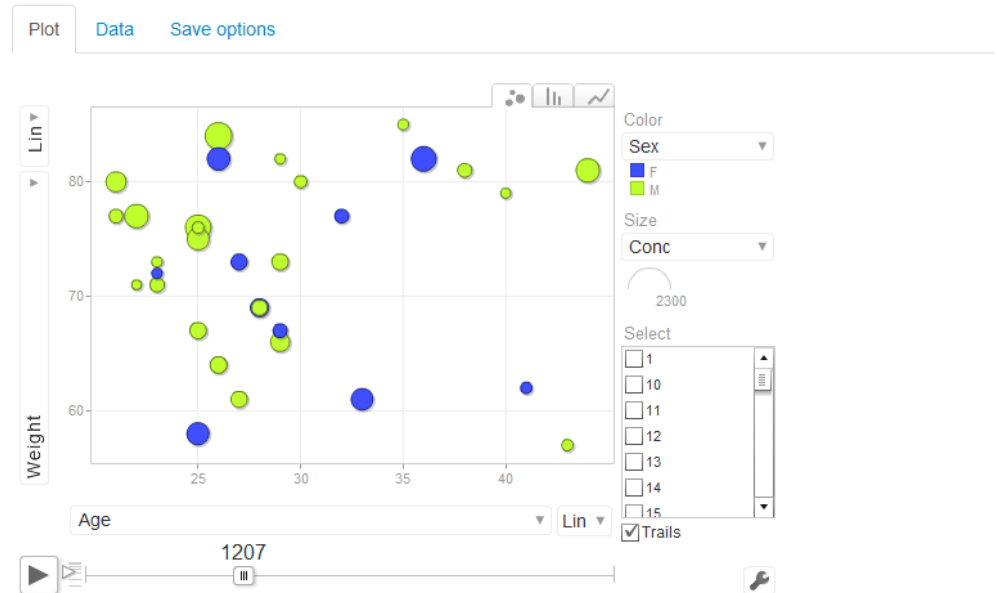
Analysis of survey data

Table options

Pageable

Data options

Subset data by Age



The Shiny package

- Available on CRAN
- Current version 0.6.0 (05/06/2013)
- Requires R \geq 2.14.1
- Available for Windows, Mac OS X and Unix/Linux

<http://www.rstudio.com/shiny/tutorial>

Questions?