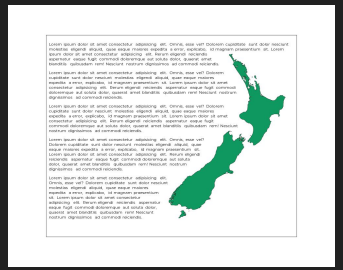
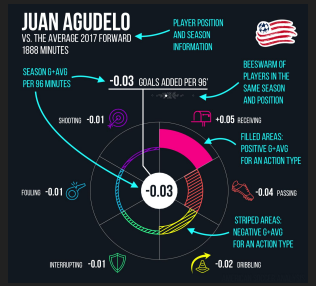
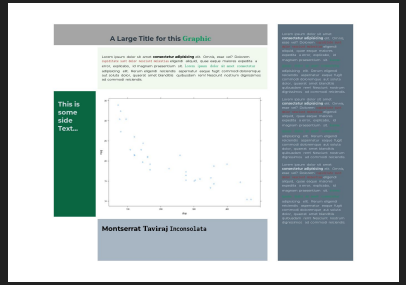
Can Web Technologies Help R Generate Print Quality Graphics?







Kane Cullimore • Nov 11, 2020

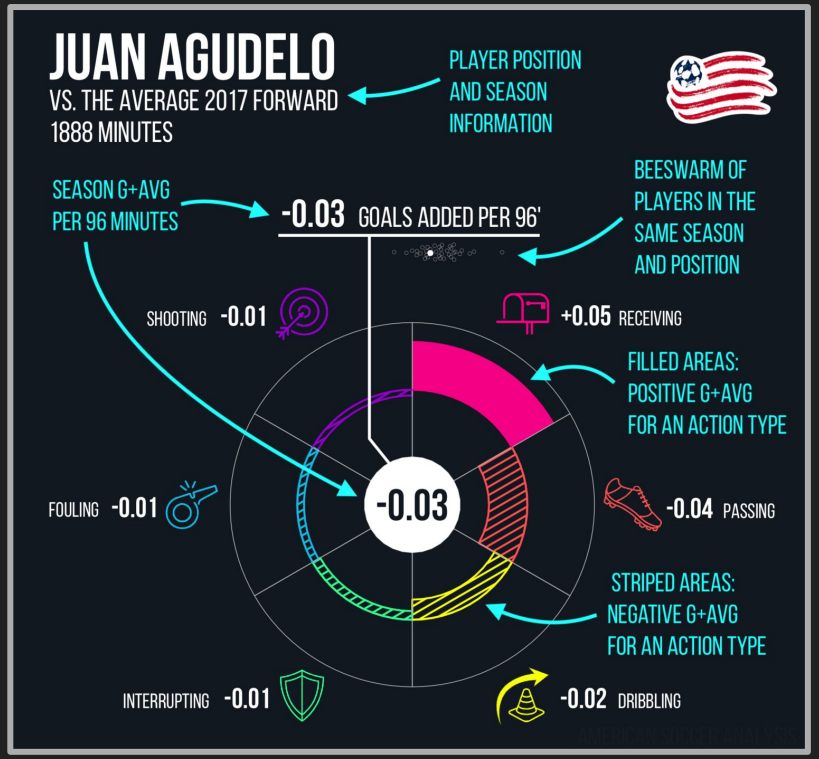
CS791 - Faculty Advisor - Paul Murrell

Overview

- Print Quality Graphics
- layoutEngine R Package
- Current Limitations
- New Development
- Full Demo

What are **Print Quality Graphics?**

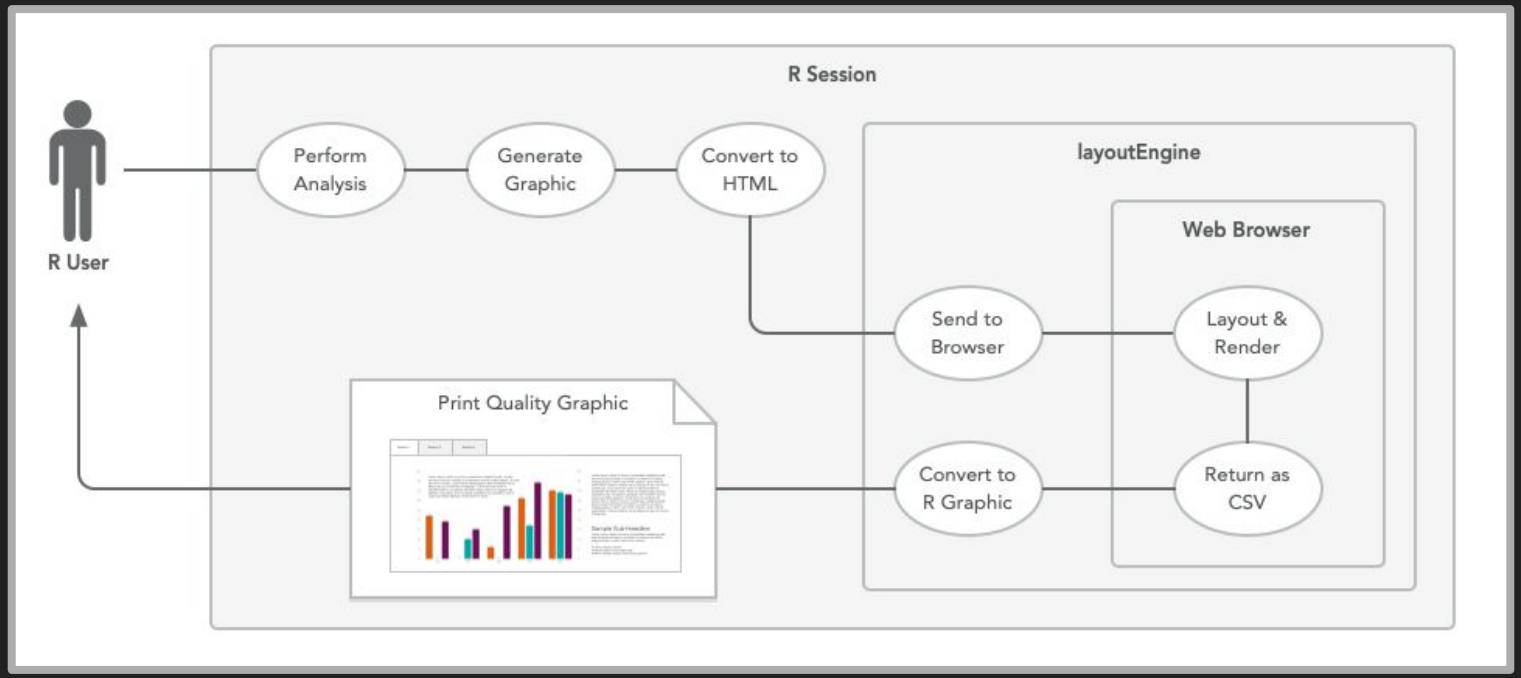
- Layout and typesetting
- Writing systems and fonts
- Content rendering
- File format and resolution



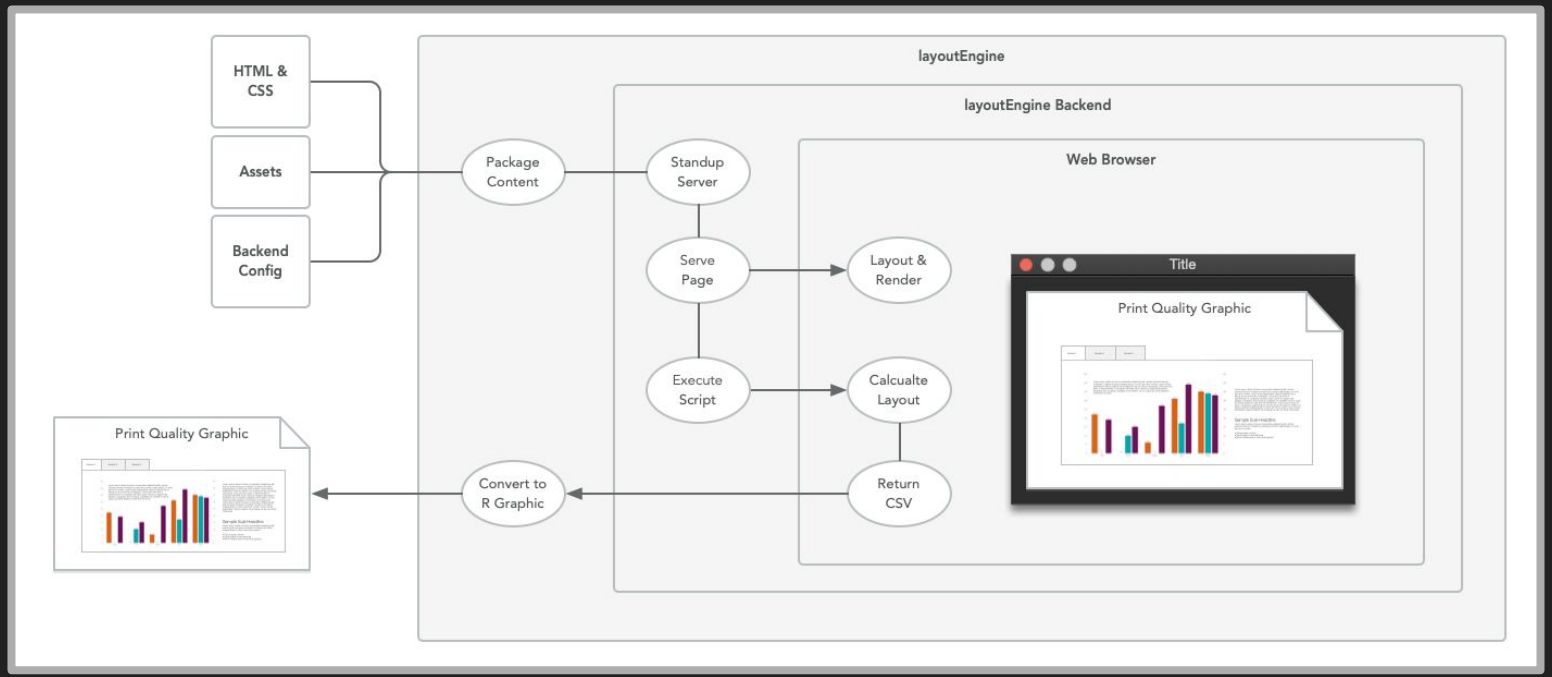
layoutEngine
R Package

Quick Demo

The layoutEngine **Approach**



The layoutEngine **Solution Design**



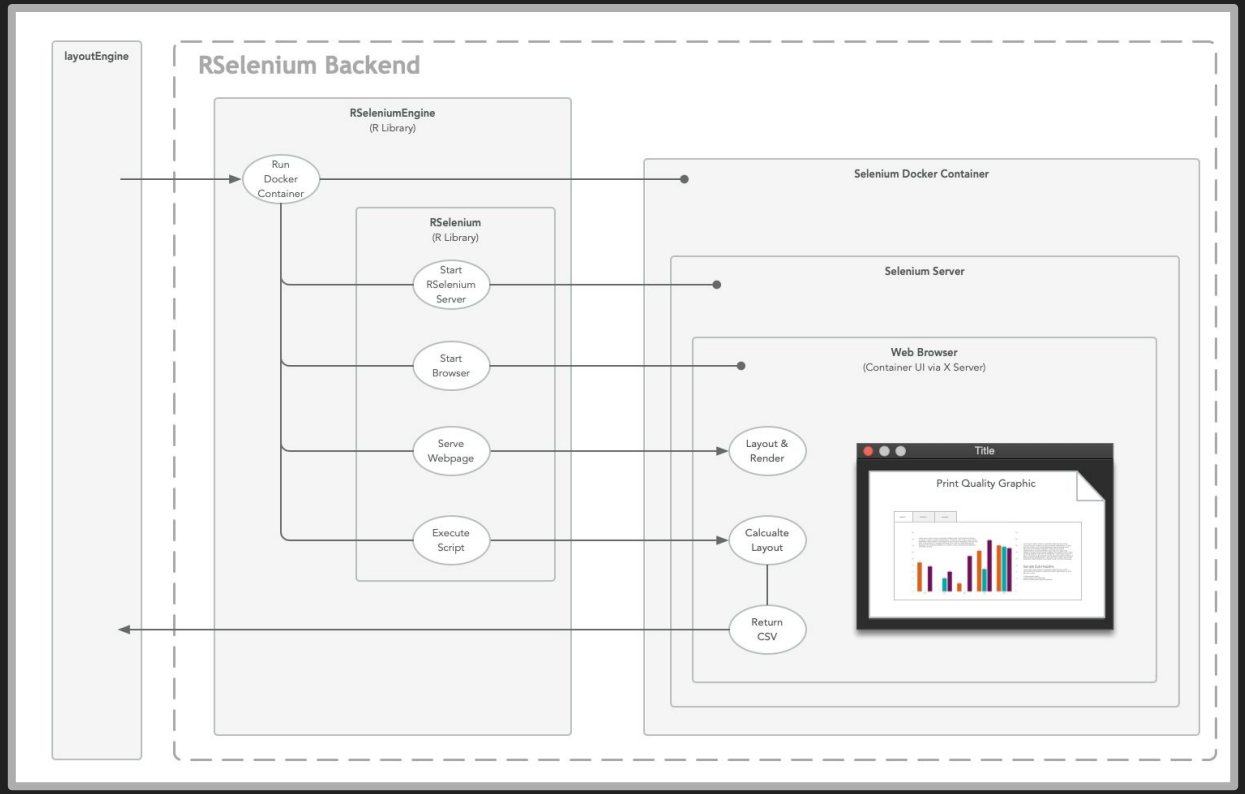
The layoutEngine **Limitations**

Limitation	DOM	PhantomJS	CSSBox
Cross Platform	Low	Low	Low
Simple Dependencies	Low	Low	Low
Industry Support	Low	None	Low
Modern Web Standards	Med	Low	Low
Visual Feedback	High	None	None

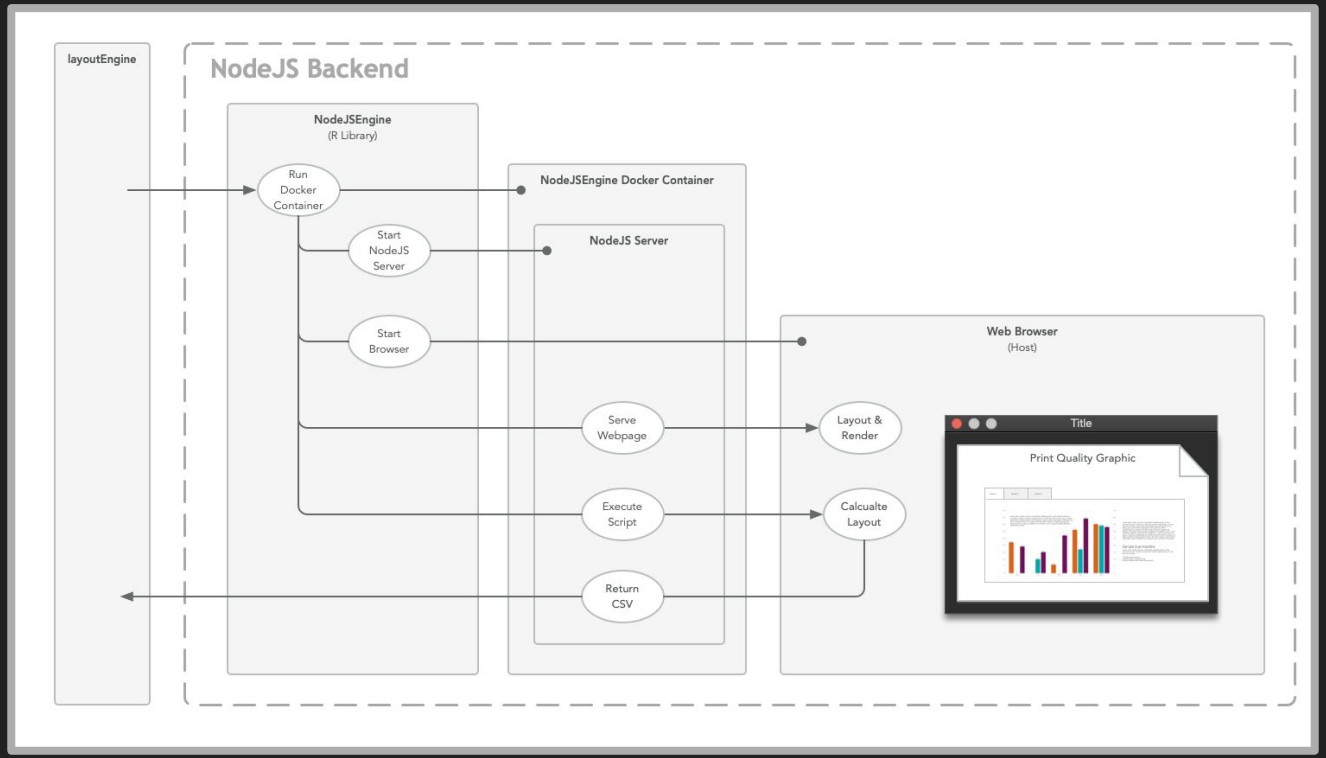
New Development

RSelenium Backend	NodeJS Backend	Other Research
RSelenium R Package		**HTTP API**

RSelenium Backend



NodeJS Backend



Research **Outcomes**

Limitation	DOM	PhantomJS	CSSBox	RSelenium	NodeJS
Cross Platform	Low	Low	Low	Med	High
Simple Dependencies	Low	Low	Low	Med	Med
Industry Support	Low	None	Low	Med	High
Modern Web Standards	Med	Low	Low	High	High
Visual Feedback	High	None	None	High	High

Full Demo

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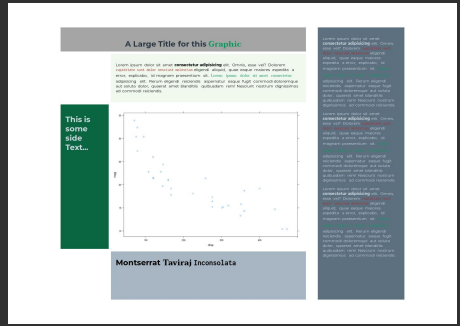

A Large Title for this Graphic
This is some side Text...
Montserrat Taviraj Inconsolata

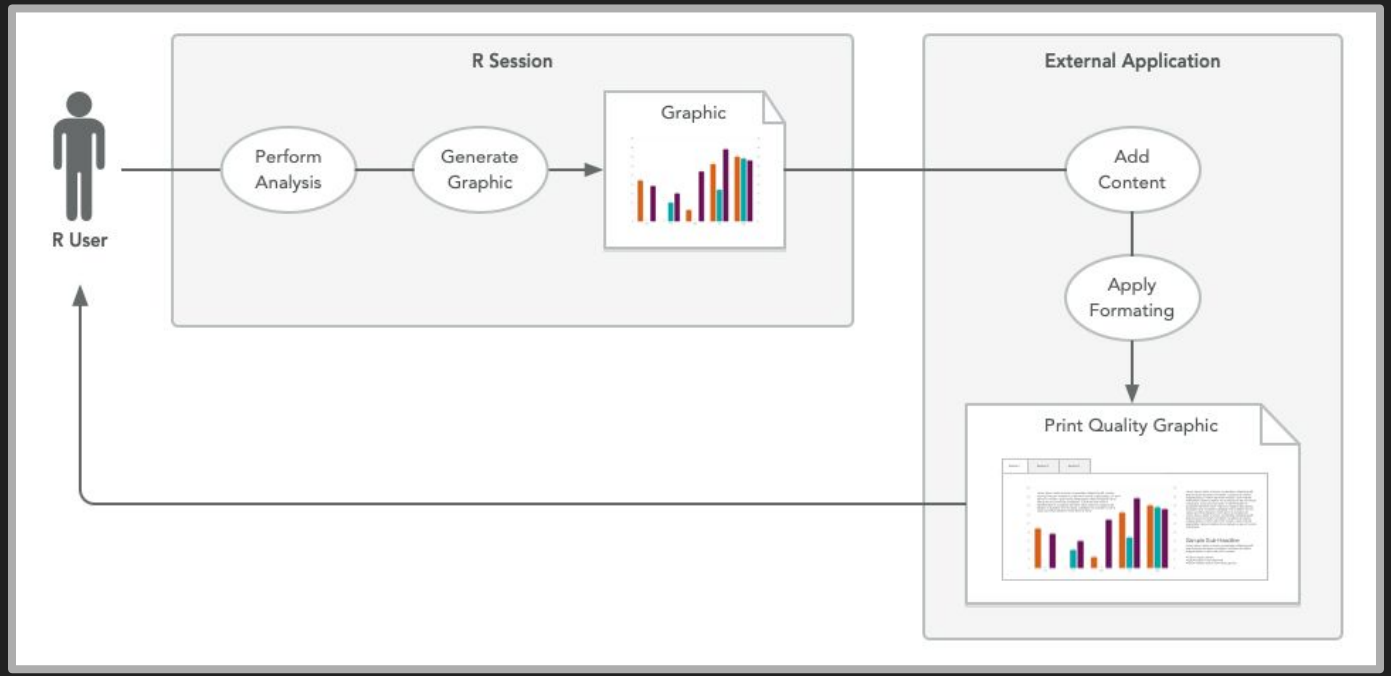
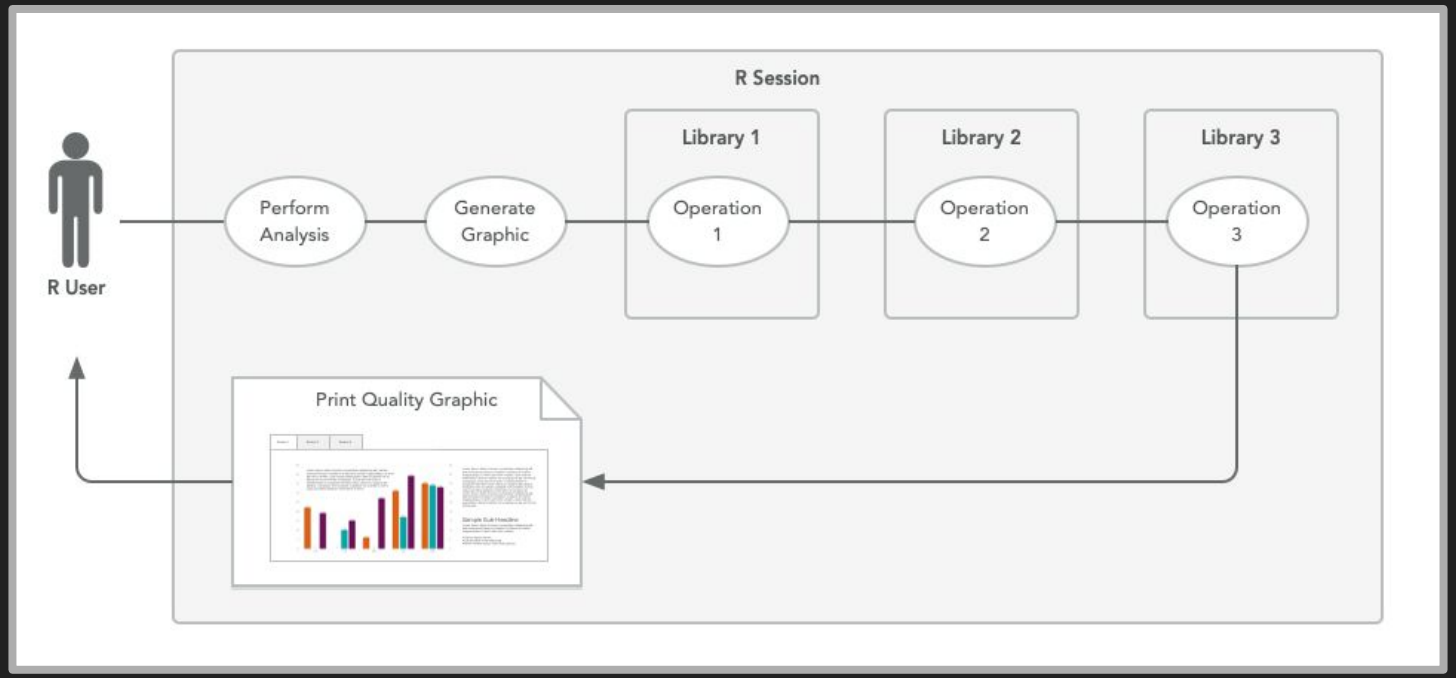
Future Opportunities

- NodeJS backend is promising but needs more controls
- Refactoring of the backend R package
- Improve ease of use for layoutEngine
- Support additional HTML and CSS features

Questions?

Backup Slides

Existing Approach **External to R**



Existing Approach **Within R**