iwplot: An R Package for Creating web Based Interactive Graphics for Big Data

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We discuss **iwPlot**, an R package that provides a graphical environment on the browser for exploring big data. This was motivated by iPlots (Urbanek and Theus 2003), a package that provides advanced interactive features. iPlots provides several key interactive features like selection of individual points or subsets of data, as well as zooming, brushing and linking between different plots. The existing **iPlots** package is limited to R running in a standard desktop environment. With the growing popularity of RCloud and other R applications that are deployed on the browser for the consumption of end users, there is a need for developing interactive plots in the browser environment. The **iwPlot** package brings some of these advanced interactive features like selections, zooming, brushing to a web browser. The other consideration is **iwPlot**'s ability to handle big data. The advanced interactive features that are currently available in the desktop environment in **iPlots** package are extended to the browser environment. The graphics in **iwPlots** package is rendered using the HTML5 Canvas API. This API is used by writing JavaScript that can access the canvas area through a full set of drawing functions, thus allowing for dynamically generated graphics. The current architecture can accommodate large amounts of data. The other benefit of this interactive environment is the ability to deploy R applications that runs higher order analytics to end users who are not R users. We will demonstrate this by showing two web applications, one that uses functional data analysis for informal classification for a large collection of time series and other application that involves spatial temporal data.

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