

JavaStat: a Java-based R Front-end

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Architectures are described which allow a Java-based front-end to run R code on a server. The front-end is called JavaStat (<http://javastat.stat.wvu.edu>), a Java application. JavaStat is a highly-interactive program for data analysis and dynamic visualization with data management capabilities. The objective is to bring the high-level functions of R to JavaStat without excessive duplicative development work. Results returned from R are wrapped and then displayed using dynamic graphics in JavaStat.

The principal idea is to use RMI (Remote Method Invocation) to communicate with a Java server program (JRIServer), which in turn communicates with R using JRI (Java/R Interface). Two versions have been implemented. The first architecture maintains a connection between the client and server in order to return the results from R. This is suitable for small to moderate data sets in which statistical models are run. The second architecture queues the requests and uses polling to fetch the results. It is suitable for large data sets and complex models, e.g., those encountered in genomic studies.