R CODE AND IDE OF CHOICE

Stan Smoltis

About myself

- Data science enthusiast
- Database analyst and software engineer
  - Query tuning and optimising for high performance
- Last 6 years: designing ETL projects and data warehouses
- MCSE: Data platform

Stan

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Agenda

- What IDE is
- Some interesting stats
- Prerequisites
- Demo

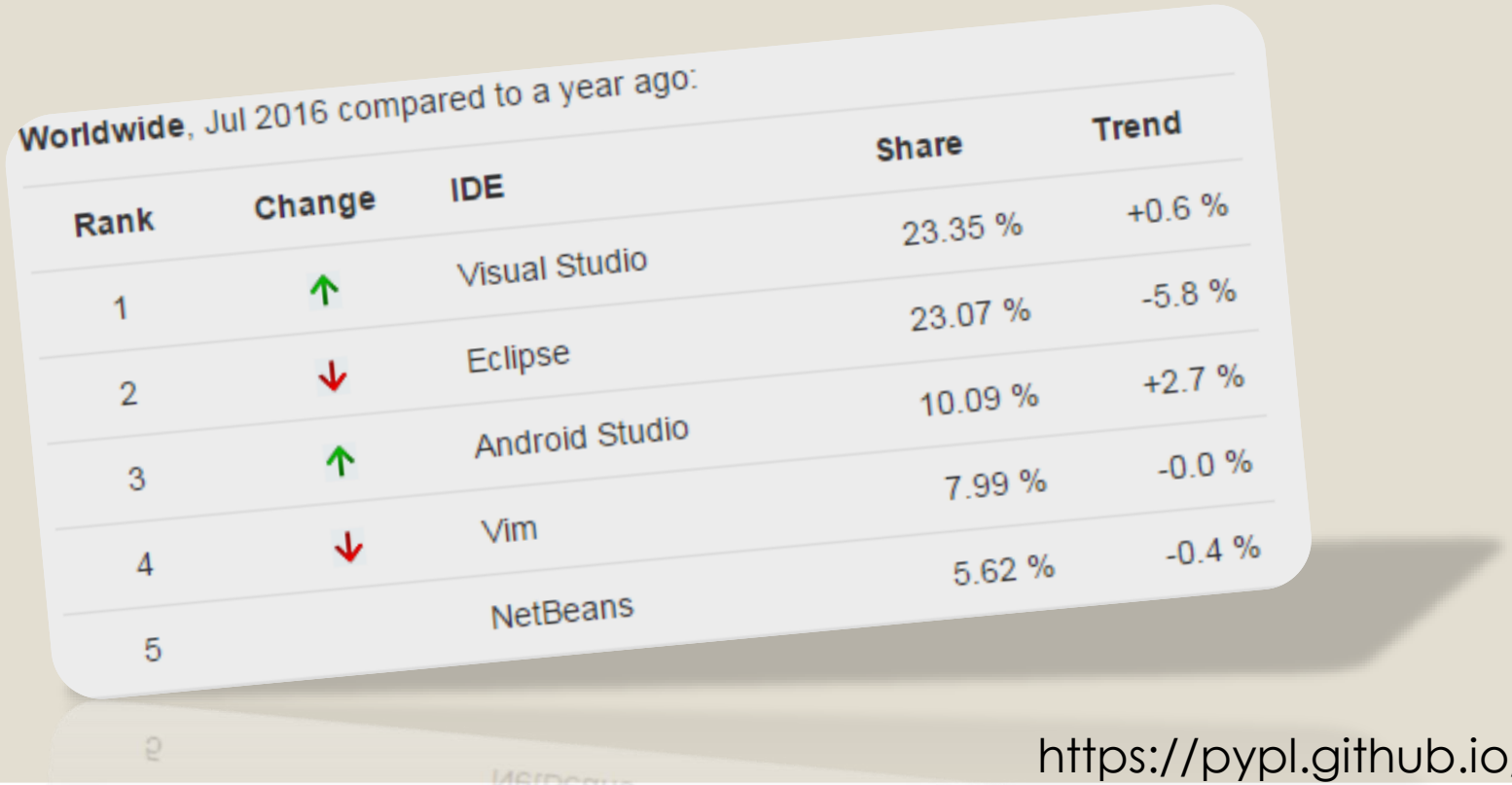
IDE

An application that provides facilities for software development

- Source editor
- Build Automation tools
- Debugger
- Intelligent code completion
- Compiler/Interpreter
- Version Control System integration

Top IDE index

- The more an IDE is searched, the more popular the IDE is assumed to be. (Google Trends)



Worldwide, Jul 2016 compared to a year ago:

Rank	Change	IDE	Share	Trend
1	↑	Visual Studio	23.35 %	+0.6 %
2	↓	Eclipse	23.07 %	-5.8 %
3	↑	Android Studio	10.09 %	+2.7 %
4	↓	Vim	7.99 %	-0.0 %
5		NetBeans	5.62 %	-0.4 %

https://pypl.github.io/IDE.ht

TOP programming languages

Worldwide, Jul 2016 compared to a year ago:

Rank	Change	Language	Share	Trend
1		Java	23.8 %	-0.7 %
2	↑	Python	13.0 %	+2.3 %
3	↓	PHP	10.5 %	-0.7 %
4		C#	9.0 %	-0.3 %
5	↑↑	Javascript	7.7 %	+0.7 %
6	↓	C++	7.2 %	-0.4 %
7	↓	C	7.0 %	-0.2 %
8		Objective-C	4.5 %	-0.8 %
9	↑	R	3.2 %	+0.6 %
10	↑	Swift	3.0 %	+0.3 %

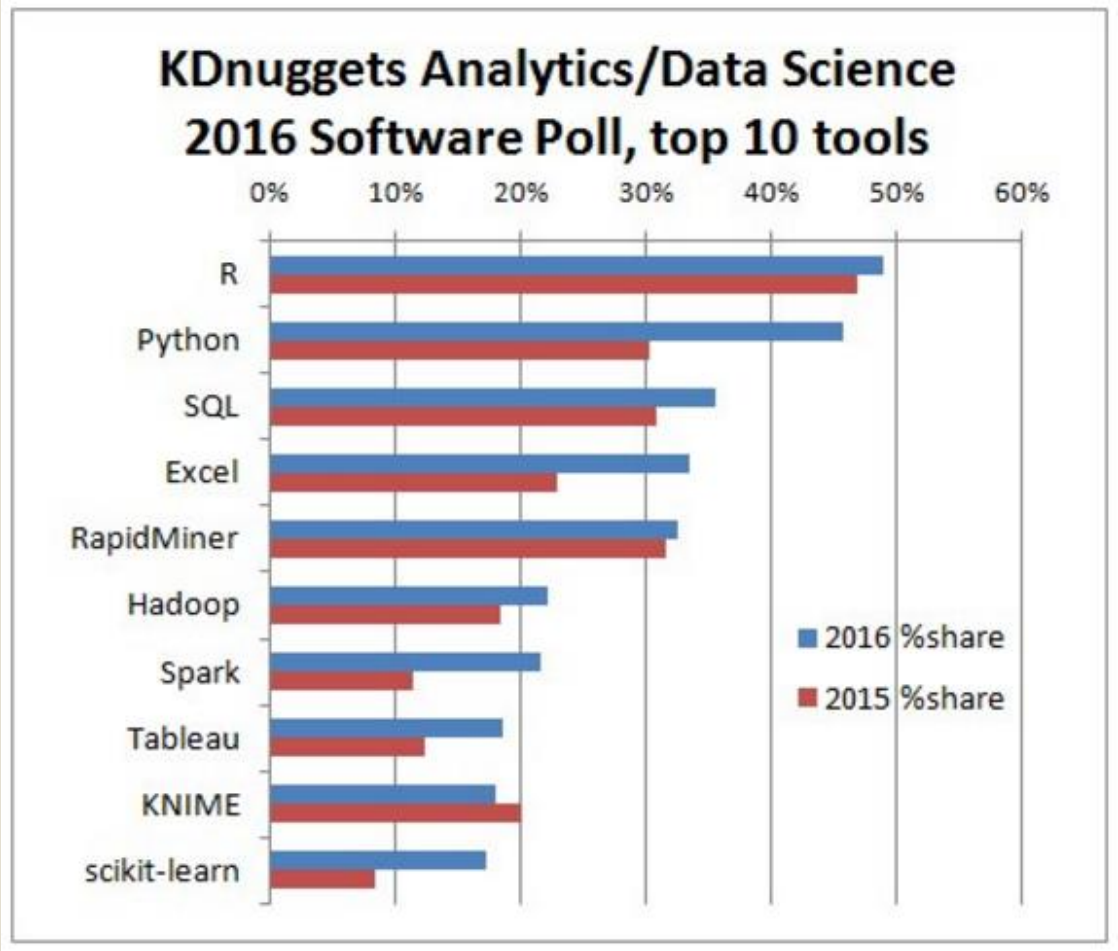
https://pypl.github.io/PYPL.html

Top Analytics/Data Science Tools

Tool	2016 % share	% change	% alone
R	**49%**	+4.5%	1.4%
Python	45.8%	**+51%**	0.1%
SQL	35.5%	+15%	0%
Excel	33.6%	+47%	0.2%
RapidMiner	32.6%	+3.5%	11.7%
Hadoop	22.1%	+20%	0%
Spark	21.6%	**+91%**	0.2%
Tableau	18.5%	+49%	0.2%
KNIME	18.0%	-10%	4.4%
scikit-learn	17.2%	**+107%**	0%

http://www.kdnuggets.com/2016/06/r-python-top-analytics-data-mining-data-science-software.html

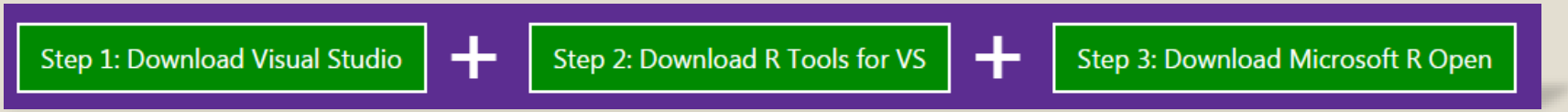
Kdnuggets 2016 Software Poll: top 10 most popular tools in 2016



Getting started with RTVS

- R interpreter
- IDE
- Intel Math Kernel Library & Math Library (for high performance computing)

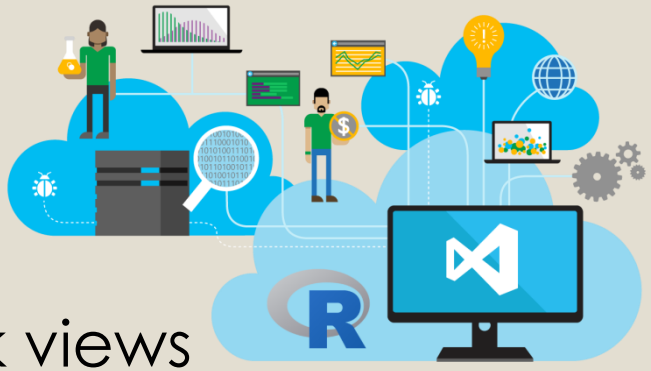
R development in Visual Studio:



R tools for VS

https://aka.ms/rtvs-current

- v0.4 (June, 2016 release)
- Visual Studio 2015 Update 2 (64bit only)
- RevoMath with MKL
- Open Source and Free
- Support for CRAN R, Microsoft R Open, Microsoft R Server
- R aware Editor with IntelliSense
- Plots and Shiny apps
- Debugger with Locals and Stack views



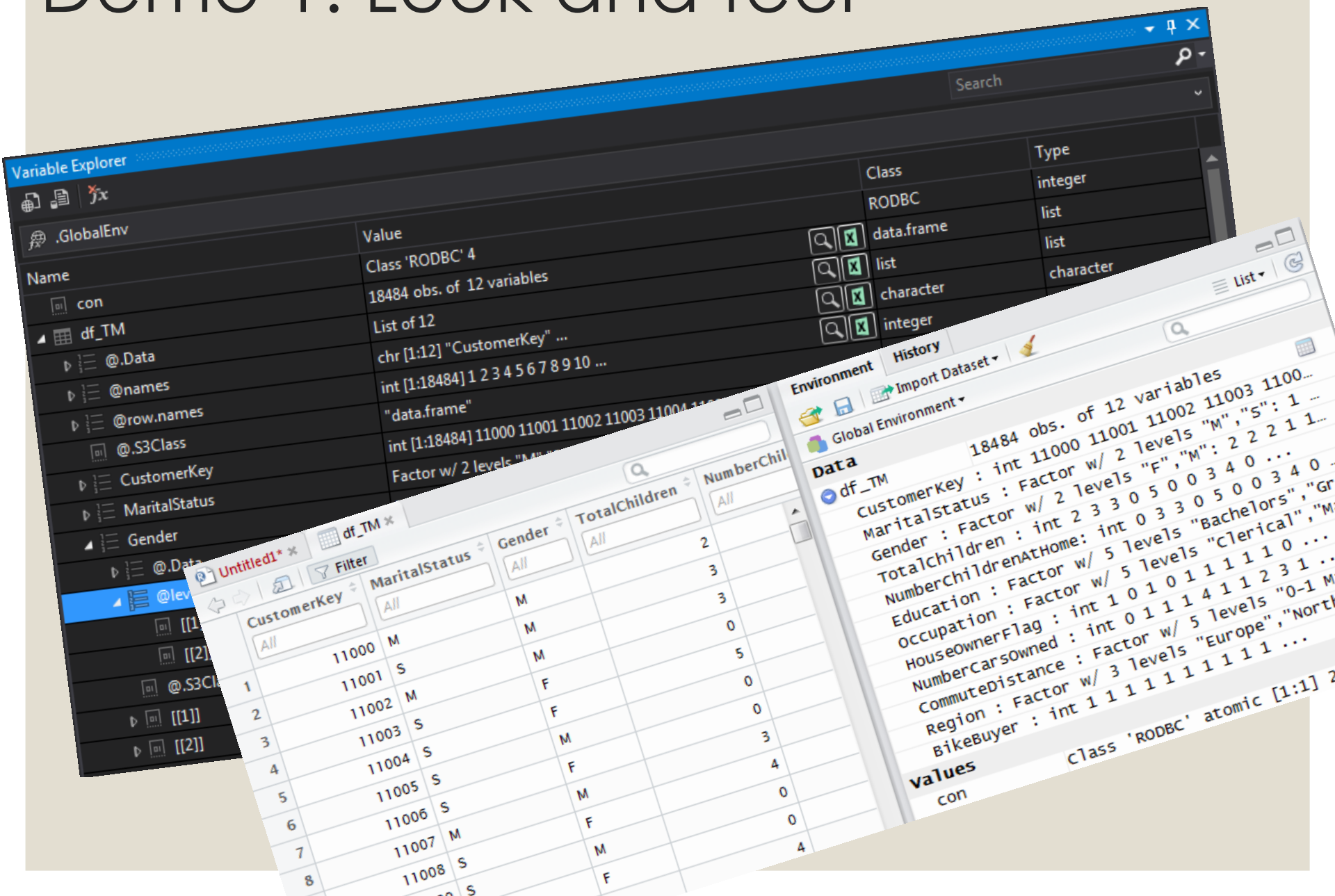
New features in v0.4

- Multiple Data Table Viewer window instances
- Sort columns in Data Table Viewer
- Delete one or all variables with Variable Explorer
- Go-to-definition and peek for library functions
- Collapsible code regions surrounded by --- and ---- comments
- Full support for R editor features in RMarkdown code block
- Internet keyword search with F1
- Auto-formatting improvements
- Additional ways of setting current working directory
- Plot window uses global Window DPI setting, and locator API is now supported
- **R templates in SQL Database project**
- Microsoft R Client integration

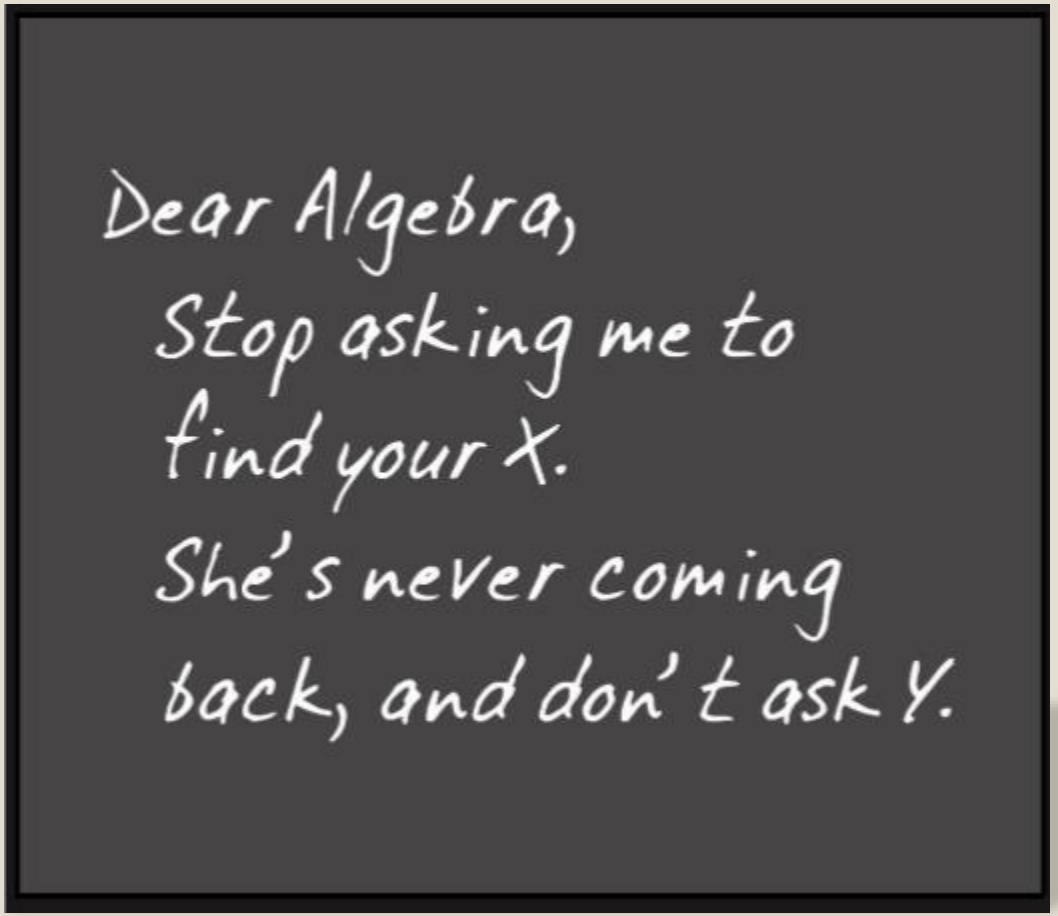
Microsoft R: Product Comparison

Features	Microsoft R Open	Microsoft R Client	Microsoft R Server
Big Data	In-memory bound Can only process datasets that fit into the available memory	In-memory bound Can process datasets that fit into the available memory Operates on large volumes when connected to R Server	Disk scalability Operates on bigger volumes & factors
Speed of Analysis	Multi-threaded when MKL is installed for non-ScaleR functions	Multi-threaded with MKL for non-ScaleR functions Up to 2 threads for ScaleR functions with a local compute context	Full parallel threading & processing
Enterprise Readiness	Community support	Community support	Commercial support
Analytic Breadth & Depth	8000+ open source packages	Leverage & optimize open source R packages plus 'Big Data'-ready ScaleR packages	Leverage & optimize open source R packages plus 'Big Data'-ready + Multithreaded ready ScaleR packages
Commercial Viability	Risk of deployment to open source	Free for everyone	Commercial licenses
DeployR Enterprise	Not available	Not available	Included

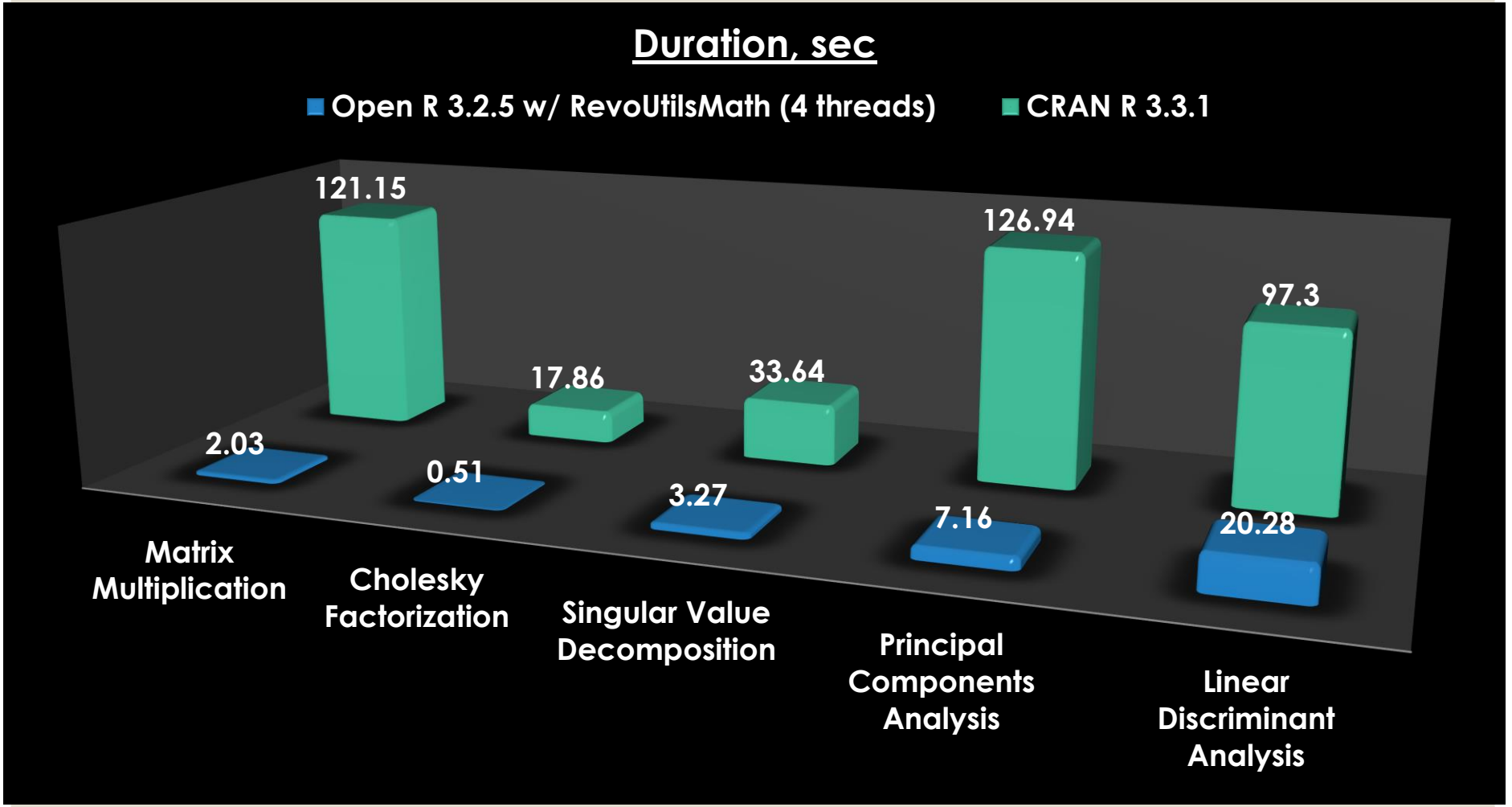
Demo 1: Look and feel



Demo 2: Matrix Calc

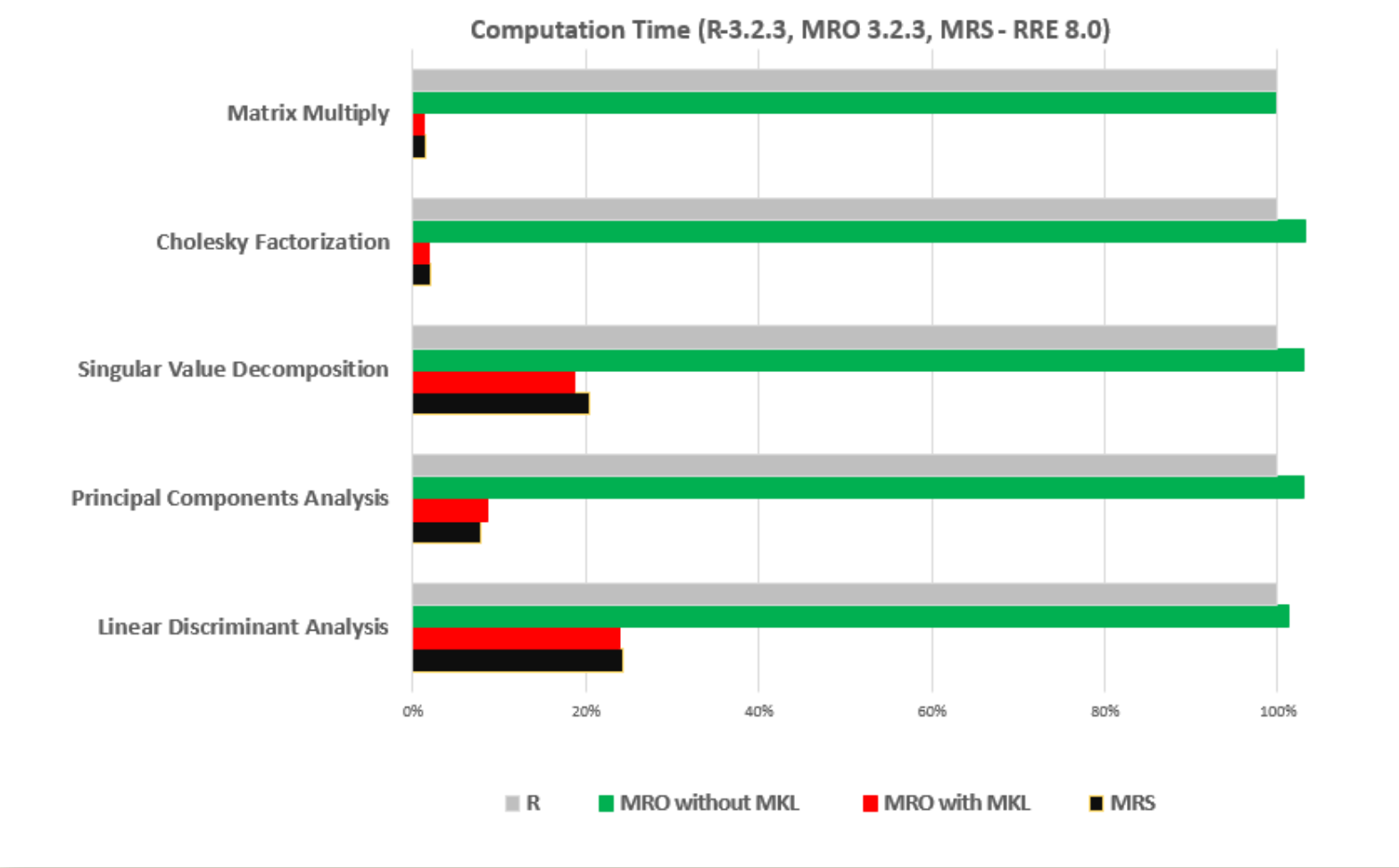


Computing performance



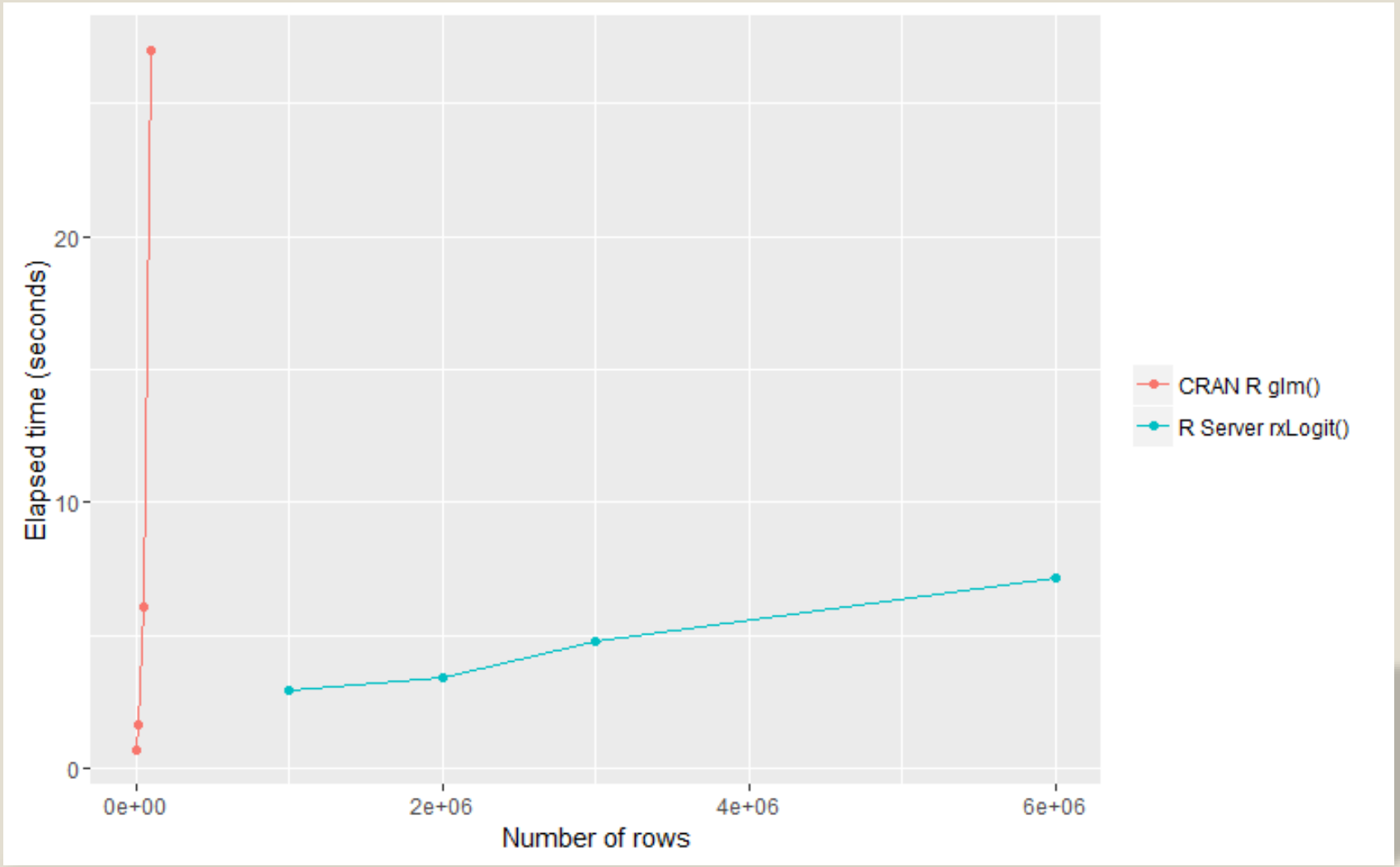
Intel(R) Core(TM) i7-4770 CPU @ 3.40GHz, 4 Cores, HT On, 16GB RAM, Win7 x64

Better computation performance



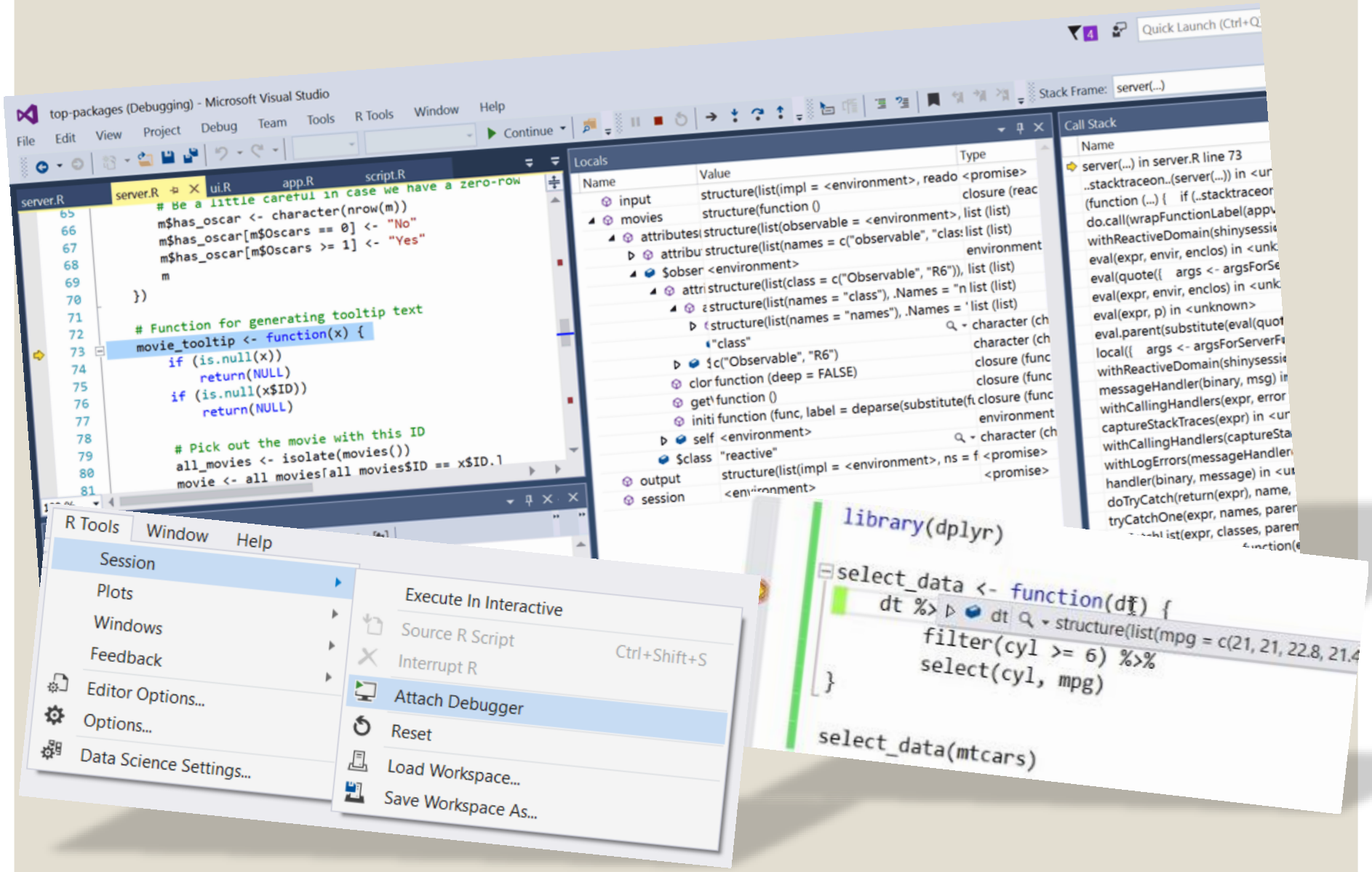
http://microsoft.github.io/RTVS-docs/samples.html

Logistic Regression scalability



http://microsoft.github.io/RTVS-docs/samples.html

Demo 3: Debugging



Demo 4: Shiny app

```
library(shiny)
ui <- fluidPage()
server <- function(input, output,
shinyApp(ui = ui, serv
```

Thanks for watching

Stan

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