ABOUT R-BRAIN

- Our mission: To build an advanced IDE for data scientists supporting open source languages

- Our Products:
  - A data science platform supporting open source languages
  - Available as a public cloud service or private cloud (Enterprise version)
  - On-premises version with one command installation

- Our services:
  - Integration of our IDE into your platform
  - Custom development of Kernels and Language Support
MAIN ELEMENTS OF A Data Science IDE

- Language Support services such as Content Assistant, Syntax Colouring, Auto Complete
- Support for popular open source languages such as R, Python or Scala
- Data and Environment View
- Data Import/Export
- Debugger
- More importantly: Support for notebooks!
JUPYTER LAB IS A PERFECT CHOICE

- Integrated computational environment
- In feature parity with conventional notebooks
- Flexible layout
- Extensible through APIs
- FANTASTIC! Right?
CHALLENGES WITH JUPYTER LAB

- Integration of Monaco Editor (heart of VScode):
  - Resolved by: submitting a PR to abstract the editor in Jupyter Lab and received full support from Jupyter Lab core developers (highly appreciated!)

- Limited supports in IR Kernel such as real-time stream, std-in/out limitations, html outputs, Shiny supports, debugging, etc:
  - Resolved by: Developing R-Kernel from Scratch!
CHALLENGES WITH JUPYTER LAB

- Data and Environment View: Kernel Protocol’s extension, Comm, could not handle our communication specially when kernel is paused for debugging
  - Resolved By: We added messages for
    - environment view
    - data viewer
    - debugging
    - open non local source code (from packages)
    - A frontend comm per kernel and a counter part on kernel-side
    - We've changed the way how kernel requests are processed to enable handling of comm messages while kernel is paused at pdb's prompt
EXTENSION OF JUPYTER LAB

- Environment widget
- Data View widget
- Visual debugger and call stack
- Help widget for R
- Shiny and RMarkdown
- Monaco editor integration
- LSP implementation
- Global Kernel indicator
- SQL Kernel implementation
It’s Demo Time!
THANK YOU!

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