R and RStudio

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What is R vs. RStudio?

- **R:** This is a statistical programming language (similar to SAS, python, etc) which is open source and fairly mature.
  - The R "ecosystem" is supported by a lot of programmers developing and maintaining packages which are made freely available for others to use and develop from (note: to make it accessible on the central repository (CRAN) there are a fair amount checks a package will go through, to ensure a degree of stability).
  - Very large userbase with applications ranging from academia to government to financial services to sport, etc.
- **Rstudio:** Refers to both an IDE (Integrated Development Environment) as well as an organization.
  - IDE: This is an application which allows the developer to utilize the R language (though now there is add-ins to use many other languages like Python, C, HTML, CSS, etc)
  - Organization: The RStudio org lives in kinda two worlds:
    - The open source development (their developers have provided both the IDE and a few highly popular packages free to the community)
    - The enterprise solution provider, where they are selling an enterprise solution (bundles of the applications) with support, etc

Local to hosted solutions spectrum

Local	Hosted/ Server
- Set up and deployment within personal computer - Depends on personal computer set up/ processing power - New users need to go through same set up procedures - Individually managed/ maintained - Low barrier to entry	- Runs on server - Depends on server set up/ processing power (typically far greater than a personal computer) - Easier onboarding/ standardization - Easier to deploy solutions / deploy solutions to end users without needing to install R - Need to have someone to maintain it/ administer it - Would benefit with strong integration with IT - Rstudio connect; benefit of having support from RStudio/ easy to scale up or down

https://www.youtube.com/watch?v=rtGrMPwvWf0&t=946s (Lou Bajuk & Kevin Bolger | Why Data Science in the Cloud? | RStudio (2020))

Potential Outputs

Reports	Rmarkdown (https://looma-audition.netlify.app/) *Could make parameterized if hosted*
Dashboards	- Shiny (https://shiny.rstudio.com/gallery/) - Rmarkdown (https://rmarkdown.rstudio.com/flexdashboard/examples.html)
Automated Reporting	Email (blastula) + rstudio connect (https://github.com/rstudio/beyond-dashboard-fatigue)

Costs

Individual/ Local	Free install of Rstudio Cost: Time/ individual development/ maintenance
Rstudio Pro/Connect/Team	Cost: 5 developers + 20 users/viewers >> $30,000/year

https://rstudio.com/pricing/