# 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/>