Intro to R

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Outline

- Define R and RStudio(Posit)
- Show examples of what R can do
- Go over resources
- Teach R!
- ~~Take over the world~~

So what the heck is R?

- R is very old, it was developed from a statistical language called S (s for stats) at Bell laboratories (where a lot of computer science has originated from, though you may recognize their current name of AT&T)
- R is a versatile and extremely adaptable and best of all it's open source and over the years a wonderful community has formed around R and has lead to the develop of many new packages
- R nowadays can do almost literally anything though it's primary strengths are statistically analysis and visualization
- But R can be used to create websites, notebook, data reports, interactive programs, perform all kinds of analysis like RNA-seq, machine learning
- https://www.r-project.org/
- https://cran.r-project.org/

But what about Rstudio?

Apparently now Posit?

- RStudio is a user interface to interact with R, the common analogy is R is the engine and RStuido is the car and dashboard that uses that engine
- RStudio
  - https://www.rstudio.com/
- Rebranding literally this Month Oct 2022 into Posit
  - https://posit.co/
- So RStudio is not required to use R but it makes life so much easier (no one usually utilizing an engine without a car directly)

Resources

- There are a million and 1 resources to learn R which is both helpful and a little detrimental as which one is best? Answer is complicated and depends on what you ultimately want to get out of R
- Some resources I have found useful
- R-basics and beyond - Swirl
  - https://swirlstats.com/students.html
- RStudio resources, RStudio has an extreme amount of resources for helping learn R and RStudio itself
  - https://www.rstudio.com/academy/
- Resource that focuses on data analysis workflows
  - https://r4ds.had.co.nz/index.html

Examples

Goal

- My goal is to develop a resource specifically tailored to UMass residents (whether it's QI project, the research track or just anyone with a desire to learn)
- For this goal it would be helpful to hear about what types of data analysis and types of input data people are working with. This way I can make examples of how to read in that data and several examples of specific types of analysis
- Email me at nicholas.hathaway@umassmemorial.org with details and/or questions

Now let’s jump in

- https://seekdeep.brown.edu/R_Umass_Basics/