To install for this class

- **ClassDocs** – all class material
- **Git** - to work with GitHub
- **Atom** – an editor
- **Docker** – run programs in an environment on your computer
- **RStudio** – Used for programming in R

Two ways to install this:
- Locally
- Using Docker

Notes to install each software are below
ClassDocs: All Class Materials

- We will be using GitHub to manage all class material. The links below are used to pull over your to classDocs repository to get slides and labs.

  - **HTTP based repository pull**: works in absence of installed ssh keys.
    - https://github.com/cs301summer2021/classDocs.git

  - **SSH based repository pull**: uses installed ssh keys.
    - git clone git@github.com:cs301summer2021/classDocs.git
Installing Git

- **MacOS**: go to your *Terminal*, type in “git” and if not installed, MacOS will offer to install the free *Xcode* software development suit from Apple that contains git.

- **Ubuntu**: Git may already be installed. If not, use the command, 
  
  `sudo apt install git`

  to install git. You will need your password.

  - Good ref:
    https://www.digitalocean.com/community/tutorials/how-to-install-git-on-ubuntu-20-04

- **Windows**: Git does not come with the Windows OS and so it must be installed. Please visit https://gitforwindows.org/ to install and learn more.
Git and Your Class Repositories

- **PULL** your classDocs before class (cloud data sent to you).

  ```
git pull
  ```

- **PUSH** assignment repos to submit homework (your data sent to the cloud)

  ```
git add -A
git commit -m "My commit mesg"
git push
  ```
The Atom Editor: Suggested for Programming

- We will be programming and Atom facilitates this task
- If you do not already have it, please download it from: https://atom.io/
Docker for Running Software

- A container in which to run programs in isolation.
- Please be sure that you machine will work with the regular Docker, not Docker ToolBox.
- Verify: www.cs.allegheny.edu/canirundocker

Yes!

- Windows: Purchase a Windows Enterprise activation key
- Dual boot: Linux and Windows
- Use another computer

No / Maybe
Get Started With Docker

• Running and Testing Programs with Docker and GatorGrader (Dr. Jumadinova):
  – https://www.youtube.com/watch?v=iceAgNEORCA

• Main site
  – https://www.docker.com/

• Downloads
  – https://www.docker.com/get-started

• Tutorial
  – https://www.docker.com/101-tutorial
Learning About Docker

• Play-with-Docker
  - https://www.docker.com/play-with-docker

• Once Docker has been installed, you can play with it.

• First, build a work container:
  - docker run -dp 80:80 docker/getting-started

• Then, to learn more use your browser to go to the url:
  - http://localhost/
A Local Install of rStudio

- You must first install R and then rStudio
  - The R programming language
    - https://cran.rstudio.com/
  - Rstudio
    - https://rstudio.com/products/rstudio/download/

If you install these, you may not need to use Docker containers for your R programming.
RStudio With Docker

FYI: Using containers

Version 2.1.0.5 (40693)
Channel stable
Docker Alternative of: R Programming at Bash

- Build and run container:
  - `docker run -ti --rm r-base`

- Linux, Mac; Build, mount local drive and run container:
  - `sudo docker run -ti --rm -v "$PWD":/home/docker -w /home/docker -u docker r-base`

- Windows; Build, mount local drive and run container:
  - `docker run -ti --rm -v /home/docker -w /home/docker -u docker r-base`

Note: the directory where you run this becomes your local directory in the container.
Docker Container Setup: rStudio

Note: the directory where you run this becomes your local directory in the container.

Username: rstudio
Password: letmein

- Linux, Mac; Build, mount local drive and run container:
  ```
  sudo docker run --rm -e PASSWORD=letmein -p 8787:8787 -v $PWD:/home/rstudio/ rocker/verse
  ```

- Windows; Build, mount local drive and run container:
  ```
  docker run --rm -e PASSWORD=letmein -p 8787:8787 -v $PWD:/home/rstudio/ rocker/verse
  ```

- Browser:
  ```
  URL: Use Browser address: http://localhost:8787/
  ```
R by Jdoodle

- https://www.jdoodle.com/execute-r-online

```
1 x <- 10
2 y <- 25
3 z <- sum(x, y)
4 cat("x + y = ", z)
5
6
```

*x + y = 35*
Please Read for Next Class

- Come prepared to discuss
- *Twelve Million Phones, One Dataset, Zero Privacy*, A New York Times opinion piece

Opinion | THE PRIVACY PROJECT

*Twelve Million Phones, One Dataset, Zero Privacy*

By Stuart A. Thompson and Charlie Warzel

DEC. 19, 2019
Consider for Discussion

- Why is smart-phone location data considered to be sensitive and confidential?
- Discuss any two issues of personal privacy which may likely be discovered when this data is analyzed.
- How could the found trends in the data be used in unethical ways? Who would gain/lose something?
- After reading this article, what concerns you about data handling that did not concern you prior to reading?
Activity 01

- Read the article
- Accept and Pull your activity from GitHub to be completed by next class
- Read the README.md file in the repository for more details.

GitHub Activity Repository: https://classroom.github.com/a/QEJKluQX
Due at 9:30AM (EST) on 7 July 2021
Work file: reflection.md