1. Installing R

R is a programming language in an environment focused mainly on statistical analysis and graphics

1. RStudio

Graphical user interface for R that allows you to write, edit, and store code, generate, viw, and store plots, integrate with version control systems.

1. What makes R so special? PACKAGES

The one that you download has limited package. 14,300 packages available for you; packages are not the library, it is the books. There are Repositories such as R CRAN, Bioconductor, GitHub. You can explore these repositories through Groupings of CRAN and also through website

1. R Projects

One of the ways people organize their works in R is by using RProject; keeping all your related file together. It creates a **folder** where all files will be kept, which is helpful for organizing yourself and keeping multiple projects separate from each other. There are 3 benefits that R project provide. First, it is easy to organize, because it creates folder for organizing the files that you work on. Second, it is easy for sharing either by folder share files or using version control. Third, it is easy to be backed up. Opening multiple projects at the same time, open new project in new Session

1. Version Control (can be similar to drop box?)

Version control is a system that records changes that are made to a file or a set of files over time. As you make changes, the version control takes snapshots of your files and then changes and then saves those snapshots so you can refer back if you want to. When you are collaborating with other people, version control can help you determine who, what, when, the changes were made. It can make sure that you aren’t making changes that are conflicting with the previous changes. Version control allows multiple people to work on the same file and then helps merge all of the versions of the file and all of their edits into one cohesive file. One of the main benefits that it can connect to internet (major offline copy that won’t affect the repository)  
- Repository: the projects folder or directory. You can keep it private and share them with select collaborators, or you can make them public  
- Commit: to save (snapshot of your file)  
- Push: to update the online repository with your local edits  
- Pull: to update the offline repository   
- Staging: The act of preparing a file for a commit

Conflict is when there are a lot edit with the same sentence, that the owner needs to pick 1

1. Git and Github

To create repository, make branch, commit, and pull request, learn from Github Guide  
- Pull is only when you would like to ask the collaborator to review your changes and even merging to the master  
- There will be conflict when you try to merge the pulled request with the master data that has been modified.  
- You can revert back the files that you have changed in the repository (merged)  
- You also can revert your file that you have deleted before through the revert in successfully merged edits

Git is an open source version of control system which Github is built on. One of the benefits of this is the compatibility with RStudio. After downloading it, you need to configure your email and username to the github, and preparation for linking with RStudio

$ git config --global user.name "thomassadli25"

$ git config --global user.email "d11180324@john.petra.ac.id"

$ git config --list

1. Link RStudio, Git, and Github all around  
   a. Tool > Global Options > SVN/Git > Click RSA Key > View Public Key > Copy  
   b. github.com > SSH and GPG > New SSH Key > Paste   
   c. Create New Repository > Copy the link of the new repository  
   d. File > New Project > Version Control > Git > Paste  
     
   a. Wrtie something on the Source > Save File  
   b. Git tab > Choose the file you want to add > Tick the box > Commit > Write Commit Message > Commit