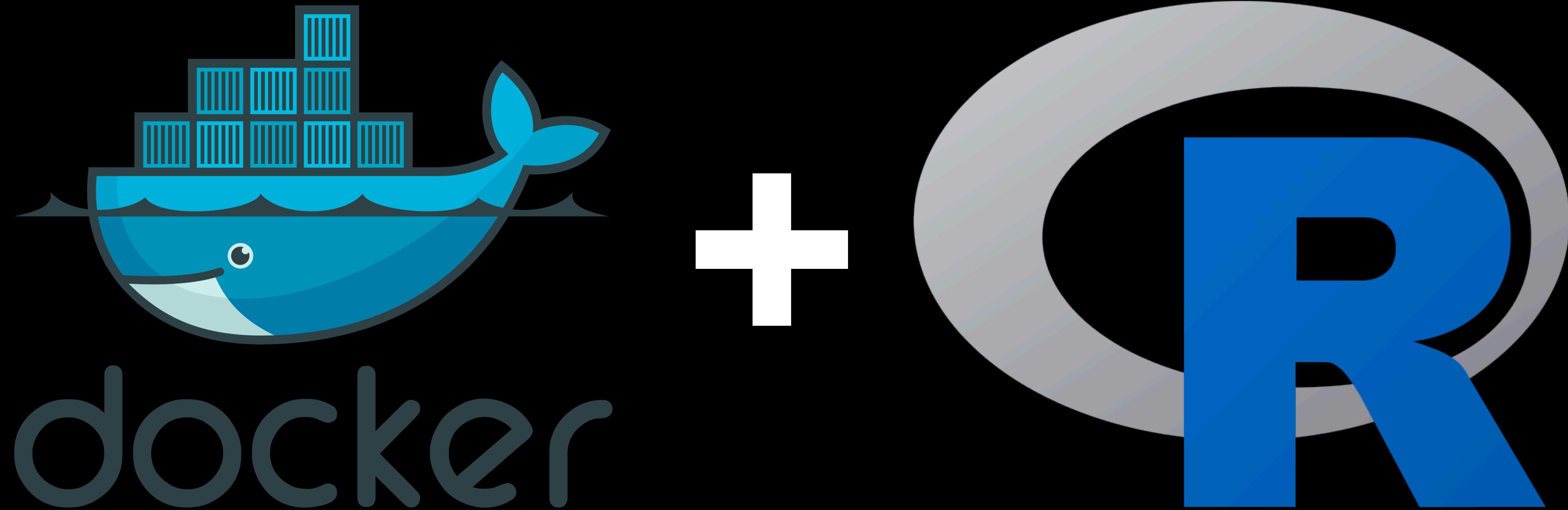


Docker for R Users



docker

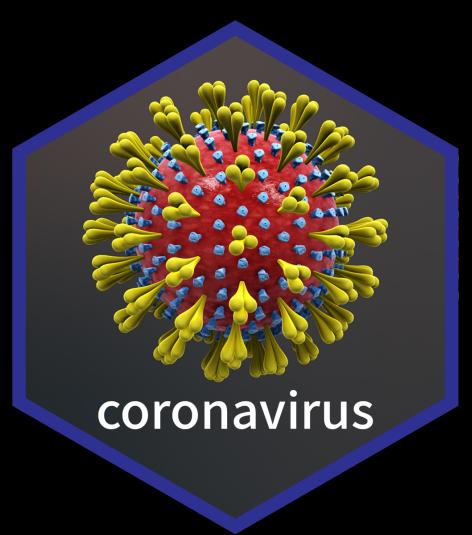
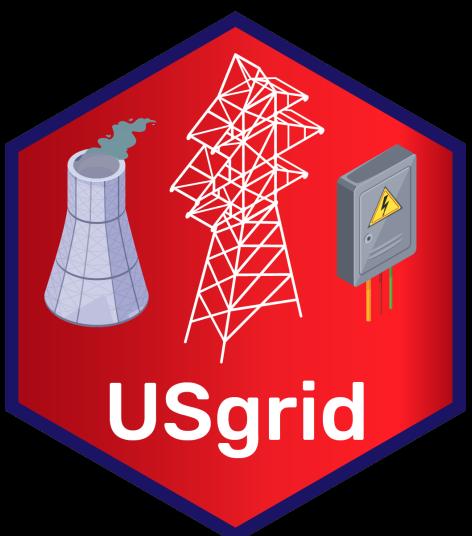
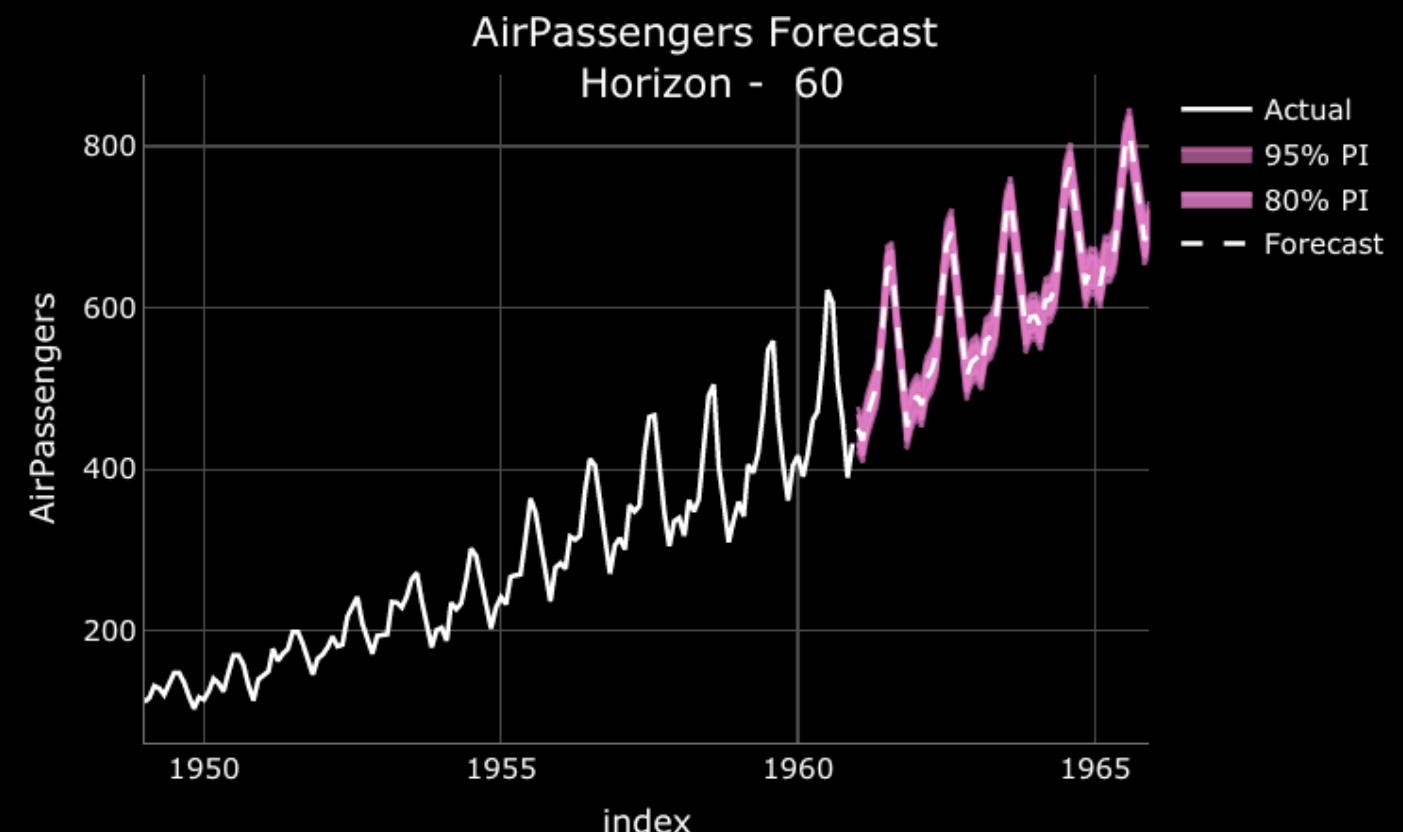
R-Ladies Tunis

Rami Krispin

October 17, 2020

Introduction

- Data scientist
- Love R, stats, time series and data
- Author of “Hands On Time Series Analysis with R”
- Author of several R packages such as the TSstudio, coronavirus, UKgrid, USgrid, etc.



**Hands-On
Time Series
Analysis with R**

Perform time series analysis and forecasting using R



Rami Krispin

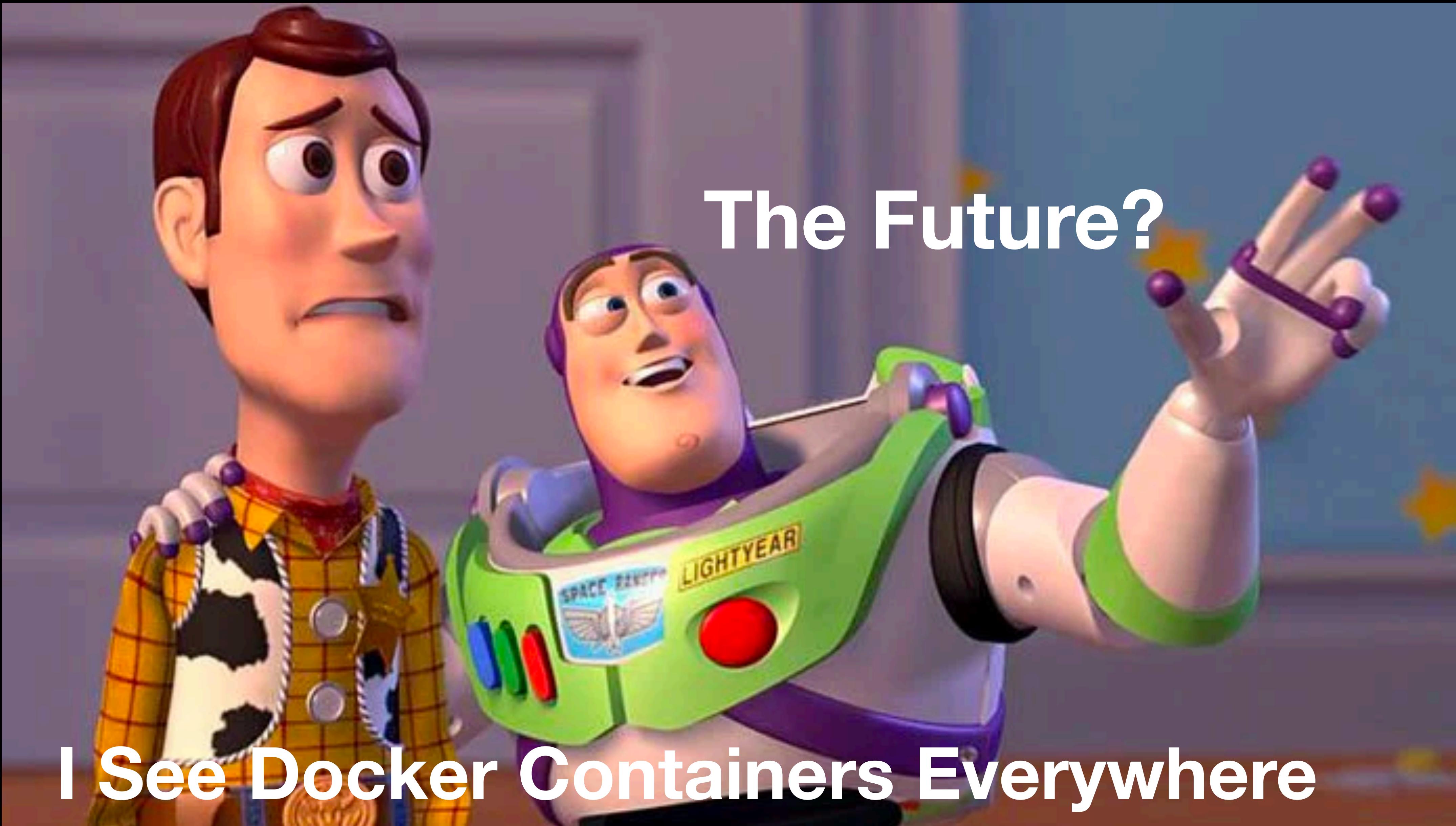
Packt
www.packt.com

Agenda

- Introduction to Docker
- Docker + R
- Demo
- Q&A

Docker for R Prerequisites

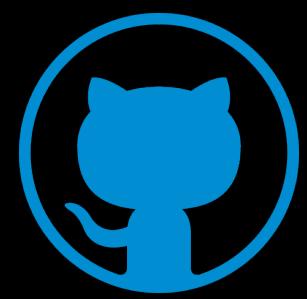
- R
- Docker
- Command line
- Bash/shell scripting
- yaml
- Workshop materials - <https://github.com/RamiKrispin/R-Ladies-Tunis>



Reproducibility & Production

Seamless Reproducibility & Production

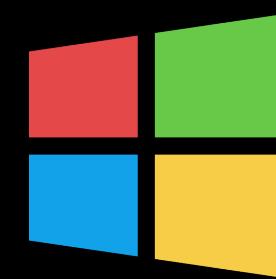
The Reproducibility Problem



`set.seed(1234)`



Error



Prof.
R 3.5.0
dplyr 0.8.5
tidyr 0.8.0



$X = 5.297$



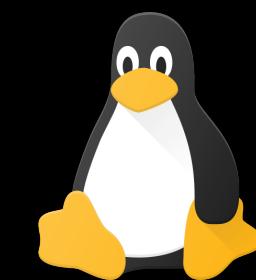
$X = 5.298$



$X = 5.3$



Student 1
R 3.6.2
dplyr 1.0.0
tidyr 1.0.0

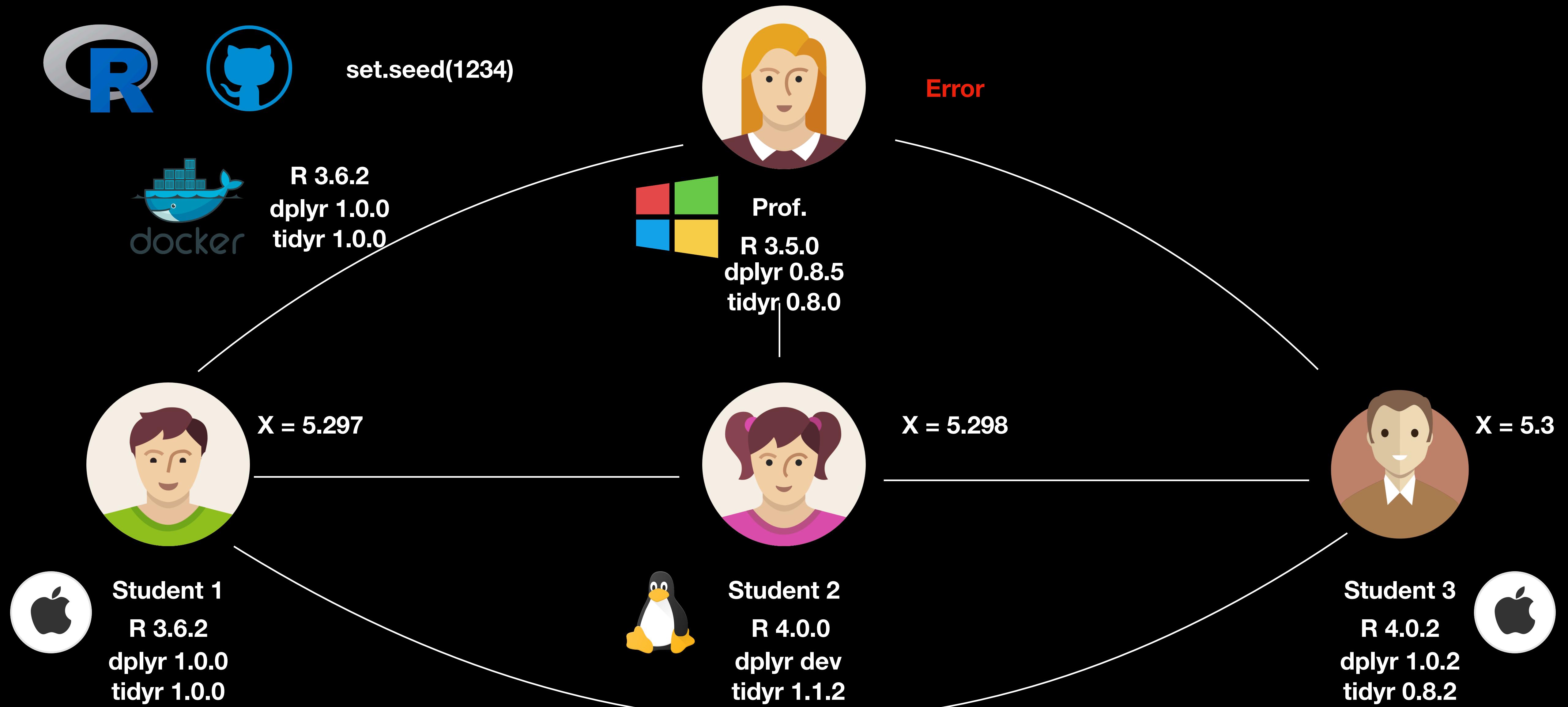


Student 2
R 4.0.0
dplyr dev
tidyr 1.1.2

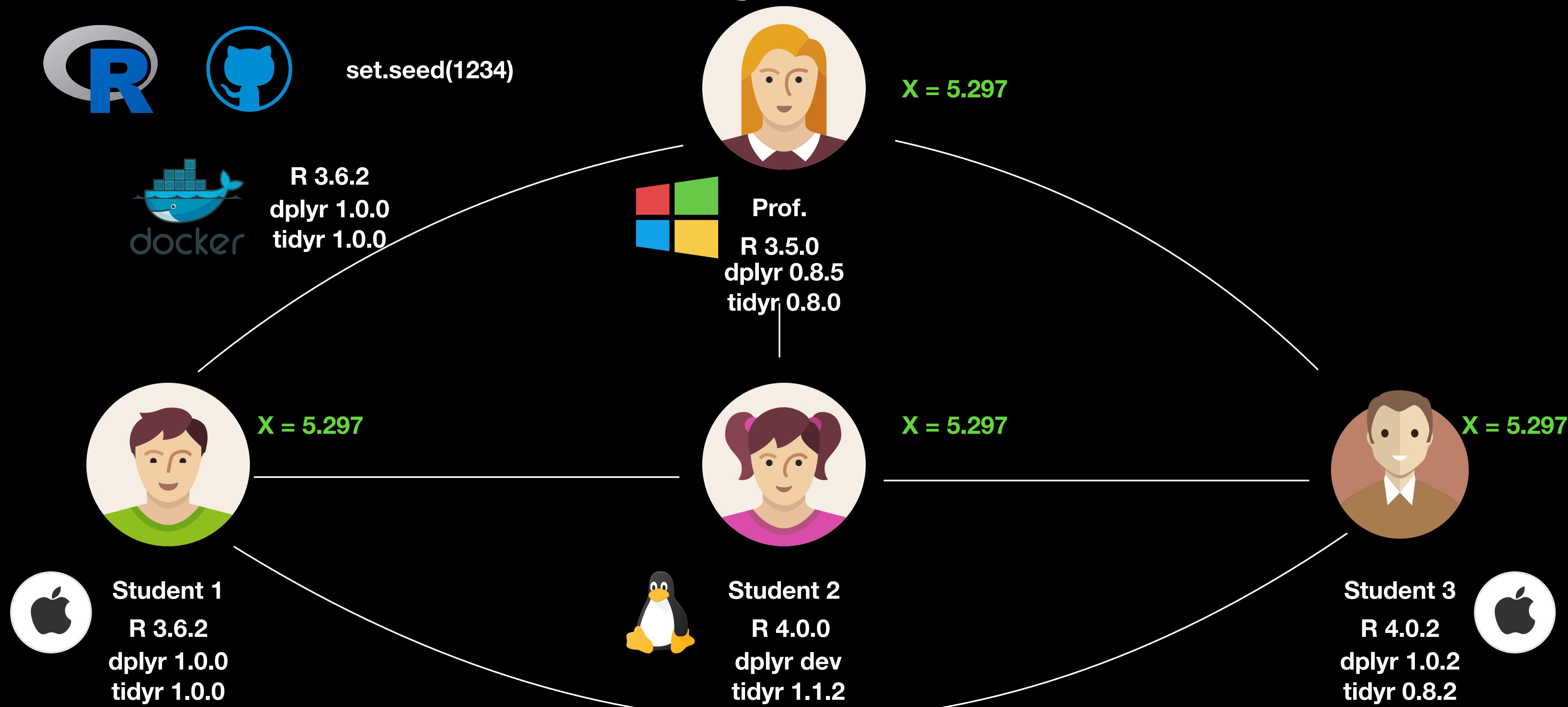


Student 3
R 4.0.2
dplyr 1.0.2
tidyr 0.8.2

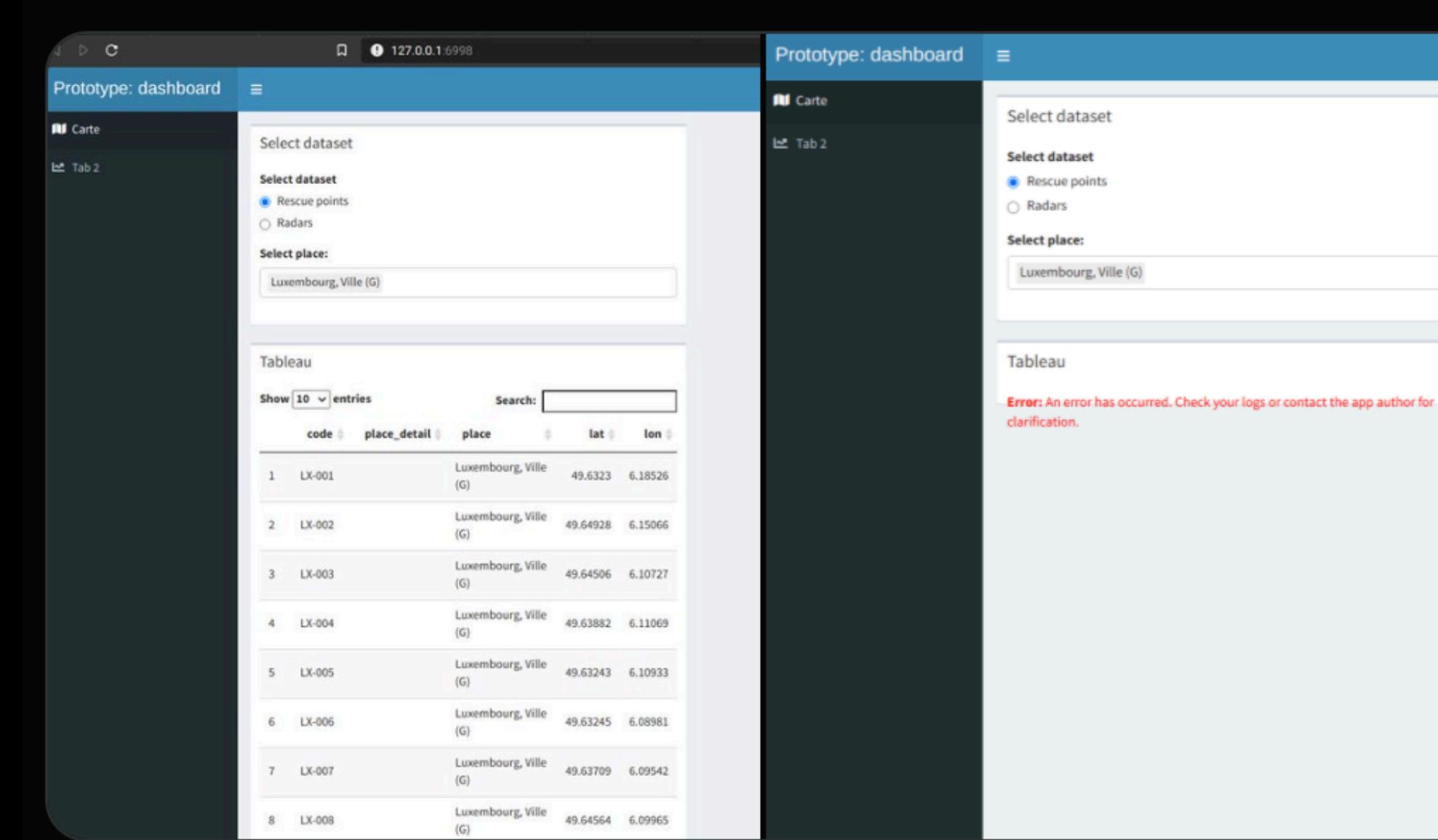
The Reproducibility Problem



The Reproducibility Problem



The Production Problem



Shiny app runs locally but fails when deployed due to differing locale

Asked 9 months ago Active 9 months ago Viewed 37 times

I have a Shiny app where you can upload a file, and the data is then processed and relevant outputs appear. This is working totally fine locally. However, I've deployed it with shinyapps.io and now although the app appears fine at first, clearly something is going wrong with the data processing.

I use `data.table::fread()` for .csv files and `readxl::read_excel` for excel files. If you upload a .csv file, the app grays out, whereas if you upload an excel file, the outputs appear but basically blank as if no data is there.

The key errors in the logs are all like this:

```
Warning in grep(pattern, vector, ignore.case = ignore.case, fixed = fixed) : input string 2 is
```

The Overflow Blog
Podcast 276: Be question on Stack
The Overflow #41
Featured on Meta
Responding to the commitments made
Linked

R Shiny: works locally but failed on server

Asked 2 months ago Active 1 month ago Viewed 27 times

My shiny dashboard works successfully on R-studio. Recently, I moved it to the AWS EC2 Ubuntu server. I deployed a test app and it works fine. However, the main shiny app doesn't work at all. It says "**The application failed to start. The application exited during initialization.**"

I checked the log and it seems the app cannot recognize any variable from Global Environment which fails the app. Since my data is over 8 GB, the Shiny app would not work if I put "readRDS" inside the app.R file. When I built this app under R-studio, I always load all the files and variables to the global environment before I start my shiny app. It seems this method is not working under the Shiny server.

Is there any other method that I can let my shiny app recognize all the variables that I preloaded to the Global Environment under the shiny-server?

If no, is there any alternative way that I can make my shiny app work and avoid loading 8GB files every time I start it?

Thank you.

Shiny server does not work with my app, which is working in local #2

Open EnricowithR opened this issue on Dec 11, 2016 · 3 comments

EnricowithR commented on Dec 11, 2016

I have installed Shiny server on AWS Ubuntu. The default test page works both for rmarkdown and shiny server. However, if I upload a shiny app, which is working in local, it does not work on the shiny server. I tried with index.Rmd and with index.html; in the first case the page only shows the following message:
`Error: An error has occurred. Check your logs or contact the app author for clarification.`
However the logs, in `var/log/shiny-server.log`, do not report anything for that.
in the second case the page opens with an empty frame without running the shiny app.

What should I do?

The Production Problem

 **Wrong path in `addResourcePath`** 

shiny

 RamiKrispin 2 2019-09-26

Hello,

I am getting the following error on a Shiny app:

```
Warning: Error in value[[3L]]: Couldn't normalize path in `addResourcePath`,  
with arguments: `prefix` = 'crosstalk-1.0.0';  
`directoryPath` = '/Library/Frameworks/R.framework/Versions/3.5/Resources/li  
[No stack trace available]
```

The error is coming from the `addResourcePath` function when calling by the `crosstalk` package. For some reasons, it assigned wrong path (using version 3.5 instead of version 3.6). Any suggestion how can I modify the path reference?

Below is the output of the `.libPaths()` on my machine:

```
> .libPaths()  
[1] "/Library/Frameworks/R.framework/Versions/3.6/Resources/library"
```

Thanks,
Rami



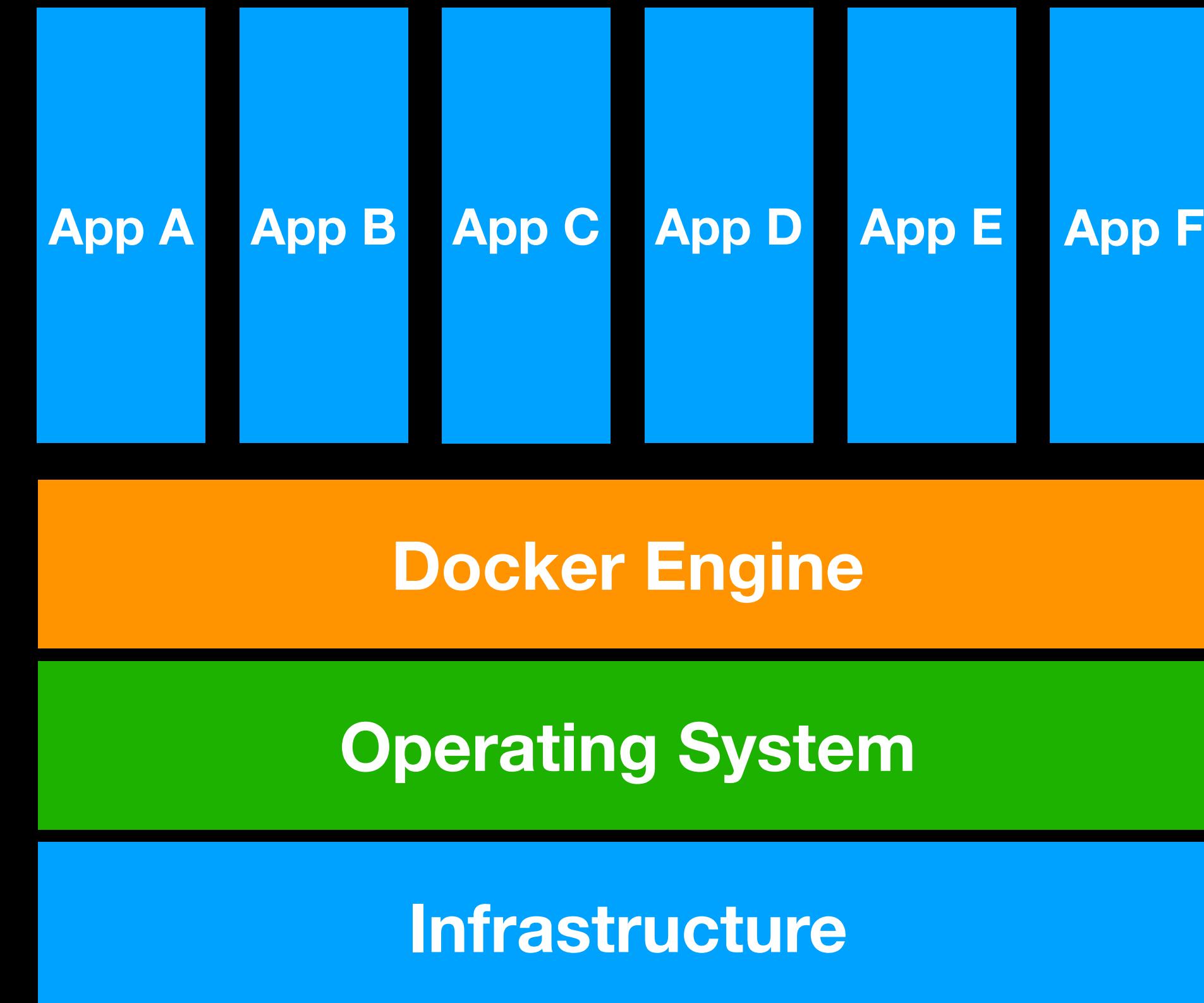
**Key take-out -
working with docker
could save you from
unnecessary pain
and grief**

Use Cases of Docker with R

- CICD
- Deploy Shiny and flex dashboards
- Data automation
- R package automation
- Modeling
- Reproducibility

Introduction to Docker

- A platform for OS-level virtualization
- Based on isolated containers
- Package different components of a software/app
- Enable seamless shipment and deployment
- Open source, free and enterprise versions available



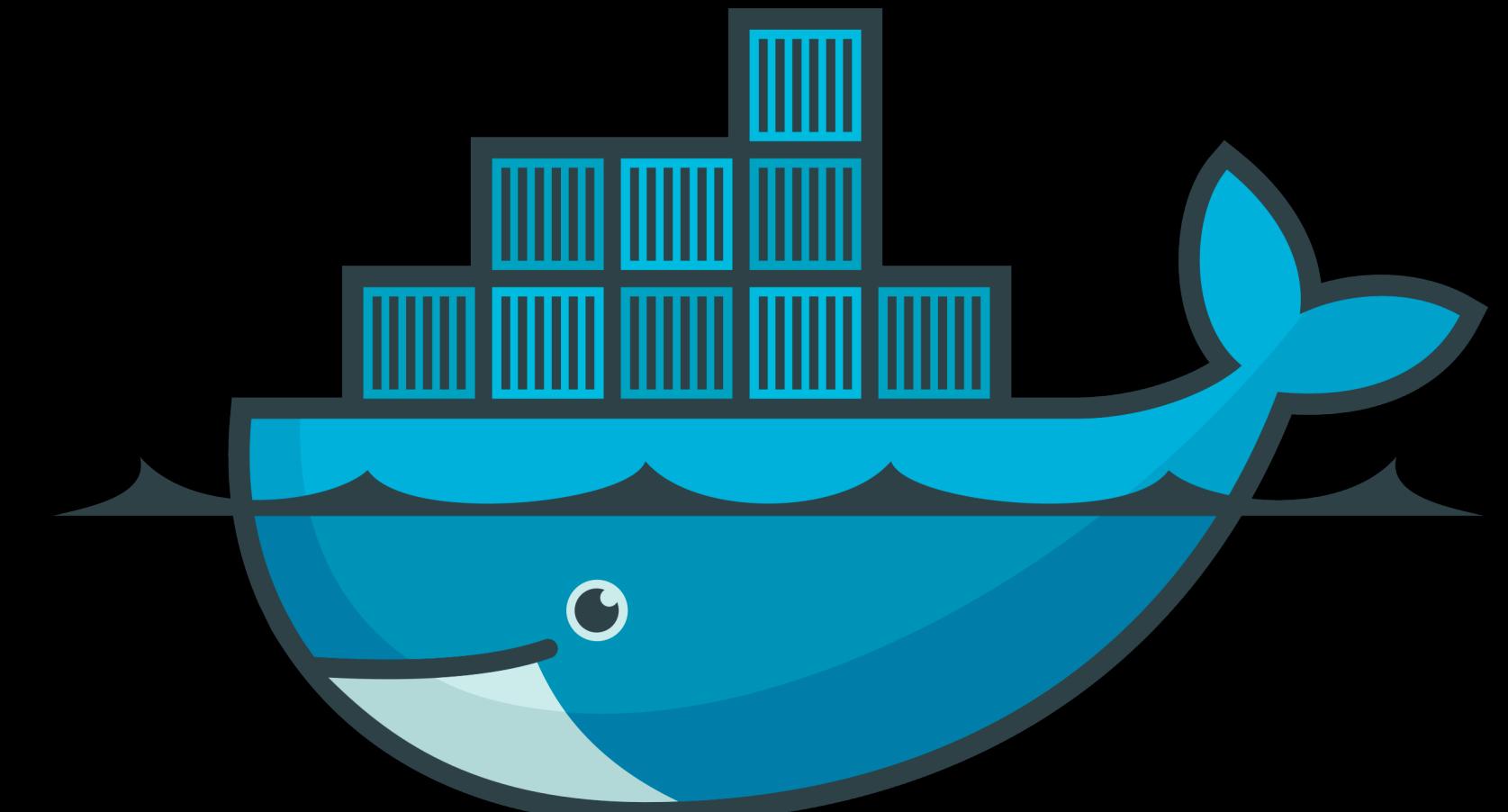
Introduction to Docker



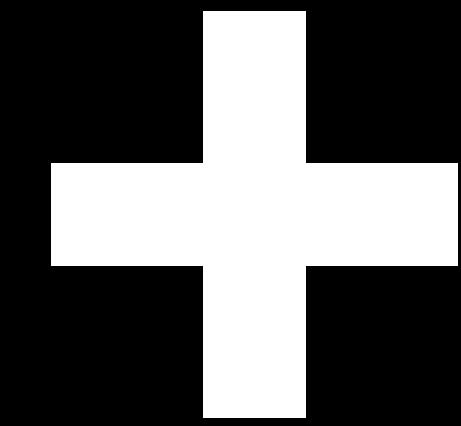
Installing Docker Engine

- Linux - direct installation
- Mac & Windows - Docker Desktop

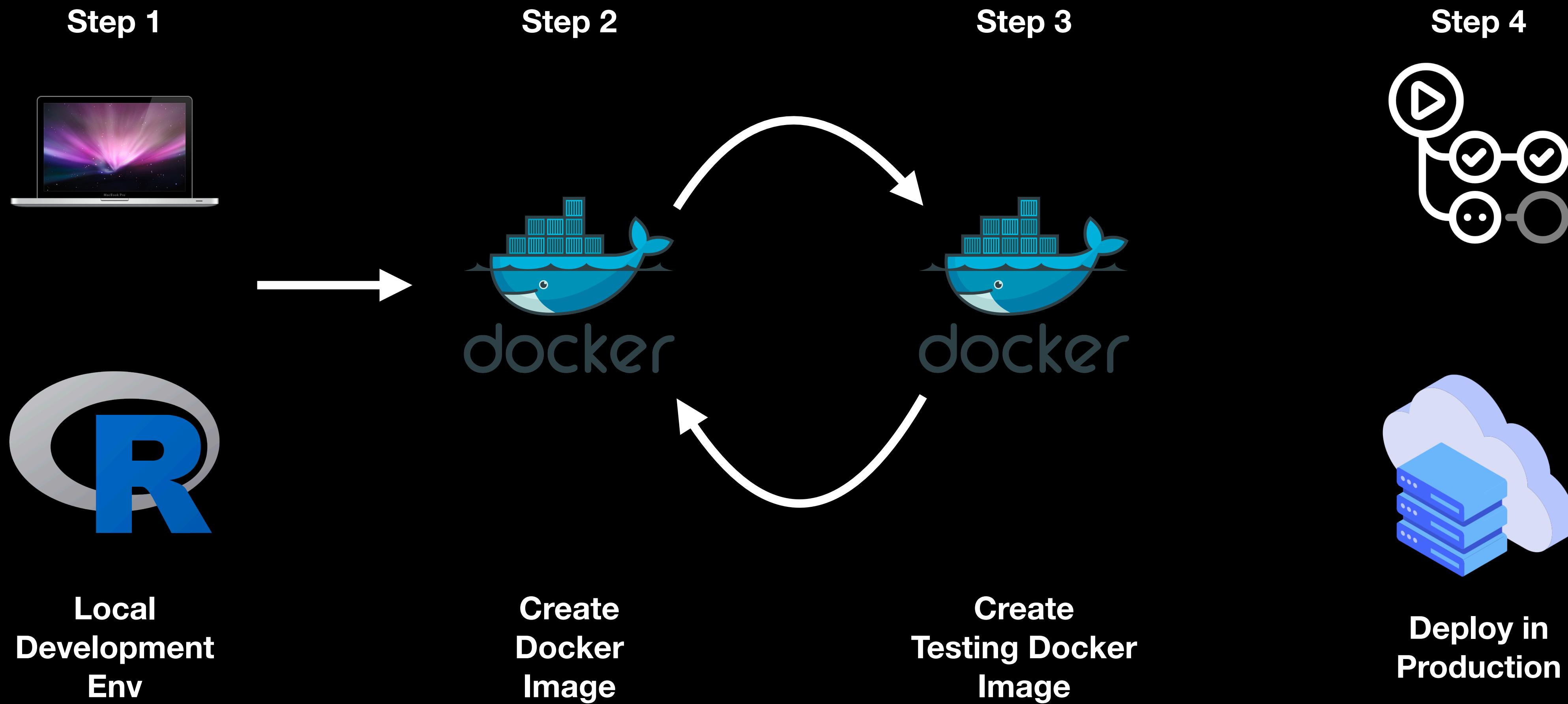
<https://docs.docker.com/get-docker/>



docker



Docker R Workflow

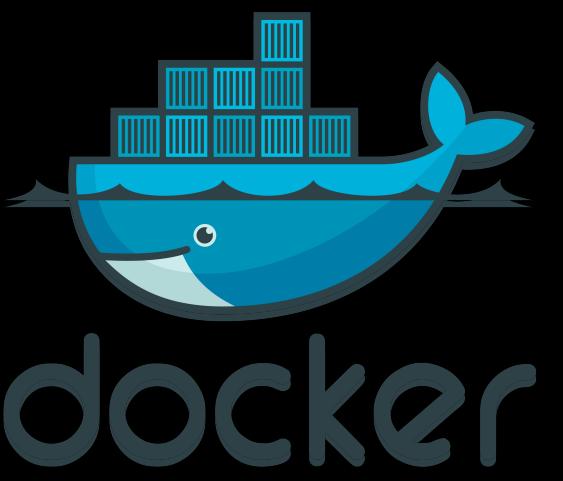
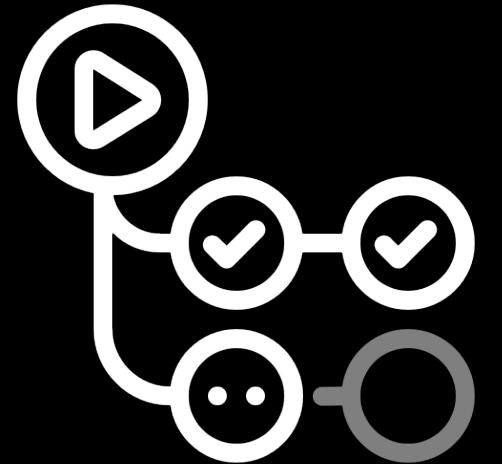


Docker R Workflow

Step 1



Step 2



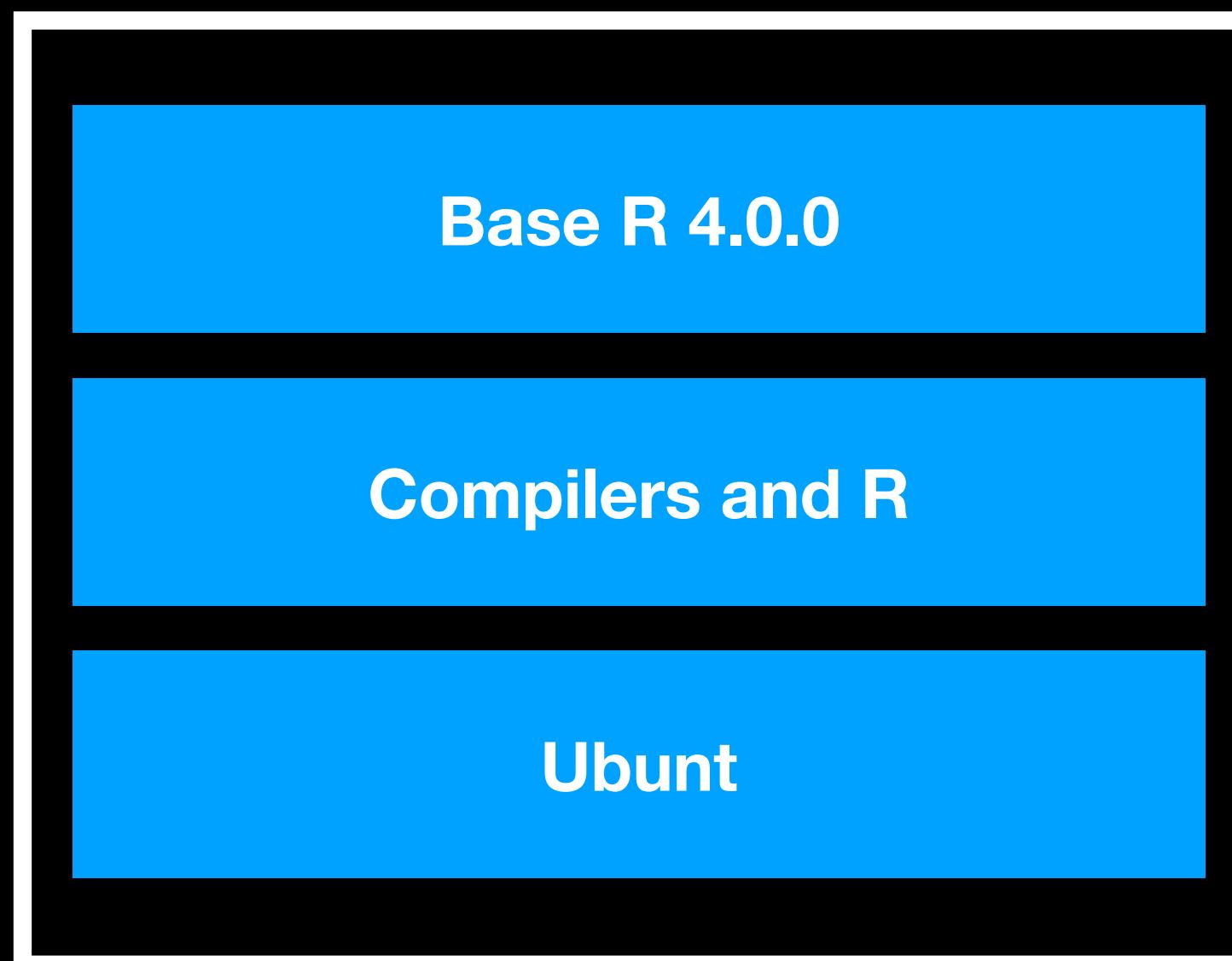
Local Docker
Development
Env



Deploy in
Production

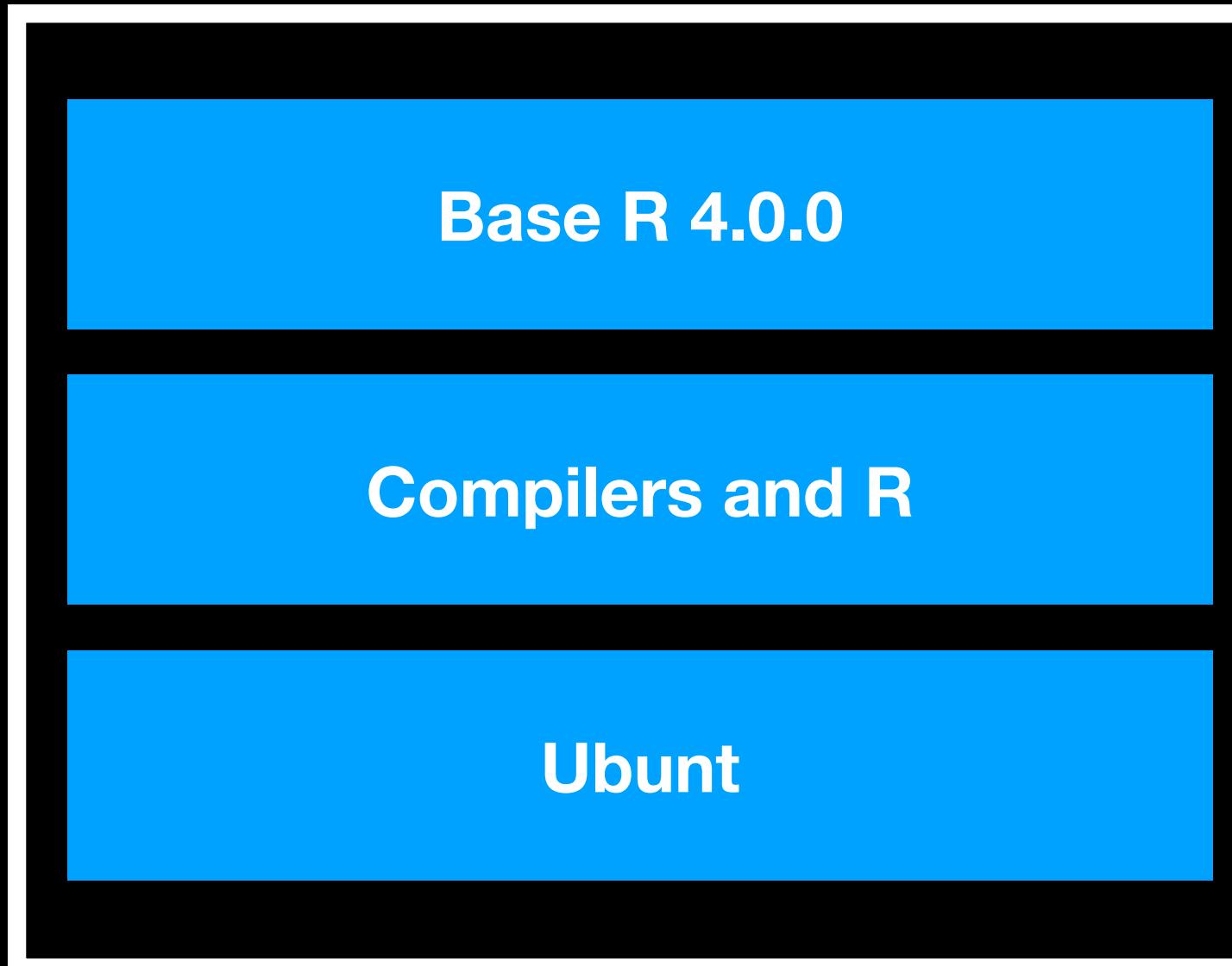
Docker R Workflow

Tag: baser4



Docker R Workflow

Tag: baser4

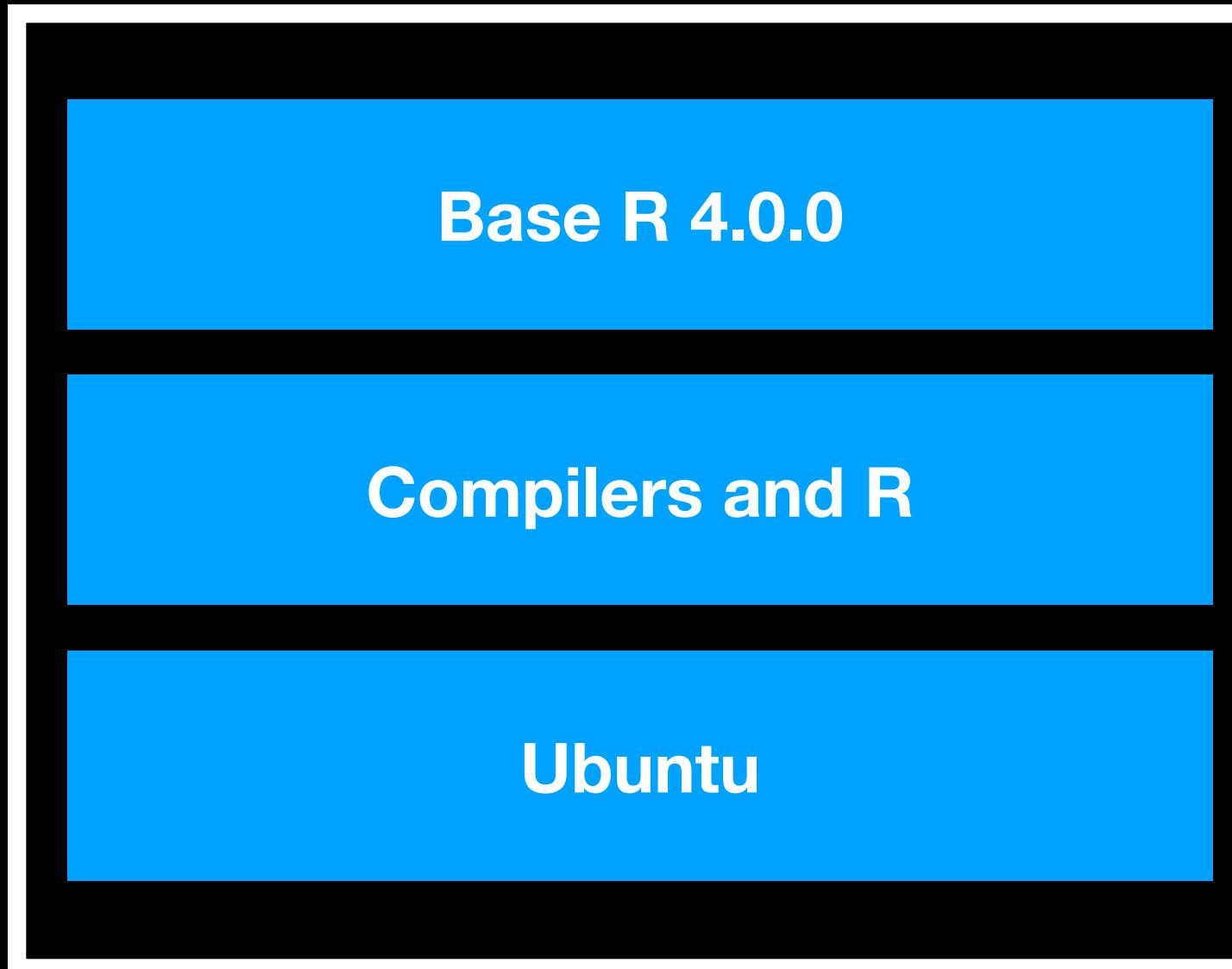


Tag: tidyverse4



Docker R Workflow

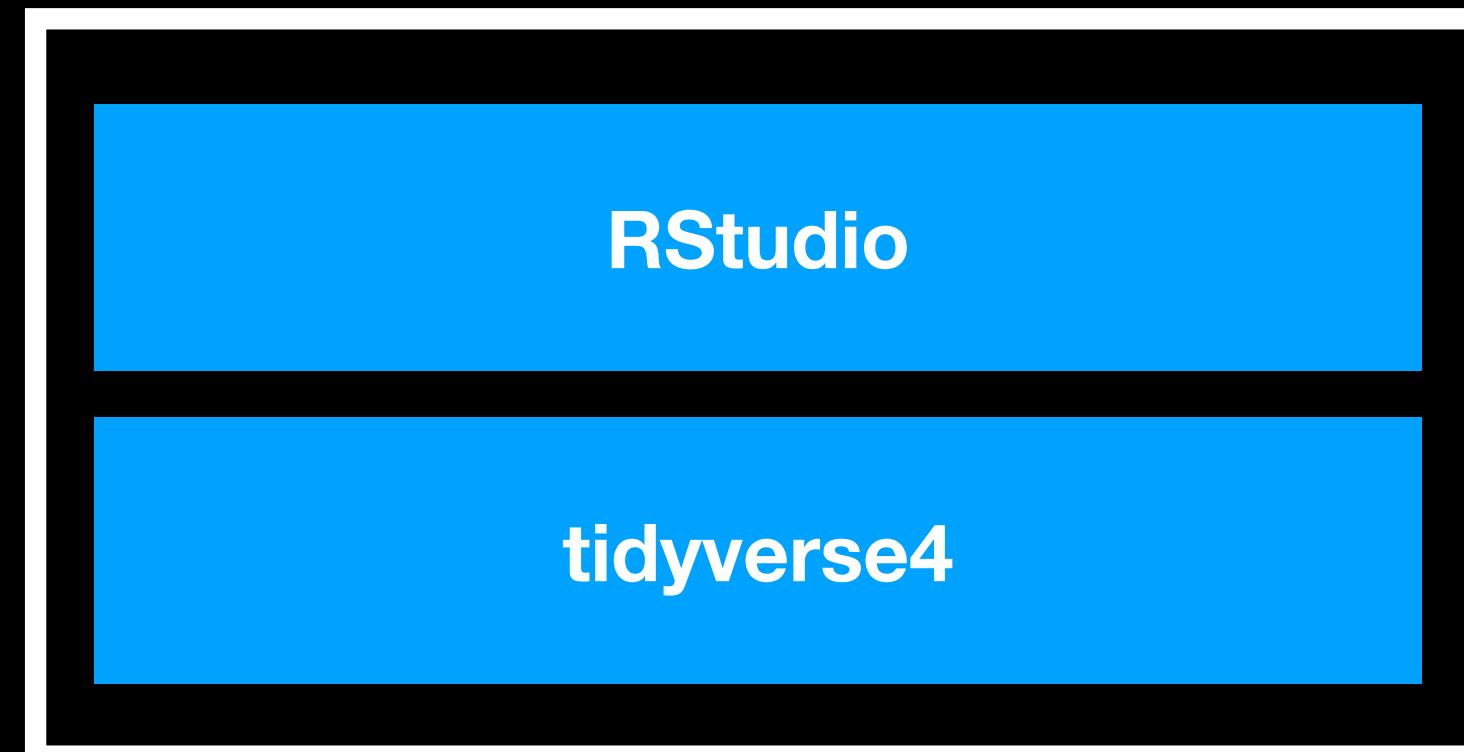
Tag: baser4



Tag: tidyverse4

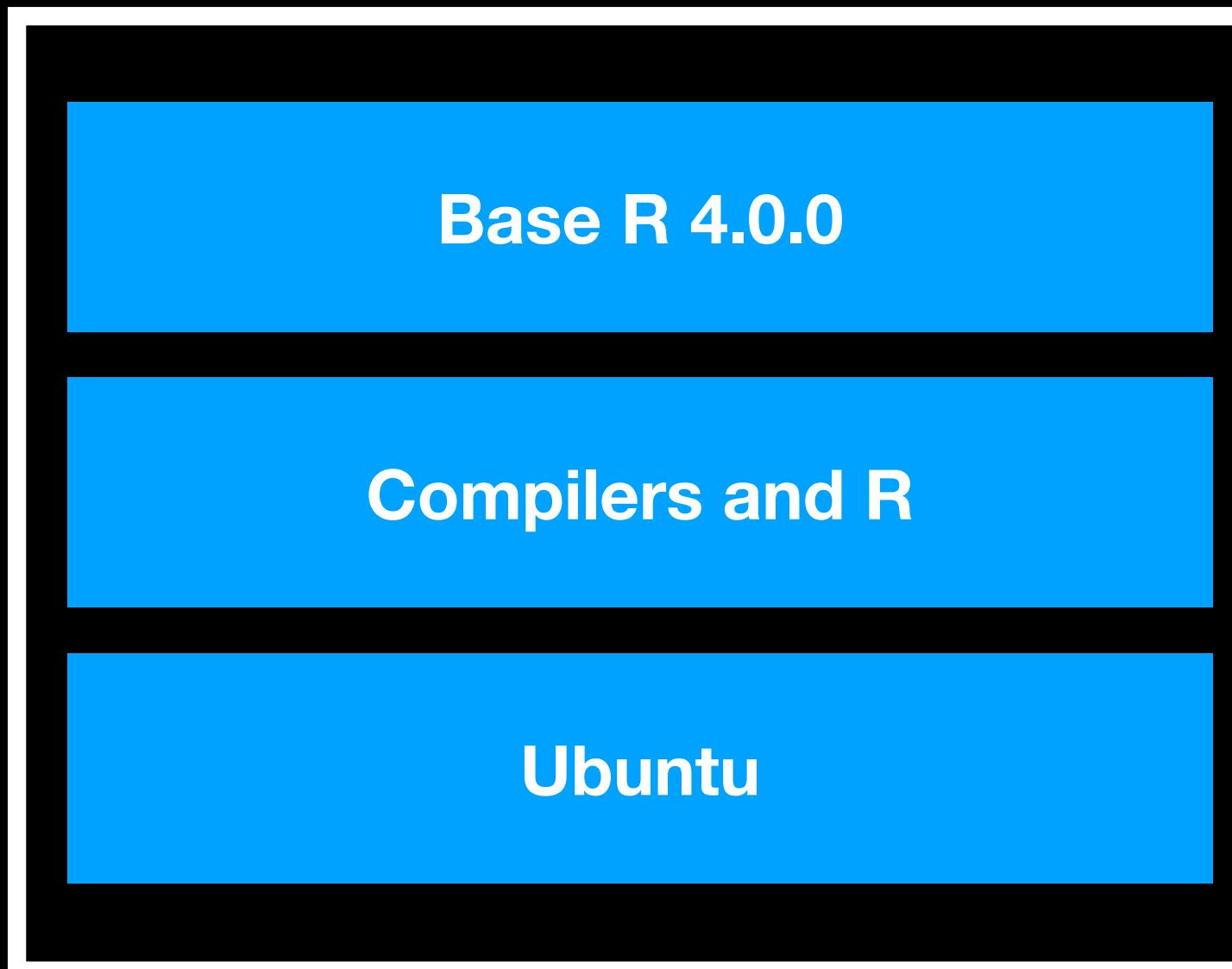


Tag: rstudio4



Docker R Workflow

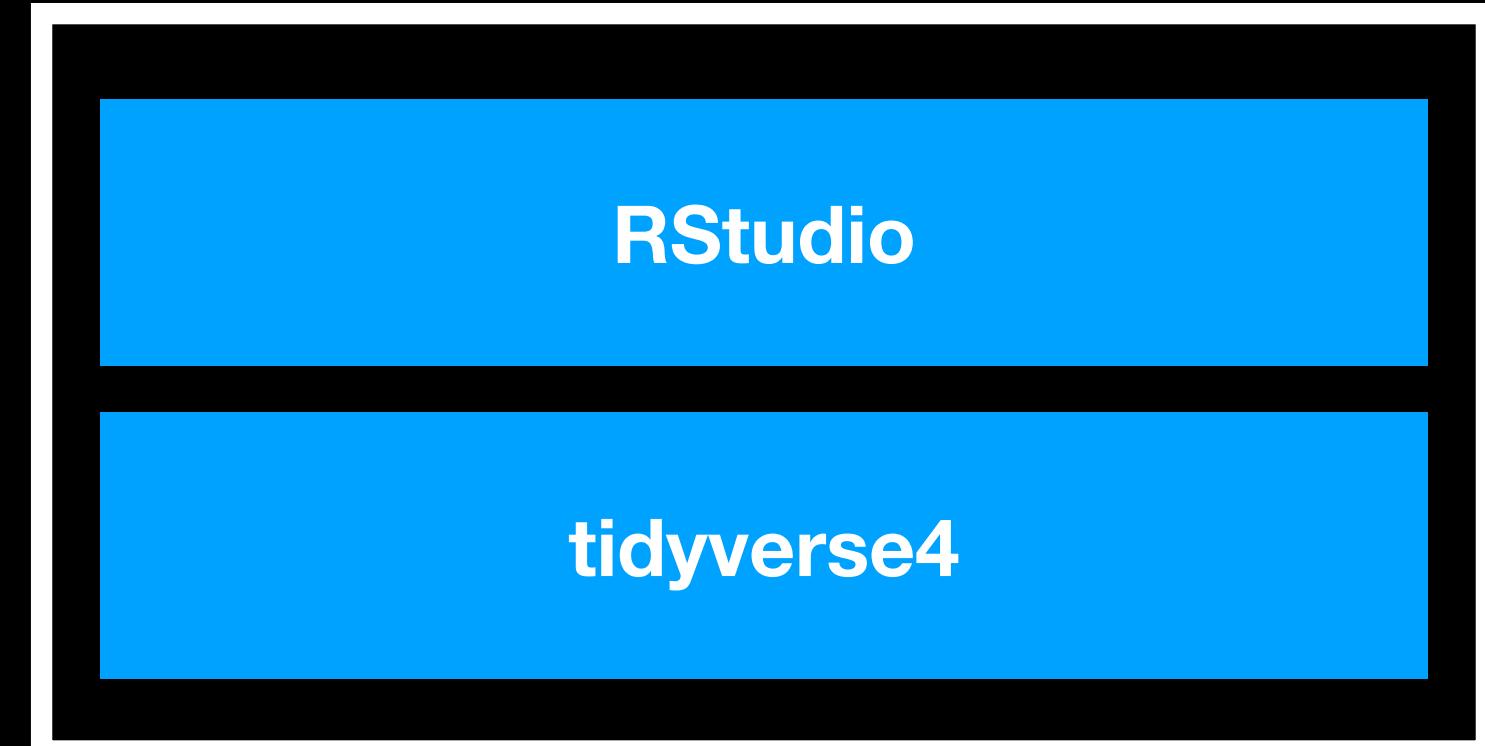
Tag: baser4



Tag: tidyverse4



Tag: rstudio4



Docker R Workflow

Tag: rstudio4



Docker R Workflow

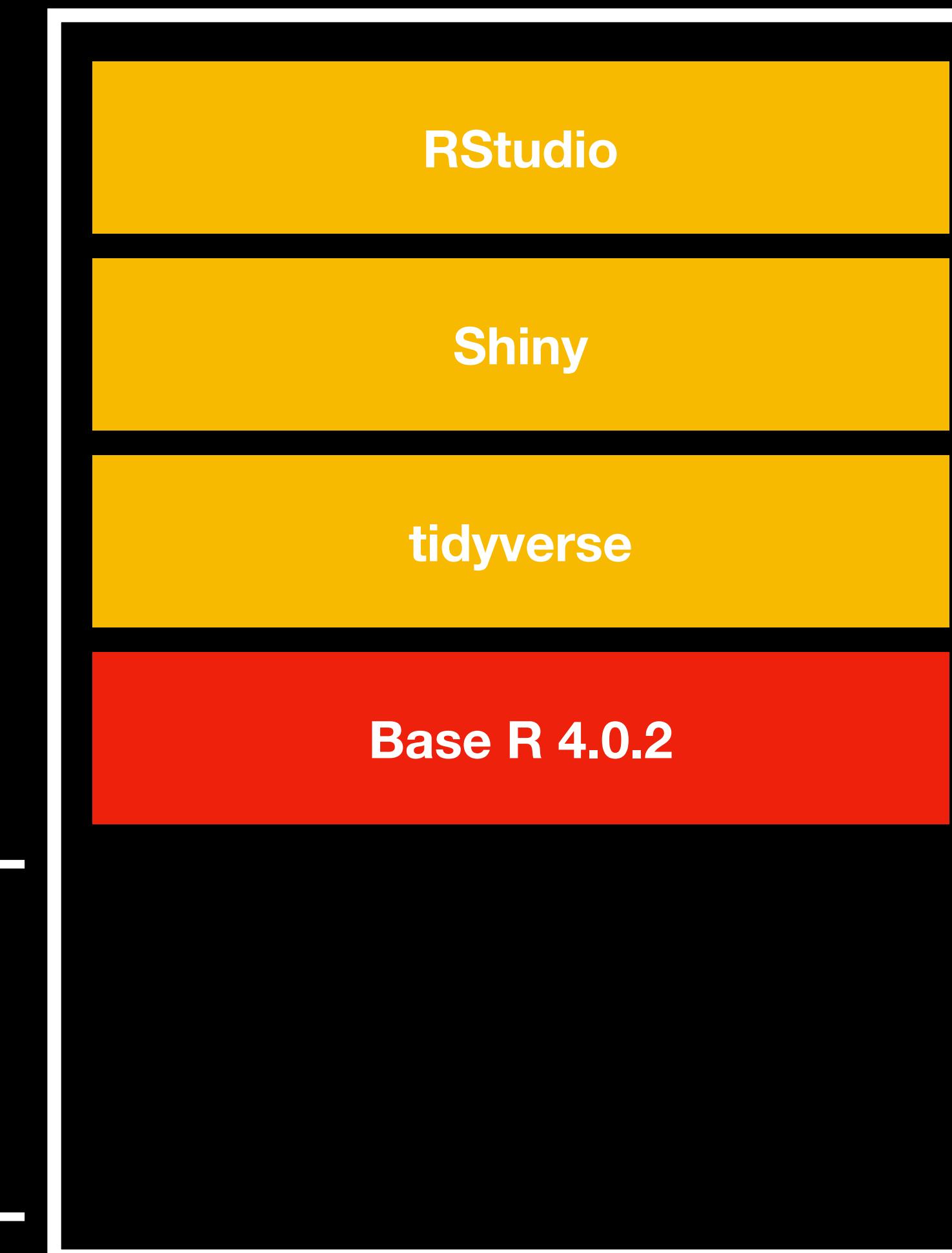
Tag: rstudio4



Upgrade the R version



Tag: rstudio402



Cached
Layers

Reinstall
From
Scratch

New
Layer

Docker R Approaches

Free Style

Build docker from scratch

Pros

- High customization
- Better optimizations
- Learning experience

Cons

- Required advance knowledge
- More testing

Built-in R Docker - Rocker

Use out-of-box images

Pros

- Robust and tested
- Minimal effort
- Low barriers to entry

Cons

- Limited to specific versions
- Less optimization options

Last Theory Before Jumping to the Demo



Dockerfile

- FROM
- LABEL
- RUN
- COPY
- ENV
- CMD

Command Line Tools

- sudo - substitute user do / super user do
- wget - web get
- curl - command-line tool for transferring data specified with URL syntax
- Rscript - calling R from the terminal
- bash - Unix shell and command language

Demo

Resources

- Workshop materials - <https://github.com/RamiKrispin/R-Ladies-Tunis>
- Docker documentation - <https://docs.docker.com/get-started/overview/>
- Docker Hub - <https://hub.docker.com/>
- Rocker - <https://www.rocker-project.org/>
- Free Code Academy - <https://www.youtube.com/c/Freecodecamp/search?query=docker>

Questions?

Thank You!