Introduction:

This tutorial will show you how you can host interactive rmarkdowns for free on myBinder.org.

What is myBinder?

Binder is a project that aims to provide a service where people can publish and host their interactive repositories publicly. Binder is capable with many languages include Python, Java, R and Julia. This open-source project provides users the opportunity to access environments without having to manually setup themselves. This is particularly useful for an audience with little code knowledge, or for people who do not necessarily want to spend time setting up dependencies on their own computers, in order to see the markdown.

A typical binder code repository relies on the content that should be run for the audience to interact with and configuration files which determine the environment binder should run, i.e setting up a RStudio environment or a Python environment etc. In the setup section, we will discuss possible options in which you can create configuration files for Binder.

Pros of Binder:

Free open-source hosting service for interactive r documents.

Usable in several languages.

Reproducible research

Limitations:  
has limited memory, therefore it is not ideal large data projects

Will not remember changes made on the binder framework and will die after 10 minutes of inactivity.

An instance cannot live for longer than 12 hours.

Maximum of 100 simultaneous users

Common FAQ

What r documents can I run on binder?

Anything that you can run on RStudio should also be accessible by Binder, given that this is inside your Github repository. Ensure that you have all dependencies that run on your local RStudio in your configuration files, otherwise it will not run.

Setup 1. Using a Dockerfile

1. Dockerfile

Docker is software which containerises your code projects which allows for other users to be able to run the code without manually downloading dependencies. The text-vased document which specifies all the bits and pieces that are needed for your code project to run successfully for other users is called a dockerfile. For binder to run RStudio, we must use the rocker/binder dockerfile. Rocker is a platform which has created the basic dockerfile templates used for binder to run an R or RStudio envrioment.

Template:

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| --- |
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|  |
|  |

The tag :3.6.3, refers to what version of RStudio binder should load up.

\* Note that as of 2021, it appears that rocker/binder version >= 4.0.0 has been fairly unstable and does not appear to run RStudio from binder, which is why the template in this tutorial uses version 3.6.3.

1. Install.R file

This is an R script file which contains all the specific packages needed for your R-package to run on. For example if your package relies on external pacakges from github which are not avalibale on CRAN you will need to include the devtools packages and then use

|  |
| --- |
| remotes::install\_github("rstudio-education/gradethis") |
|  |

to install the github package. Note that sometimes these github packages may not be able to run on the 3.6.3 version of R and therefore will not work.

1. Hosting on binder

To host your package onto myBinder.org you load your github url into the girhub link:

Graphical user interface, text, application, email

Description automatically generated

Make sure that you have this set to URL and have /rstudio. Launch and wait for your binder to load. Initialisation can take up to 10 minutes. If your github url has /tree/main remove this section otherwise the inislatiation will not work.

Link to learning gradethis and learnr exercises:

Citation for using binder:

Jupyter et al., "Binder 2.0 - Reproducible, Interactive, Sharable

Environments for Science at Scale." Proceedings of the 17th Python

in Science Conference. 2018. doi://10.25080/Majora-4af1f417-011

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

<https://github.com/januz/binder-works/blob/master/Dockerfile>