

Instructions for Preparing the “Trip to Mars” Workshop

Below are instructions to prepare for the “Trip to Mars” Workshop. If you have issues setting this up, please contact talksci@queensu.ca.

Introduction to The Software

We will begin with a short introduction to the software that is used in this document and needed for this workshop.

Jupyter Notebook

Jupyter Notebook is an interactive software that allows users to create documents that can showcase code output, and the code itself, in a single environment. In particular, this software uses Python as its coding language.

GitHub

We need a communal place to keep all our files, so we use an online software manager called GitHub. GitHub uses a version management software called ‘git’ to keep track of changes and edits, but for the purposes of this code, we only care about it storing our code.

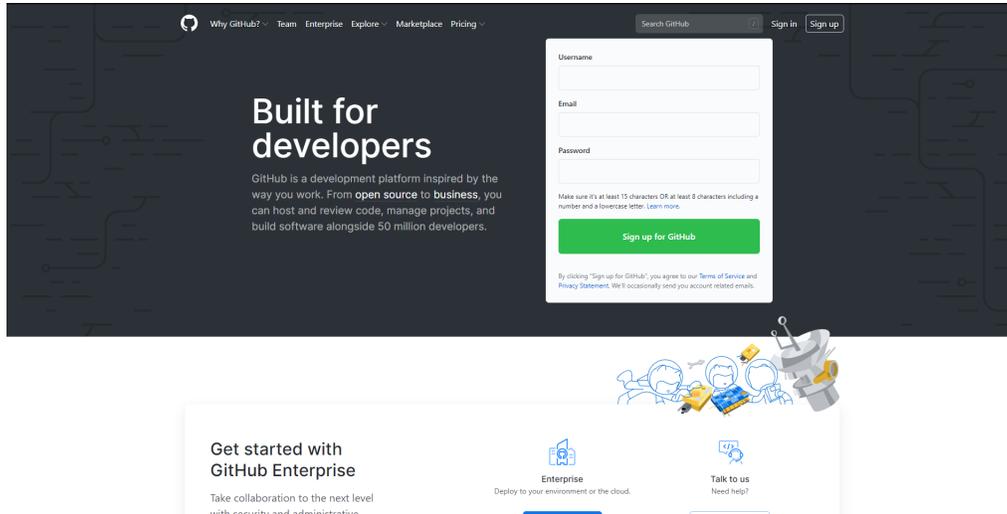
Binder

Finally, we need a software to actually run the Jupyter Notebook. Especially true for people unfamiliar with coding, we can’t expect everyone to download and install Jupyter Notebook or Python. Binder is software that takes a GitHub repository (think of it like a directory) with Jupyter Notebook code and allows users to run it remotely, *without changing the source code*. This is excellent, since now we don’t have to worry about accidentally deleting code.

The following sections will explain how to prepare the “Trip to Mars” virtual workshop using the previously mentioned software.

Making a GitHub Account

1. Go to: <https://github.com/>
2. Make a GitHub account by following the instructions on the screen. It will ask for an email account to associate with, and will require a verification (by email).

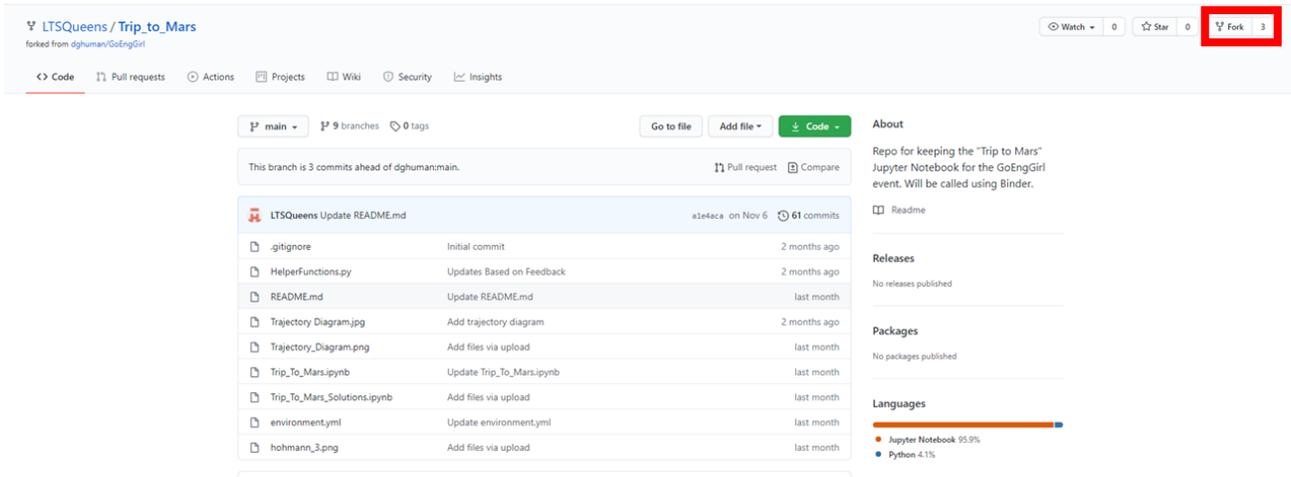


3. Once logged in we are ready to begin making a copy of the “Trip to Mars” repository.

Forking the Repository

Forking is just a fancy way of copying a directory in GitHub. It helps keep track of where you are copying from and to!

1. Now that we have an account, go to: https://github.com/LTSQueens/Trip_to_Mars
2. You should see a page like the following. Click on the “Fork” in the red box:

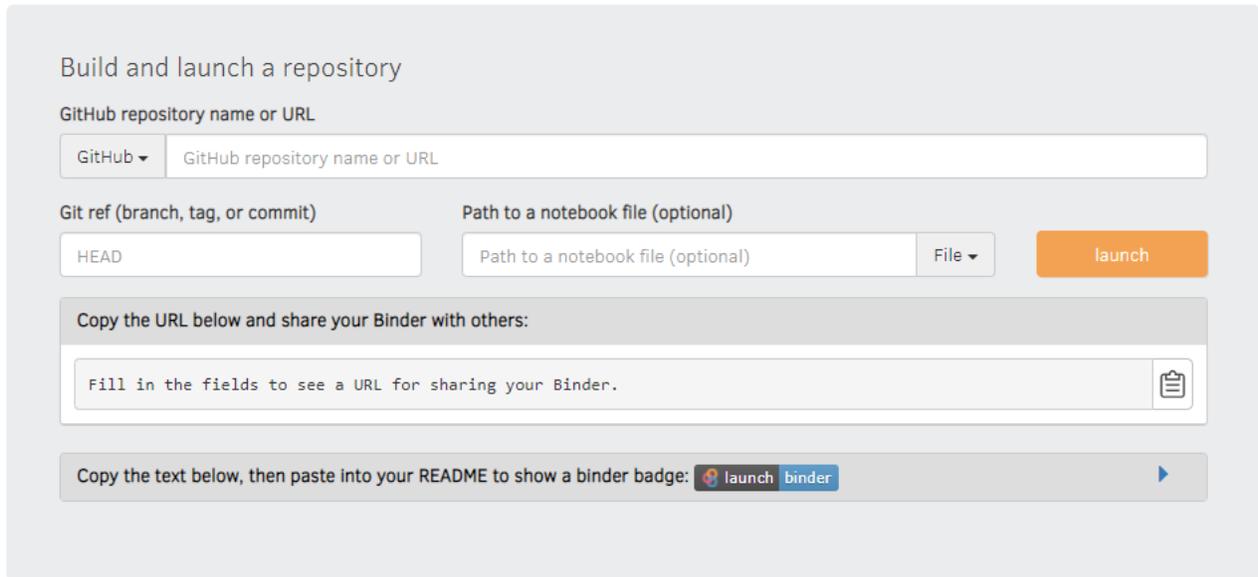


3. This will redirect you to a new page that looks exactly the same as the LTSQueens GitHub. The difference is now this is under your account! This can be easily verified by looking at the URL; you should see “https://github.com/username/Trip_to_Mars” with your username in place of “username”.

Binder Set-Up

Binder is the software that is used to remotely access the Jupyter Notebook. It allows for multiple users to simulate a Jupyter Notebook without having to download and install it themselves. The caveat is that at most 50 people can be supported, so keep your attendee numbers in mind.

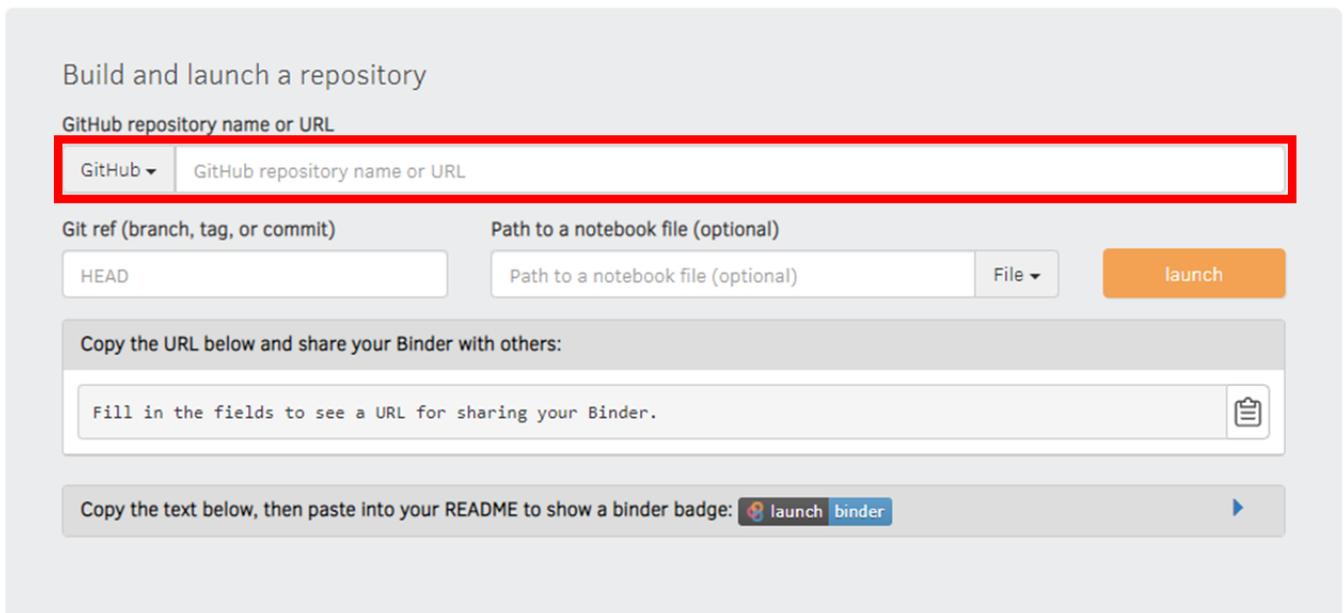
1. You will want to go to the following link “<https://mybinder.org/>”. At the center of the screen you should see the following:



The screenshot shows the Binder interface for building and launching a repository. It features a form with the following elements:

- Title:** "Build and launch a repository"
- GitHub repository name or URL:** A dropdown menu set to "GitHub" and a text input field containing "GitHub repository name or URL".
- Git ref (branch, tag, or commit):** A text input field containing "HEAD".
- Path to a notebook file (optional):** A text input field containing "Path to a notebook file (optional)", a "File" dropdown menu, and an orange "launch" button.
- Copy the URL below and share your Binder with others:** A section with a text input field containing "Fill in the fields to see a URL for sharing your Binder." and a clipboard icon.
- Copy the text below, then paste into your README to show a binder badge:** A section with a badge image showing "launch binder" and a right-pointing arrow.

2. Now, you will want to copy the URL of your fork of the “Trip to Mars” repository. Then, you will paste it in the box highlighted below:

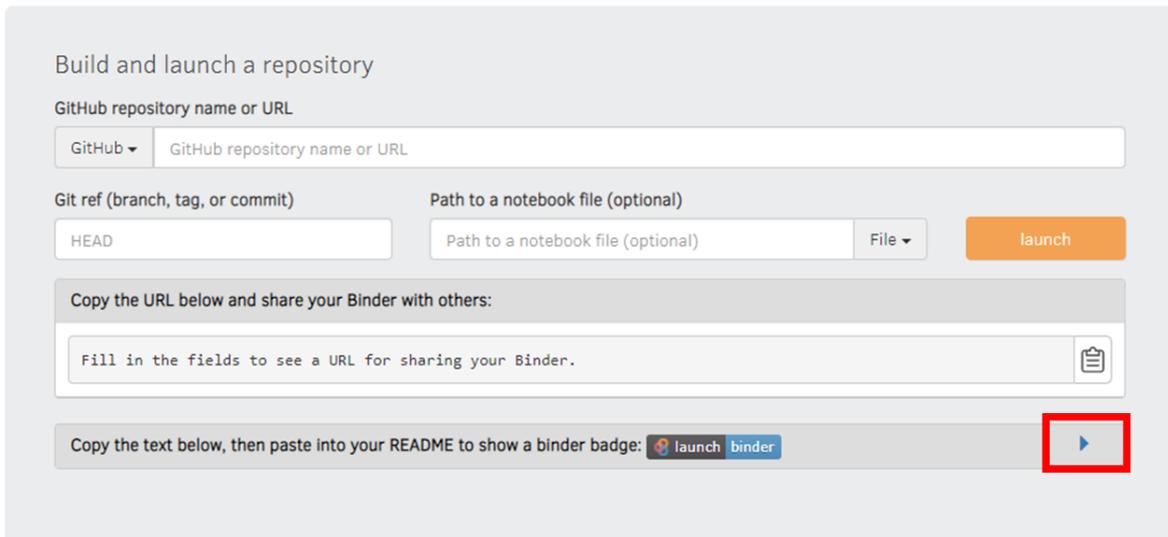


This screenshot is identical to the one above, but with a red rectangular highlight around the "GitHub repository name or URL" input field. The text inside the field is "GitHub repository name or URL".

- Then, click on the yellow launch button. Binder will start doing some stuff under the hood, mostly preparing the correct links needed.
- This can take some time to launch. It can also occasionally be buggy, so make sure the progress bar begins to go up. If not, try pressing “launch” again.
- Once complete, it will launch a Jupyter Notebook of what the final software should look like. This is a good check point to see everything is running well. You should eventually get a screen like this:



- If you don't get a screen like the prior, something is wrong. Hopefully you do, if not, check the link is correct.
- Next, we will want to prepare this for the GitHub. Go back to Binder and paste the GitHub URL again in the same box. Now, we will want to click on the arrow as highlighted in the red box:



8. This will open up a dialogue like the following. Click on the highlighted clipboard to copy it:

Build and launch a repository

GitHub repository name or URL
GitHub ▾

Git ref (branch, tag, or commit) Path to a notebook file (optional) File ▾

Copy the URL below and share your Binder with others:

Copy the text below, then paste into your README to show a binder badge:

`![Binder](https://mybinder.org/badge_logo.svg)(https://mybinder.org/v2/gh/dghumantest/Trip_to_Mars/HEAD)`

.rst `.. image:: https://mybinder.org/badge_logo.svg :target: https://mybinder.org/v2/gh/dghumantest/Trip_to_Mars/HEAD`

9. We will now paste this in the GitHub repository that was forked. Clicking on the edit icon as shown:

main ▾ 9 branches 0 tags

This branch is even with LTSQueens:main.

LTSQueens Update README.md a1e4aca on Nov 6 61 commits

.gitignore	Initial commit	2 months ago
HelperFunctions.py	Updates Based on Feedback	2 months ago
README.md	Update README.md	last month
Trajectory_Diagram.jpg	Add trajectory diagram	2 months ago
Trajectory_Diagram.png	Add files via upload	last month
Trip_To_Mars.ipynb	Update Trip_To_Mars.ipynb	last month
Trip_To_Mars_Solutions.ipynb	Add files via upload	last month
environment.yml	Update environment.yml	last month
hohmann_3.png	Add files via upload	last month

README.md

Trip to Mars

Repo for keeping the "Trip to Mars" Jupyter Notebook. Will be called using Binder.

About

Repo for keeping the "Trip to Mars" Jupyter Notebook for the GoEngGirl event. Will be called using Binder.

Readme

Releases

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Languages

- Jupyter Notebook 95.9%
- Python 4.1%

