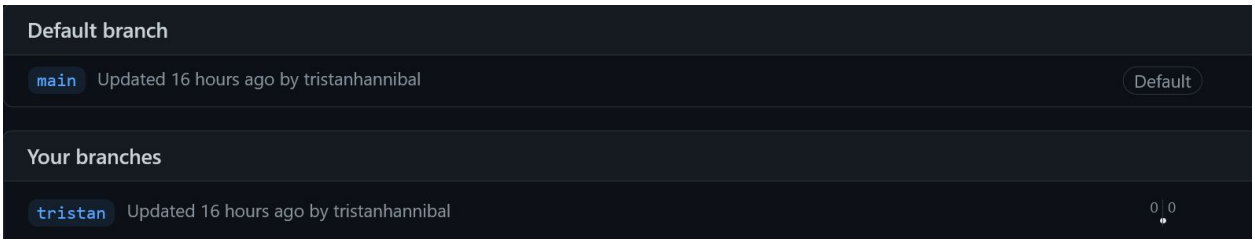
Group B

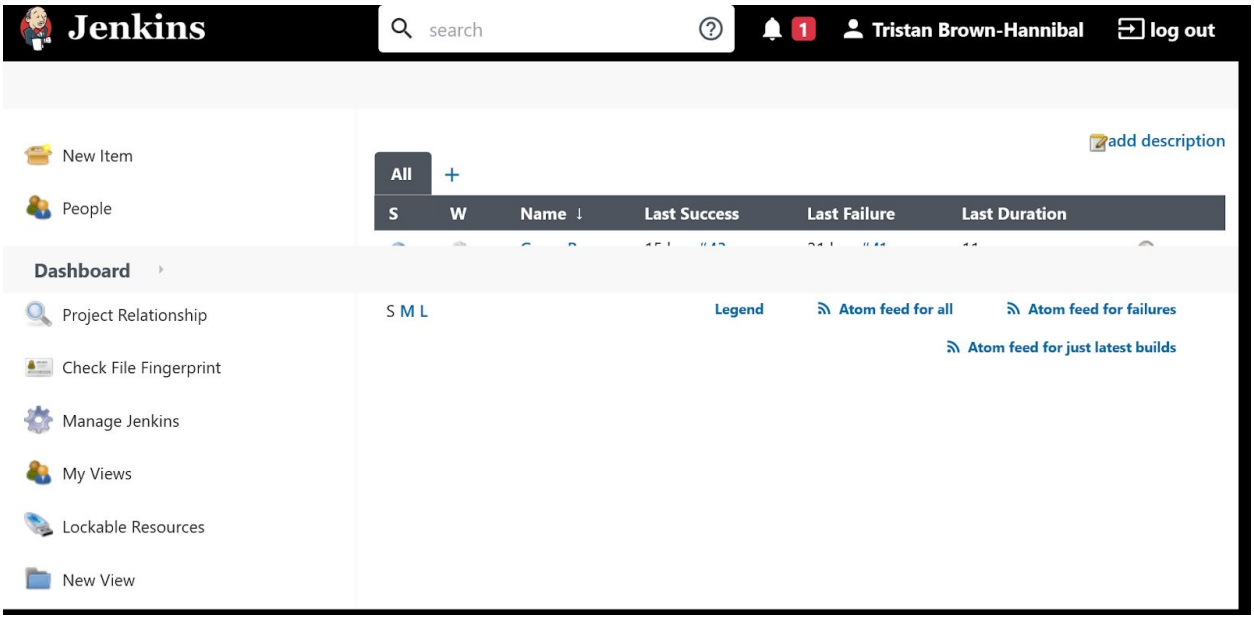
How we set up Jenkins.

Firstly, we create a new GitHub branch in which we will push our untested code.

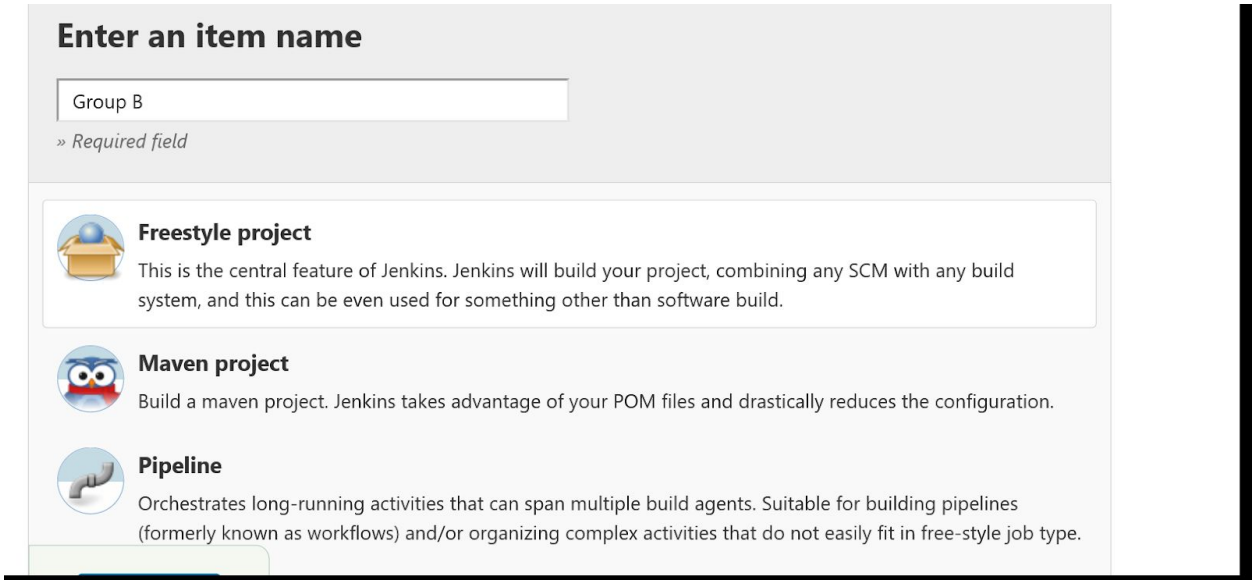


This branch is where the individual's work is placed, before being merged back with the main.

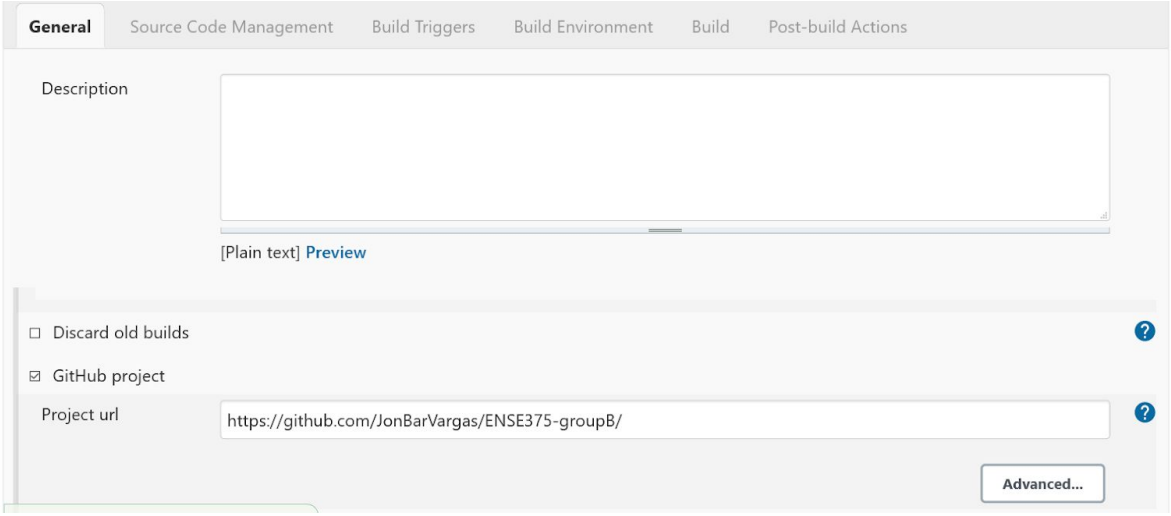
Then using docker we will run Jenkins, create an account and login.



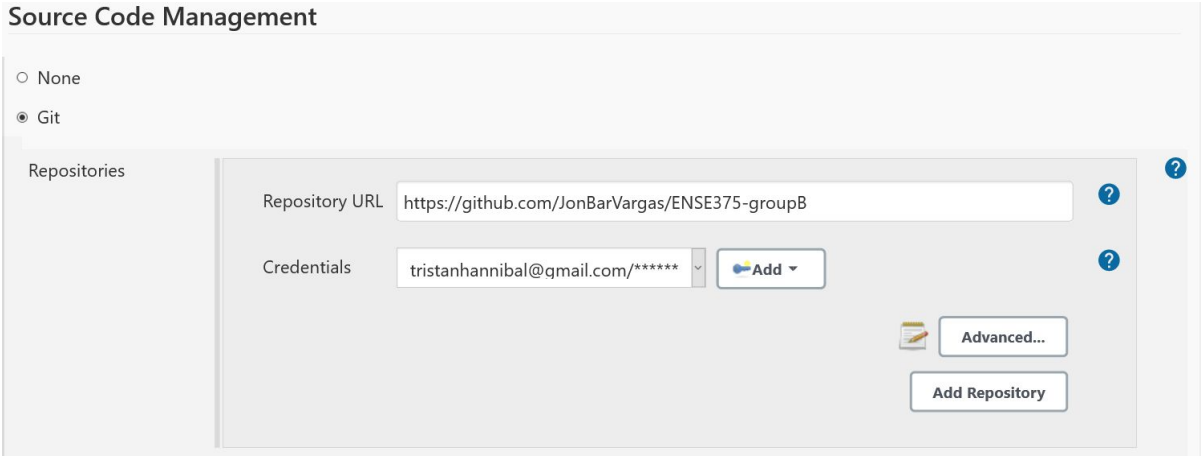
From here, we created a new item, a Freestyle project.



Then we configured it as such:
We link the project to our GitHub

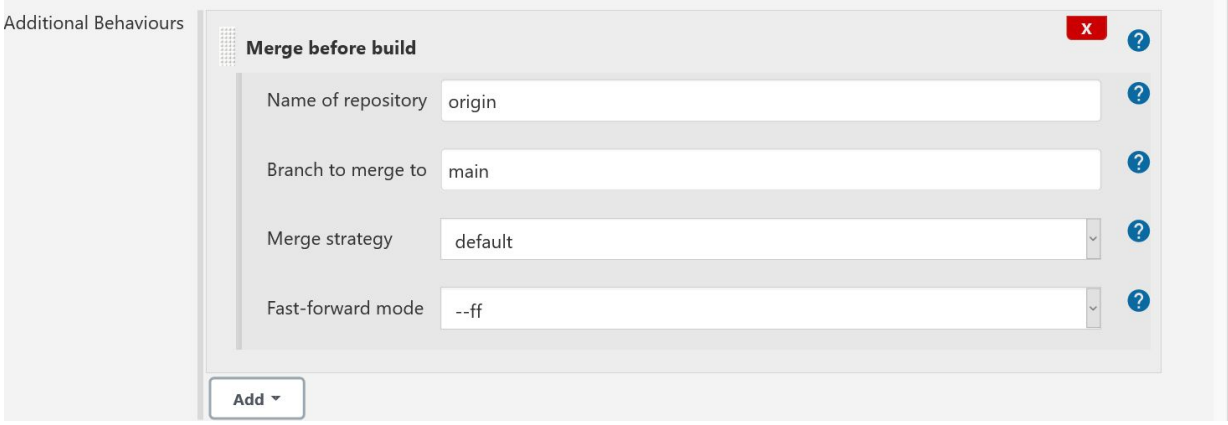


And Indicate we want to use Git, while providing valid credentials for the project to use.

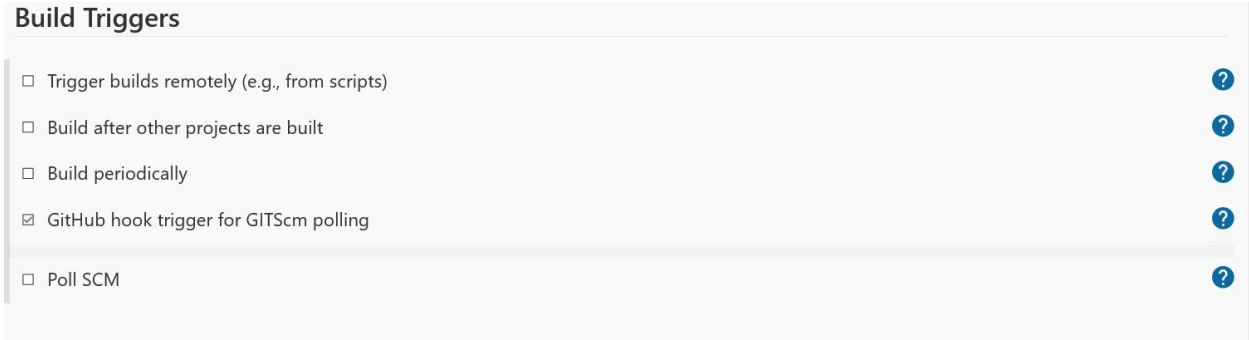


Next, the individual chooses which branch they want to build and test (The one where they uploaded their own work)

Additional behaviour is required to merge, we indicate the process we want

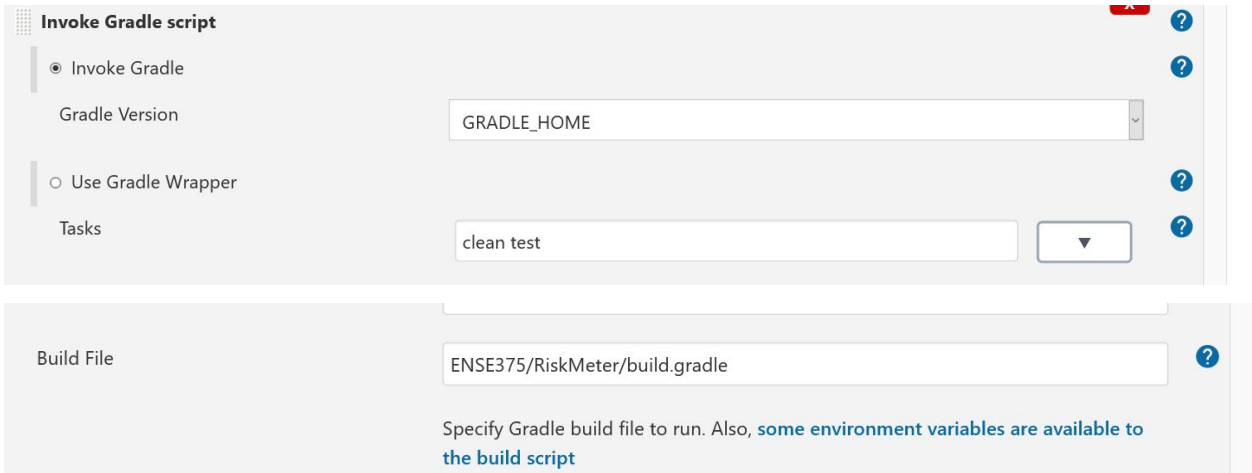


We tried to get webhooks working, but since we are on localhost, we couldn't figure out how to set up localhost and GitHub webhooks properly. But if this was a real server we could set up webhooks to allow an automatic build and test after committing to a GitHub repo



Then we have to configure the tools Jenkins uses to build and test our project. Since none of us knew how to use Maven, and we used Gradle in the lab, we used Gradle as the build tool.

We get Jenkins to download the version of Gradle it needs, and used it to run our build.gradle file



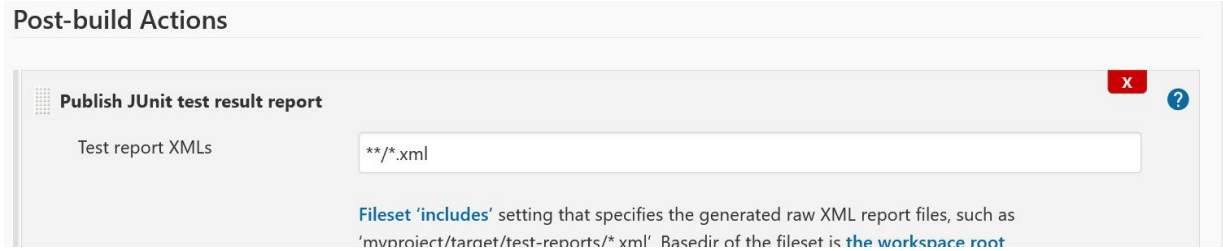
Our build.gradle file is:

```
plugins {
    id 'java'
}

repositories {
    mavenCentral()
}
sourceSets {
    main {
        java {
            srcDirs = ['src/main/java/com/uregina']
            outputDir = file('bin')
        }
```

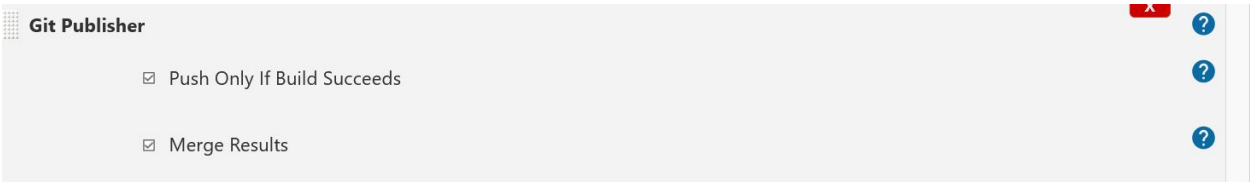
```
    }
    test {
        java {
            srcDirs = ['src/test/java/com/uregina/app']
            outputDir = file('bin')
        }

    }
}
dependencies {
    testCompile("org.junit.jupiter:junit-jupiter-api:5.2.0")
    testRuntime("org.junit.jupiter:junit-jupiter-engine:5.2.0")
}
dependencies {
    testCompile("junit:junit:4.12")
    testRuntime("org.junit.vintage:junit-vintage-engine:5.2.0")
}
test {
    useJUnitPlatform()
    testLogging {
        events "passed", "skipped", "failed"
    }
    reports{
        junitXml.enabled = true
    }
}
```

This file ensures output of XML, and uses either Junit5 or Junit4.

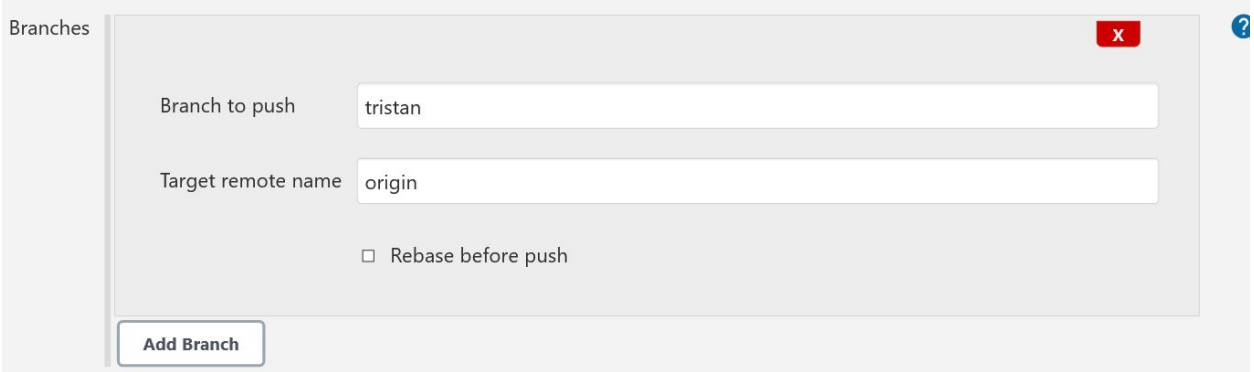
After this build and test, we make sure Jenkins uses the XML files and publishes the test results.



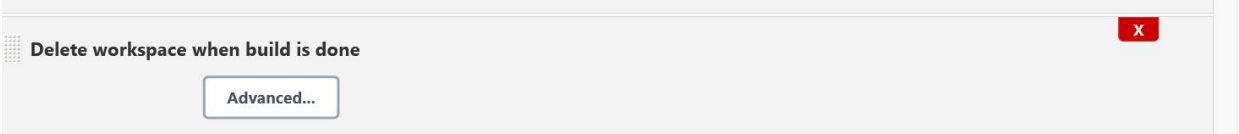
We only want the branch to be merged with main if all the tests pass.



Here we indicate the branch and push target



Once we are done, we delete the workspace so it is clean.



This setup allows for easy building, testing and merging if successful.

Let us work through an example of our workflow

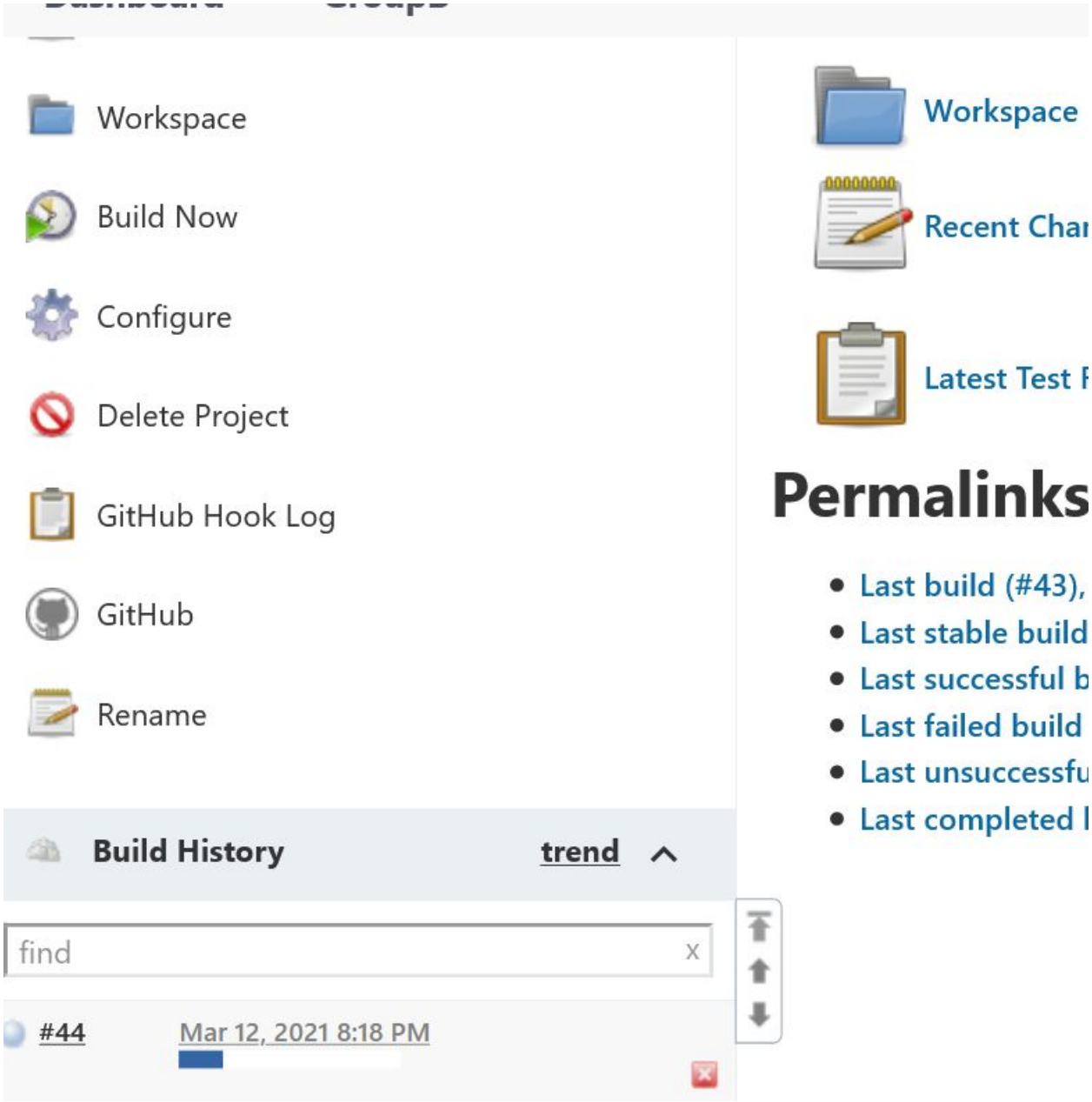
How we implemented Jenkins

Example

First we push our changes to our own branch of our GitHub.

```
PS C:\Users\Tristan Hannibal\Desktop\375\ENSE375-groupB> git add .\README.md
PS C:\Users\Tristan Hannibal\Desktop\375\ENSE375-groupB> git commit -m "update readme"
[tristan e0e75ed] update readme
 1 file changed, 2 insertions(+), 1 deletion(-)
PS C:\Users\Tristan Hannibal\Desktop\375\ENSE375-groupB> git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 286 bytes | 286.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/JonBarVargas/ENSE375-groupB
   ec1babd..e0e75ed  tristan -> tristan
```

From there we can go to Jenkins, and manually build. This is an unneeded step if we had GitHub webhooks. Pressing ‘Build Now’ we can see Jenkins begin the process.



We can then view the details of the Jenkins build. Such as commit history and the test results.

Build #44 (Mar 12, 2021 8:18:21 PM)

add description

Changes

1. update readme (commit: e0e75ed) (details / githubweb)

Started by user Tristan Brown-Hannibal

Revision: e0e75edfc76b5341b39a5c83f702c059e9675e8b

- origin/tristan
- origin/main

Test Result (no failures)

Going into the test results we can view the XML Gradle outputs in Jenkins itself, seeing which tests pass and fail.

All Tests

Class	Duration	Fail	(diff)	Skip	(diff)	Pass	(diff)	Total	(diff)
AppTest	5 ms	0		0		1		1	
PatientHistogramTest	1 ms	0		0		7		7	
PatientListTest	1 ms	0		0		7		7	
PatientTest	0 ms	0		0		1		1	
PostalCodeTest	2 ms	0		0		10		10	
RiskCodeMapTest	1 ms	0		0		1		1	
SampleTest	1 ms	0		0		2		2	

All Tests

Test name	Duration	Status
addPatientToARegion_InvalidHorizontal_False	1 ms	Passed
addPatientToARegion_InvalidVertical_False	0 ms	Passed
addPatientToARegion_Valid_True	0 ms	Passed
deleteAPatient_Invalid_False	0 ms	Passed
deleteAPatient_Valid_True	0 ms	Passed
getPatientsCountInRegion_True	0 ms	Passed
getPatientsCountInRegion_invalidOutOfIndexRange_ThrowException	0 ms	Passed

Since all of our tests passed, Jenkins merged our branch into the main.

If the tests were to fail, nothing would've been merged to main. This process allows for easy collaboration of work, while still ensuring a high quality of code.