**File System Navigation Assessment**

1. The git project is available to see on the public GitHub repo at: <https://github.com/JHall25/File-System-Navigator-Java>
   1. I built using maven as this what I am most comfortable with, I did initially attempt to use Gradle based on my limited experience and knowledge with it as can be seen in the git history, but I decided to switch to what I knew in the interests of time.
2. I Initially tried to create Junit tests for as many aspects of the project as I could but being used to working with webservers, I struggled to thing ahead of how I would test an application like this. I wrote tests for the most important parts of the application which are commented out as I intend to use Mockito to try mocking the file interactions or attempt to create tests that spin up a directory and test the real functionality. After submission, I intend to go ahead and investigate this as a learning point.
3. For this section I have no knowledge of Selenium or any BDD or performance testing tools other than using JMeter basically to load test. As a result, I did not feel able to complete this section.
4. Same as above.
5. I have created the necessary dockerfiles and a docker compose file to be able to build and deploy the build Java files onto the docker containers which could easily be hooked into the build/run shell scripts created to build and run from bash. Unfortunately, I experienced issues with the client trying to connect to the sever across containers and could not find much help on a solution. I got as far as realising I need to create a docker network and bring both containers to it, but it still would not work.
6. The java applications work almost 100%. The biggest failure I have is that the “cd” command fails to work due to the difference between windows (which I did this assessment on) and Unix systems. The CD will not match based on the backslash and forward slash. I cannot get the directory change to work and do not have the time to explore another option.

An alternate approach I might take would be to accept the full “cd” input and split based on the “\“ or “/” character to make it an array. Then check each array element against “..” to see if you should get the parent and go up a level or if the word entered matched the any folder in the current directory and if not break out early.

This is something I intend to try and resolve after submission too as another learning exercise.

**Scripts**

Since I had no knowledge of Make files I used bash to make some simple shell scripts to run the applications locally on you machine instead of docker as per the above reasons.

**Pre-requesites**

Maven installed and included on your PATH variable in the windows Environment variables or equivalent on Unix systems.

A minimum of Java 8 installed and also included on the same PATH variable.

**Running the application**

To run the application you should follow these instructions:

1. (On Windows) Open either a Linux distribution running on Windows Subsystem For Linux or install a tool like Cygwin to be able to run .sh files.
2. Open a terminal or similar utility depending on OS.
3. Navigate to <Your file system>/File-System-Navigator-Java/infra/scripts.
4. First run ./build.sh this should run the maven build and copy the artefacts into the script directory.
5. Next run ./run\_server.sh this should spin up the server portion of the application and show you the number of currently connected clients and number of operations performed.
6. Open a second terminal and navigate to <Your file system>/File-System-Navigator-Java/infra/scripts.
7. Run the ./run\_client.sh script. This should spin up a client and allow you to use the “ls” and “cd” commands any other command returns “invalid command” and “quit” ends your server connection.
8. Keep opening terminals and running the ./run\_client.sh script to bring up as many clients as you wish. When it updates the server will report the new number of connected clients and as the operations are performed it will increase.
9. Disconnect at least one client and watch the clients connected number decrease on the server terminal on the next update.