Working with Git repositories

# Setting up a local repository

1. Create a local directory [projectfolder]
2. Configure a name and an email
   1. git config --global user.name "John Doe"
   2. git config --global user.email johndoe@example.com
3. Navigate to the local directory in the command line e.g., cd c:\xyz\
   1. git init -b (-b stands for --initial-branch)

To set the main branch name while initializing the repo:

* 1. git init -b **"name"**

or to change it later you may set the init.defaultBranch variable:

* 1. git config --global init.defaultBranch **"name"**

At some point GitHub decided to rename the default branch from ‘master’ to ‘main’.

1. Use git status to check the status of the working directory and commits
2. Add a file to the staging area
   1. git add <filename> <filename> ...

or add all files in the working directory

git add --all

To undo the changes use ‘restore’

git restore <file>

1. Commit the changes to the local repository
   1. git commit -m “<message>”
2. View the list of commits
   1. git log

# Setting up a remote repository

1. Create an account on GitHub
2. Create an SSH key pair (public and private keys) on your machine
   1. <https://learn.microsoft.com/en-us/viva/glint/setup/sftp-ssh-key-gen>
3. Set the SSH key in GitHub
   1. In GitHub click on your account icon on the top right
   2. Click Settings
   3. Click on SSH and GPG Keys
   4. Open the public key file on your machine
   5. Copy the content of the file and paste it in the key filed in GitHub
   6. Give the key a name and Click add SSH key
4. Test the SSH connection to GitHub
   1. <https://docs.github.com/en/authentication/connecting-to-github-with-ssh/testing-your-ssh-connection>
5. Add a connection to your remote repository

Navigate to your project’s folder

* 1. git remote add <shortname> <URL>

set shortname to ‘origin’ and the URL is the URL to the GitHub repository https://github.com/[your path]/[your repo name].git

To see a list of connections

* 1. git remote

1. Push changes to the remote repository
   1. git push origin main

**Collaborating using one repository**

One of the team members has to set-up the repository and then push it to GitHub then the other team members have to clone the repository.

For this project just work on the same main branch to avoid dealing with complex merge and conflicts resolution issues.

1. Setup the connection to the remote repo
2. navigate to the repo or project folder ~\source\repos
   1. git clone https://github.com/[your path]/[your repo name].git
3. To push changes to the remote repository use the ‘git push’ command
4. To get the changes from the remote repository and apply them to the local repository
   1. git pull

Or if you are using a branch use fetch then merge

git fetch

git merge

Note conflicts need to be resolved if changes were made to the same lines in the same files so that the ‘pull’ task works and the local copy and the remote copy are the same.