**Git Usage Notes**

*Created: 2024-09-14*

*Modified: 2024-09-14*

**REFERENCES**

* ChatGPT 4o mini
* <https://www.atlassian.com/git/tutorials/syncing>
* Engineering Large Software Systems course at the University of Toronto

**COMMANDS**

**git remote**: manage and interact with remote repositories. “git clone” automatically creates the “origin” remote connection pointing to the cloned repo.

|  |  |
| --- | --- |
| git remote | List short names of remotes configured. |
| git remote -v | List remotes with fetch and pull URLs. |
| git remote add [name] [url] |  |
| git remote remove [name] |  |
| git remote rename [old-name] [new-name] |  |
| git remote get-url [name] |  |
| git remote set-url [name] [new-url] |  |
| git remote show [name] | Display detailed info on a remote. |

**git checkout**: branch switching and file restoring.

|  |  |
| --- | --- |
| git checkout branch | Switch branch. |
| git checkout -b branch | Create and switch to branch. |
| git checkout [commit] -- [file-path]  git checkout HEAD~1 -- path/to/file.txt | Restore file from commit.  HEAD~1 is the commit just before current HEAD. |

**git push**: push changes to remote repository.

|  |  |
| --- | --- |
| git push --set-upstream origin branch | --set-upstream is used when branch has yet to be pushed to remote |
| git push -u origin branch | -u is alias of --set-upstream |
| git push origin branch | Pushing without setting upstream if it’s already set up |

**USAGE**

**Syncing a Forked Repository (Merge Commit)**

|  |  |  |
| --- | --- | --- |
| 1 | git remote add upstream git@github.com:org/repo.git | Add upstream remote |
| 2 | git remote | Check remote added. |
| 3 | git fetch upstream | Fetch changes from upstream repo. |
| 4 | git checkout main | Switch local branch. |
| 5 | git merge upstream/main main | Merges upstream main into local main.  Fast forward if no conflicts. |
| 6 | git push origin main |  |

**Syncing a Forked Repository (Rebase)**

Identical first few steps as merge commit.

|  |  |  |
| --- | --- | --- |
| 4 | git checkout main | Switch local branch. |
| 5 | git pull --rebase upstream main | Rebase branch onto upstream branch. |
| 6 | git push origin main --force | Force push to fork if pushed commits before rebase. |