**Distributed Version Control System: GIT SCM**

**Ultimate Git Mastery** Runbook that teaches you everything you need to know to use Git like a professional.

* Learn & understand Git inside out
* Master the command line
* Version your code and confidently recover from mistakes
* Collaborate effectively with others using Git and GitHub
* Boost your career opportunities

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# Creating Git Snapshots

# 

# Initialising a repository

git init

## Staging files

git add file1.js # Stages a single file

git add file1.js file2.js # Stages multiple files

git add \*.js # Stages with a pattern

git add . # Stages the current directory and all its content

## Viewing the status

git status # Full status

git status -s # Short status

## Committing the staged files

git commit -m “Message” # Commits with a one-line message

git commit # Opens the default editor to type a long message

## Skipping the staging area

git commit -am “Message”

## Removing files

git rm file1.js # Removes from working directory and staging area

git rm --cached file1.js # Removes from staging area only

## Renaming or moving files

git mv file1.js file1.txt

## Viewing the staged/unstaged changes

git diff # Shows unstaged changes

git diff --staged # Shows staged changes

git diff --cached # Same as the above

## Viewing a commit

git show 921a2ff # Shows the given commit

git show HEAD # Shows the last commit

git show HEAD~2 # Two steps before the last commit

git show HEAD:file.js # Shows the version of file.js stored in the last commit

## Unstaging files (undoing git add)

git revert “Commit ID”

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# Browsing History

## Viewing the history

git log --stat # Shows the actual changes (patches)

git log --patch # Shows the list of modified files

## 

## Viewing the history

git log # Full history

git log --oneline # Summary

git log --reverse # Lists the commits from the oldest to the newest

## Filtering the history

git log -3 # Shows the last 3 entries

git log --author=“Mosh”

git log --before=“2020-08-17” git log --after=“one week ago”

git log --grep=“GUI” # Commits with “GUI” in their message

git log -S“GUI” # Commits with “GUI” in their patches

git log hash1..hash2 # Range of commits

git log file.txt # Commits that touched file.txt

## Formatting the log output

git log --pretty=format:”%an committed %H”

## Creating an alias

git config --global alias.lg “log --oneline"

## Viewing a commit

git show HEAD~2

git show HEAD~2:file1.txt # Shows the version of file stored in this commit

## Comparing commits

git diff HEAD~2 HEAD # Shows the changes between two commits

git diff HEAD~2 HEAD file.txt # Changes to file.txt only

## Checking out a commit

git checkout dad47ed # Checks out the given commit

git checkout master # Checks out the master branch

## Finding a bad commit

git bisect start

git bisect bad #Marks the current commit as a bad commit

git bisect good ca49180 #Marks the given commit as a good commit

git bisect reset #Terminates the bisect session

## Finding contributors

git shortlog

## Viewing the history of a file

git log file.txt # Shows the commits that touched file.txt

git log --stat file.txt # Shows the number of changes for file.txt

git log --patch file.txt # Shows the patches (changes) applied to file.txt

## Tagging

git tag v1.0 # Tags the last commit as v1.0

git tag v1.0 5e7a828 # Tags an earlier commit

git tag # Lists all the tags

git tag -d v1.0 # Deletes the given tag

# Branching & Merging

## Managing branches

git branch bugfix # Creates a new branch called bugfix

git checkout bugfix # Switches to the bugfix branch

git switch bugfix # Same as the above

git switch -C bugfix # Creates and switches

git branch -d bugfix # Deletes the bugfix branch

## Comparing branches

git log master..bugfix # Lists the commits in the bugfix branch not in master

git diff master..bugfix # Shows the summary of changes

## Stashing

git stash push -m “New tax rules” #Creates a new stash

git stash list # Lists all the stashes

git stash show stash@{1} # Shows the given stash

git stash show 1 # shortcut for stash@{1}

git stash apply 1 # Applies the given stash to the working dir

git stash drop 1 # Deletes the given stash

git stash clear # Deletes all the stashes

## Merging

git merge bugfix # Merges the bugfix branch into the current branch

git merge --no-ff bugfix # Creates a merge commit even if FF is

git merge --squash bugfix # Performs a squash merge

git merge --abort # Aborts the merge

**Viewing the merged branches**

git branch --merged # Shows the merged branches

git branch --no-merged # Shows the unmerged branches

**Rebasing**

git rebase master # Changes the base of the current branch

# Collaboration

## Cloning a repository

git clone url

## Syncing with remotes

git fetch origin master # Fetches master from origin

git fetch origin # Fetches all objects from origin

git fetch # Shortcut for “git fetch origin”

git pull # Fetch + merge

git push origin master # Pushes master to origin

git push # Shortcut for “git push origin master”

## Sharing tags

git push origin v1.0 # Pushes tag v1.0 to origin

git push origin —delete v1.0

## Sharing branches

git branch -r # Shows remote tracking branches

git branch -v # Shows local & remote tracking branches

git push -u origin bugfix # Pushes bugfix to origin

git push -d origin bugfix # Removes bugfix from origin

## Managing remotes

git remote # Shows remote repos

git remote add upstream url # Adds a new remote called upstream

git remote rm upstream # Remotes upstream

# Rewriting History

## Undoing commits

git reset --soft HEAD^ # Removes the last commit, keeps changed staged

git reset --mixed HEAD^ # Unstages the changes as well

git reset --hard HEAD^ # Discards local changes

## Reverting commits

git revert 72856ea # Reverts the given commit

git revert HEAD~3… # Reverts the last three commits

git revert --no-commit HEAD~3..

## Recovering lost commits

git reflog # Shows the history of HEAD

git reflog show bugfix # Shows the history of bugfix pointer

## Amending the last commit

git commit --amend

## Interactive rebasing

git rebase -i HEAD~5