Git Cheat Sheet

The essential Git commands every developer must know

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Creating Snapshots

Initializing 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 the history

```
git log                 # Full history
git log --oneline       # Summary
git log --reverse       # Lists the commits from the oldest to the newest
```

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 restore --staged file.js  # Copies the last version of file.js from repo to index
```

Discarding local changes

```
git restore file.js           # Copies file.js from index to working directory
git restore file1.js file2.js # Restores multiple files in working directory
git restore .                 # Discards all local changes (except untracked files)
git clean -fd                 # Removes all untracked files
```

Restoring an earlier version of a file

```
git restore --source=HEAD~2 file.js
```

Browsing History

Viewing the history

```
git log --stat          # Shows the list of modified files
git log --patch         # Shows the actual changes (patches)
```

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 statistics (the number of changes) for file.txt
git log --patch file.txt  # Shows the patches (changes) applied to file.txt
```

Finding the author of lines

```
git blame file.txt        # Shows the author of each line in 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 possible
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
```

Cherry picking

```
git cherry-pick dad47ed  # Applies the given commit on 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 -vv               # 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
```

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