Git & GitHub cheat sheet

Configure tooling

Configure user information for all local repositories

```
$ git config --global user.name "[name]"
```

Sets the name you want attached to your commit transactions

```
$ git config --global user.email "[email address]"
```

Sets the email you want attached to your commit transactions

Create repositories

A new repository can either be created locally, or an existing repository can be cloned. When a repository was initialized locally, you have to push it to GitHub afterwards.

```
$ git init
```

The git init command turns an existing directory into a new Git repository inside the folder you are running this command. After using the `git init` command, link the local repository to an empty GitHub repository using the following command:

```
$ git remote add origin [url]
```

Specifies the remote repository for your local repository. The url points to a repository on GitHub.

```
$ git clone [url]
```

Clone (download) a repository that already exists on GitHub, including all of the files, branches, and commits

Make changes

```
$ git add [file]
```

Snapshots the file in preparation for versioning

```
$ git commit -m "[descriptive message]"
```

Records file snapshots permanently in version history

Synchronize changes

Synchronize your local repository with the remote repository on GitHub.com

```
$ git fetch
```

Downloads all history from the remote tracking branches

```
$ git merge
```

Combines remote tracking branches into current local branch

```
$ git push
```

Uploads all local branch commits to GitHub

```
$ git pull
```

Updates your current local working branch with all new commits from the corresponding remote branch on GitHub. `git pull` is a combination of `git fetch` and `git merge`

Branches

Branches are an important part of working with Git. Any commits you make will be made on the branch you're currently "checked out" to. Use `git status` to see which branch that is.

```
$ git branch [branch-name]
```

Creates a new branch

```
$ git switch -c [branch-name]
```

Switches to the specified branch and updates the working directory

```
$ git merge [branch]
```

Combines the specified branch's history into the current branch. This is usually done in pull requests, but is an important Git operation.

Redo commits

Erase mistakes and craft replacement history

```
$ git reset [commit]
```

Undoes all commits after `[commit]`, preserving changes locally

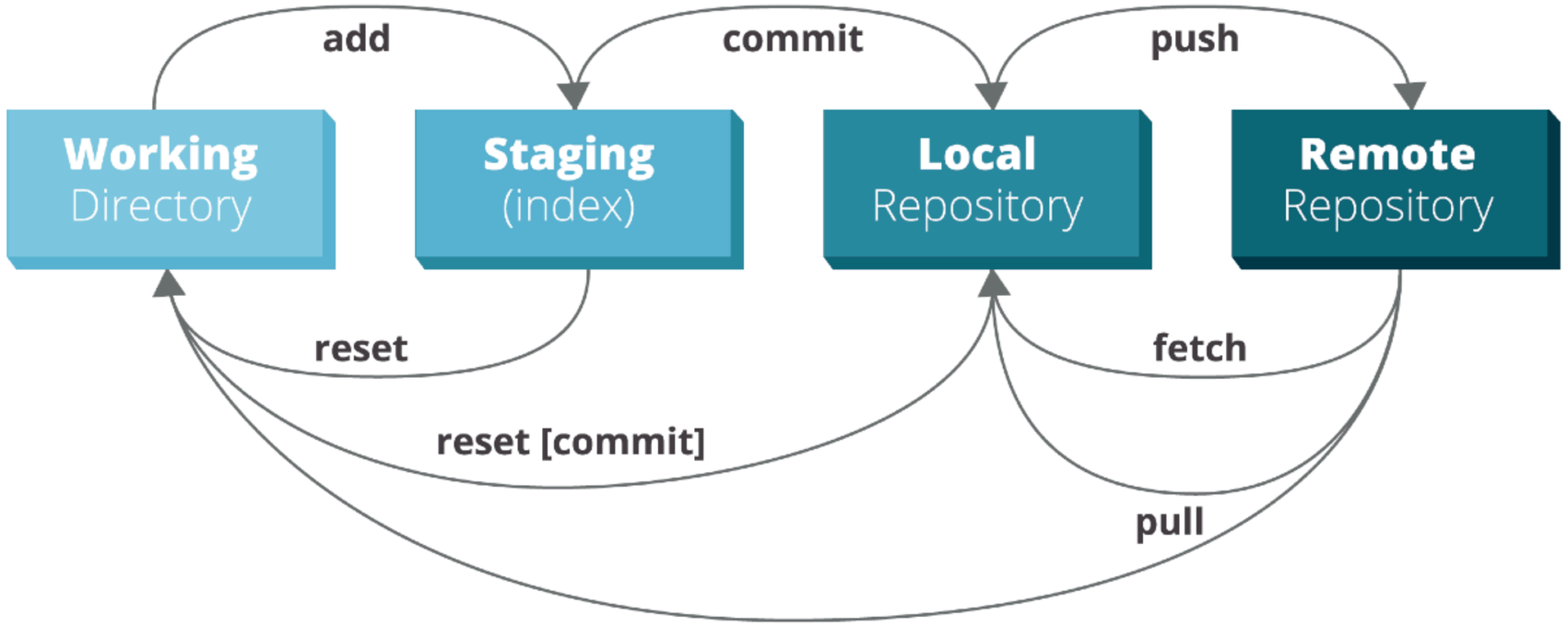
```
$ git reset --hard [commit]
```

Discards all history and changes back to the specified commit

> CAUTION! Changing history can have nasty side effects. If

Adapted from https://training.github.com/downloads/github-git-cheat-sheet/

Git & GitHub birdview



- **git**: an open source, distributed version-control system
- **GitHub**: a platform for hosting and collaborating on Git repositories
- **commit**: a Git object, a snapshot of your entire repository compressed into a SHA
- **branch**: a lightweight movable pointer to a commit
- **clone**: a local version of a repository, including all commits and branches
- **remote**: a common repository on GitHub that all team members use to exchange their changes
- **fork**: a copy of a repository on GitHub owned by a different user
- **pull request**: a place to compare and discuss the differences introduced on a branch with reviews, comments, integrated tests, and more
- **HEAD**: representing your current working directory, the HEAD pointer can be moved to different branches, tags, or commits when using `git switch`