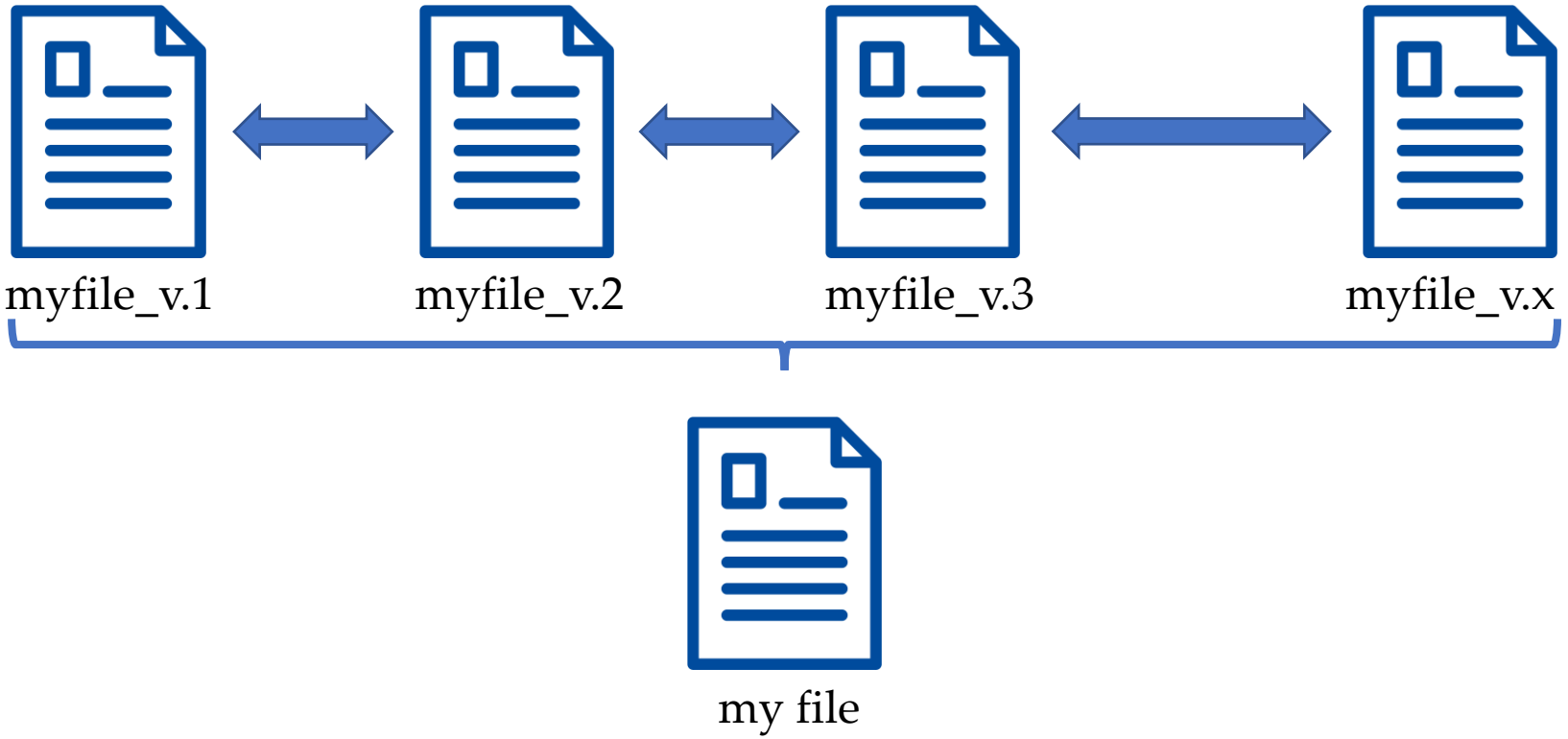
Git Version Control

What is Version Control?

- Version control is a system that records changes to a file or set of files over time so that you can recall specific versions later.

Why Is Version Control Important?

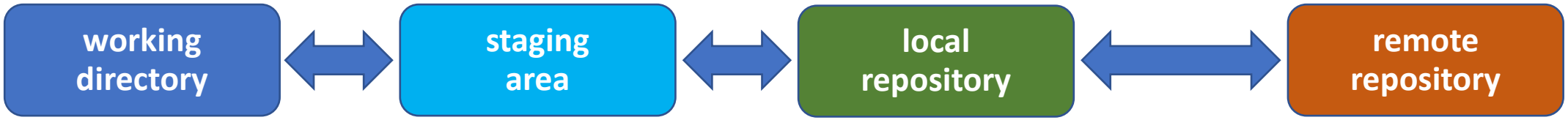


What Is Git?

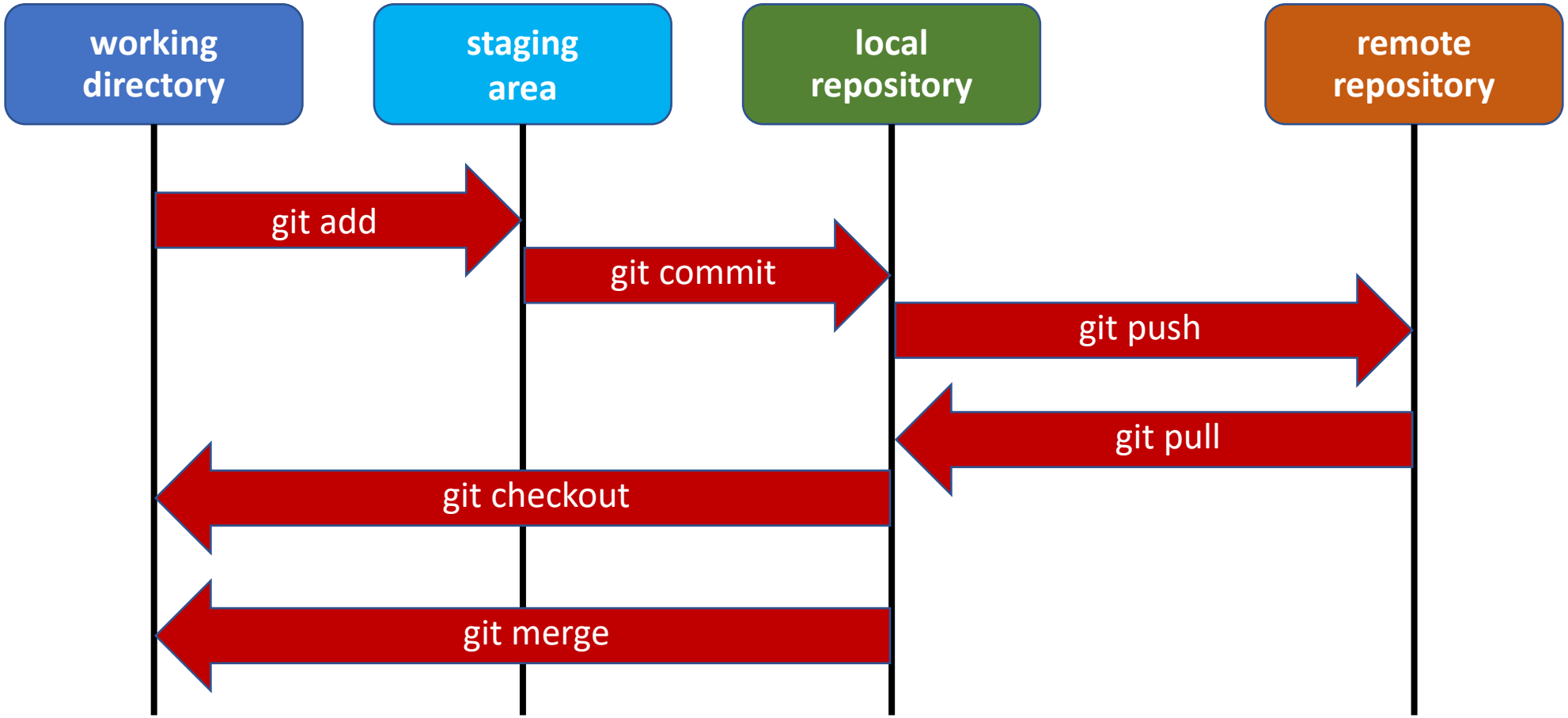
- Git is a distributed version-control system for tracking changes in source code during software development.

Local Git

Remote Git



Workflow


working directory
staging area
local repository
remote repository
git add
git commit
git push
git pull
git checkout
git merge

Installing Git on Windows

- go to https://git-scm.com/download/win

Initial Setup

- Once you have installed Git, the first thing you need to do is to tell Git your name and email (particularly before creating any commits).

  - git config --global user.name "Your Name"
  - git config --global email@gmail.com

Initialize a new Git repository: git init

- A Git repository is the local collection of all the files related to a particular Git version control system and contains a .git subdirectory in its root.

- Everything you code is tracked in the repository. To initialize a git repository, use this command while inside the project folder. This will create a .git folder.

```
git init
```

git status

- This command will list files in green or red colors. Green files have been added to the stage but not committed yet. Files marked as red are the ones not yet added to the stage.

```
git status
```

git add

- This command adds one or all changed files to the staging area.

```
git add file_name
```

```
git add .
```

git commit

- This command records the file in the version history. The -m means that a commit message follows. This message is a custom one and you should use it to let your colleagues or your future self know what was added in that commit.

```
git commit -m "your text"
```

Git Server

- Github
  - https://github.com/
- Gitlab
  - https://about.gitlab.com/
- BitBucket
  - https://bitbucket.org/

Connecting a Remote Repository

- git remote command is used to connect your local repository to the remote server.

```
git remote add origin https://github.com/user/project.git
```

git push

- This command sends the committed changes to a remote repository.

```
git push origin master
```

git fetch

- Sometimes you may wish to download the new commits from the remote repository without merging them into your current branch (or without merging them yet). To do this, you can use the git fetch command.

```
git fetch
```

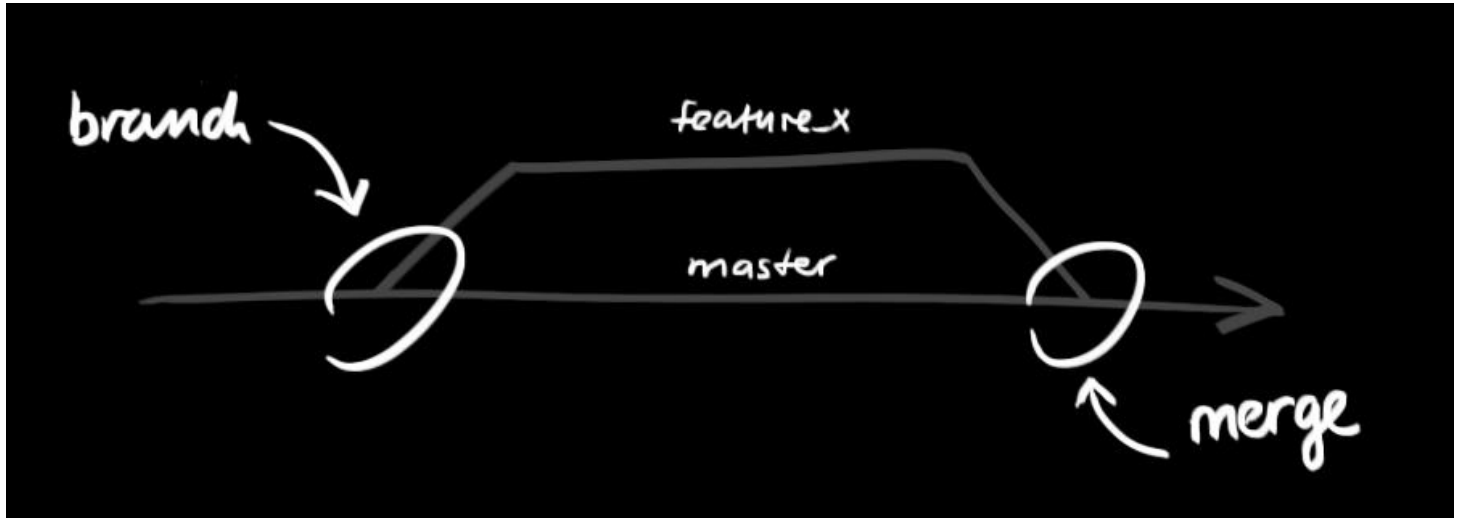
git pull

- To pull the changes from the remote server to your local computer.

```
git pull origin master
```

Git Branching

- Branches are used to develop features isolated from each other. The master branch is the "default" branch when you create a repository. Use other branches for development and merge them back to the master branch upon completion.



git branch

- To list all the branches and see on what branch you currently are:

```
git branch
```

Creating a New Branch

- The git branch command can be used to create a new branch. When you want to start a new feature, you create a new branch off master using the following command:

```
git branch new_branch
```

Switching Branches

- To switch from one branch to another:

```
git checkout branch_name
```

Merging Branches

- Suppose you've decided that your new_branch work is complete and ready to be merged into your master branch. In order to do that, you'll merge your new_branch into master using the following commands:

```
git checkout master

git merge new_branch
```

Deleting Branches

- We can delete a branch by calling the branch command and passing in the -d option, followed by the branch name.

```
git branch -d branch_name
```

git log

- The git log command displays all the commits in a repository's history.

```
git log
```

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