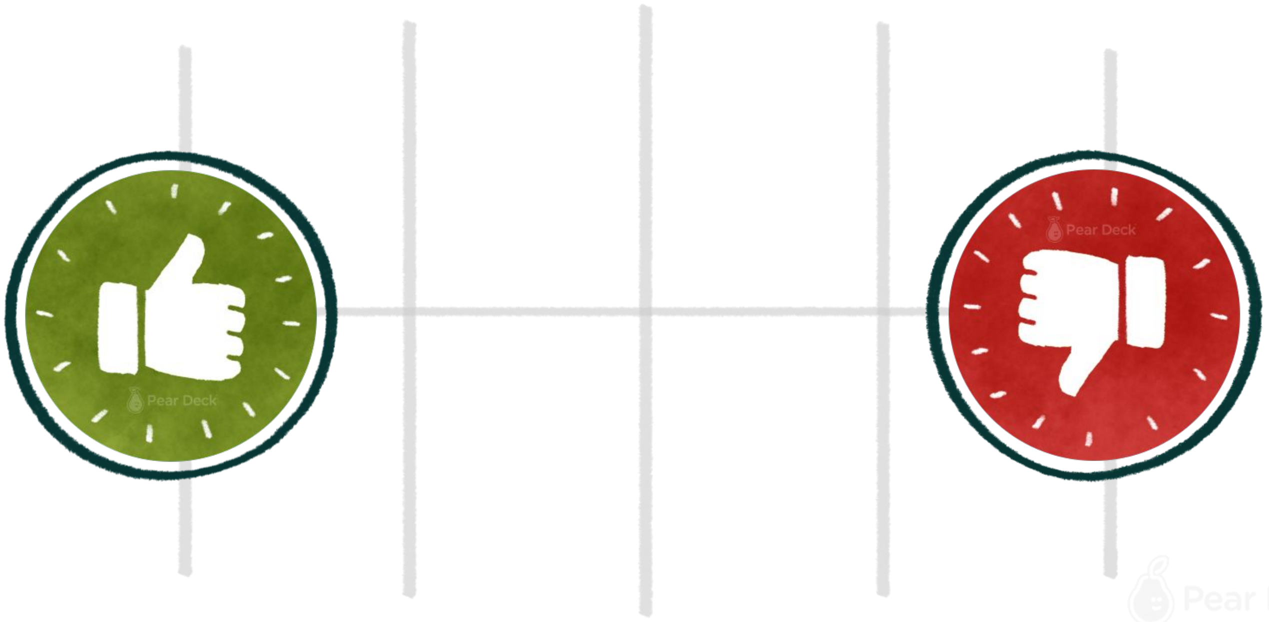
Git Introduction

CLARUSWAY©
WAY TO REINVENT YOURSELF

Did you finish pre-class work?



Students, drag the icon!

Git Journey

Git introduction
Git workflow
Local repo
operations

→

Branches
Merge
Conflicts

→

Remote repo
GitHub
GUI

→

Contribution to
the Public
Repository
Forking
Pull request

→

More Practice
with Git

git GitHub

Table of Contents

- What is version control?
- What is Git?
- How to create a Git repository?
- Basic Git commands
- Git workflow

What do you know about Git?

Let’s discuss about Git

What is Git?

Git is an open source distributed version control system

1 What’s Version Control?

What’s Version Control?

Version Control Systems

What comes to your mind when you hear this?

What's Version Control?

- Track changes on text files / source files for you
- Unlimited Undo / Redo
- Time Travel
- Collaborative development environment
- Compare and Blame
  - What changed
  - When it changed
  - Why it changed
  - Who changed it

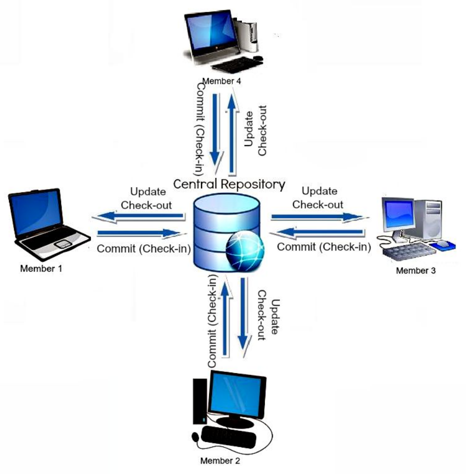
Version Control Systems

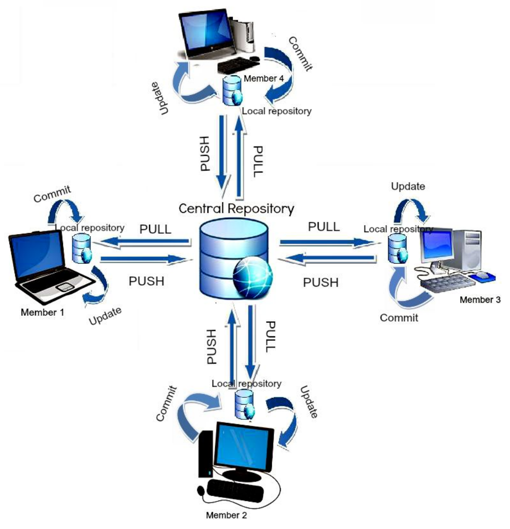
- **Centralized**

You need to be connected to the server

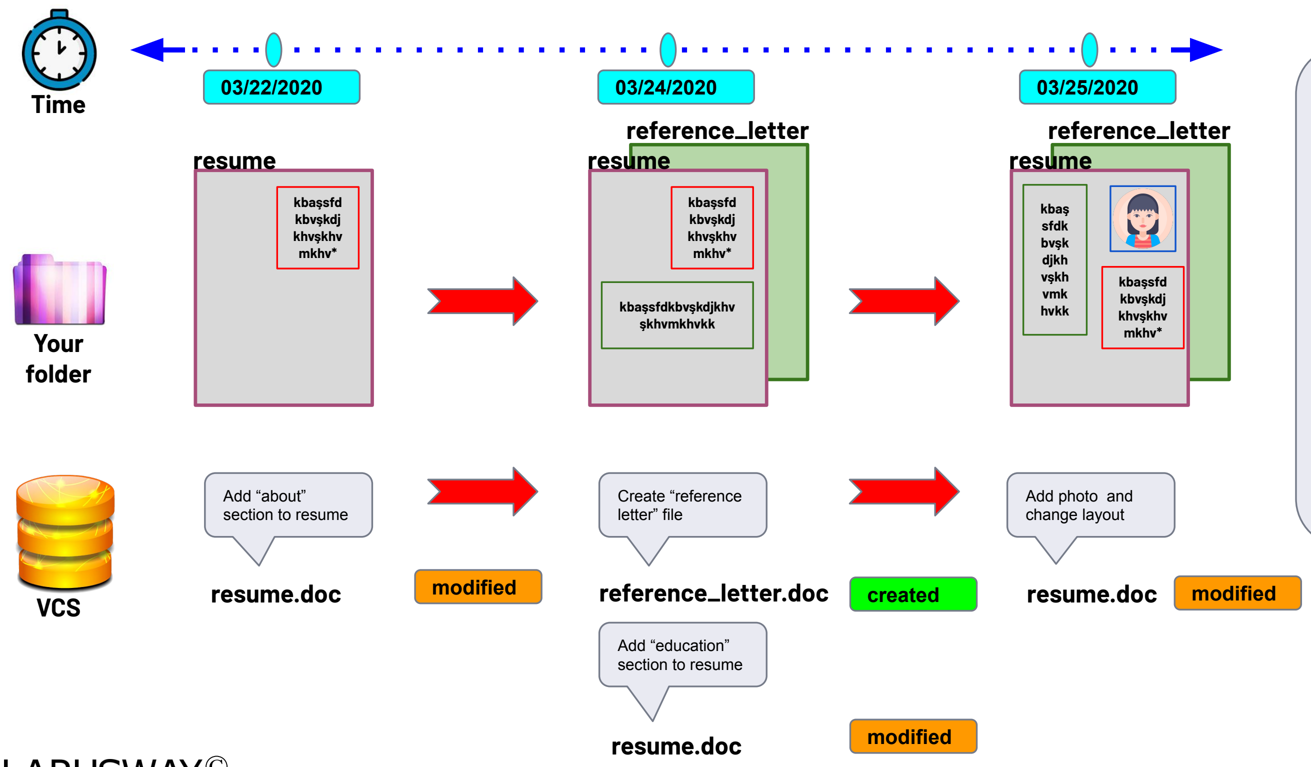
- **Distributed**

You can work while offline





What’s Version Control?


Time
03/22/2020
03/24/2020
03/25/2020
Your folder
resume
reference_letter
resume
reference_letter
resume
kbaşsfd kbvşkdj khvşkhv mkhv*
kbaşsfdkbvşkdjkhv şkhvmkhvkk
kbaş sfdk bvşk djkh vşkh vmk hvkk
VCS
Add “about” section to resume
resume.doc
modified
Create “reference letter” file
reference_letter.doc
created
Add “education” section to resume
resume.doc
modified
Add photo and change layout
resume.doc
modified

A **version control system** is a system that tracks and records changes to a select group of files over time, so that previous versions of those files can be retrieved easily in the future.

What’s Version Control?

Version Control Systems (VCS)

- **Tracks** and **records** changes to files over time
- Can track any type of file, but most commonly used for code
- Contains extra information such as date, author, and a message explaining the change

What's Version Control?

Benefits of Version Control Systems (VCS)

- Can **retrieve** previous version of files at any time
- Retrieve files that were accidentally deleted
- Can be used **locally**, or **collaboratively** with others

2 What is Git?

What is Git?

- **Git** is a software
- Content Tracker
- Distributed Version Control System (VCS)
- Linus Torvalds

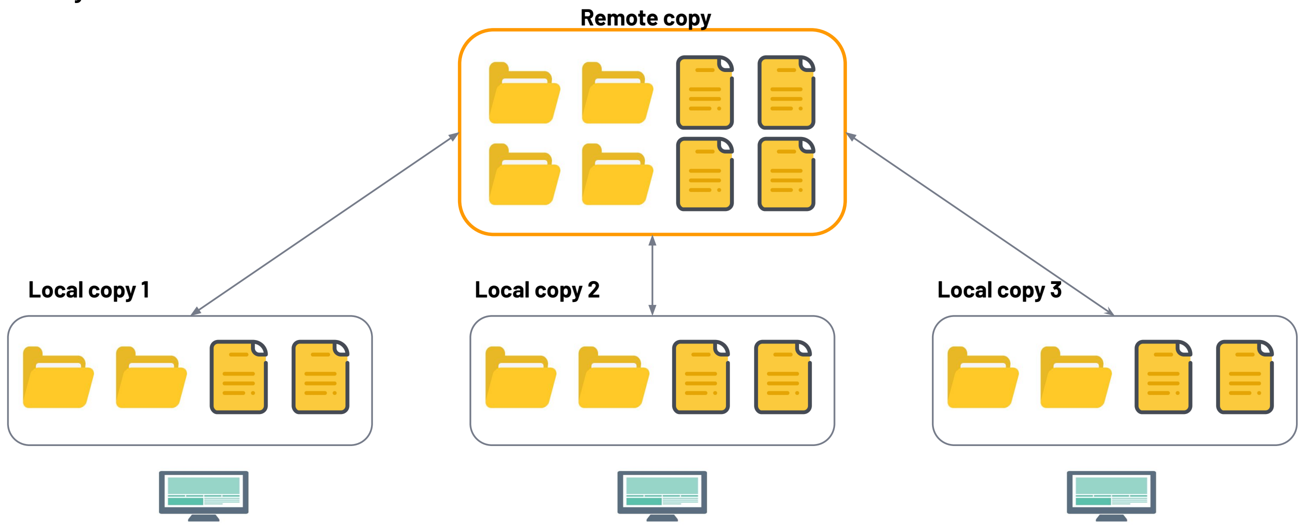
Why do we need Git?

- Backup/Archive/Versioning/History
- Undo Changes
- Comparing
- Collaboration and Teamwork
- Code Review
- Blame

Git Basics

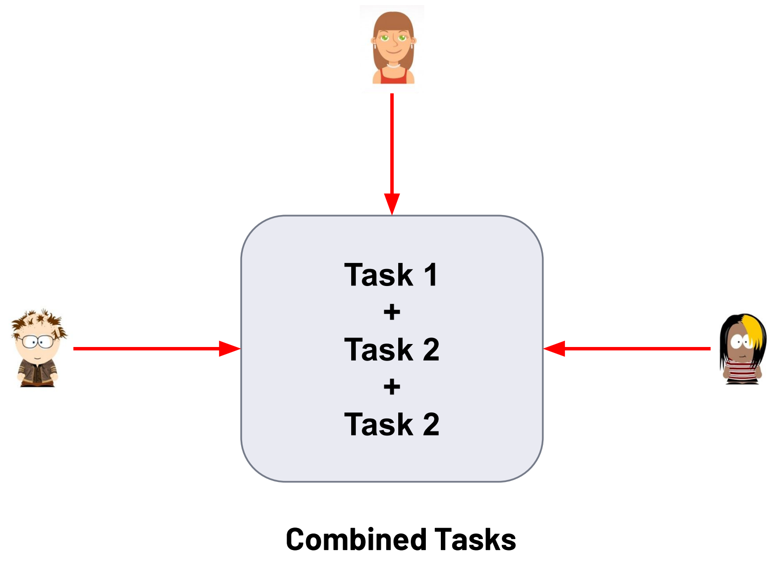
Backup

- In any case if your remote server crashes, a backup is available in your local servers.



Git Basics

Collaboration

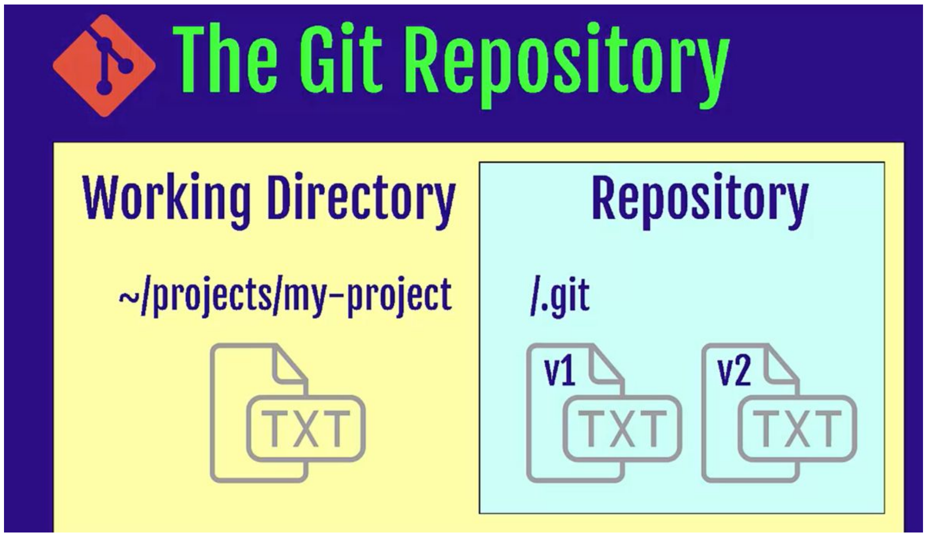


Git Repository

What is a repository

- A directory or storage space where your projects can live.

- Local Repository
- Remote Repository



Git Repository

Git Repository

→ Let’s check if you have git in your computer

```
git --version
```

→ git needs your identity to mark/label changes / editor

```
git config --global user.name “Your Name”
```

```
git config --global user.email “Your Email”
```

```
git config --global core.editor “vim”
```

```
git config --list
```

Git Repository

→ to create a new local repo

```
git init
```

→ to see the commands

```
git help
```

→ to see the status of your repo

```
git status
```

Git Repository

→ to create a new remote repo and connect it with your local repo (after you create a remote repo on Github/Bitbucket etc.)

```
git clone address
```

3 Workflow

Workflow

Working Directory

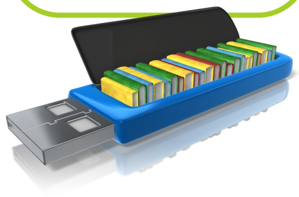
Where you work. Create new files, edit files delete files etc.

Staging Area (Index)

Before taking a snapshot, you're taking the files to a stage. Ready files to be committed.

Repository

Committed snapshots of your project will be stored here with a full version history.



CLARUSWAY©
WAY TO REINVENT YOURSELF

File Stages

Committed	Unmodified changes from the last commit snapshot
Modified	Changes made to files since last commit snapshot
Staged	Changes marked to be added into the next commit snapshot

CLARUSWAY©
WAY TO REINVENT YOURSELF

Track a new file

- let’s create a new file in our project folder

```
touch file1.txt
```

- let’s edit this file

```
vim file1.txt
```

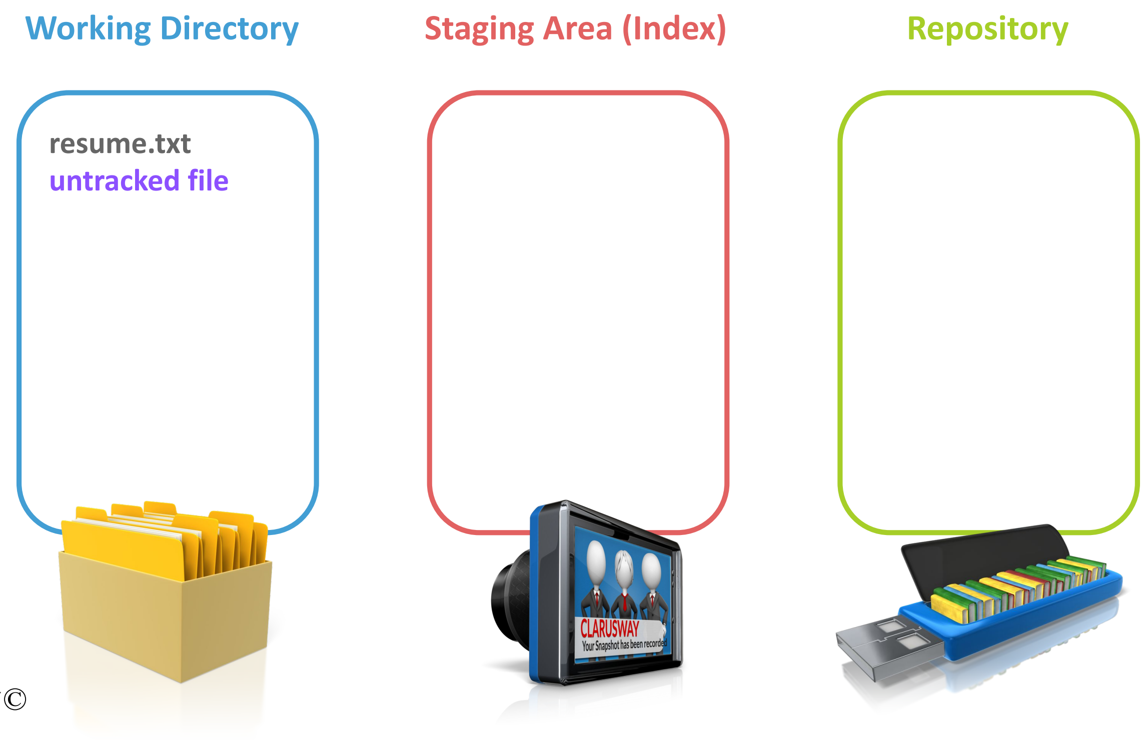
- let’s check the status of our project

```
git status
```

Git

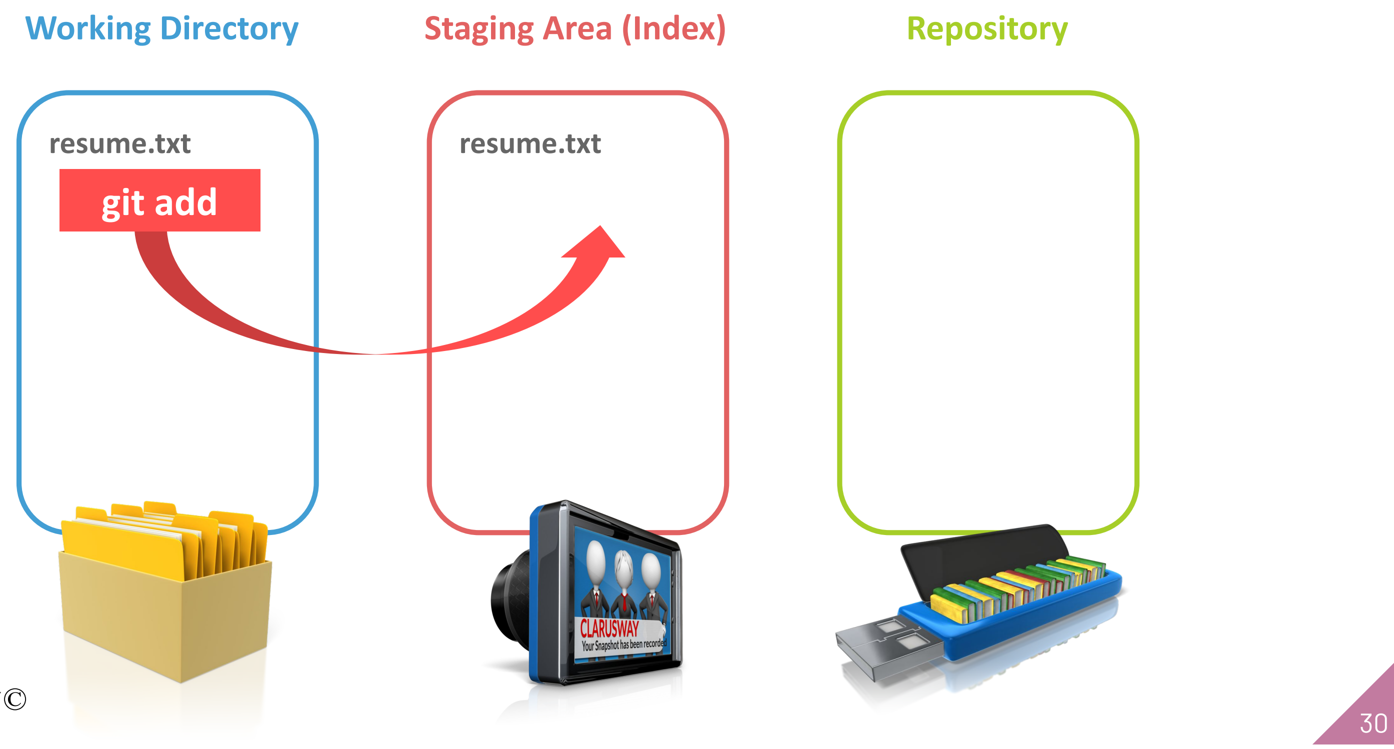
Stage modified files & commit changes

Create a new file



CLARUSWAY©
WAY TO REINVENT YOURSELF

Track/stage a file



CLARUSWAY©
WAY TO REINVENT YOURSELF

Stage files options

- stage one file

```
git add filename
```

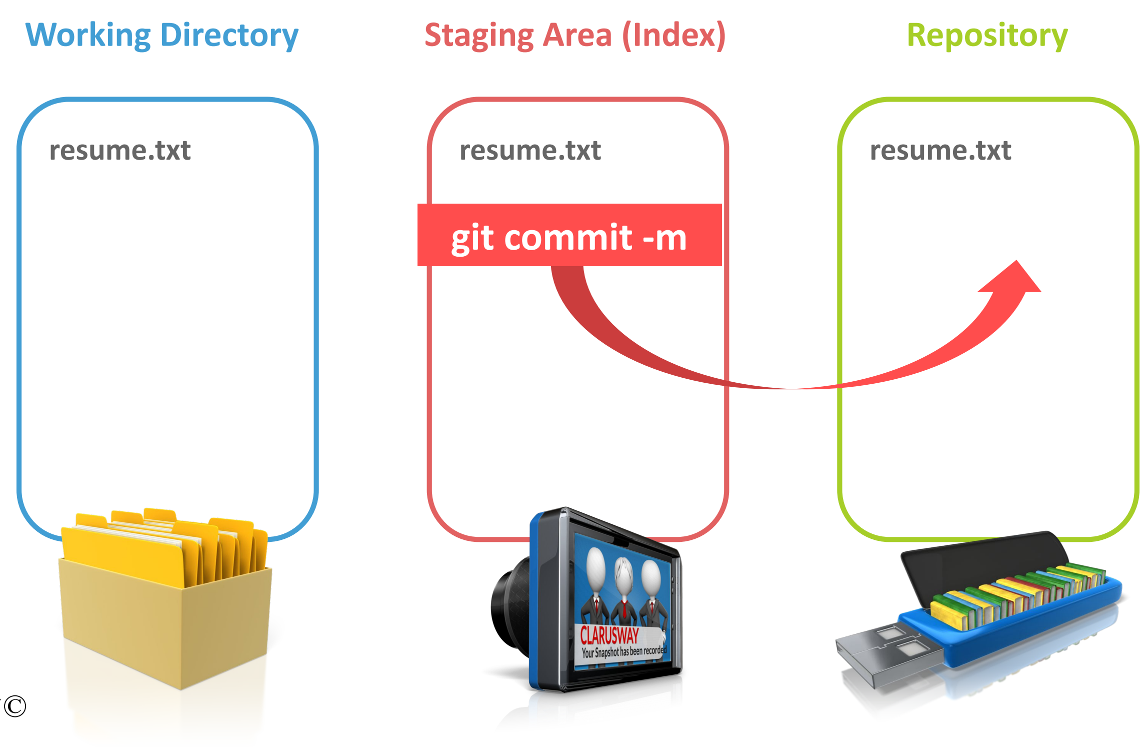
- stage all files (new, modified)

```
git add .
```

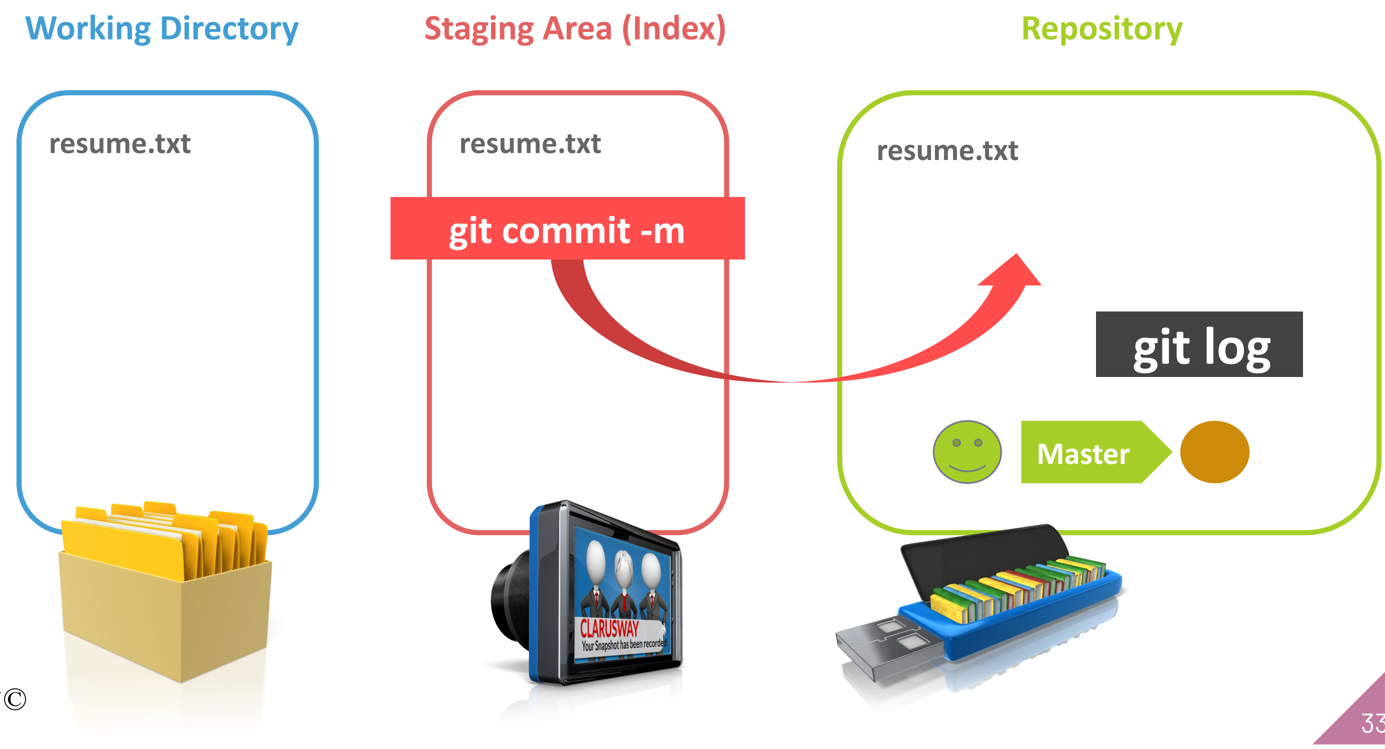
- stage modified and deleted files only

```
git add -u
```

Commit



Commit



CLARUSWAY©
WAY TO REINVENT YOURSELF

Commit

- Commit the files on the stage

```
git commit -m "message"
```

- Add and commit all tracked files

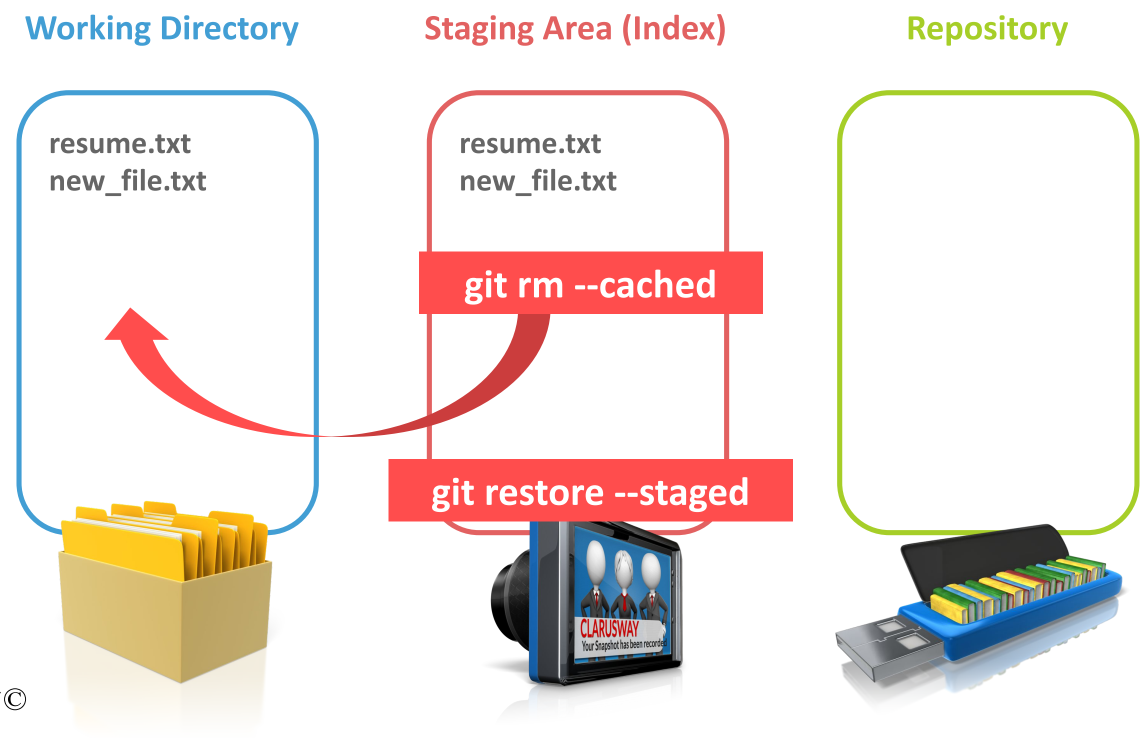
```
git commit -am "message"
```

- amend commit message

```
git commit --ammend
```

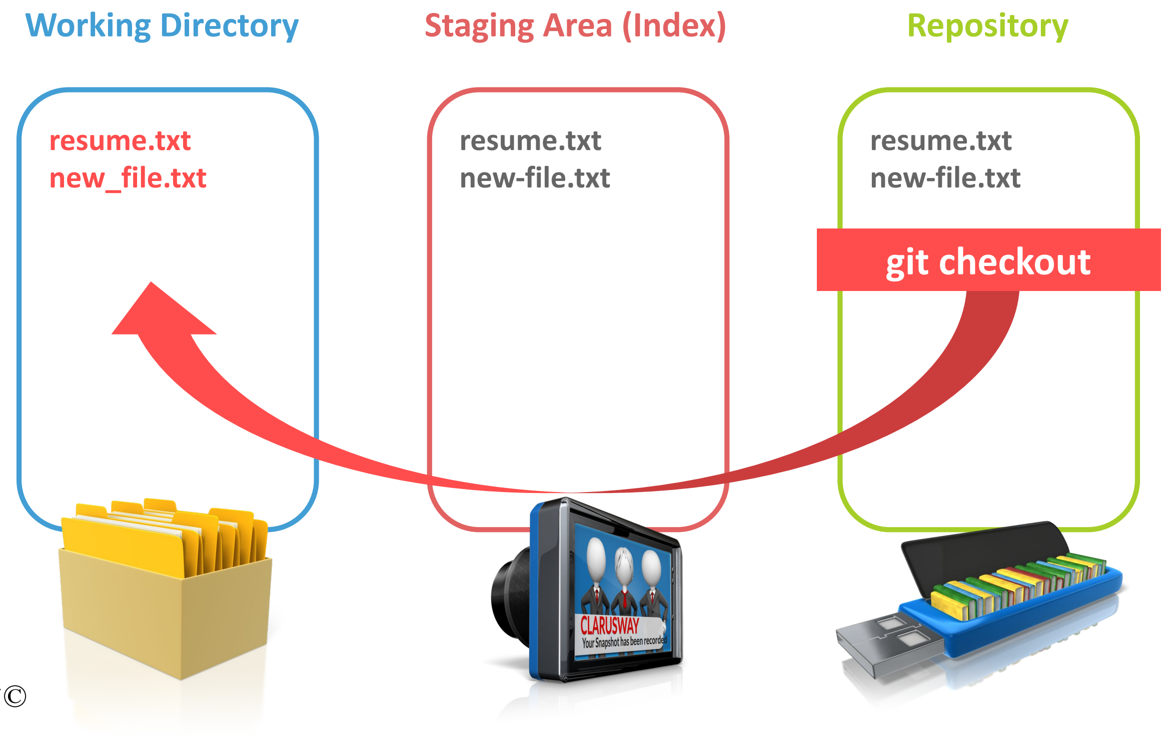
CLARUSWAY©
WAY TO REINVENT YOURSELF

Remove from stage



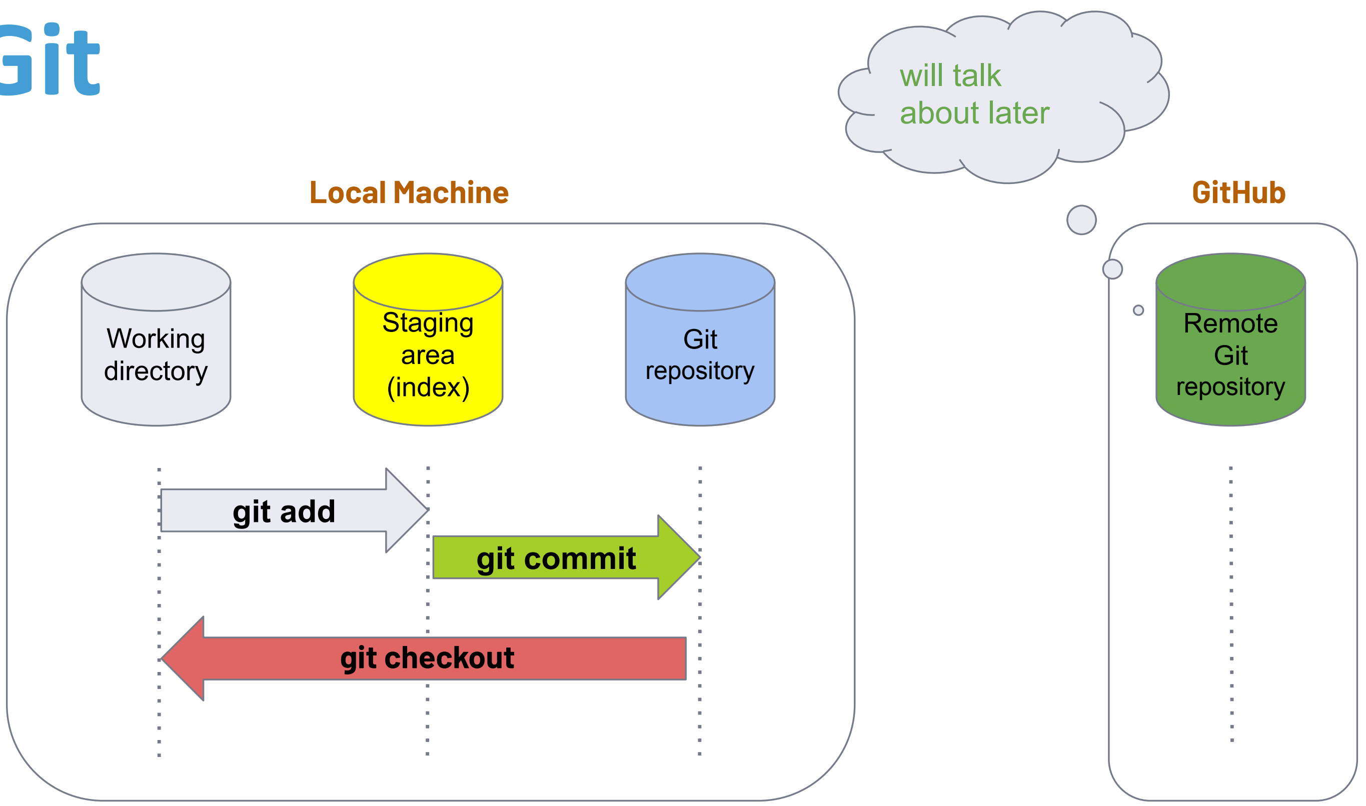
CLARUSWAY©
WAY TO REINVENT YOURSELF

Checkout from Repo



CLARUSWAY©
WAY TO REINVENT YOURSELF

Git



New project

- Create a repo `git init`
- Create a new file/edit file etc.
- Stage/Track your changes `git add .`
- Commit changes `git commit -m "message"`

Task-1

- Create a new repo under **project-3** folder
- Create a file named **file1.txt**
- Change the file
- Stage the file
- Commit the file to your repo

Students, write your response!

Task-1 Solution

- Create a new repo under **project-3** folder `git init`
- Create a file named **file1.txt** `touch file1.txt`
- Change the file `vim file1.txt`
- Stage the file `git add .`
- Commit the file to your repo `git commit -m "message"`

Task-2

- Create a file named **file2.txt**
- Edit **file2.txt**
- Stage
- Delete the file **file1.txt**
- Rename **file2.txt** >> **file3.txt**
- Stage **file3.txt**
- Unstage **file3.txt**
- Stage **file3.txt** again
- Commit the file to your repo
- Change the message of the commit
- Switch back to your first commit in Task-1

Students, write your response!

Task-2 Solution

Create a file named **file2.txt**	`touch file2.txt`
Edit **file2.txt**	`vim file2.txt`
Stage	`git add .`
Delete the file **file1.txt**	`rm file1.txt`
Rename **file2.txt** >> **file3.txt**	`mv file2.txt  file3.txt`
Stage **file3.txt**	`git add .`

Task-2 Solution Cntd.

- Unstage **file3.txt**

```
git rm --cached file3.txt
```

- Stage **file3.txt** again

```
git add .
```

- Commit the file to your repo

```
git commit -m “message”
```

- Change the message of the commit

```
git commit --amend
```

- Switch back to your first commit in Task-1

```
git log
```

```
git checkout “first commit ID”
```

Git

Summary

Summary

git init

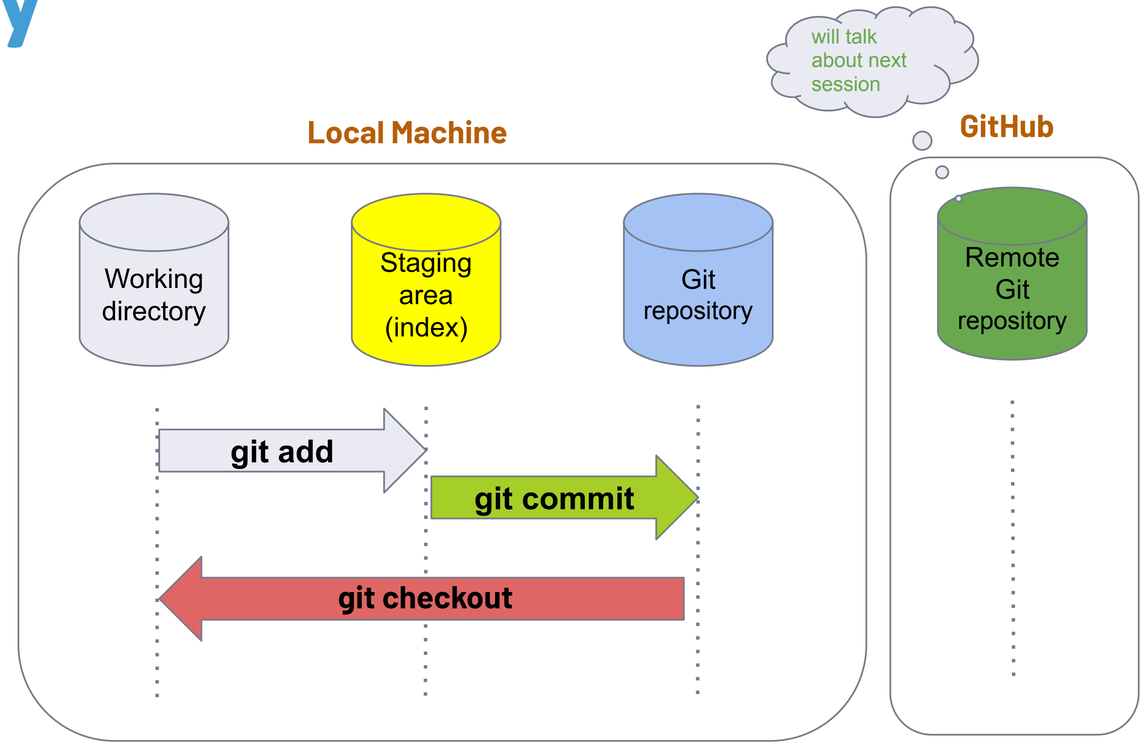
git status

git add .

git commit -m “abc”

git log

git checkout



CLARUSWAY©
WAY TO REINVENT YOURSELF

THANKS!

Any questions?

You can find me at:

- martin_fade@clarusway.com
- tyler@clarusway.com

CLARUSWAY©
WAY TO REINVENT YOURSELF