

Foundation Series



Git, GitHub Version Control Systems

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- 17+ years of Corporate Training Experience.
 - Delivered over 1600 in-person trainings across India, US, China, Oman and Thailand, and over 700+ remote trainings
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Introduction

Understanding Version Control systems

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Version Control

Friends, Romans, countrymen, lend me your ears;



Friends, Romans, countrymen, lend me your ears;
I come to bury Caesar, not to praise him.
Bring me a shovel, and a bucket



Friends, Romans, countrymen, lend me your ears;
I come to bury Caesar, not to praise him.
The evil that men do lives after them;
The good is oft interred with their bones;

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Progressive Saving Options

- Save and overwrite
 - Only have the latest version
 - Can't backtrack

caesar.txt

- Save to new files
 - Full history
 - Lots of duplication
 - No partial backtracking

caesar_1.txt

caesar_2.txt

caesar_3.txt

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Version Control

Store differences to the last version:

Version 1

+ Friends, Romans, countrymen, lend me your ears;

Version 2

+ I come to bury Caesar, not to praise him.
+ Bring me a shovel, and a bucket

Version 3

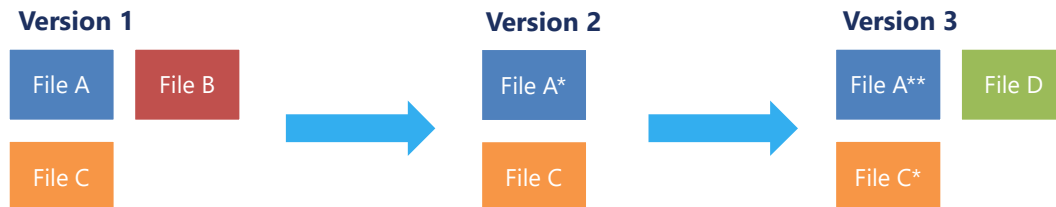
- Bring me a shovel, and a bucket
+ The evil that men do lives after them;
+ The good is oft interred with their bones;

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Project Management

Managing a development project is complex, difficult and requires version control



- Files edited
- Files added
- Files removed
- How to best manage this?

- Version control records each version of the project
 - Previous versions can be accessed as and when required
 - A great way to track of how and why scripts were modified
- Is also useful because:
- Back-up capabilities
 - Collaboration
 - Sharing

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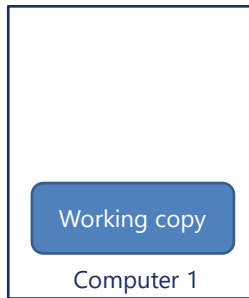
What's Git and GitHub

Understanding Version Control systems

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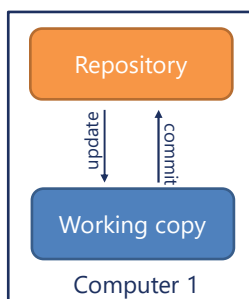
Distributed Version Control



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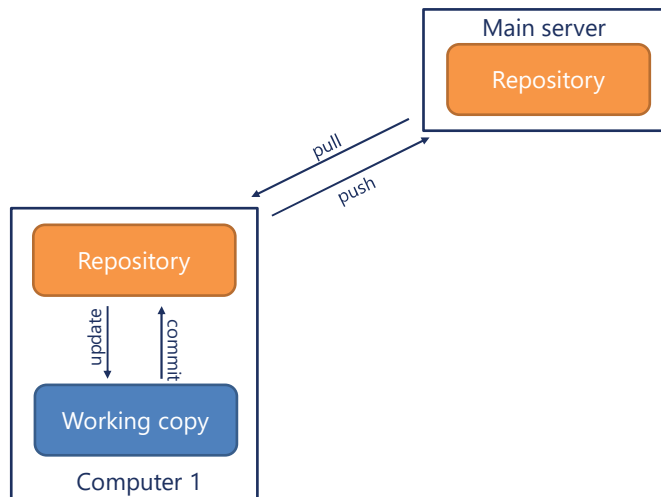
Distributed Version Control



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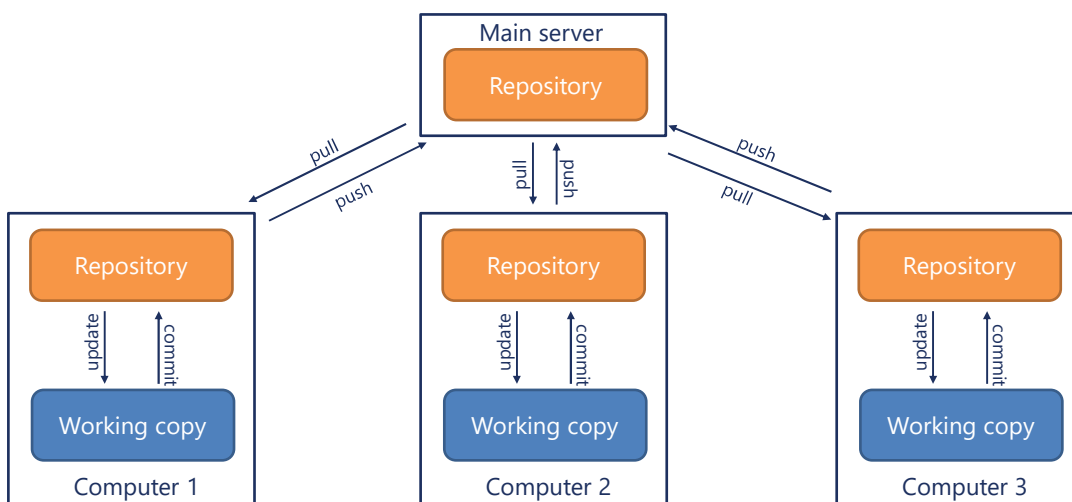
Distributed Version Control



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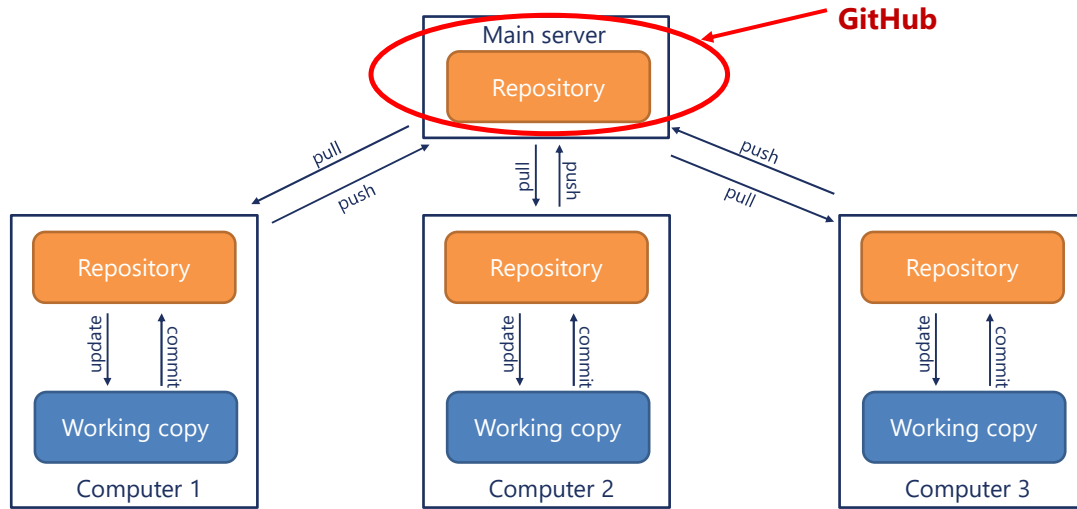
Distributed Version Control



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Distributed Version Control



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How does it work?

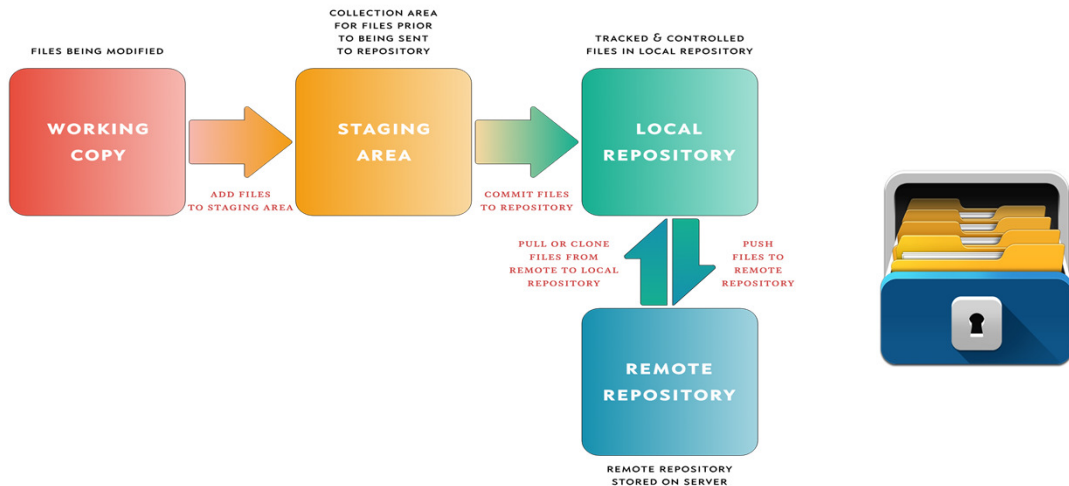
Understanding Version Control systems

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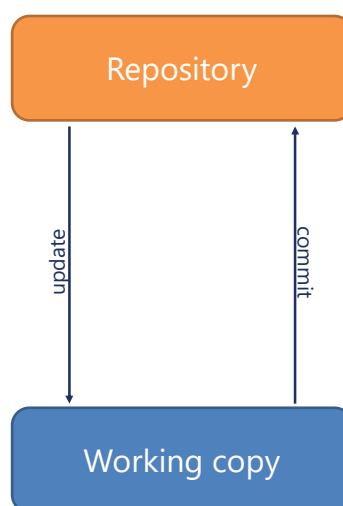
What is a Repository (Repo)

- A collection of all the files and the history of those files which consist of all your commits.



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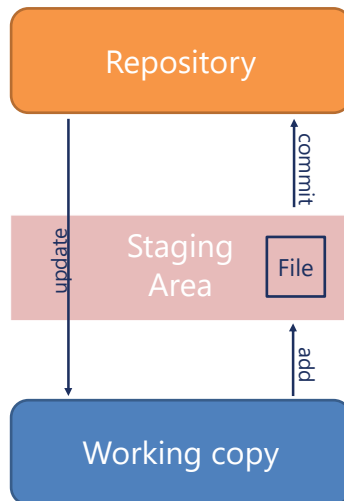
Committing files to a Git repository



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Committing files to a Git repository



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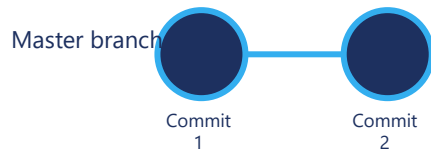
Branches



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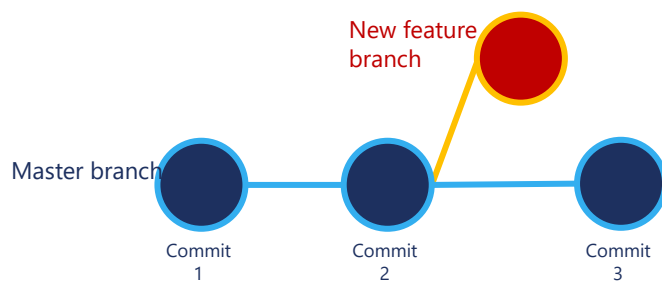
Branches



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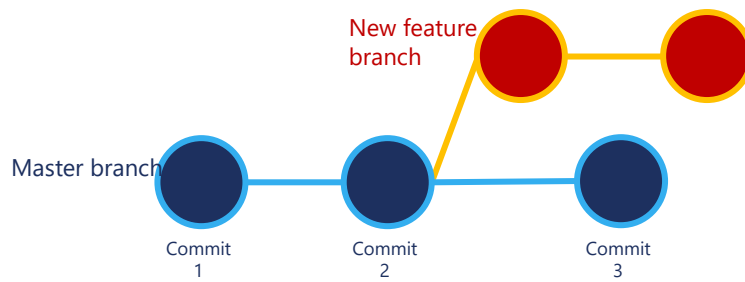
Branches



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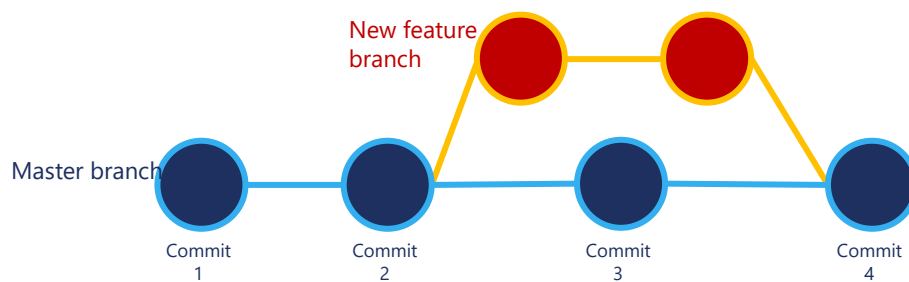
Branches



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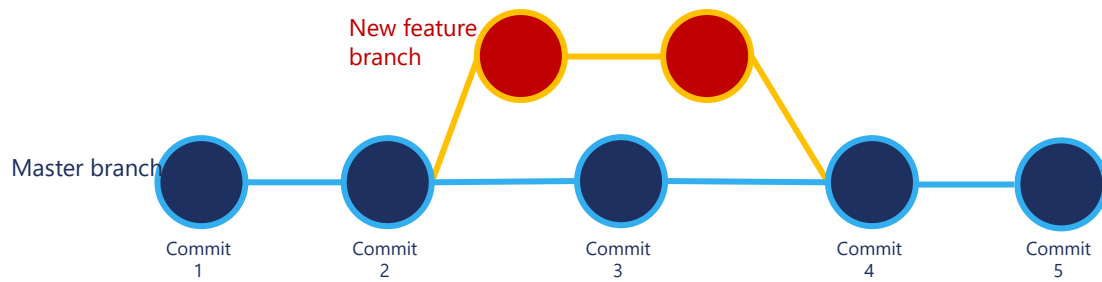
Branches



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Branches



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Git Commands

Understanding Version Control systems

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Important Terms and Commands

git init *newrepo*

- To initialize the git repo

Working Directory

- Contains all the files and folders

Staging Area

- files/folders that are added (or changes are made to the content) to git but not committed yet.

Git Repository

- Contains all the saved changes and modified/updated files and commit history.

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Important Terms and Commands

git add **.txt*

- To add the file to staging area

git commit **.txt*

- To commit changes to the remote repo

git clone

- To clone a remote repo to local store

git checkout -b *newbranchname*

- To create a branch

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In conclusion...

Understanding Version Control systems

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What is Version Control?

- A system that keeps records of your changes.
- Users keep entire code and history on their local machines.
- Allows for collaborative development.
- Allows you to know who made what changes and when.
- Allows you to revert any changes and go back to a previous state.

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What is Git?

- A tool which allows you to manage and track changes to files over time.
- When you create a repository, you will see a **.git** directory.
- It keeps track of a file's history
 - it tracks changes and who made those changes.
- Each version of a file is called a **commit**.



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Top 20 Git Commands

blog.algomaster.io

git init Initialize a new Git repository	git config Set Git configuration like email	git clone Copy a remote Git repo	git remote Manage remote repository connections
git status Show current changes and staged files	git add Stage changes for commit	git commit Save changes to local repo	git push Upload commits to remote
git pull Fetch and merge from remote	git fetch Download latest changes without merging	git branch Create or view branches	git checkout Switch between branches
git merge Combine changes from another branch	git rebase Reapply commits on top of another base	git log View commit history	git diff Show differences between commits or branches
git stash Save uncommitted changes temporarily	git reset Unstage or undo commits	git revert Create new commit to undo a change	git cherry-pick Apply specific commit from another branch

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Additional References

- Git Basics
<https://www.techwithchay.com/posts/git-basics/>

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Thank You

 Windows Azure

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