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INTRODUCTION TO GIT AND VERSION CONTROL

Learning the basics of git and github.

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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. SOME OF THE SOFTWARE TOOLS USD FOR VERSION CONTROL ARE GIT, CVS, APACHE SUBVERSON ...

WHAT IS GIT?

IT IS A DISTRIBUTED VERSION CONTROL SYSTEM FOR TRACKING VARIOUS CHANGES IN COMPUTER FILES. IT SIMPLIFIES WORKING ON FILES OR PROJECTS WITH MULTIPLE PEOPLE. IT WILL RECORD WHO MADE WHAT CHANGES AND WHEN. IT CAN REVERT BACK TO SPECIFIC CHANGES IF REQUIRED.

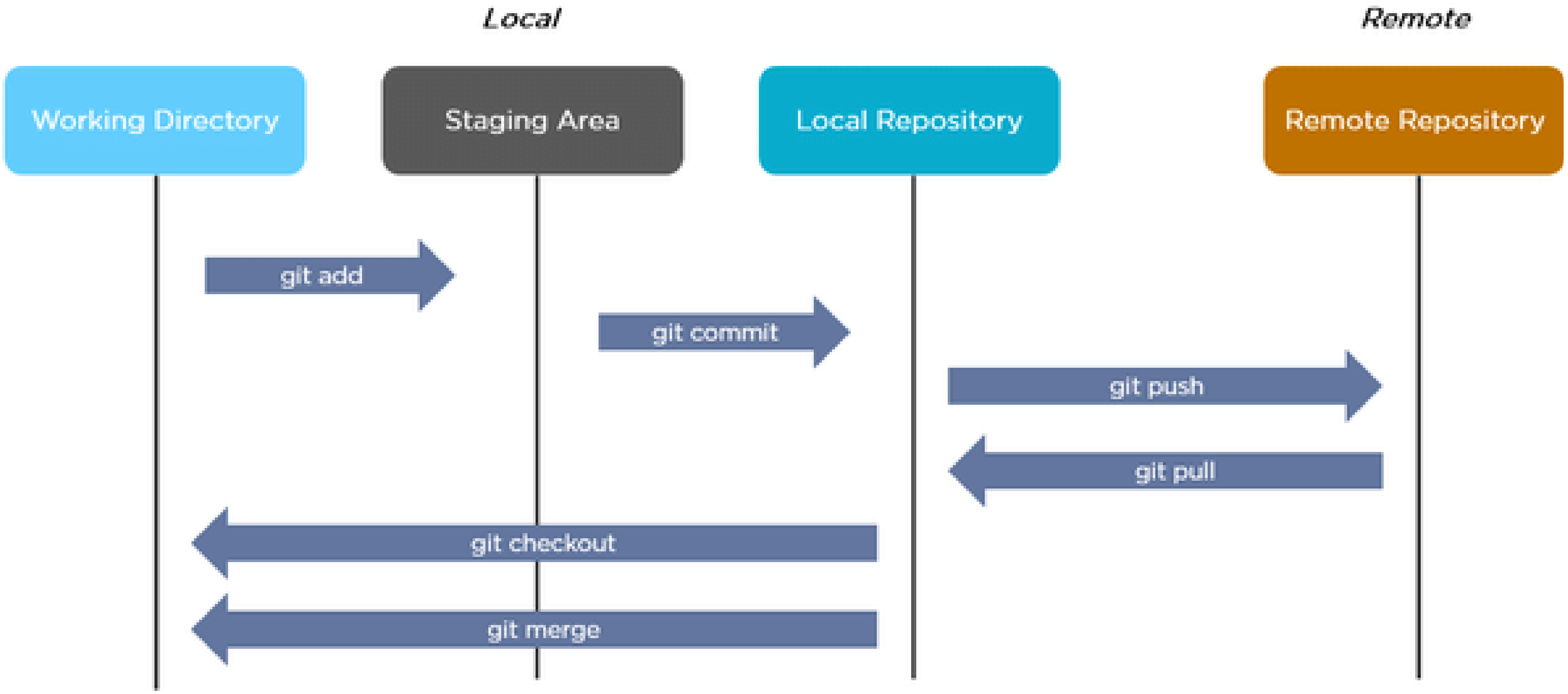
A BRIEF HISTORY OF GIT

- In 2002, the Linux kernel project began using a proprietary DVCS called BitKeeper.
- In 2005, the BitKeeper free-of-charge status was revoked.
- So, Linus Torvalds urgently needed a new version control system to maintain the development of the Linux Kernel.
- So in a week he wrote a new distrubuted VCS which is known as Git.
- Fifteen years later its still the market leader in VCS.

LINUS TORVALDS,PRINCIPAL DEVELOPER OF THE LINUX KERNEL AND GIT VSC.

THEN WHAT IS GITHUB??

FIRST OF ALL, GITHUB IS NOT GIT. MANY PEOPLE UNDERSTANDABLY CONFUSE THE TWO. GITHUB IS A WEBSITE FOR HOSTING PROJECTS THAT USE GIT.IT IS A WEB-BASED GIT REPOSITORY WHICH ALLOWS YOU TO INTERACT WITH OTHER DEVELOPERS ON OPEN SOURCE PROJECTS OR COLLABORATE WITH DEVELOPERS ON VARIOUS PROJECTS.


Local
Remote
Working Directory
Staging Area
Local Repository
Remote Repository
git add
git commit
git push
git pull
git checkout
git merge

Basic Architecture Of Git.

WORKING DIRECTORY

The working directory is the folder where you are currently working on your Git project.

STAGING AREA

The files added to the staging area are tracked and can be commited to the local repo.

LOCAL REPOSITORY

After all the changes are made, you commit the files to the local repository. The changes to the files are safely stored now.

REMOTE REPOSITORY

After commiting changes in local repository we can push the changes to local repository.

Some Basic Git Commands

```
$ git init
//initialising a git repo

$ git add <filename>
//adding new file to
staging area

$ git commit -m "message"
//commiting the changes and
adding the files to local repo
```

```
$ git branch
//gives list of branch

$ git checkout -b branchname
//makes a new branch

$git checkout branchname
//switches to that branch
```

```
 $ git merge
//merge the branch specified into
current branch
$ git log
//shows the history of commits
$ git status
//shows the file added in staging
area
```

```
$git revert
//reverses the changes made by previous
commit by creating a new commit
$ git push
//put the changes in local repo on
remote repo
$ git pull
// download changes from remote repo to
the local repo.
```

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1. Creating a local repository

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2. Creating a remote repo

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3. Gitignore

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4. git clone

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5. git branch

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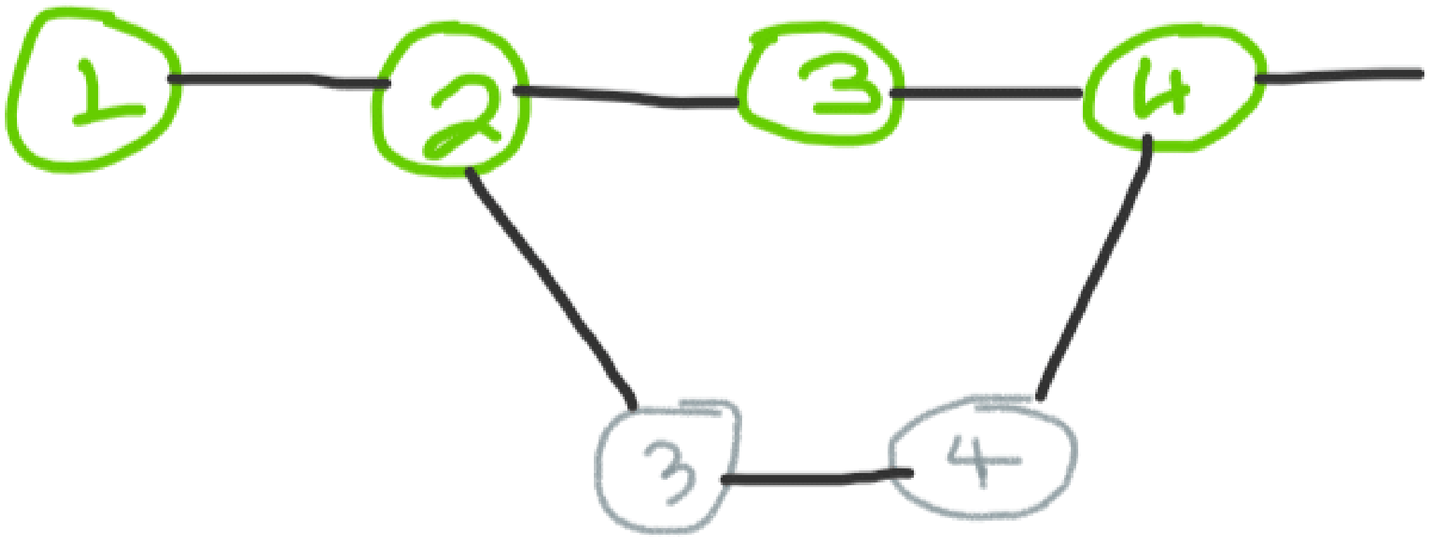
6. Forking and Pull request


1
2
3
4
3
4

FUN TASK

1. FORK THE GIT_TUTORIAL_TASK FROM GITHUB.
2. GIT CLONE "URL YOU JUST COPIED"
3. CREATE A NEW BRANCH AS BRANCH NAME YOUR NAME
4. ADD A TXT FILE WITH YOUR NAME IN IT
5. COMMIT THE CHANGES
6. PUSH IT INTO THE REMOTE REPO
7. MAKE A PULL REQUEST

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THANK YOU.