GIT (Distributed version control system)

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GIT

What is Version Control?

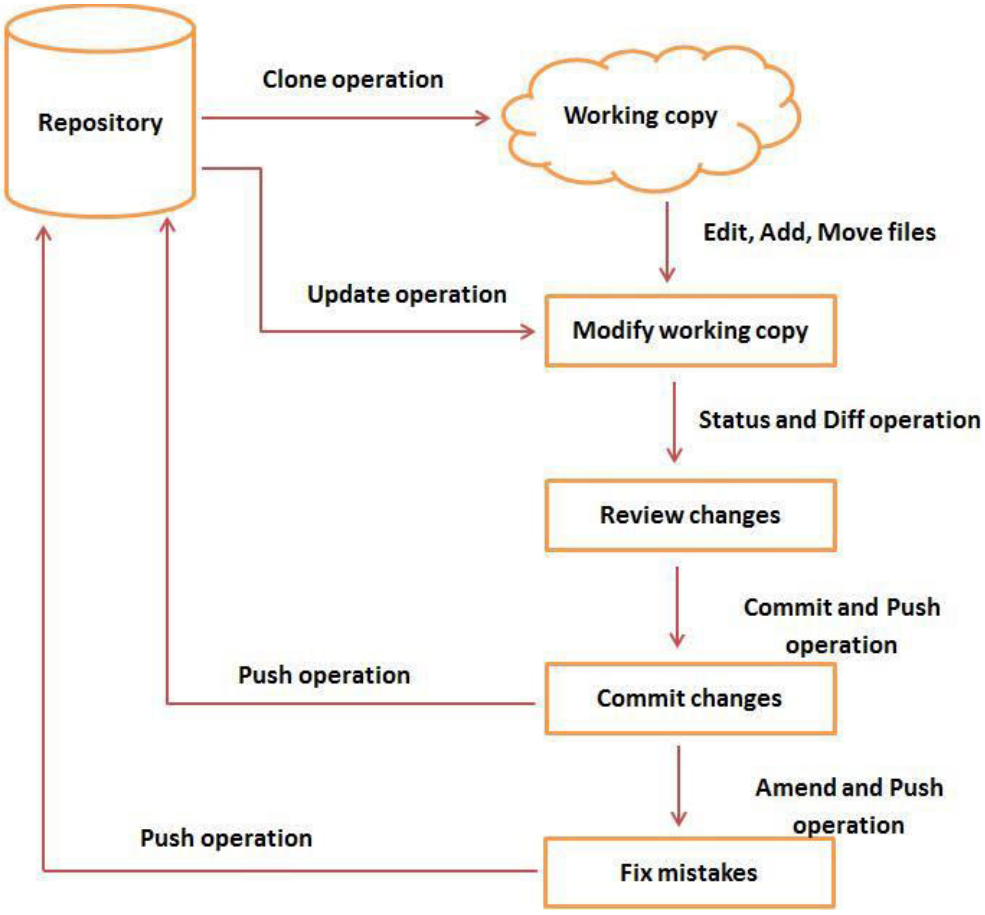
Version control software keeps track of every modification to the code in a special kind of database. If a mistake is made, developers can turn back the clock and compare earlier versions of the code to help fix the mistake while minimizing disruption to all team members.

1.What is GIT?

- *Git* is currently the most popular implementation of a distributed version control system.

1. Git originates from the Linux kernel development and was founded in 2005 by Linus Torvalds

1.1 GIT Workflow



1.2 Installation of GIT in LINUX

Use the apt-get install git command

1.3 Running our first Git command

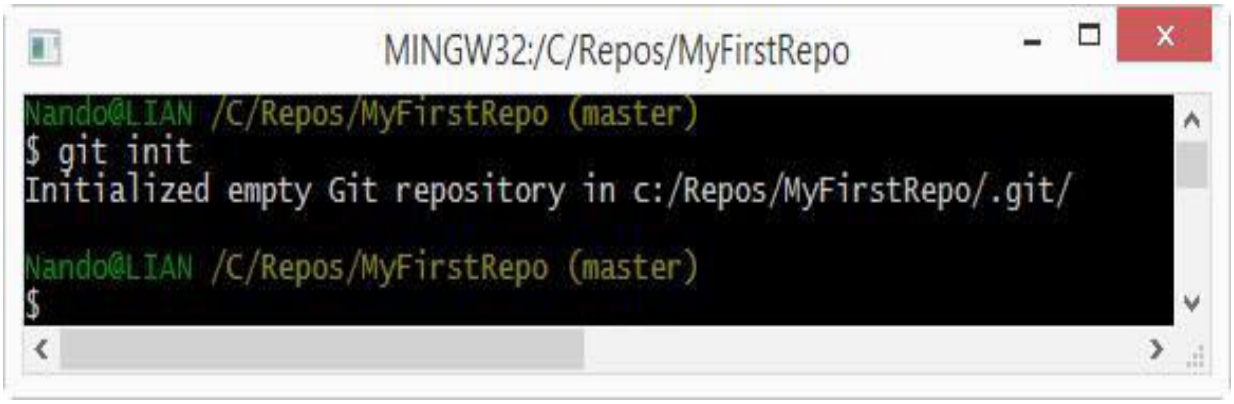
Open a prompt and simply type git (or the equivalent, **git --help**)

1.4 Setting up a new repository

$mkdir git_prac
$cd git_prac
$ls -al
$git init

The first step is to set up a new repository (or repo, for short).

A repo is a container for your entire project; every file or subfolder within it belongs to that repository,in a consistent manner.



To check the git init repository type the cmd

- ls -al

Git created a .git subfolder. The subfolder (normally hidden in Windows) contains some files and folders.

1.5 Config user name and user password git
config –global user.name "Your Name"
git config –global user.email you@example.com

1.6 Adding a file

We have to tell Git to put this file in your repo, explicitly

I want MyFile.c under the control of Git, so let's add it

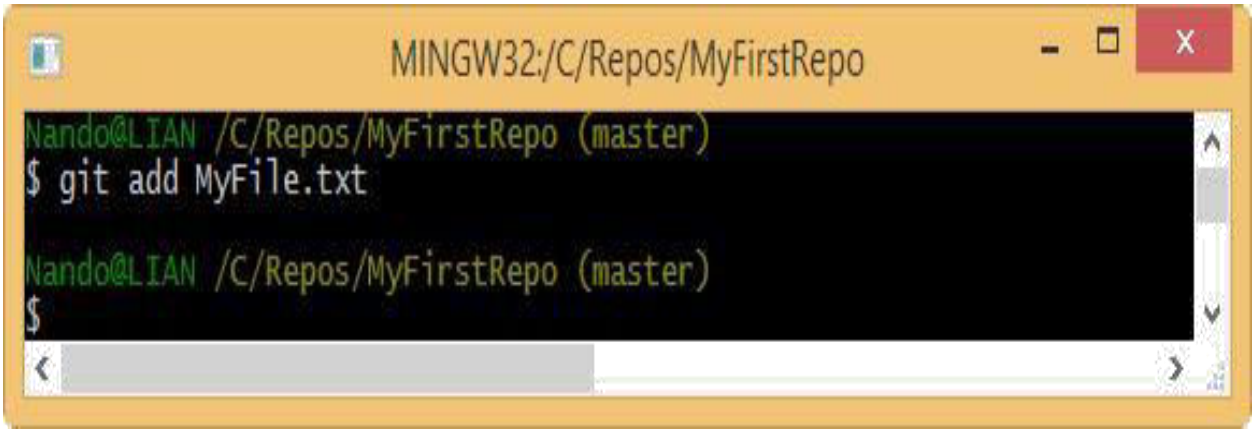
Create **main_prog.c** file using vi editor.It contains **#include<stdio.h> only**

Type the cmd

$**git status**

It will show **main_prog.c** in **untracked files.(Red marked)**

$git add main_prog.c



Now Type the cmd

$**git status**

It will show **main_prog.c** in **tracked files.(Green Marked)**

1.7 Commit the added file

Git knows about main_prog.c , but we have to perform another step ,We have to commit it using the appropriate **git commit** command. This time, we will add some flavor to our command ,using the --message (or -m) subcommand, as shown here

Now Type the command

$**git commit -m " header file added"**

1.8 To check commit is added or not

- Type the command

$**git log**

commit b336e9645f0d8af9d3f2f0ba95a5bdcb6d1b4d78 Author: Training Sessions <sessitra@vta025l.votarytech.com> Date: Wed Jan 18 09:43:59 2017 +0530

header file added

Type the command
$**git branch**
*** master**

Master branch is created once the commit is added

1.9 Modify a committed file

Now, we can try to make some modifications to the file

Open **main_prog.c**
Edit int main(void)
{
}

Now Type the cmds:

- **$git status**
  It will show **main_prog.c** in **untracked files**.(Red Marked)

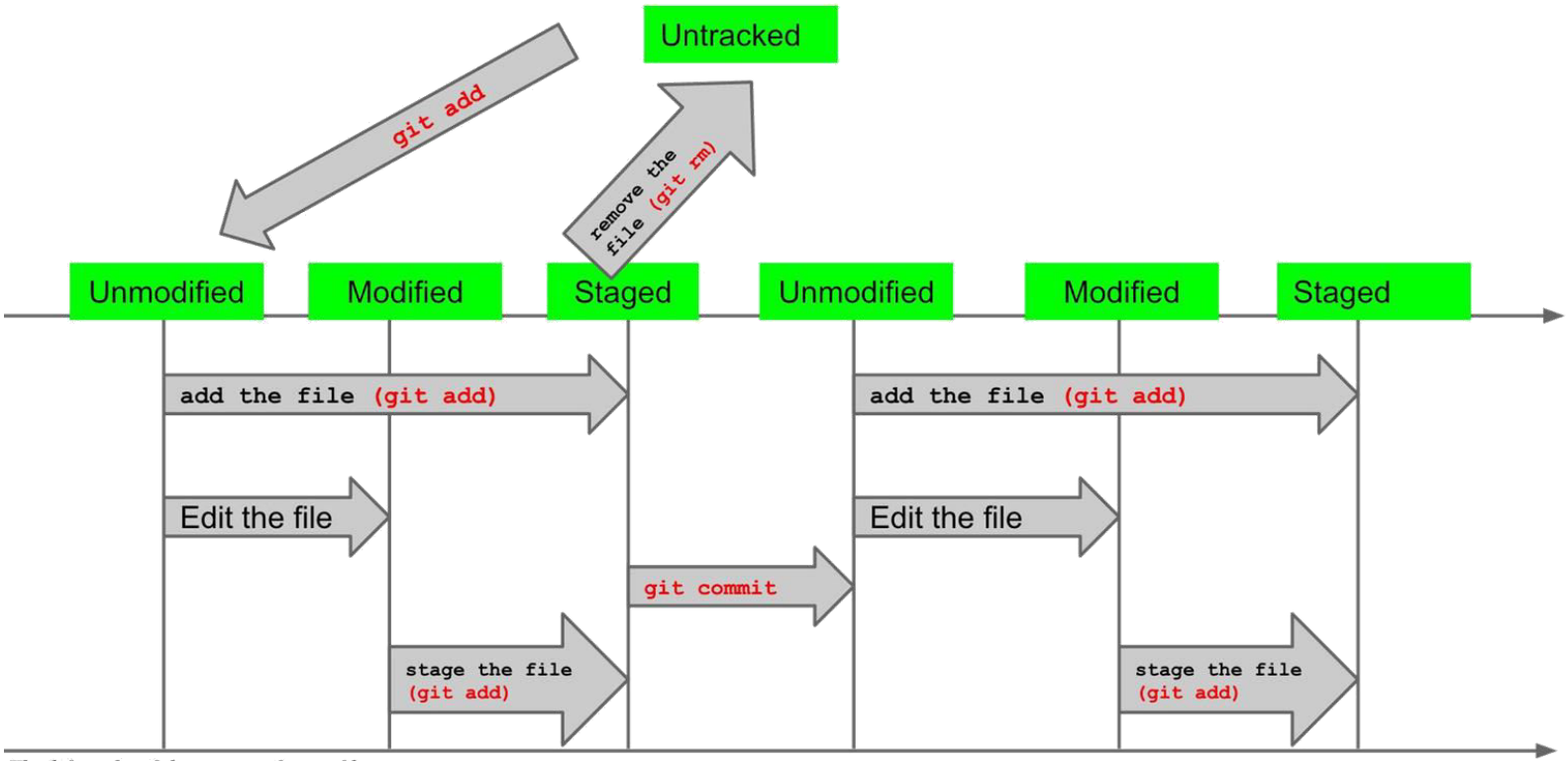
- **$git add main_prog.c**

- **$git status**
  It will show **main_prog.c** in **tracked files**.(Green Marked)

- **$git commit -m "main function added"**

- **$git log**

- **$git diff previous old commit id new commit id**



The lifecycle of the status of your files

2.0 To Create a Branch

- **$git branch branch_name**
  git branch newbranch

2.1 To view the branch created or not

- **$git branch**
  *master
  newbranch

2.2 To move to new branch

$git checkout newbranch
Switched to branch 'newbranch'

2.3 Open main_prog.c

vi main_prog.c

```
#include<stdio.h>
int main()
{
        int val1 , val2 ;
 }
```

Now Type the cmds:

- **$git status**
  It will show main_prog.c in untracked files.(Red Marked)

- **$git add main_prog.c**

- **$git status**
  It will show **main_prog.c** in **tracked files**.(Green Marked)

- **$git commit -m "variables defined in newbranch"**

- **$git log**

- **$git diff previous old commit id new commit**

id 2.4 To Create a SubBranch

- **$git branch branch_name**
  git branch newbranch

2.5 To view the branch created or not

- **$git branch**
  master
  *newbranch
  sub_branch

2.6 To move to newly created branch

$git checkout sub_branch
Switched to branch 'sub_branch'

2.7 Open main_prog.c

vi main_prog.c

```
#include<stdio.h>
int main()
{
        int val1 , val2 ;
        val1 = 5, val2 = 10;
        printf("val1 is %d val2 is %d\n,val1,val2);
 }
```

2.8 Now Type the cmds:

- **$git status**
  It will show main_prog.c in untracked files.(Red Marked)

- **$git add main_prog.c**

- **$git status**
  It will show **main_prog.c** in **tracked files**.(Green Tracked)

- **$git commit -m "variables initialized and printed in sub_branch"**

- **$git log**
  It will display all **commit ids created**

- **$git diff previous old commit id new commit**

id 2.9 To create patch file

$git format-patch previous_commit_id

0001-variables-initialized-and-printed-in-sub_branch.patch

It will create a patch file
Patch file contains the modified contents

3.0 To merge the created patch file to the previous branch

- **$git checkout newbranch**
- **$git am** patch_file name

3.1 **To merge the branch**

- **$git checkout master**
- **$git merge new_branch**

3.2 To Make Tags

- **$git tag v1.1**
  create the v1.1 for the patch file
- **$git show** v1.1
  display the modified contents
- **$git tag**
  display the

versions 3.3 To Delete branch

- **$git branch -D branch**

name 3.4 To delete git repository

Type the command

- **ls -al**
- **rm -rf .git -->to remove .git dir**
- **rm git_prac -->to remove git installed dir**