Git Tutorial

How do GitHub repositories work?

Repository: **A directory or storage space where your projects can live**. Sometimes GitHub users shorten this to “repo.” It can be local to a folder on your computer, or it can be a storage space on GitHub or another online host. You can keep code files, text files, image files, you name it, inside a repository.

STEPS:

1. **We use github for adding our own projects (use git init, git commit – commands)**
2. **We clone others project using git clone commands.**

Note: Here we focus on Step1

1. **Create a github account using username and password.**
2. **Open your git bash command prompt and type the command:**

```
$ git
usage: git [--version] [--help] [-C <path>] [-c <name>=<value>]
           [--exec-path[=<path>]] [--html-path] [--man-path] [--info-path]
           [-p | --paginate | -P | --no-pager] [--no-replace-objects] [--bare]
           [--git-dir=<path>] [--work-tree=<path>] [--namespace=<name>]
           [--super-prefix=<path>] [--config-env=<name>=<envvar>]
           <command> [<args>]

These are common Git commands used in various situations:

start a working area (see also: git help tutorial)
   clone             Clone a repository into a new directory
   init              Create an empty Git repository or reinitialize an existing one
```

work on the current change (see also: git help everyday)

add	Add file contents to the index
mv	Move or rename a file, a directory, or a symlink
restore	Restore working tree files
rm	Remove files from the working tree and from the index
sparse-checkout	Initialize and modify the sparse-checkout

examine the history and state (see also: git help revisions)

bisect	Use binary search to find the commit that introduced a bug
diff	Show changes between commits, commit and working tree, etc
grep	Print lines matching a pattern
log	Show commit logs
show	Show various types of objects
status	Show the working tree status

grow, mark and tweak your common history

branch	List, create, or delete branches
commit	Record changes to the repository
merge	Join two or more development histories together
rebase	Reapply commits on top of another base tip
reset	Reset current HEAD to the specified state
switch	Switch branches
tag	Create, list, delete or verify a tag object signed with GPG

collaborate (see also: git help workflows)

fetch	Download objects and refs from another repository
pull	Fetch from and integrate with another repository or a local branch
push	Update remote refs along with associated objects

```
'git help -a' and 'git help -g' list available subcommands and some
concept guides. See 'git help <command>' or 'git help <concept>'
to read about a specific subcommand or concept.
See 'git help git' for an overview of the system.
```

Note: when you type the command git. It gives all the commands available in git

3. Then mention your username and email

```
Basila@DESKTOP-16P7E8T MINGW64 ~
$  git config --global user.name "BasilaAbid2015"

Basila@DESKTOP-16P7E8T MINGW64 ~
$ git config --global user.email "basilaabid2015@gmail.com"
```

4. Select a folder or create a new folder. Here I move to Desktop and created a folder Files. Desktop/Files

```
Basila@DESKTOP-16P7E8T MINGW64 ~
$  cd Desktop/
```

```
Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop
$  mkdir Files
cd Files/
```

5. Create 3 txt files using nano or touch

```
Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ touch n1.txt n2.txt n3.txt
ls
```

6. in these files using nano

```
Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ nano n1.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ nano n2.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ nano n3.txt
```

```
Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ ls
n1.txt  n2.txt  n3.txt
```

7. then initialize the git using git init. :
   note: check the path .

```
Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ git init
```

8. To check the status of your local git. Do git status

```
$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        n1.txt
        n2.txt
        n3.txt

nothing added to commit but untracked files present (use "git add" to
track)
```

   note : here all the files are highlighted in red colour. It means we did not do any updates or added to the git.

9. Do git add [name of file]

```
Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git add n1.txt
warning: LF will be replaced by CRLF in n1.txt.
The file will have its original line endings in your working directory
```

10. Do git status. N1.txt will be in green color and the remaining files will be in red.

```
Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   n1.txt

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        n2.txt
```

```
        n3.txt
```

11. Add this operation to the database. So type
    Git commit -m “added n1.txt file”

```
Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git commit -m "added n1.txt"
[master (root-commit) 34a787d] added n1.txt
 1 file changed, 7 insertions(+)
 create mode 100644 n1.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git status
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        n2.txt
        n3.txt

nothing added to commit but untracked files present (use "git add" to track)
```

12. Now edit the n1.txt file and edit some values in it using nano

```
Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ nano n1.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   n1.txt

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        n2.txt
        n3.txt

no changes added to commit (use "git add" and/or "git commit -a")
```

13. Again add to git using git add n1.txt and commit it. Each time when we add or update a file , it is mandatory to commit it

```
Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git add n1.txt
warning: LF will be replaced by CRLF in n1.txt.
The file will have its original line endings in your working directory

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
```

```
$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   n1.txt

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        n2.txt
        n3.txt


Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git commit -m "modified n1.txt"
[master 110c6bf] modified n1.txt
 1 file changed, 1 insertion(+)
```

14. Link with global git url. When you create a repository in github you will get this url.

```
git remote add origin https://github.com/BasilaAbid2015/Folder1.git
```

15. Push the data to github

```
git push -u origin master
```

16. You will get a notification to either pass the token or access through username and password. Use the second method. Type your correct username or email and password.

```
$ git push -u origin master
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (6/6), 496 bytes | 165.00 KiB/s, done.
Total 6 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/BasilaAbid2015/Folder1.git
 * [new branch]      master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
```

17. Then add all other files using git add *

```
Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git add *.txt
warning: LF will be replaced by CRLF in n2.txt.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in n3.txt.
The file will have its original line endings in your working directory

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.
```

```
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   n2.txt
        new file:   n3.txt


Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git commit -m "added all files"
[master 9ed1634] added all files
 2 files changed, 15 insertions(+)
 create mode 100644 n2.txt
 create mode 100644 n3.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git push origin master
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 411 bytes | 411.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/BasilaAbid2015/Folder1.git
   110c6bf..9ed1634  master -> master
```

The whole git commands

```
Basila@DESKTOP-16P7E8T MINGW64 ~
$ git
usage: git [--version] [--help] [-C <path>] [-c <name>=<value>]
           [--exec-path[=<path>]] [--html-path] [--man-path] [--info-path]
           [-p | --paginate | -P | --no-pager] [--no-replace-objects] [--bare]
           [--git-dir=<path>] [--work-tree=<path>] [--namespace=<name>]
           [--super-prefix=<path>] [--config-env=<name>=<envvar>]
           <command> [<args>]

These are common Git commands used in various situations:

start a working area (see also: git help tutorial)
   clone             Clone a repository into a new directory
   init              Create an empty Git repository or reinitialize an existing one

work on the current change (see also: git help everyday)
   add               Add file contents to the index
   mv                Move or rename a file, a directory, or a symlink
   restore           Restore working tree files
   rm                Remove files from the working tree and from the index
   sparse-checkout   Initialize and modify the sparse-checkout

examine the history and state (see also: git help revisions)
   bisect            Use binary search to find the commit that introduced a bug
   diff              Show changes between commits, commit and working tree, etc
   grep              Print lines matching a pattern
   log               Show commit logs
   show              Show various types of objects
   status            Show the working tree status

grow, mark and tweak your common history
   branch            List, create, or delete branches
   commit            Record changes to the repository
   merge             Join two or more development histories together
   rebase            Reapply commits on top of another base tip
   reset             Reset current HEAD to the specified state
   switch            Switch branches
   tag               Create, list, delete or verify a tag object signed with GPG

collaborate (see also: git help workflows)
   fetch             Download objects and refs from another repository
   pull              Fetch from and integrate with another repository or a local
branch
   push              Update remote refs along with associated objects

'git help -a' and 'git help -g' list available subcommands and some
concept guides. See 'git help <command>' or 'git help <concept>'
to read about a specific subcommand or concept.
See 'git help git' for an overview of the system.

Basila@DESKTOP-16P7E8T MINGW64 ~
$  git config --gloal user.name "BasilaAbid2015"
error: unknown option `gloal'
usage: git config [<options>]

Config file location
    --global              use global config file
    --system              use system config file
    --local               use repository config file
    --worktree            use per-worktree config file
    -f, --file <file>     use given config file
    --blob <blob-id>      read config from given blob object
```

```
Action
    --get                 get value: name [value-pattern]
    --get-all             get all values: key [value-pattern]
    --get-regexp          get values for regexp: name-regex [value-pattern]
    --get-urlmatch        get value specific for the URL: section[.var] URL
    --replace-all         replace all matching variables: name value [value-pattern]
    --add                 add a new variable: name value
    --unset               remove a variable: name [value-pattern]
    --unset-all           remove all matches: name [value-pattern]
    --rename-section      rename section: old-name new-name
    --remove-section      remove a section: name
    -l, --list            list all
    --fixed-value         use string equality when comparing values to 'value-pattern'
    -e, --edit            open an editor
    --get-color           find the color configured: slot [default]
    --get-colorbool       find the color setting: slot [stdout-is-tty]

Type
    -t, --type <>         value is given this type
    --bool                value is "true" or "false"
    --int                 value is decimal number
    --bool-or-int         value is --bool or --int
    --bool-or-str         value is --bool or string
    --path                value is a path (file or directory name)
    --expiry-date         value is an expiry date

Other
    -z, --null            terminate values with NUL byte
    --name-only           show variable names only
    --includes            respect include directives on lookup
    --show-origin         show origin of config (file, standard input, blob, command
line)
    --show-scope          show scope of config (worktree, local, global, system,
command)
    --default <value>     with --get, use default value when missing entry


Basila@DESKTOP-16P7E8T MINGW64 ~
$  git config --global user.name "BasilaAbid2015"

Basila@DESKTOP-16P7E8T MINGW64 ~
$ git config --global user.email "basilaabid2015@gmail.com"

Basila@DESKTOP-16P7E8T MINGW64 ~
$  cd Desktop/

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop
$ ls
 502962-2021-2023-syllabus.pdf
'ABID RAFEEQ PPT AND VISA 2023.pdf'
 AddressBookValidation/
 Airah_Qstn.docx
 Airah_Qstn.pdf
 Airah_chwpter2_Questions..docx
 Algorithm_oops/
'Basila - Chrome.lnk'*
"Basila's Galaxy S8  - Shortcut.lnk"*
 Cab/
 CabProject/
 Datastructure/
 DeckofCards/
'Difference between Capacity and Volume_Ryle.pdf'
 Discovery/
 Doc1.pdf
 Doc2.docx
 Doc2.pdf
 Doc3.pdf
'ECG GRADE 7, 8,6invoice.docx'
'ECG GRADE 7, 8,6invoices.pdf'
 EmployeeAddressBook/
 EmployeeDetails/
```

```
 EmployeeList/
'Error Checking Method1_airah.docx'
 GameCenter/
 GameCentertoPlay/
 Generic/
 Generic1/
 Hotel/
 ICT-BOOK-New-edition.pdf
 INVOICE.docx
 IlahiaBettermentpaper.pdf
 Imaginit_frontPage/
 Imaginit_frontPage.zip
 Lambda/
 LambdaFunction/
 Linkedlist/
 Logicalproblems/
 Loom.lnk*
'New Microsoft Word Document.docx'
'New Text Document (2).txt'
'New Text Document.txt'
 OOPS/
 OOPSConcept/
 OOPsCOnepts/
'PP Photo Abid.jpg'
 Question.pdf
 Regex/
'Roblox Player.lnk'*
'Roblox Studio.lnk'*
 STOCK/
 ScratchJr.lnk*
 Signed_offer_letter.pdf
 Slack.lnk*
 Stack/
 Stackandlinkedist/
 TICTACTOE/
 Tic/
 Try/
 Work/
 Zoom.lnk*
 alchubackgroubd.webp
 challenge/
 desktop.ini
 e1.html
 exam.pdf
 exam2.docx
 exercise4.pdf
 girlsmarklist.pdf
 ilahia.pdf
 multiplicationliketerms.png
 new_teacher_international_Basila_Math.pdf
 pom.xml
 quadratics_multiplying_factors_coefficient1_positive_001_300.002.jpg
 screenshot1.pdf
 src/
 sumit.html
 sumit2.html
'~$Doc2.docx'
'~$rah_chwpter2_Questions..docx'

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop
$  mkdir Files

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop
$ cd Files/

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ touch n1.txt n2.txt n3.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ ls
n1.txt  n2.txt  n3.txt
```

```
Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ nano n1.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ nano n2.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ nano n3.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ ls
n1.txt  n2.txt  n3.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files
$ git init
Initialized empty Git repository in C:/Users/Basila/Desktop/Files/.git/

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ ls
n1.txt  n2.txt  n3.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ ls -a
./  ../  .git/  n1.txt  n2.txt  n3.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ tree .git
bash: tree: command not found

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ tree .git/
bash: tree: command not found

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ cd git
bash: cd: git: No such file or directory

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ cd .git

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files/.git (GIT_DIR!)
$ ls -a
./  ../  HEAD  config  description  hooks/  info/  objects/  refs/

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files/.git (GIT_DIR!)
$   cd ..

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        n1.txt
        n2.txt
        n3.txt

nothing added to commit but untracked files present (use "git add" to track)

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git add n1.txt
warning: LF will be replaced by CRLF in n1.txt.
The file will have its original line endings in your working directory

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git status
On branch master

No commits yet
```

```
Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   n1.txt

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        n2.txt
        n3.txt


Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git commit -m "added n1.txt"
[master (root-commit) 34a787d] added n1.txt
 1 file changed, 7 insertions(+)
 create mode 100644 n1.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git status
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        n2.txt
        n3.txt

nothing added to commit but untracked files present (use "git add" to track)

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ nano n1.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   n1.txt

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        n2.txt
        n3.txt

no changes added to commit (use "git add" and/or "git commit -a")

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git add n1.txt
warning: LF will be replaced by CRLF in n1.txt.
The file will have its original line endings in your working directory

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   n1.txt

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        n2.txt
        n3.txt


Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git commit -m "modified n1.txt"
[master 110c6bf] modified n1.txt
 1 file changed, 1 insertion(+)

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git status
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
```

```
        n2.txt
        n3.txt

nothing added to commit but untracked files present (use "git add" to track)

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git log
commit 110c6bf659eba822fc8a3071620cf46765dffb1e (HEAD -> master)
Author: BasilaAbid2015 <basilaabid2015@gmail.com>
Date:   Fri May 6 11:31:09 2022 +0530

    modified n1.txt

commit 34a787d7a4cb5a7751a67f54f15688b12253ac0b
Author: BasilaAbid2015 <basilaabid2015@gmail.com>
Date:   Fri May 6 11:26:50 2022 +0530

    added n1.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ ▯▯git remote add origin https://github.com/BasilaAbid2015/Folder1.git
bash: $'\302\226\302\226git': command not found

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git remote add origin https://github.com/BasilaAbid2015/Folder1.git

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
git push -u origin main
error: src refspec main does not match any
error: failed to push some refs to 'https://github.com/BasilaAbid2015/Folder1.git'

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git push -u origin master
remote: Invalid username or password.
fatal: Authentication failed for 'https://github.com/BasilaAbid2015/Folder1.git/'

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git remote add origin https://github.com/BasilaAbid2015/Folder1.git
error: remote origin already exists.

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git push -u origin master
remote: Permission to BasilaAbid2015/Folder1.git denied to BasilaAbid2015.
fatal: unable to access 'https://github.com/BasilaAbid2015/Folder1.git/': The
requested URL returned error: 403

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git push -u origin master
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (6/6), 496 bytes | 165.00 KiB/s, done.
Total 6 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/BasilaAbid2015/Folder1.git
 * [new branch]      master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        n2.txt
        n3.txt

nothing added to commit but untracked files present (use "git add" to track)

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git add *.txt
```

```
warning: LF will be replaced by CRLF in n2.txt.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in n3.txt.
The file will have its original line endings in your working directory

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   n2.txt
        new file:   n3.txt


Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git commit -m "added all files"
[master 9ed1634] added all files
 2 files changed, 15 insertions(+)
 create mode 100644 n2.txt
 create mode 100644 n3.txt

Basila@DESKTOP-16P7E8T MINGW64 ~/Desktop/Files (master)
$ git push origin master
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 411 bytes | 411.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/BasilaAbid2015/Folder1.git
   110c6bf..9ed1634  master -> master
```