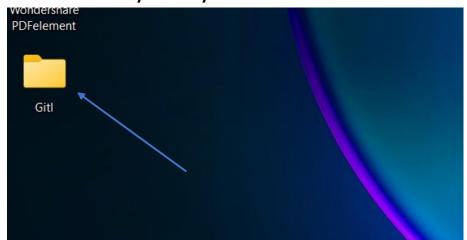
How To Go About With Git

Things to remember:

- Git is an open source version control system to track code changes
- Repository: a storage location used to track and manage the changes made in a file.

Things to do before starting any program:

 Create a folder on the desktop or in any preferred location on your system.



(Ive created a "Gitl" folder located in my 'C:' drive)

 Open Git Bash Terminal and move into that folder with the help of cd command.

```
MINGW64:/c/Gitl —

Mohamed Kaashif@M-K MINGW64 ~
$ cd c:

Mohamed Kaashif@M-K MINGW64 /c
$ cd Gitl/

Mohamed Kaashif@M-K MINGW64 /c/Gitl
$ |
```

- Here configure your name and email so that git can track who has made the changes, use the command
 - a. git config –global user.name "Your Github account name"
 - b. git config –global user.email "Your email"

```
MINGW64:/c/Gitl

Mohamed Kaashif@M-K MINGW64 /c/Gitl
$ git config --global user.name "Mohamed Kaashif"

Mohamed Kaashif@M-K MINGW64 /c/Gitl
$ git config --global user.email "mhd4khf@gamil.com"

Mohamed Kaashif@M-K MINGW64 /c/Gitl
$ |
```

Initialize git int this folder with the command,
 a. git init

```
MINGW64:/c/Gitl

Mohamed Kaashif@M-K MINGW64 /c/Gitl

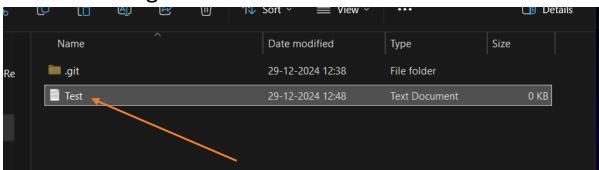
$ git init
Initialized empty Git repository in C:/Gitl/.git/

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

$ |
```

FOLLOW THE ABOVE STEPS AND THEN:

 Add a file in the folder you've created ("Gitl") from the file manager



Get back on git bash and use the command
 a. git add . (or) git add Test.txt

(git add . adds all the files present in the folder)

This adds the Test.txt to the staging area.

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git add .

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$
```

Finally commit the change with the command
 b. Git commit -m "Your message"

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

$ git commit -m "Added a file named Test.txt"
[master (root-commit) 6dafe56] Added a file named Test.txt

1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 Test.txt

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

$
```

AFTER INITIALIZING GIT IN THE FOLDER,

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$
```

- If you terminal doesn't show the "(master)" at the end, simply use the command
 - 1. git checkout master

By doing this, you'll get the same as above.

- Create a branch named feature-branch (any name is fine) and move into it with the help of a single command
 - 2. git checkout -b feature-branch

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git checkout -b feature-branch
Switched to a new branch 'feature-branch'

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)
$
```

- Once your in the feature branch, add a file in it by using the command
 - 3. touch test1.txt

```
$ git checkout -b feature-branch
Switched to a new branch 'feature-branch'

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)
$ touch test1.txt

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)
$ |
```

 Add this test1.txt to the staging area and commit it with a message. (This file is only available to the feature-branch)

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)
$ touch test1.txt

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)
$ git add .

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)
$ git commit -m "Added a file test1.txt to the feature-branch"
[feature-branch b495f50] Added a file test1.txt to the feature-branch
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 test1.txt

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)
$ |
```

• Next checkout back to the "master" branch

```
Create mode 100644 test1.txt

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)

$ git checkout master
Switched to branch 'master'

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

$
```

- Finally merge the feature branch to the master branch by using the command
 - 4. git merge feature-branch

(This will now add the test1.txt which was only available to the feature branch to the master branch)

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git merge feature-branch
Updating 6dafe56..b495f50
Fast-forward
test1.txt | 0
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 test1.txt
```

 Here we will make a file Test.txt and a file test1.txt on the master branch. Next we will commit the Test.txt and stash save the test1.txt by adding it to the staging area.

```
MINGW64:/c/Gitl
Mohamed Kaashif@M-K MINGW64 /c/Gitl
Initialized empty Git repository in C:/Gitl/.git/
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ touch Test.txt
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git add .
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git commit -m "Created a Test.txt file"
[master (root-commit) d40debe] Created a Test.txt file
1 file changed, 0 insertions(+), 0 deletions(-) create mode 100644 Test.txt
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ touch test1.txt
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git add .
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git stash save "Stash saving this test1.txt"
Saved working directory and index state On master: Stash saving this test1.txt
```

 Then we'll create a new branch called feature-branch and move into it and apply the stash changes

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

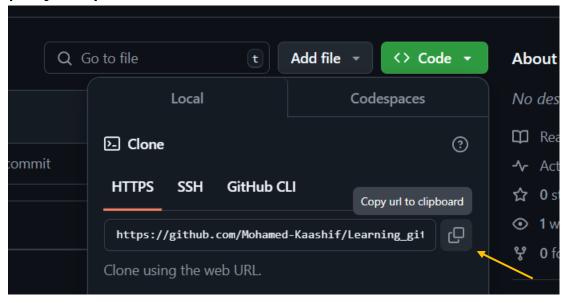
§ git checkout -b feature-branch
Switched to a new branch 'feature-branch'

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)

§ git stash apply
On branch feature-branch
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file: test1.txt
```

FOR THIS ONE PROGRAM WE CAN SKIP THE PROCESS OF INITIALIZING GIT.

 Go to the github's website and copy the url of any project you'd like to enhance or work on.



- Next head to git bash and use the command
 - 1. git clone url

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

$ git clone https://github.com/Mohamed-Kaashif/Learning_git.git
Cloning into 'Learning_git'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

$ |
```

 Here we create a file Test.txt in the master branch and commit it.

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

§ git init
Initialized empty Git repository in C:/Gitl/.git/

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

§ touch Test.txt

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

§ git add .

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

§ git commit -m "Created a Test.txt"

[master (root-commit) 008464d] Created a Test.txt

1 file changed, 0 insertions(+), 0 deletions(-)

create mode 100644 Test.txt
```

 Next we create and move into a feature-branch and add a file Test1.txt. commit this Test1.txt as well.

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

$ git checkout -b feature-branch
Switched to a new branch 'feature-branch'

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)

$ touch Test1.txt

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)

$ git add .

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)

$ git commit -m "Created a Test1.txt in feature branch"

[feature-branch 807c6fb] Created a Test1.txt in feature branch

1 file changed, 0 insertions(+), 0 deletions(-)

create mode 100644 Test1.txt
```

• Next we will checkout to the master branch and use the command git rebase feature-branch

```
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 Test1.txt

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)
$ git checkout master
Switched to branch 'master'

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git rebase feature-branch
Successfully rebased and updated refs/heads/master.
```

Program 6 SAME AS PROGRAM 2

 Here the only added feature is that we are adding a message wile merging the feature-branch's file.

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl
$ git init
Initialized empty Git repository in C:/Gitl/.git/
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git add .
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

$ git commit -m "Added a Test.txt file"

[master (root-commit) 8fd7605] Added a Test.txt file

1 file changed, 0 insertions(+), 0 deletions(-)

create mode 100644 Test.txt.txt
 Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git checkout -b Feature-branch
Switched to a new branch 'Feature-branch'
Mohamed Kaashif@M-K MINGW64 /c/Gitl (Feature-branch)
$ touch test1.txt
Mohamed Kaashif@M-K MINGW64 /c/Gitl (Feature-branch)
$ git add .
Mohamed Kaashif@M-K MINGW64 /c/Gitl (Feature-branch)

$ git commit -m "Added a file test1.txt to the feature-branch"

[Feature-branch 829b71d] Added a file test1.txt to the feature-branch

1 file changed, 0 insertions(+), 0 deletions(-)

create mode 100644 test1.txt
Mohamed Kaashif@M-K MINGW64 /c/Gitl (Feature-branch)
$ git checkout master
Switched to branch 'master'
```

 Once we've got here, then we simply need to use the same merge command with a flag (i.e -m to add a message while merging)

```
Mohamed Kaashif@M-K MINGw64 /c/Gitl (master)

$ git merge feature-branch -m"Adding the test1.txt to the mastger branch"

Updating 8fd7605..829b71d

Fast-forward (no commit created; -m option ignored)

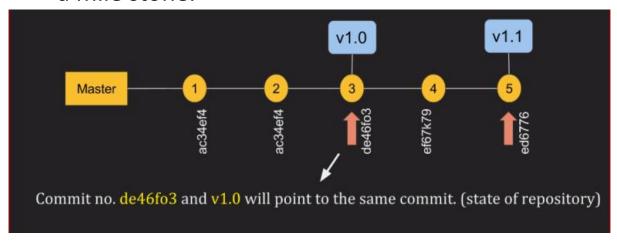
test1.txt | 0

1 file changed, 0 insertions(+), 0 deletions(-)

create mode 100644 test1.txt
```

Program 7 INITIALIZE GIT IN A FOLDER AND MAKE A COMMIT (AS DONE IN PROGRAM 1)

 Tags are added to a specific commit something like a mile stone.



- To add a tag, simply use the command
 1. git tag version
- Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
 \$ git add .

 Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
 \$ git commit -m "Adding a tag"
 [master 8edbff9] Adding a tag
 1 file changed, 2 insertions(+)

 Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
 \$ git tag v1.0

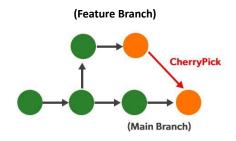
 Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
 \$ git log
 commit 8edbff9bb64b18f9ced91bc58a7b687d6f12df79 (HEAD -> master, tag: v1.0)
 Author: Mohamed Kaashif <mhd4khf@gamil.com>
 Date: Sun Dec 29 15:59:56 2024 +0530

 Adding a tag

(the "git log" command shows all the commits made by the user)

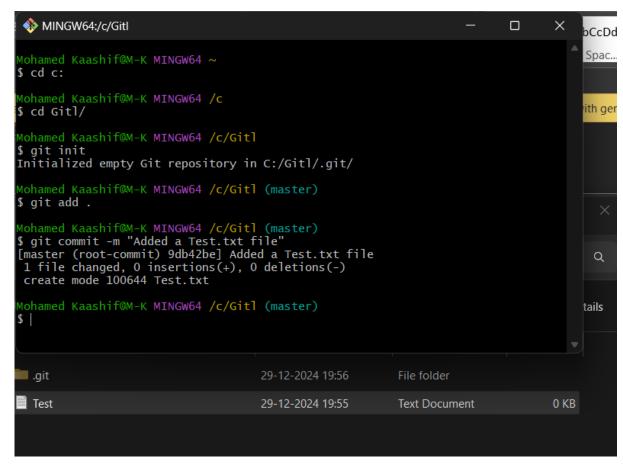
CHERRY-PICK

- Here, we create and switch from the main branch to a feature branch, add in a file and commit the change.
- Once that's done, we switch back to the main branch and use the cherry-pick command.



To begin,

 We first repeat the process as program 1 (initialize, create a Test.txt and commit the changes)



 Next create and move into the "feature-branch" with the command, git checkout -b feature-branch

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git checkout -b feature-branch
Switched to a new branch 'feature-branch'
```

• Create a new file here called "Test2.txt" with the "touch" command.

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)
$ touch Test2.txt
```

 Open the "Test2.txt" file with the help of the notepad command



- After making some change in the Test2.txt file, save the it and close the notepad window to get back on git's terminal.
- Add it to the staging area and commit the changes.

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)
$ git add .

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)
$ git commit -m "Added a Test2.txt with a message"
[feature-branch b84a866] Added a Test2.txt with a message
1 file changed, 1 insertion(+)
create mode 100644 Test2.txt
```

 Next, use the command git log –oneline, to get the commit ids of the feature branch

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)
$ git log --oneline
b84a866 (HEAD -> feature-branch) Added a Test2.txt with a message
9db42be (master) Added a Test.txt file
```

Now checkout to the "master" branch

```
9db42be (master) Added a Test.txt file

Mohamed Kaashif@M-K MINGW64 /c/Gitl (feature-branch)

$ git checkout master

Switched to branch 'master'
```

- Copy a commit id from the feature branch (that we got on using the command git log --online)
- And use it with the command, git cherry-pick commit_id

```
Switched to branch 'master'

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

$ git cherry-pick b84a866
[master d3a7adb] Added a Test2.txt with a message
Date: Sun Dec 29 20:53:14 2024 +0530

1 file changed, 1 insertion(+)
create mode 100644 Test2.txt
```

DO PROGRAM 1, AND THEN

 Open the Test.txt from your file explorer and add any text. Save the file and on git bash add it to the staging area and commit it.

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git add .

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git commit -m "Added a test file"
On branch master
nothing to commit, working tree clean

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git add .

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git commit -m "Added text to test file"
[master 5e6766c] Added text to test file
1 file changed, 1 insertion(+)

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ |
```

To view the commit id's use the command
 1. git log --oneline

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git log --oneline
5e6766c (HEAD -> master) Added text to test file
a5dd3fc removed the test.txts contents
8edbff9 (tag: v1.0) Adding a tag
6fd5754 added a test file
```

Copy any of the commit id and use it with the command

2. git show commit_id

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

$ git show 5e6766c
commit 5e6766c3bbc287576f4f2d90d59dd33ece6113c7 (HEAD -> master)
Author: Mohamed Kaashif <mhd4khf@gamil.com>
Date: Sun Dec 29 16:57:09 2024 +0530

Added text to test file

diff --git a/test.txt b/test.txt
index e69de29..e833ecb 100644
--- a/test.txt
+++ b/test.txt
@@ -0,0 +1 @@
+new line added
\ No newline at end of file

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
```

USING THE COMMAND 'GIT LOG'

- Perform at least 1 commit in you repository.
- Next use the command

```
1. git log --
author="the_user_name_you_gave_while_configuring" -since="any_date" -
until="current_date"
```

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)

$ git log --author="Mohamed-Kaashif" --since="2024-12-12" --until="2024-12-29"
commit baf9686efa03388c3ca32c949d879a2971f72b94 (HEAD -> master)
Author: Mohamed-Kaashif <mhd4khf@gamil.com>
Date: Sun Dec 29 18:07:02 2024 +0530

Addd text in test file

commit bb6c311f018dd40c2d5553a9c7f7ecc0ea024905
Author: Mohamed-Kaashif <mhd4khf@gamil.com>
Date: Sun Dec 29 18:06:28 2024 +0530

Addd a test file
```

MAKE 5 COMMITS IN A REPOSITORY

• To make 5 commits, you can add in one line or keep making a change in the "Test.txt".

```
Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git add .

Wohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git commit - m "Added line 1 to Test.txt"
[master 3550b72] Added line 1 to Test.txt
1 file changed, 2 insertions(+), 1 deletion(-)

Wohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git add .

Wohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git commit - m "Added line 2 to Test.txt"
[master 5f10a6e] Added line 2 to Test.txt"
[master 5f10a6e] Added line 2 to Test.txt
1 file changed, 1 insertion(+)

Wohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git commit - m "Added line 3 to Test.txt"
[master 48e1897] Added line 3 to Test.txt
1 file changed, 1 insertion(+)

Wohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git add .

Wohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git commit - m "Added line 4 to Test.txt"
[master alaec.94] Added line 4 to Test.txt
1 file changed, 1 insertion(+)

Wohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git commit - m "Added line 5 to Test.txt"
[master goes.576] Added line 5 to Test.txt"
[master 90es.576] Added line 5 to Test.txt"
[master 90es.57
```

Then use the command1. git log -n 5

```
ohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ git log -n 5
commit 90ea5762ebc18a0ea7e89907352a0a5155c110a9 (HEAD -> master)
Author: Mohamed-Kaashif <mhd4khf@gamil.com>
        Sun Dec 29 18:40:03 2024 +0530
    Added line 5 to Test.txt
commit a13ec94c445af3bf946f0fcaab86432b03422c9d
Author: Mohamed-Kaashif <mhd4khf@gamil.com>
        Sun Dec 29 18:39:43 2024 +0530
    Added line 4 to Test.txt
commit 41e8197de6f8c35c36619769402262bf692e64f0
Author: Mohamed-Kaashif <mhd4khf@gamil.com>
        Sun Dec 29 18:39:30 2024 +0530
Date:
    Added line 3 to Test.txt
commit 5f10a6e0ed8b1754d52c2f3c01611a5bd4680ffc
Author: Mohamed-Kaashif <mhd4khf@gamil.com>
Date: Sun Dec 29 18:39:14 2024 +0530
    Added line 2 to Test.txt
commit 3550b72befcdc257c915f2f125ea3a2981ee9d86
Author: Mohamed-Kaashif <mhd4khf@gamil.com>
Date: Sun Dec 29 18:38:55 2024 +0530
    Added line 1 to Test.txt
```

MAKE ATLEAST 1 COMMIT TO REVERT

- After making a commit, use the command
 1. git log --oneline
 - NINGW64:/c/Gitl Mohamed Kaashif@M-K MINGW64 /c/Gitl \$ git init Initialized empty Git repository in C:/Gitl/.git/ Mohamed Kaashif@M-K MINGW64 /c/Gitl (master) \$ git add . Mohamed Kaashif@M-K MINGW64 <mark>/c/Gitl (master)</mark> \$ git commit -m "Added a file Test.txt" [master (root-commit) af90fb3] Added a file Test.txt 1 file changed, 0 insertions(+), 0 deletions(-) create mode 100644 Test.txt After this command, open and edit the Mohamed Kaashif@M-K MINGW64 /c/Gitl (master) text file \$ git add . Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
 \$ git commit -m "Added line 1 to file Test.txt"
 [master 12dfe47] Added line 1 to file Test.txt 1 file changed, 1 insertion(+) Mohamed Kaashif@M-K MINGW64 /c/Gitl (master) \$ git add . Mohamed Kaashif@M-K MINGW64 /c/Gitl (master) \$ git commit -m "Added line 2 to file Test.txt" [master 9e65d8f] Added line 2 to file Test.txt 1 file changed, 2 insertions(+), 1 deletion(-) Mohamed Kaashif@M-K MINGW64 /c/Gitl (master) \$ git log --oneline 9e65d8f (HEAD -> master) Added line 2 to file Test.txt 12dfe47 Added line 1 to file Test.txt af90fb3 Added a file Test.txt
- Copy any of the above commit ids
- And use the command,
 - 2. git revert commit_id

 On getting this screen just enter ":wq" and press the enter key

```
~
~
~
~
.git/COMMIT_EDITMSG [unix] (18:55 2
:wq
```

And you'll get this as the output

```
[master 18b6008] Revert "Added line 2 to file Test.txt"
  1 file changed, 1 insertion(+), 2 deletions(-)

Mohamed Kaashif@M-K MINGW64 /c/Gitl (master)
$ |
```