

Git & Github





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Apa itu Git ?





Overview

Git merupakan sebuah Version Control System yang akan merekam perubahan yang terjadi pada kode kita pada sebuah database spesial yang disebut “Repository”.

Kita bisa melihat history terkait perubahan yang terjadi pada kode kita.

History ini meliputi siapa yang melakukan perubahan, kapan perubahan itu terjadi & alasan dari perubahan itu sendiri.



Why Git

Akan sangat rumit untuk mengelola version control dalam development.
Terutama jika kita bekerja secara team.

Version Control memudahkan kita dalam melakukan tracking history &
bekerja dalam team



Terminologi / Istilah Git

- **Repository:** Database yang menyimpan history perubahan, ada local repository & remote repository
- **Snapshot:** merupakan potret keadaan suatu file/folder pada suatu waktu tertentu.
- **Staged:** Snapshot dari suatu file / folder yang akan kita commit.
- **Commit:** Snapshot yang disimpan pada repository.
- **Branch:** Serangkaian commit yang saling berkaitan. Satu repository bisa memiliki banyak branch.
- **Master/Main:** Default branch utama pada git. Bisa diganti sesuai dengan keinginan kita. Umumnya, nama branch utama adalah master/main.




The background is a light cream color with a repeating pattern of small, faint geometric shapes like diamonds and zig-zags. Large, flowing organic shapes in orange and blue frame the central text. Various geometric icons are scattered around: a blue 'C' with 'x' marks, a yellow 'X' and 'O' with dots, a blue 'D' with an orange bar, a blue circle with a white dot, a blue wave with a yellow 'C', and a cluster of yellow 'L' shapes.

Github






Github merupakan sebuah platform yang bisa menampung repository/code pada cloud, sehingga para programmer bisa bekerja pada satu code/project/repository.





[Pull requests](#) [Issues](#) [Marketplace](#) [Explore](#)

Recent Repositories [New](#)

 rizqinugroho/learning-hadoop

 rizqinugroho/learning-mongo-db

 rizqinugroho/talenddqmn

 rizqinugroho/List-of-US-States

 rizqinugroho/ETLAnalyticsUsingGlue

 rizqinugroho/Data-Pipelining

 rizqinugroho/airflow_gcp

Recent activity

When you take actions across GitHub, we'll provide links to that activity here.

[Following](#) [For you](#) Beta

Introduce yourself

The easiest way to introduce yourself on GitHub is by creating a README in a repository about you! You can start here:

rizqinugroho / README.md

```
1 - 🙋 Hi, I'm @rizqinugroho
2 - 📚 I'm interested in ...
3 - 🌱 I'm currently learning ...
4 - 💡 I'm looking to collaborate on ...
5 - 📫 How to reach me ...
6
```

[Dismiss this](#) [Continue](#)

Discover interesting projects and people to populate your personal news feed.

Your news feed helps you keep up with recent activity on repositories you [watch](#) or [star](#) and people you [follow](#).

[Explore GitHub](#)

 **ProTip!** The feed shows you events from people you [follow](#) and repositories you [watch](#) or [star](#).

GitHub Copilot ×

Get suggestions for lines of code and entire functions in real-time

[Learn more about Copilot](#)

 **PRIVACY STATEMENT UPDATES** ×

Adding web cookies for enterprise users

In order to better reach and improve the web experience for enterprise users, we are adding non-essential web cookies to certain subdomains that specifically market our products to businesses. This change is only on subdomains that reach enterprise customers, and all other GitHub subdomains will continue to operate as-is.

[Learn more](#)

Latest changes

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Repository



Membuat Repository

Membuat sebuah git repository bisa dengan 2 cara.

- 1. Melalui platform git (github.com)**
- 2. Melalui git command (git init)**
 - 1. Menghubungkan git repository yang Sudah ada di local ke GitHub.
(git add remote origin "https://github.com/user_name/dari-local.git")**
 - 2. Cek dengan "git remote -v"**






Membuat Repository

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

Owner *

 rizqinugroho ▾

Repository name *

/ belajar-git ✓

Great repository names are short and memorable. Need inspiration? How about [furry-invention](#)?

Description (optional)

disini adalah repository pertamaku

☒  **Public**

Anyone on the internet can see this repository. You choose who can commit.

☐  **Private**

You choose who can see and commit to this repository.

Initialize this repository with:

Skip this step if you're importing an existing repository.

☒ **Add a README file**

This is where you can write a long description for your project. [Learn more](#).

Add .gitignore


Choose which files not to track from a list of templates. [Learn more](#).

.gitignore template: None ▾

Choose a license

A license tells others what they can and can't do with your code. [Learn more](#).

License: None ▾

This will set  **main** as the default branch. Change the default name in your [settings](#).

 You are creating a public repository in your personal account.

Create repository



Membuat Repository

The screenshot shows the GitHub homepage. At the top is a dark navigation bar with the GitHub logo, a search bar labeled 'Search or jump to...', and links for 'Pull requests', 'Issues', 'Marketplace', and 'Explore'. Below the navigation bar, on the left, is the 'Recent Repositories' section with a search bar labeled 'Find a repository...' and a list of repositories by user 'rizqinugroho': 'learning-hadoop', 'learning-mongo-db', 'talenddq', 'List-of-US-States', 'ETLAnalyticsUsingGlue', 'Data-Pipelining', and 'airflow_qcp'. A green 'New' button with a computer icon is highlighted with a red rectangular box. On the right, the 'Following' tab is selected, showing a section titled 'Introduce yourself' with the text 'The easiest way to introduce yourself on Gi'. Below this is a preview of a README file for 'rizqinugroho / README.md' containing a list of five items:

- 1 - 🙋 Hi, I'm @rizqinugroho
- 2 - 👁 I'm interested in ...
- 3 - 🌱 I'm currently learning ...
- 4 - 💡 I'm looking to collaborate on
- 5 - 📧 How to reach me ...



Membuat Repository

Tests Actions Projects Wiki Security Insights Settings

main 1 branch 0 tags Go to file Add file Code

rizqinugroho Initial commit 3355799 1 minute ago 1 commit

README.md Initial commit 1 minute ago

README.md

belajar-git

disini adalah repository pertamaku

About

disini adalah repository pertamaku

- Readme
- 0 stars
- 1 watching
- 0 forks

Releases

No releases published
[Create a new release](#)

Packages

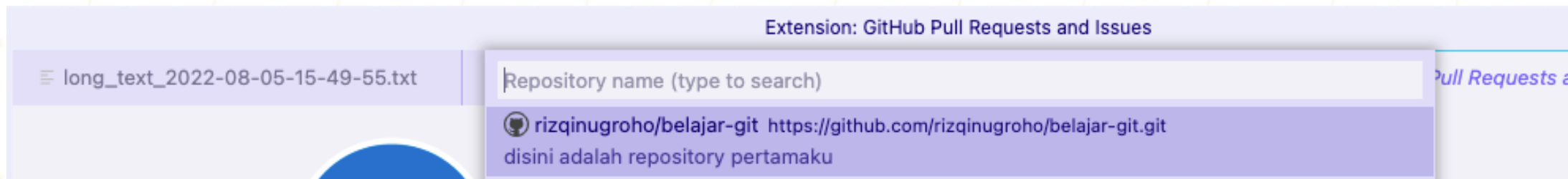
No packages published
[Publish your first package](#)

Github vscode



Cara Mengkoneksikan vscode dengan github

- Install github Extension [disini](#)
- SignIn ke GitHub
- Clone repository



- Tentukan dimana folder yang akan kita gunakan untuk menyimpan repository



Perintah Dasar Git



Perintah Dasar Git

- **“git branch -a”** melihat branch yang ada pada suatu repository (local & remote).
- **“git status”** melihat status perbedaan dari branch kita dan current HEAD commit.
- **“git diff”** melihat perubahan/perbedaan file (line by line) dari branch kita dan current HEAD commit. Biasanya hal-hal seperti ini lebih mudah dilakukan pada IDE (VS Code).
- **“git add nama_file”** menyiapkan snapshot/status dari suatu file (“staged”) agar bisa digunakan pada “commit”.
- **“git commit -m `pesan dalam commit`”** menyimpan suatu perubahan dalam git. (Perubahan yang disimpan adalah perubahan yang Sudah ada didalam “staged”).
- **“git log”** melihat history atau log pada suatu branch.
- **“git push origin nama_branch”** mengubah suatu branch di remote repository sesuai dengan perubahan yang terjadi pada local repository.
- **“git merge nama_branch”** menggabungkan suatu branch dengan branch utama





Branching



Git Branch

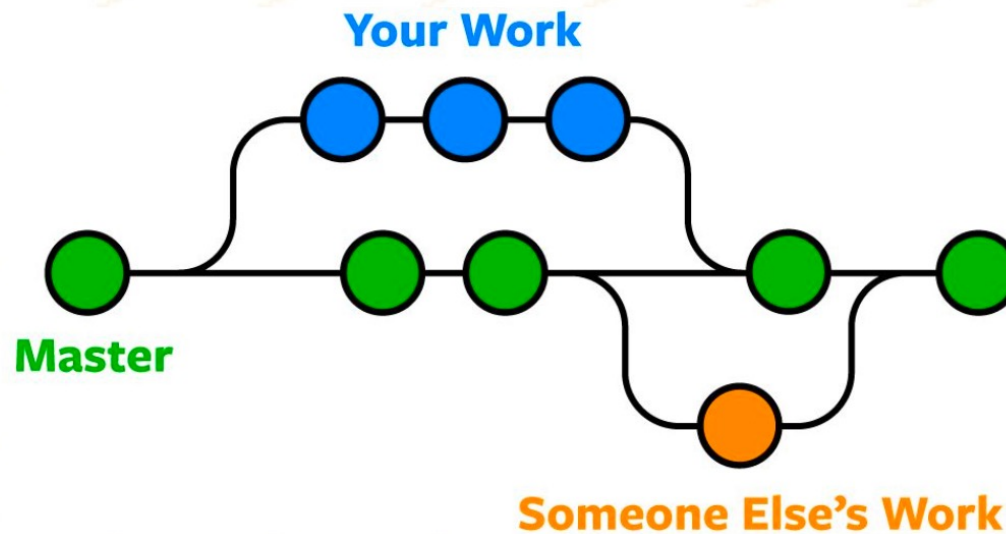
“Branching” adalah fitur yang tersedia di sebagian besar sistem “version control”.

Saat ingin menambahkan fitur baru atau memperbaiki bug, kita bisa membuat “branch” baru untuk mengisolasi perubahan yang kita buat agar tidak merubah system utama.



Git Branch

“Branching” juga membantu kita untuk mengerjakan suatu project secara bersamaan dengan orang lain tanpa mengganggu proses pengerjaan masing-masing.





Membuat branch

Perintah yang digunakan untuk membuat branch

```
(base) DNID1547L01:belajar-git nugrohom$ git branch fitur01
```

Memeriksa branch yang aktif dan branch apa saja yang ada

```
(base) DNID1547L01:belajar-git nugrohom$ git branch
  fitur01
* main
```



Pindah Branch

Pindah Branch

```
↑ main
(base) DNID1547L01:belajar-git nugrohom$ git checkout fitur01
Switched to branch 'fitur01'
(base) DNID1547L01:belajar-git nugrohom$ git branch
* fitur01
  main
(base) DNID1547L01:belajar-git nugrohom$ █
```




Push Branch

a. Buat Satu file baru



The screenshot shows a code editor with two tabs: 'test.py' and 'test.html'. The 'test.html' tab is active, showing the following code:

```
<> test.html > html
1  <html>
2    <b>Ini dari fitur01</b>
3  </html>
```

Push file baru dan branch ke git

```
(base) DNID1547L01:belajar-git nugrohom$ git add test.html
(base) DNID1547L01:belajar-git nugrohom$ git commit -m "menambahkan test.html ke branch"
```



Hasil

```
(base) DNID1547L01:belajar-git nugrohom$ git push --set-upstream origin fitur01
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 350 bytes | 350.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'fitur01' on GitHub by visiting:
remote:   https://github.com/rizqinugroho/belajar-git/pull/new/fitur01
remote:
To https://github.com/rizqinugroho/belajar-git.git
 * [new branch]      fitur01 -> fitur01
Branch 'fitur01' set up to track remote branch 'fitur01' from 'origin'.
```



Delete Branch

```
(base) DNID1547L01:belajar-git nugrohom$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
(base) DNID1547L01:belajar-git nugrohom$ git fetch
(base) DNID1547L01:belajar-git nugrohom$ git branch
  fitur01
* main
(base) DNID1547L01:belajar-git nugrohom$ git branch -D fitur01
Deleted branch fitur01 (was 0e2bbe6).
```


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Conflict

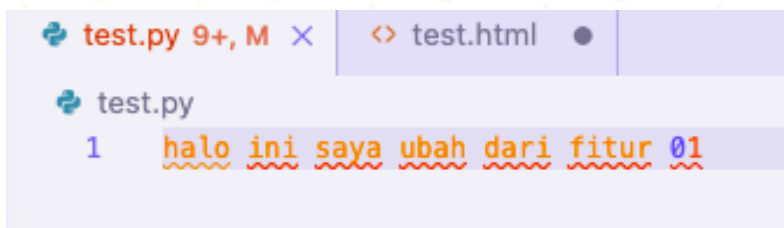


Conflict

- Pindah ke fitur01

```
(base) DNID1547L01:belajar-git nugrohom$ git checkout fitur01
```

- Ubah file test.py



```
test.py 9+, M x <> test.html ●
test.py
1  halo ini saya ubah dari fitur 01
```

- Commit perubahan

```
(base) DNID1547L01:belajar-git nugrohom$ git status
On branch fitur01
Your branch is up to date with 'origin/fitur01'.

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:   test.py

no changes added to commit (use "git add" and/or "git commit -a")
(base) DNID1547L01:belajar-git nugrohom$ git add test.py
(base) DNID1547L01:belajar-git nugrohom$ git commit -m " ubah dari fitur01"
(base) DNID1547L01:belajar-git nugrohom$ git push -u origin fitur01
Enumerating objects: 5, done.
```



Conflict

- Periksa commit history

```
(base) DNID1547L01:belajar-git nugrohom$ git log --oneline
0e2bbe6 (HEAD -> fitur01, origin/fitur01, main) menambahkan test.html ke branch
c249675 (origin/akan-didelete) coba diubah
aa01e29 ini perintah commit pertama saya
3355799 Initial commit
```

- Pindah ke branch main

```
(base) DNID1547L01:belajar-git nugrohom$ git checkout main
M      test.py
Switched to branch 'main'
Your branch is behind 'origin/main' by 1 commit, and can be fast-forwarded.
(use "git pull" to update your local branch)
```

- Ubah file test.py di line yang sama





Conflict

- Commit perubahan pada main

```
(base) DNID1547L01:belajar-git nugrohom$ git add test.py
(base) DNID1547L01:belajar-git nugrohom$ git commit -m " ubah dari main "
[main a49fd9b] ubah dari main
1 file changed, 1 insertion(+), 1 deletion(-)
(base) DNID1547L01:belajar-git nugrohom$ git push -u origin main
Enumerating objects: 5, done.
```

- Merge fitur01

```
branch 'main' set up to track remote branch 'main' from 'origin'
(base) DNID1547L01:belajar-git nugrohom$ git merge fitur01
Auto-merging test.py
CONFLICT (content): Merge conflict in test.py
Automatic merge failed; fix conflicts and then commit the result.
(base) DNID1547L01:belajar-git nugrohom$
```



Conflict

- Conflict Terlihat di VSCode

```
test.py
Accept Current Change | Accept Incoming Change | Accept Both Changes | Compare Changes
1 <<<<<< HEAD (Current Change)
2 ubah dari main
3 =====
4 asasasad
5 >>>>>> fitur01 (Incoming Change)
6
```

Git menyerahkan pada kita untuk menentukan bagian mana yang akan digunakan.

Kita cukup hapus bagian yang tidak kita inginkan, atau pilih accept current change atau accept incoming change





Conflict

- Git add

```
Automatic merge failed; fix conflicts and then commit the result.  
(base) DNID1547L01:belajar-git nugrohom$ git add .
```

- Commit dan push untuk merubah

```
Writing objects: 100% (3/3), 514 bytes | 514.00 KiB/s, done.  
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0  
remote: Resolving deltas: 100% (1/1), completed with 1 local object.  
To https://github.com/rizqinugroho/belajar-git.git  
a49fd9b..4e4c951 main -> main  
Branch 'main' set up to track remote branch 'main' from 'origin'.  
(base) DNID1547L01:belajar-git nugrohom$
```


Thank YOU

