Purwadhika
Digital Technology School

Full Stack Web Development

Intro to Git, Github and Exercise

Job Connector Program

Outline

- Introduction Git
  - What is git ?
  - Why we need git ?
  - How to configure git ?
  - Git command list
  - Conventional Git Commit Message
- Exercise

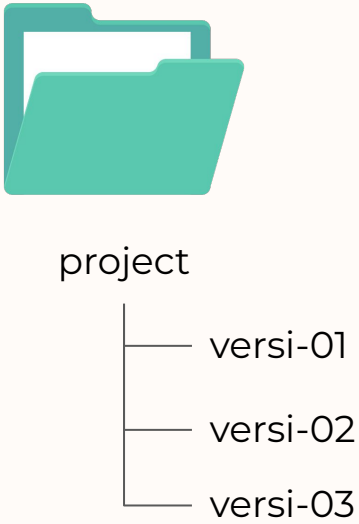
What is Git ?

Git is a tool used to manage the versions of the programs we create. Easily, we can separate which programs are being released and which are still being developed.

Illustration

Without Git

With Git



Why we need git ?

With git it will be easier to manage projects, where every change made can be documented in history.

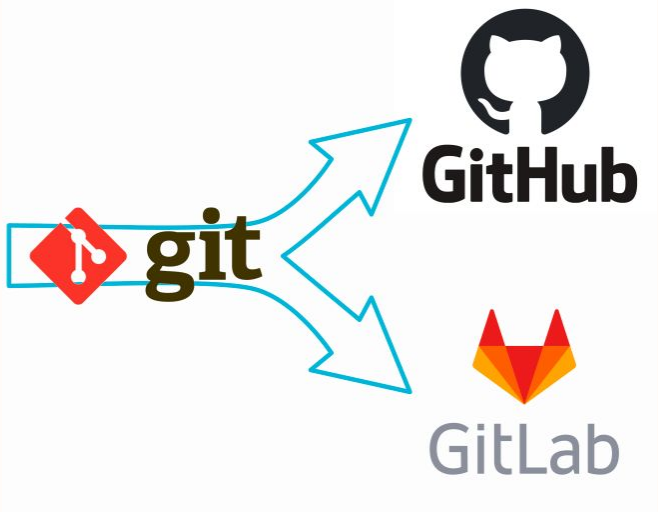
Apart from that, we can also save our project online on web-based hosting repository such as **GitHub**, **GitLab**, **Bitbucket** etc., and make the collaboration process easier.

Illustration

From Local

project

- versi-01
- versi-02
- versi-03

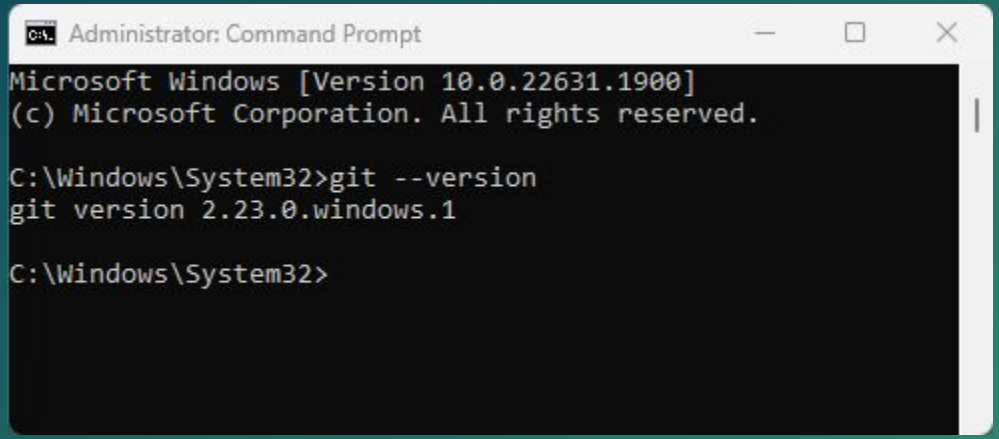


What is Github ?

GitHub is a web-based platform that incorporates git version control features so they can be used collaboratively. It also includes project and team management features, as well as opportunities for networking and social coding.

Illustration

Make sure that git is already installed on your laptop.



Check config list for connect to github

- Use *git config --list*
  - Please make sure user.name matches the GitHub account.
  - Please make sure user.email matches the GitHub account.
- If it doesn't exist yet, execute the following example command :
  - *git config --global user.name "student-01"*
  - *git config --global user.email "student@purwadhika.com"*

Administrator: Command Prompt

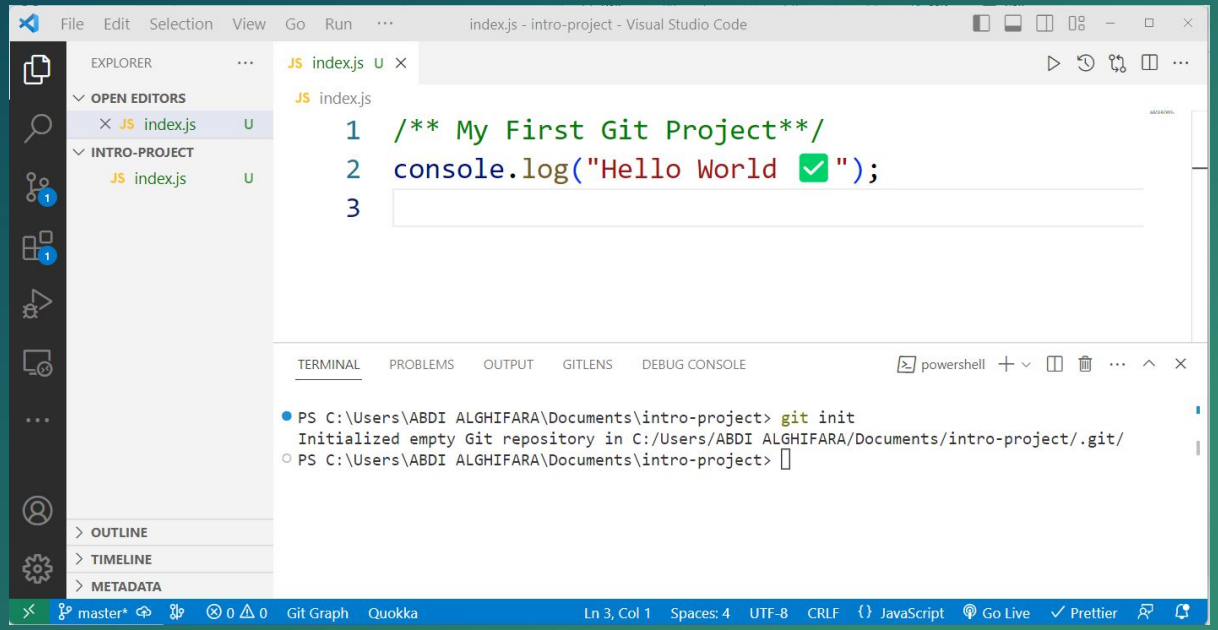
```
Microsoft Windows [Version 10.0.22631.1900]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>git --version
git version 2.23.0.windows.1

C:\Windows\System32>git config --list
core.symlinks=false
core.autocrlf=true
core.fscache=true
color.diff=auto
color.status=auto
color.branch=auto
color.interactive=true
help.format=html
rebase.autosquash=true
http.sslcainfo=C:/Program Files/Git/mingw64/ssl/certs/ca-bundle.crt
http.sslbackend=openssl
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge --skip -- %f
filter.lfs.process=git-lfs filter-process --skip
filter.lfs.required=true
credential.helper=manager
user.name=Abdi-01
user.email=abdialghi@gmail.com
filter.lfs.required=true
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
```

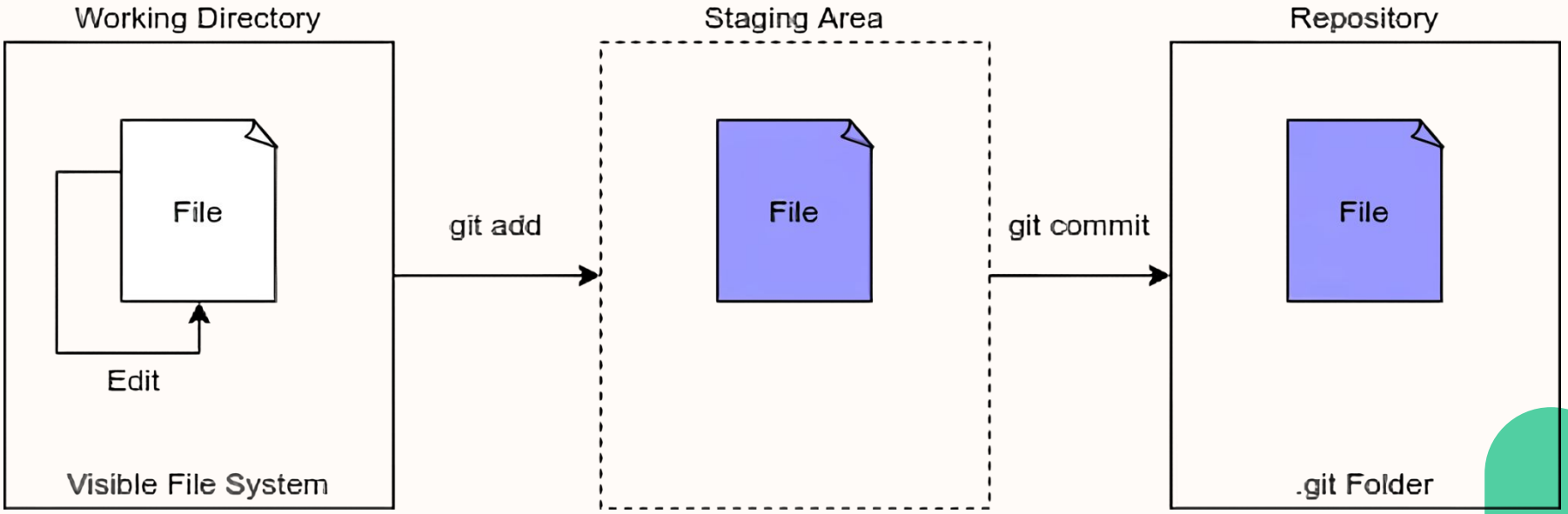
Create project directory

- Create a folder with a file named index.js.
- Try adding some programs to it.
- Then, open the terminal and execute the command "git init."



git init digunakan untuk melakukan inisialisasi pada directory agar dapat menggunakan fitur ***git***

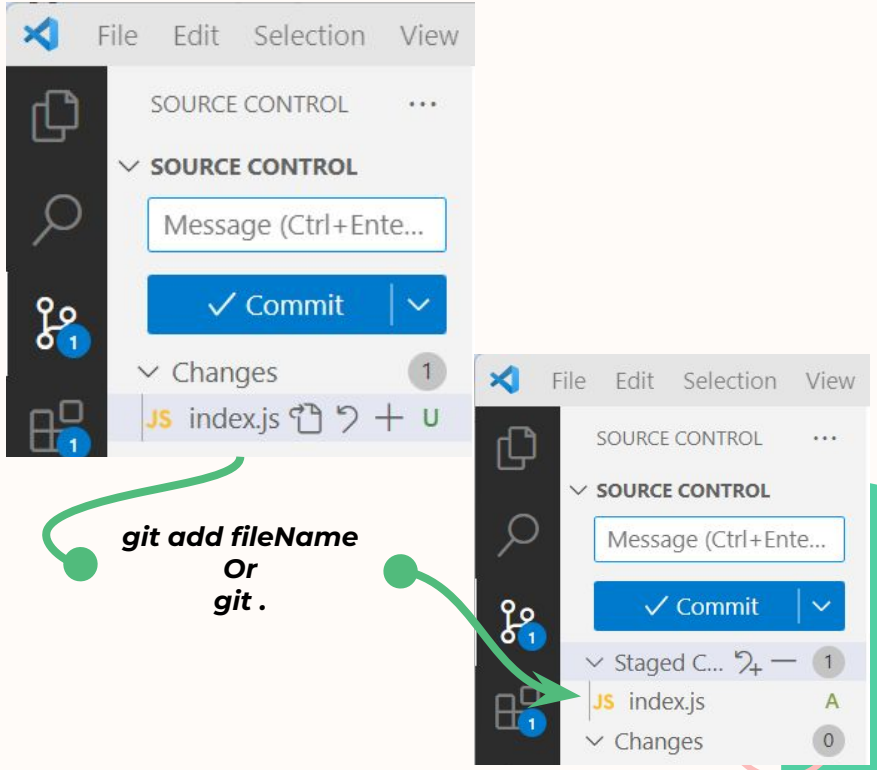
Git record area



Git status file

As you can see, after running the command "git init," the file we created earlier has the status U, which means untracked, indicating that the file is new. Some other statuses are:

UNTRACKED	indicating that the file is not being tracked by Git.
ADDED	indicating that the file has been added to the repository.
MODIFIED	indicating that the file has been modified.
DELETED	indicating that the file has been deleted.



Git command list

- When you want to save your work into Git:
  - *git add . or git add fileName: Add all changes in the current directory or specific file to the staging area.*
  - *git commit -m "feat: create file index.js": Commit the changes with a descriptive message.*
- When creating a new branch:
  - *git branch newBranch: Create a new branch.*
  - *Or git checkout -b branchName: Create a new branch and switch to it.*
- Ketika berpindah branch
  - *git checkout branchName*
- Ketika merubah nama branch saat ini
  - *git branch -m newBranchName*
- Ketika ingin melihat history perubahan yang sudah dicommit
  - *git log*
- Ketika ingin melihat history perubahan file tertentu
  - *git log fileName*
- Ketika ingin menghubungkan git local dengan github
  - *git remote add labelName urlRepoGithub*
    - *Example : git remote add origin https://github.com/student-01/intro-project.git*
- Ketika ingin melihat list remote github
  - *git remote -v*
- Ketika ingin menghapus remote github
  - *git remote remove labelName*
- Ketika meng-upload ke github
  - *git add . or git add fileName // jika belum*
  - *git commit -m "message" // jika belum*
  - *git push labelRemote branchName*
    - *Example : git push origin develop*

Conventional Git Commit Message

When creating a commit message, make sure it represents what was done, using a formula :

<type>(<scope>) : <subject>

Type list :

- `build`: Build related changes (eg: npm related/ adding external dependencies)
- `chore`: A code change that external user won't see (eg: change to .gitignore file or .prettierrc file)
- `feat`: A new feature
- `fix`: A bug fix
- `docs`: Documentation related changes
- `refactor`: A code that neither fix bug nor adds a feature. (eg: You can use this when there is semantic changes like renaming a variable/ function name)
- `perf`: A code that improves performance
- `style`: A code that is related to styling
- `test`: Adding new test or making changes to existing test

Example : feat (register) : start to create register page and register API

Exercise - Example in Pseudocode

Take a look at this example:

- Write a code to display the multiplication table of a given integer.
  - Example : Number → 9
  - Output :
    - 9 x 1
    - 9 x 2
    - ...
    - 9 x 10

Lets find out how to solve this problem through pseudocode!

```
Problem:
Write a code to display the multiplication table of a given integer.
example given integer is 9

Hint:
1. Find out what is multiplication table
2. Multiplication table formula with example input 9
    9 x 1 = 9
    9 x 2 = 18
    9 x n = 9n
    9 x 10 = 90
3. Convert 9 as a constant variables, and set 10 as a limit of multiplication
    const input = 9
    const limit = 10
4. Define the loops rule
    for(let i = 1; i <= limit; i++)

Solving:
1. define and assign variable for input and limit
    const input = 9
    const limit = 10
2. since we would like to create multiplication from 1 until 10 and multiply by input,
   lets create the loop starting with 1 and stop on 10. since we already define the limit
   as 10, lets use that variables
    FOR(let i = 1; i <= limit; i++)
3. lets print out the multiplication based on input with index of loop starting with 1
     OUTPUT input x i
4. close the looping statement after showing the output
    END FOR
```

Exercise - Debugging the Code

Try this: https://pythontutor.com/visualize.html#mode=edit

Lets write the code and see how it works. Take a look at the picture below. Click next button to see the process step by step. Left side screen shows our code, the right one show the process and output.

Exercise - Debugging the Code

Green arrow shows current code that executed, while the red one is the next code to be execute.

In this step, it would execute line 1 & 2 which is define the variables and assign the values.

JavaScript ES6
known limitations

```
1  const input = 9;
2  const limit = 10;
3
4  for( let i = 1; i <= limit; i++) {
5    console.log(`${input} x ${i} = ${input * i}`)
6  }
```

Edit this code

line that just executed
next line to execute

<< First | < Prev | Next > | Last >>

Step 3 of 34

Print output (drag lower right corner to resize)

Frames | Objects

Global frame

input	9
limit	10
i (block 1)	undefined

Exercise - Debugging the Code

i (block 1) define the starting looping position. i (block 2) define the current index looping positions.

JavaScript ES6
known limitations

```
1  const input = 9;
2  const limit = 10;
3
4  for( let i = 1; i <= limit; i++) {
5    console.log(`${input} x ${i} = ${input * i}`)
6  }
```

Edit this code

line that just executed
next line to execute

<< First | < Prev | Next > | Last >>

Step 4 of 34

Print output (drag lower right corner to resize)

Frames | Objects

Global frame

input	9
limit	10
i (block 1)	1
i (block 2)	1

Exercise - Debugging the Code

This picture shows that line of code 5 is being executed. And generate an output in the right side panel. Every output would be written in the right panels.

JavaScript ES6
known limitations

```
1 const input = 9;
2 const limit = 10;
3
4 for( let i = 1; i <= limit; i++) {
5   console.log(`${input} x ${i} = ${input * i}`)
6 }
```

Edit this code

line that just executed
next line to execute

<< First | < Prev | Next > | Last >>

Step 6 of 34

Print output (drag lower right corner to resize)

```
9 x 1 = 9
```

Frames | Objects

Global frame

input	9
limit	10
i (block 1)	1
i (block 2)	1

Exercise - Debugging the Code

Keep pressing next button to see the looping process. If looping conditional is no longer valid, it would go to line of code 6 which mean that is the end of looping progress.

JavaScript ES6
known limitations

```
1 const input = 9;
2 const limit = 10;
3
4 for( let i = 1; i <= limit; i++) {
5   console.log(`${input} x ${i} = ${input * i}`)
6 }
```

Edit this code

line that just executed
next line to execute

<< First | < Prev | Next > | Last >>

Done running (34 steps)

Print output (drag lower right corner to resize)

```
9 x 6 = 54
9 x 7 = 63
9 x 8 = 72
9 x 9 = 81
9 x 10 = 90
```

Frames | Objects

Global frame

input	9
limit	10

Exercise

- Write a code to display the multiplication table of a given integer.
  - Example : Number → 9
  - Output :
    - 9 x 1
    - 9 x 2
    - ...
    - 9 x 10
- Write a code to check whether a string is a palindrome or not.
  - Example : 'madam' → palindrome
- Write a code to convert centimeter to kilometer.
  - Example : 100000 → "1 km"
- Write a code to format number as currency (IDR)
  - Example : 1000 → "Rp. 1.000,00"
- Write a code to remove the first occurrence of a given "search string" from a string
  - Example : string = "Hello world", search string = "ell" → "Ho world"
- Write a code to capitalize the first letter of each word in a string
  - Example : "hello world" → "Hello World"
- Write a code to reverse a string.
  - Example : "hello" → "olleh"

Exercise

- Write a code to swap the case of each character from string
  - Example : ‘The QuiCk BrOwN Fox’ -> ‘ tHE qUIcK bRoWn fOX’
- Write a code to find the largest of two given integers
  - Example : num1 = 42, num2 = 27 → 42
- Write a conditional statement to sort three numbers
  - Example : num1 = 42, num2 = 27, num3 = 18 → 18, 27, 42
- Write a code that shows 1 if the input is a string, 2 if the input is a number, and 3 for others data type.
  - Example : “hello” → 1
- Write a code to change every letter a into * from a string of input
  - Example : ‘An apple a day keeps the doctor away’ -> `*n *pple * d*y keeps the doctor *w*y`

Thank You!