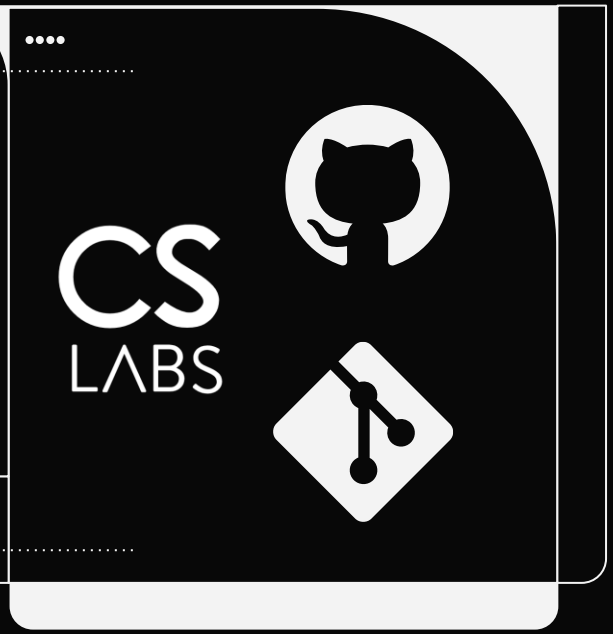
FORMATION INTRODUCTION À GIT & GITHUB



2022 Pierre Poitier

VOUS ALLEZ VOIR...

 GIT +  GITHUB

- Pourquoi GIT
- Principes de base
- Branches
- Démonstrations

UN PROBLÈME...

LA COORDINATION

Coder à plusieurs
en même temps ?

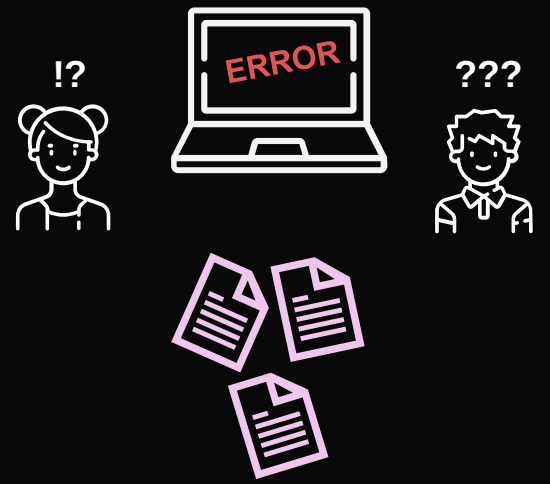
Envoyer ses
modifications ?

UN AUTRE PROBLÈME...

L'HISTORIQUE

Qui a cassé
le code ?

Il a ajouté
quoi Henri
hier ?

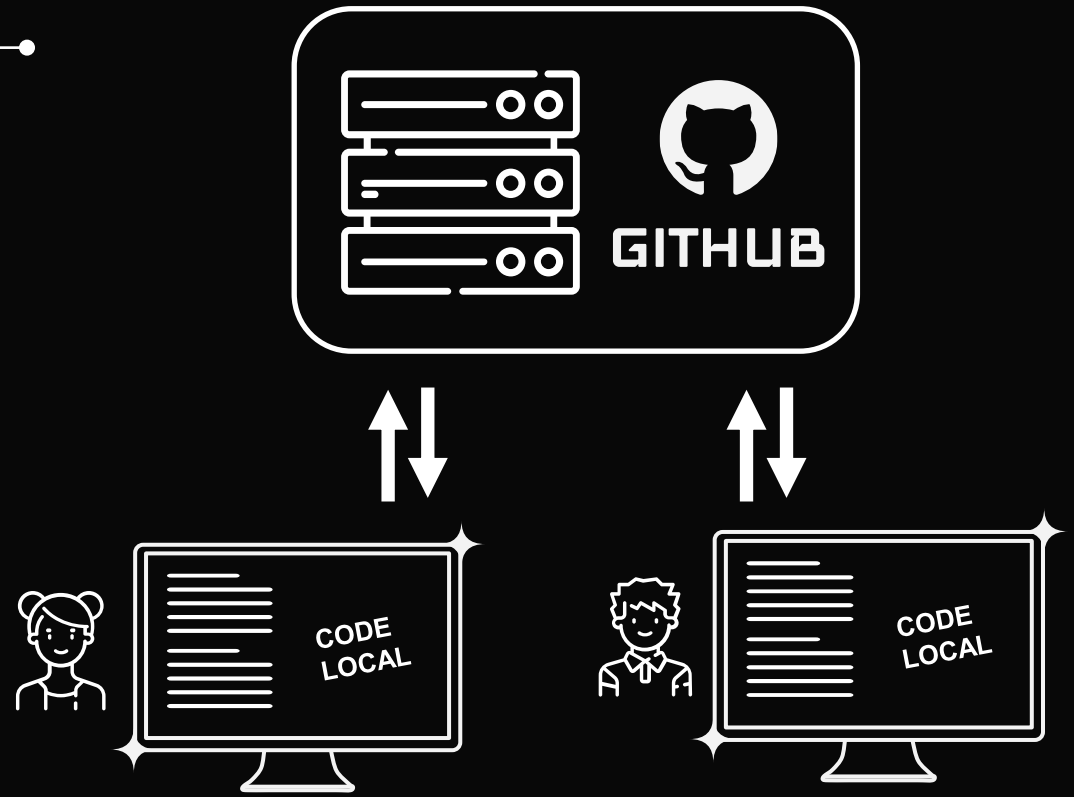


UNE SOLUTION !  GIT

- ✓ Synchroniser le code
- ✓ Organiser les modifications
- ✓ Séparer les fonctionnalités et ensuite les fusionner
- ✓ Développer à plusieurs en parallèle

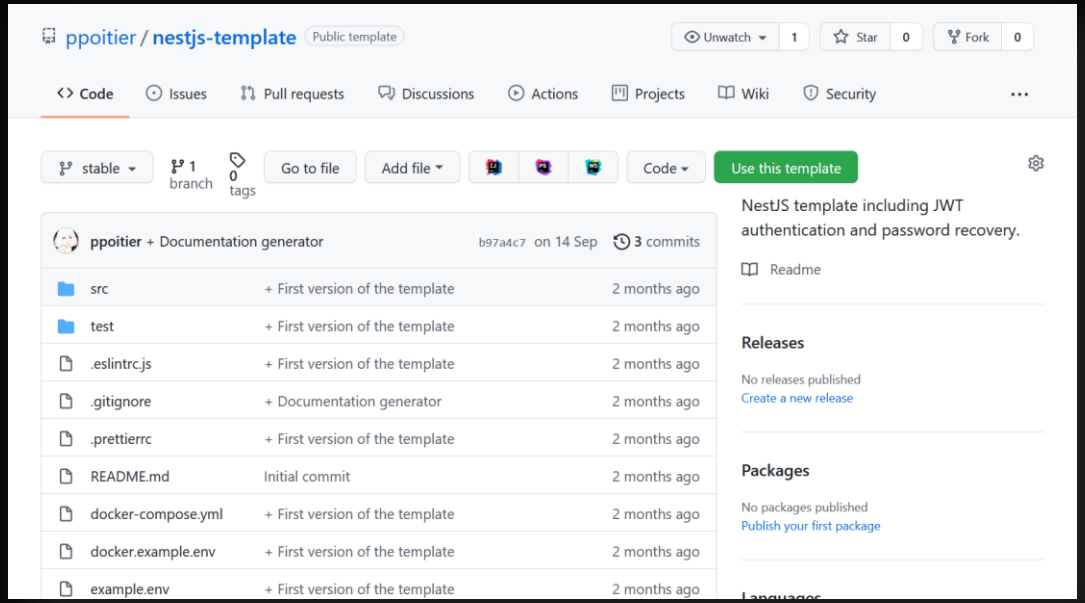
UN RÉPERTOIRE !

1. Le serveur
   - Enregistre le code
   - Distribue les modifications
2. Votre ordinateur
   - Envoie des modifications
   - Télécharge les modifications des autres
   - Etc.



UN SITE !

GITHUB



GITHUB
fournit des
répertoires GIT

https://github.com

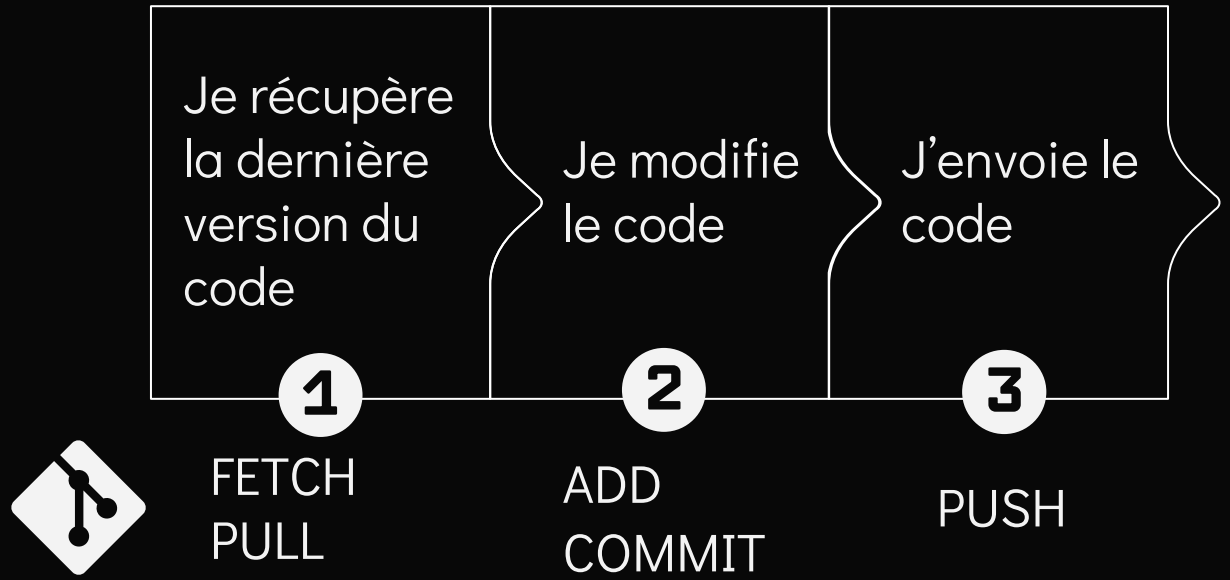
TÉLÉCHARGER GIT

Attention aux choix de l'éditeur de texte pendant l'installation !

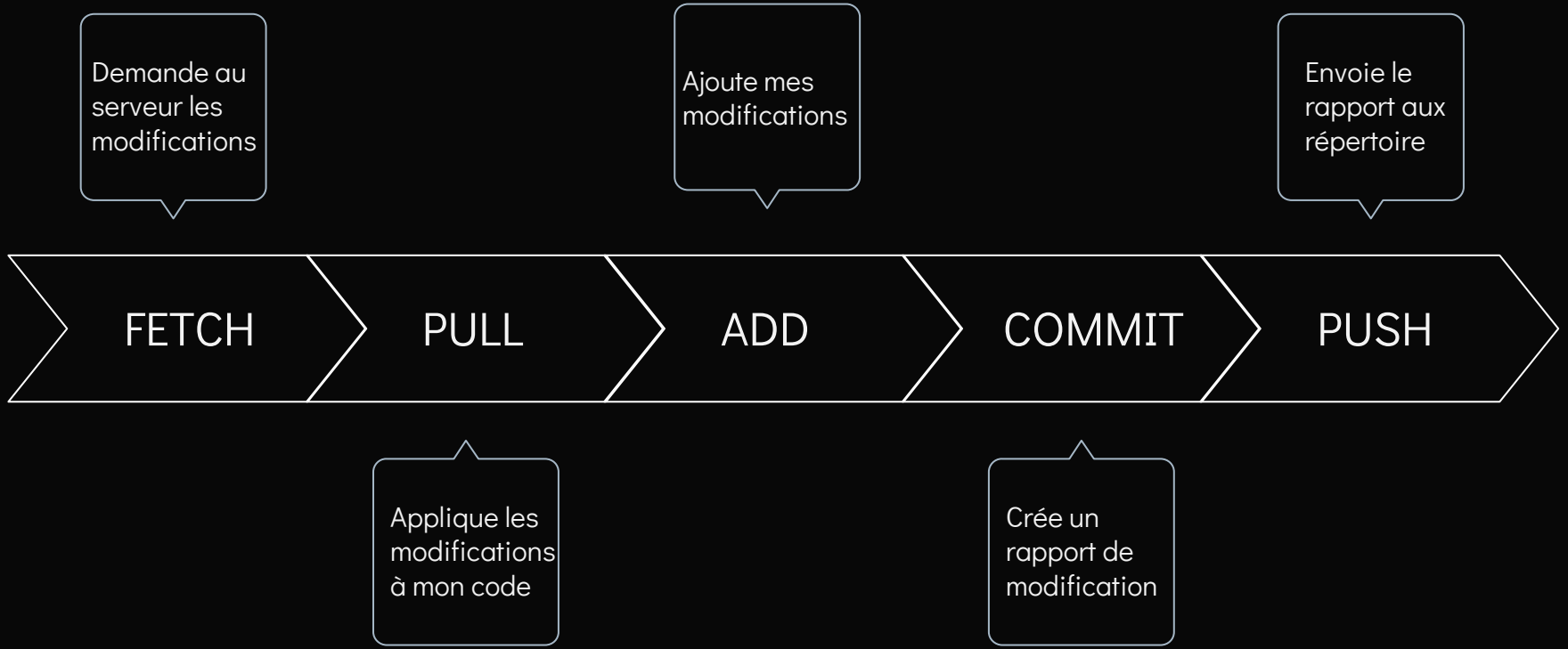
https://git-scm.com/download

C'EST PARTI !

EN GROS...


Je récupère la dernière version du code
Je modifie le code
J'envoie le code
1
2
3
FETCH
PULL
ADD
COMMIT
PUSH

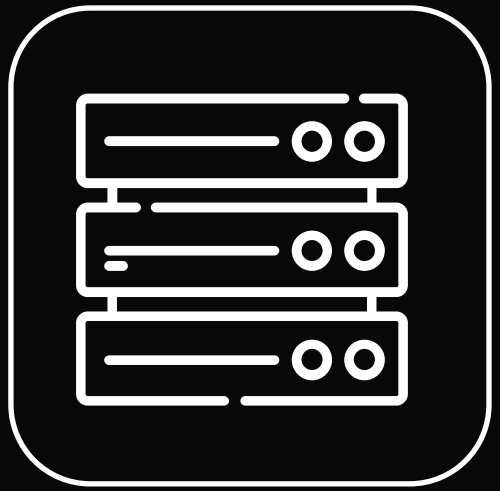
LES BASES


Demande au serveur les modifications
Ajoute mes modifications
Envoie le rapport aux répertoire
FETCH
PULL
ADD
COMMIT
PUSH
Applique les modifications à mon code
Crée un rapport de modification

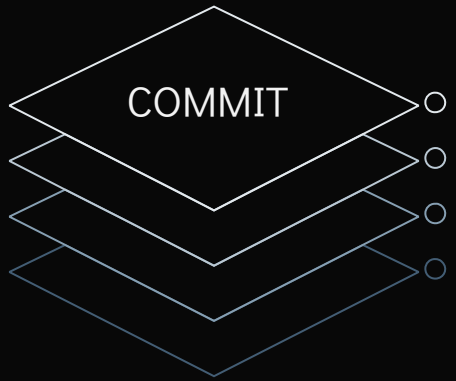
LES COMMITS

Un **COMMIT** est une modification, une *fonctionnalité* par exemple

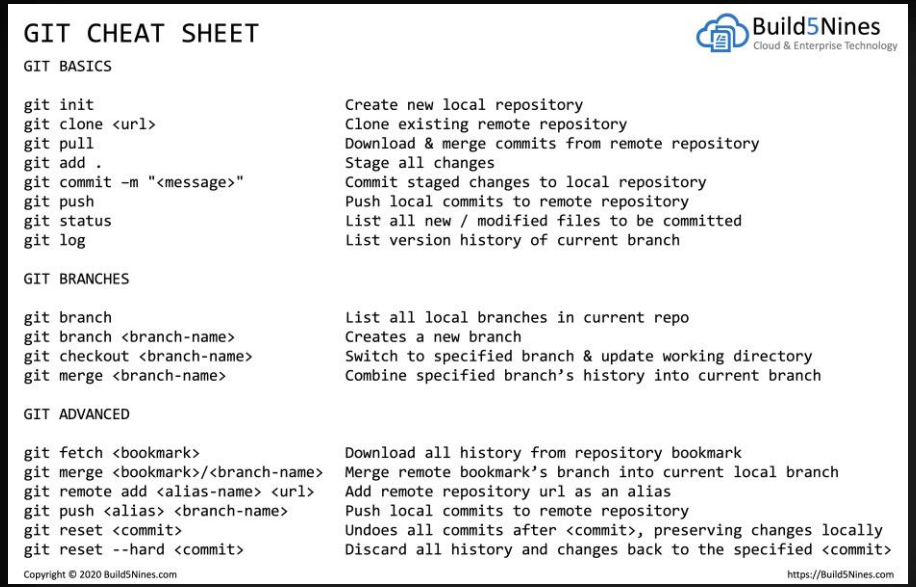
Répertoire



=



PAS DE PAR CŒUR !



GIT CHEAT SHEET

Build5Nines
Cloud & Enterprise Technology

GIT BASICS

`git init`	Create new local repository
`git clone <url>`	Clone existing remote repository
`git pull`	Download & merge commits from remote repository
`git add .`	Stage all changes
`git commit –m "<message>"`	Commit staged changes to local repository
`git push`	Push local commits to remote repository
`git status`	List all new / modified files to be committed
`git log`	List version history of current branch

GIT BRANCHES

`git branch`	List all local branches in current repo
`git branch <branch-name>`	Creates a new branch
`git checkout <branch-name>`	Switch to specified branch & update working directory
`git merge <branch-name>`	Combine specified branch's history into current branch

GIT ADVANCED

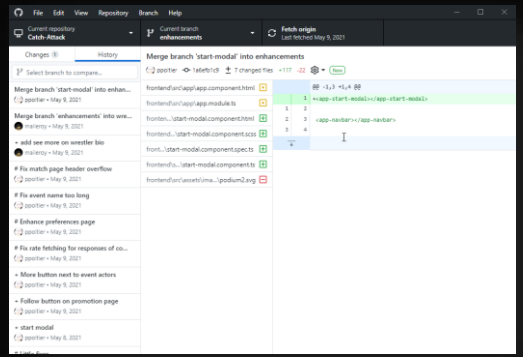
`git fetch <bookmark>`	Download all history from repository bookmark
`git merge <bookmark>/<branch-name>`	Merge remote bookmark's branch into current local branch
`git remote add <alias-name> <url>`	Add remote repository url as an alias
`git push <alias> <branch-name>`	Push local commits to remote repository
`git reset <commit>`	Undoes all commits after <commit>, preserving changes locally
`git reset --hard <commit>`	Discard all history and changes back to the specified <commit>

https://Build5Nines.com

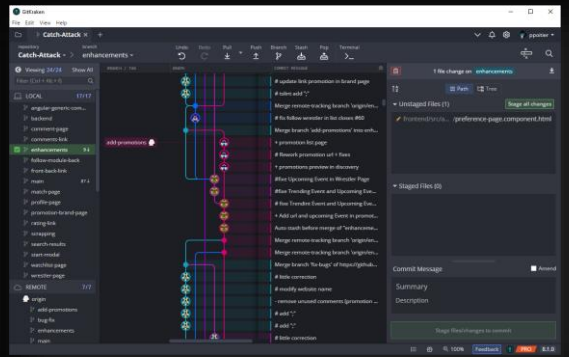
https://build5nines.com/git-cheat-sheet/

INTERFACES GRAPHIQUES

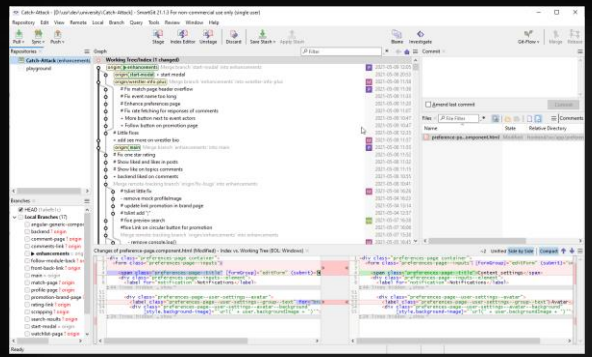
Github Desktop



Gitkraken



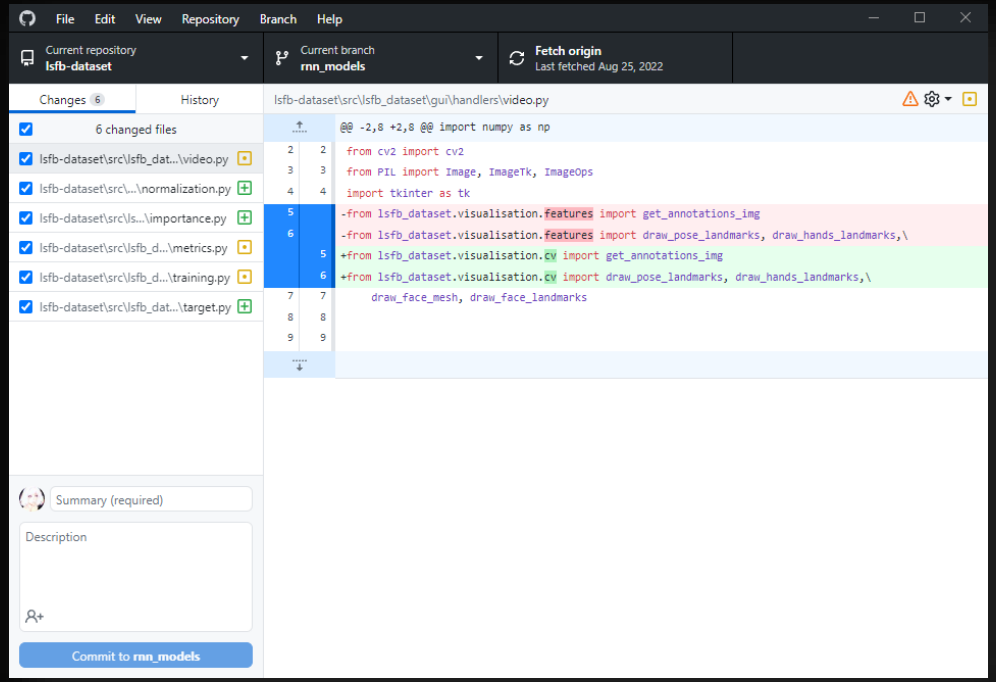
SmartGit



INTERFACES GRAPHIQUES

Intégration dans les IDE...

Github Desktop



PETITE DÉMO...

GITHUB DESKTOP

COMMANDES BASIQUES

```
> git clone https://github.com/pseudo/repo.git
```

OU

```
> git fetch
```

Demande quelles modifications ont été faites

```
> git pull
```

Applique les modifications

ENSUITE

TIME TO CODE !!!

COMMANDES BASIQUES

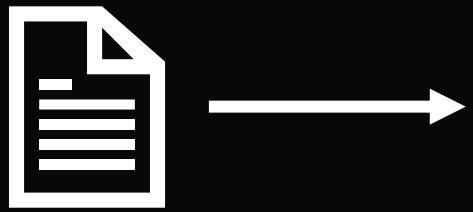
TIME TO CODE !!!

ENSUITE

> git status	Où j'en suis ?
> git add .	Sélectionne mes modifications
> git commit	Englobe mes modifications dans un **COMMIT**
> git push	Envoie le **COMMIT** au serveur, au répertoire

LE GIT IGNORE

.gitignore



```
/node_modules
/.idea
**/*.env
# …
```

Fichiers et dossiers ignorés par git

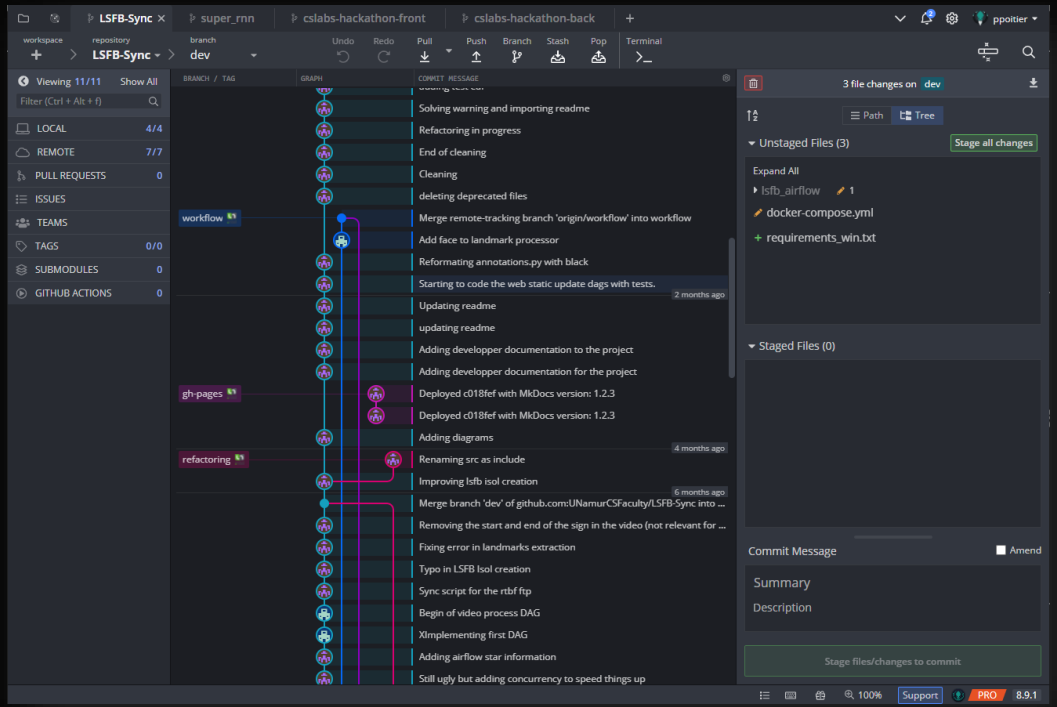
BRAVO

Vous maitrisez les bases !

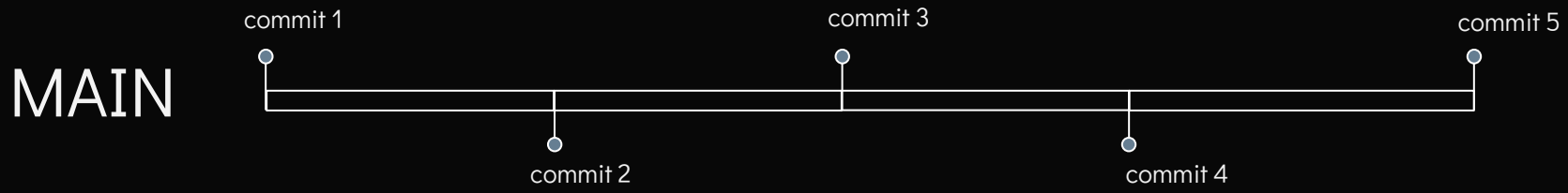
MAIS

Git permet beaucoup plus...

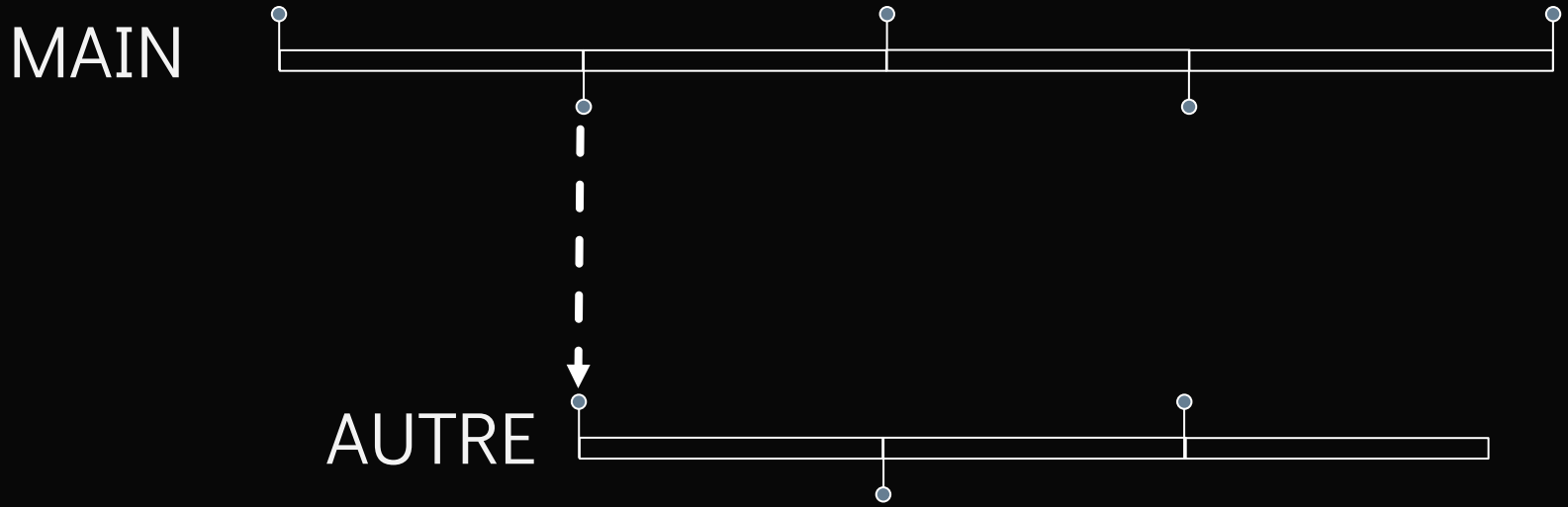
BRANCHES


LSFB-Sync
super_rnn
cslabs-hackathon-front
cslabs-hackathon-back
ppoitier
workspace
repository
LSFB-Sync
branch
dev
Undo
Redo
Pull
Push
Branch
Stash
Pop
Terminal
Viewing 11/11
Show All
Filter (Ctrl + Alt + f)
LOCAL 4/4
REMOTE 7/7
PULL REQUESTS 0
ISSUES
TEAMS
TAGS 0/0
SUBMODULES 0
GITHUB ACTIONS 0
BRANCH / TAG
GRAPH
COMMIT MESSAGE
workflow
gh-pages
refactoring
Solving warning and importing readme
Refactoring in progress
End of cleaning
Cleaning
deleting deprecated files
Merge remote-tracking branch 'origin/workflow' into workflow
Add face to landmark processor
Reformating annotations.py with black
Starting to code the web static update dags with tests.
2 months ago
Updating readme
updating readme
Adding developper documentation to the project
Adding developper documentation for the project
Deployed c018fef with MkDocs version: 1.2.3
Deployed c018fef with MkDocs version: 1.2.3
Adding diagrams
4 months ago
Renaming src as include
Improving lsfb isol creation
6 months ago
Merge branch 'dev' of github.com:UNamurCSFaculty/LSFB-Sync into ...
Removing the start and end of the sign in the video (not relevant for ...
Fixing error in landmarks extraction
Typo in LSFB Isol creation
Sync script for the rtbf ftp
Begin of video process DAG
XImplementing first DAG
Adding airflow star information
Still ugly but adding concurrency to speed things up
3 file changes on dev
Path
Tree
Unstaged Files (3)
Stage all changes
Expand All
lsfb_airflow 1
docker-compose.yml
requirements_win.txt
Staged Files (0)
Commit Message
Amend
Summary
Description
Stage files/changes to commit
100%
Support
PRO
8.9.1

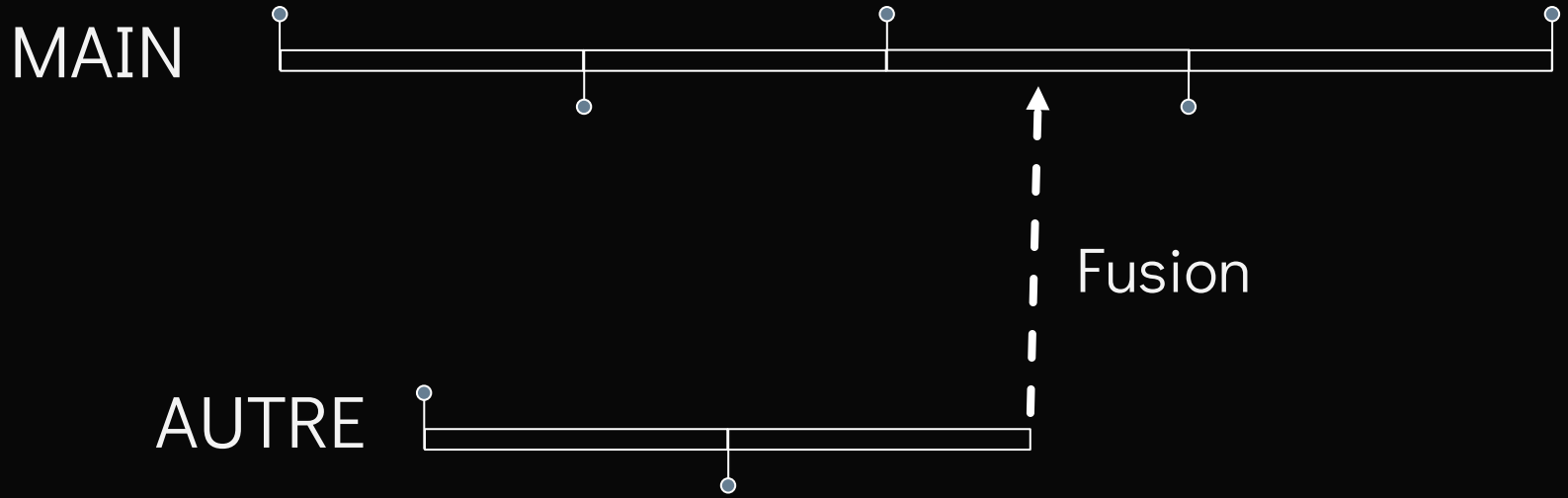
LA BRANCHE MAIN



NOUVELLE BRANCHE



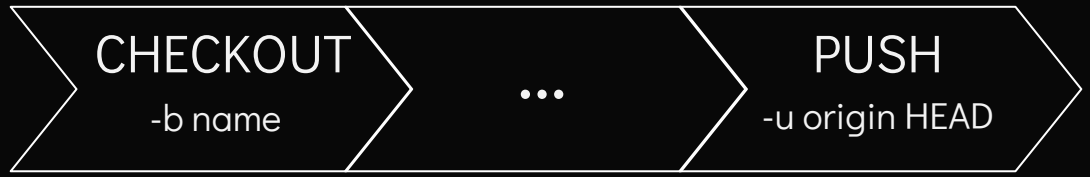
FUSION DE BRANCHES



CRÉER UNE BRANCHE

Crée une branche en local

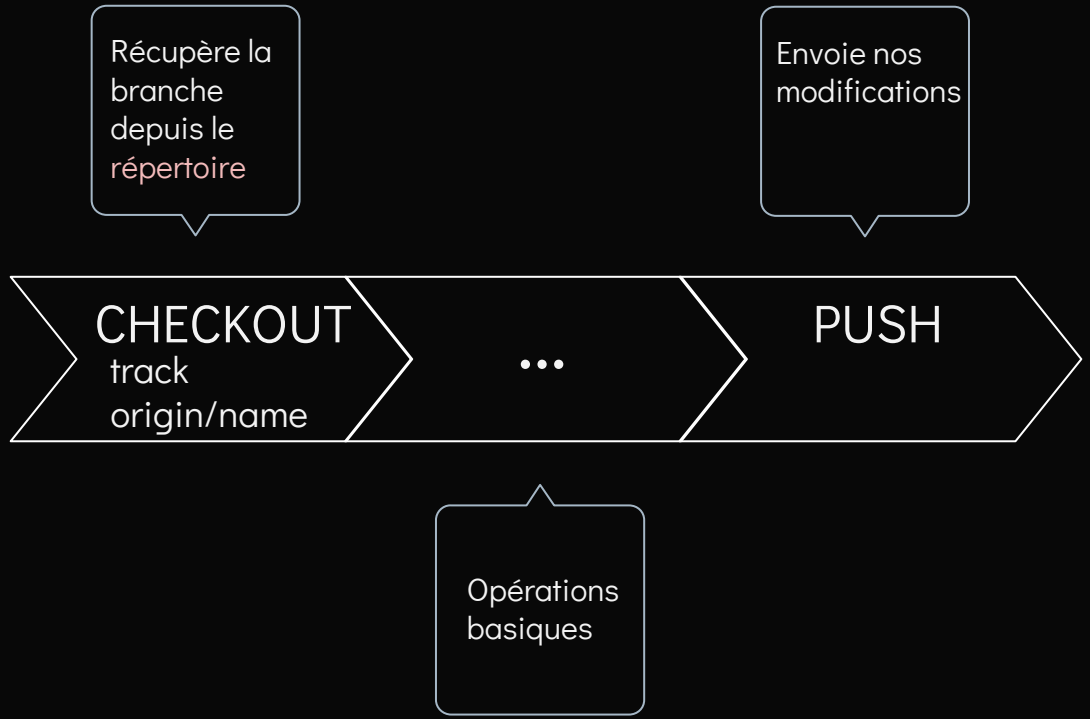
Envoie nos modifications sur une nouvelle branche du serveur



Opérations basiques

HEAD permet de mettre le même nom de branche dans le répertoire

BRANCHE EXISTANTE



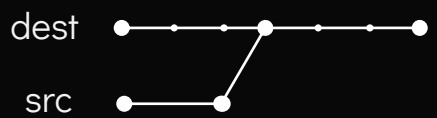
FUSIONNER DES BRANCHES

Se mettre sur la branche de destination

Fusionne une autre branche dans la courante

CHECKOUT dest_name

MERGE src_name



GÉRER LES CONFLITS

Parfois, la fusion
entraîne des conflits...

1. Git le signale
2. On le résout
3. On commit

```
<<<<<<< HEAD
Bonjour je m'apelle Henri !
=======
Bonjour je m'apelle Georges !
>>>>>>> george
```

PETITE DÉMO...

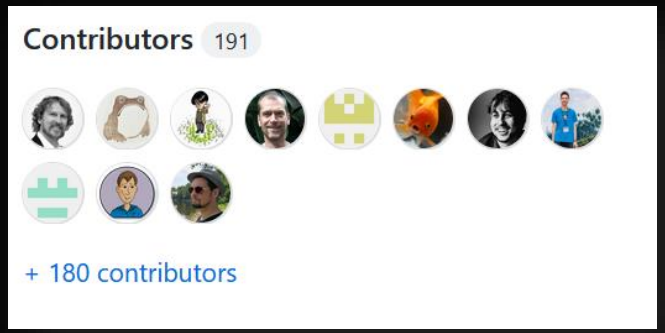
GITHUB DESKTOP
GIT KRAKEN
CLI

COMMANDES BRANCHES

> git checkout –b my_branch	Crée un nouvelle branche
> git checkout --track origin/my-branch	Charge une branche depuis le répertoire
> git checkout my_branch	Change de branche (localement)
> git push -u origin HEAD	Envoie la branche au répertoire
> git merge my_branch	Fusionne une branche dans la branche actuelle
> git branch	Liste les branches

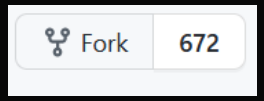
L'ÉCOSYSTÈME OPEN SOURCE

https://github.com/blender/blender



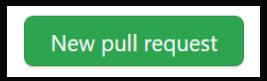
- Télécharger le code
- Le modifier
- Proposer vos modifications

LE FORK



Vous créez un répertoire sur base de celui que vous **forkez**

LE PULL REQUEST



Vous pouvez proposer d'appliquer vos modifications au répertoire de référence

THE END

Time To Practice

if we have sufficient time...

N’hésitez pas à me contacter !
pierre.poitier@unamur.be

EXTRA CONTENT

RESET DES COMMITS

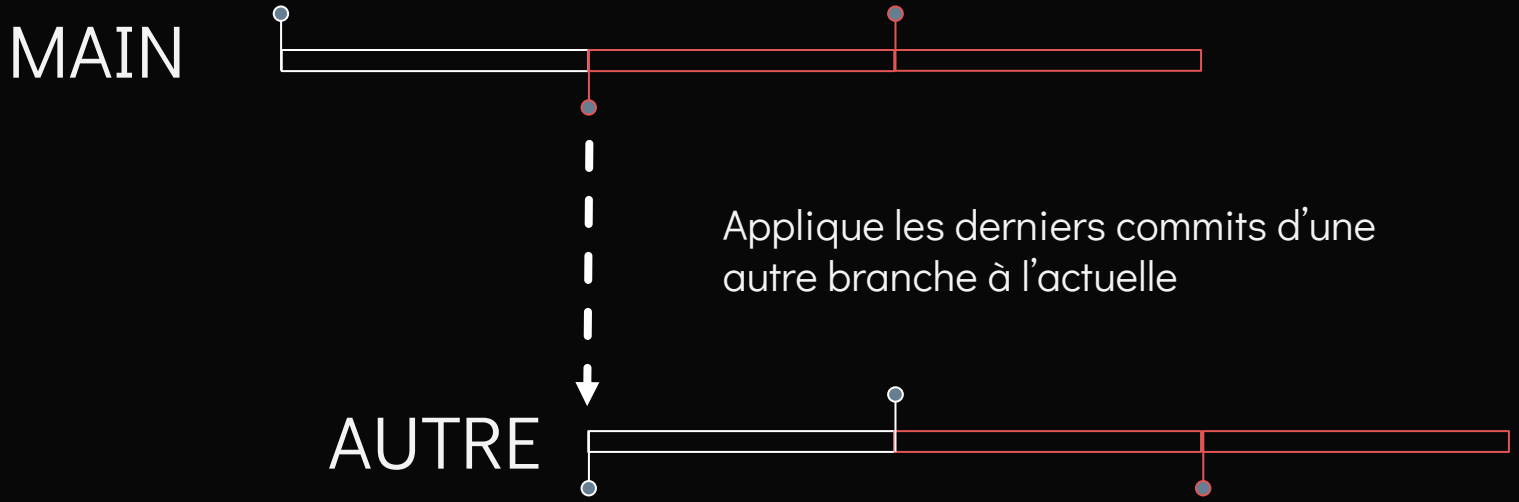
```
> git reset --soft HEAD~2
```

Réinitialise le répertoire à deux commits avant HEAD

```
> git reset --hard HEAD
```

Réinitialise le répertoire à HEAD de façon forcée

REBASE



Applique les derniers commits d'une autre branche à l'actuelle

Permet de rattraper une branche

S'AUTHENTIFIER À GITHUB

Aujourd'hui, **Github** ne permet plus de n'utiliser que le mot de passe pour **modifier** un répertoire

Il faut mettre en place une **clé SSH**

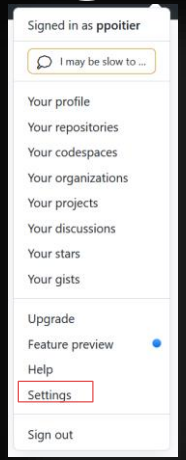
```
PS C:\Windows\system32> ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (C:\Users\      /.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in C:\Users\      /.ssh/id_rsa.
Your public key has been saved in C:\Users\      /.ssh/id_rsa.pub.
```

https://br.atsit.in/fr/?p=4123

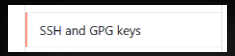
S'AUTHENTIFIER À GITHUB

C:/Users/<user>/.ssh/id_rsa.pub

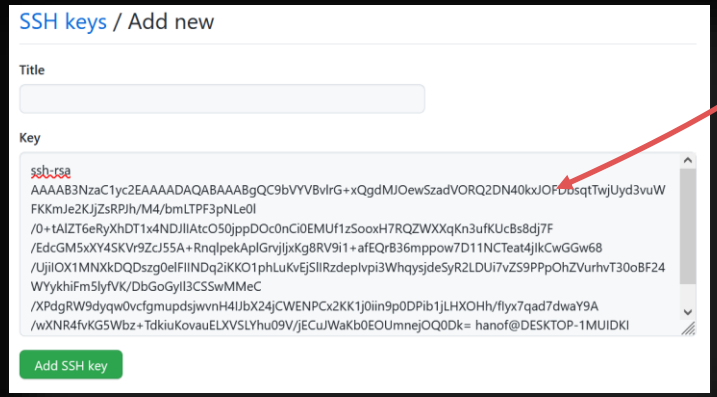
1



2



3



Placez le contenu de la clé publique dans l'encadré « Key »

AJOUTER UN REMOTE

```
> git init
```

Initialiser un répertoire local, dans un dossier existant

```
> git remote add origin https://...
```

Le connecte à un répertoire Github