

# **Institut universitaire des sciences**

**Faculté :** facultés des science et technologies

**TD 1** – Systèmes

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**Niveau :** L3

**Date :** Vendredi 28 novembre 2025

## Objectif du TD

L'objectif principal de ce TD était de **maîtriser les commandes de base de Git** pour initialiser un répertoire local en tant que dépôt, gérer les branches, effectuer des modifications, les *commiter*, puis **synchroniser** ce travail avec un dépôt distant (probablement hébergé sur une plateforme comme GitHub ou GitLab, désigné ici par origin).

The screenshot displays a Windows desktop environment. The top half shows a web browser window with the GitHub homepage. The bottom half shows a terminal window with the following commands and output:

```
MINGW64/C:/Users/aaaaa/Desktop/TD
rm: cannot remove '/etc/post-install/01-devices.post': Permission denied
rm: cannot remove '/etc/post-install/02-rtab.post': Permission denied
rm: cannot remove '/etc/post-install/06-windows-files.post': Permission denied
rm: cannot remove '/etc/post-install/99-post-install-cleanup.post': Permission denied
aaaaa@DESKTOP-KJG60SH MINGW64 ~
$ git --version
git version 2.52.0.windows.1
aaaaa@DESKTOP-KJG60SH MINGW64 ~
$ git config --global user.name "X4ntray"
aaaaa@DESKTOP-KJG60SH MINGW64 ~
$ git config --global user.name "aaaaa1a1o12003@gmail.com"
aaaaa@DESKTOP-KJG60SH MINGW64 ~
$ git config --list
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
filter.lfs.required=true
http.sslbackend=openssl
core.autocrlf=true
core.fsmonitor=true
core.symlinks=false
pull.rebase=false
credential.helper=manager
credential.https://dev.azure.com.usehttppath=true
init.defaultbranch=master
user.name=aaaaa1a1o12003@gmail.com
user.email=aaaaa1a1o12003@gmail.com
aaaaa@DESKTOP-KJG60SH MINGW64 ~
$ ls
-1.14-windows.xml
3D Objects/
AppData/
Apple/
Application Data's
D119510.tmp
Contacts/
Cookies/
Desktop/
Documents/
Downloads/
Favorites/
IntelGraphicsProfiles/
Links/
Local Settings/
Music/
My Documents/
NTUSER.DAT
NTUSER.DAT{16ef7413-abc8-11f0-85c9-c02a603ebaa}.TxR.0.regtrans-ms
NTUSER.DAT{16ef7413-abc8-11f0-85c9-c02a603ebaa}.TxR.1.regtrans-ms
NTUSER.DAT{16ef7413-abc8-11f0-85c9-c02a603ebaa}.TxR.2.regtrans-ms
NTUSER.DAT{16ef7413-abc8-11f0-85c9-c02a603ebaa}.TxR.b1f
```

```
MINGW64/c/Users/aaaa/Desktop/TD
NTUSER.DAT[16ef7413-abc8-11f0-85c9-c0f2a603ebaa].TxR.b1f
NTUSER.DAT[16ef7414-abc8-11f0-85c9-c0f2a603ebaa].TM.b1f
NTUSER.DAT[16ef7414-abc8-11f0-85c9-c0f2a603ebaa].TMCContainer00000000000000000000
l.regtrans-ms
NTUSER.DAT[16ef7414-abc8-11f0-85c9-c0f2a603ebaa].TMCContainer00000000000000000000
r.regtrans-ms
NetHood
OneDrive
PrintHood
Recent
Roaming
Saved Games
Searches
SendTo
Start Menu
Templates
Videos
ntuser.dat.LOG1
ntuser.dat.LOG2
ntuser.ini

aaaa@DESKTOP-KJG60SH MINGW64 ~
$ cd Desktop

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop
$ mkdir projet-git

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop
$ cd projet-git

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git
$ git init
Initialized empty Git repository in C:/Users/aaaa/Desktop/projet-git/.git/

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (master)
$ echo "Hello Git!" > README.md

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (master)
$ git add README.md
warning: in the working copy of 'README.md', LF will be replaced by CRLF the next time Git touches it

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (master)
$ git commit -m "Premier commit avec PowerShell"
[master (root-commit) 7296d46] Premier commit avec PowerShell
1 file changed, 1 insertion(+)
create mode 100644 README.md

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (master)
$ git status
On branch master
nothing to commit, working tree clean

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (master)
$ git log
commit 7296d46c705e9957a4fc087bee980f2504a92bf0 (HEAD -> master)
Author: aaaaalaloi2003@gmail.com <aaaaalaloi2003@gmail.com>
Date: Thu Nov 27 15:17:35 2025 -0500
```

```
MINGW64/c/Users/aaaa/Desktop/TD
Premier commit avec PowerShell

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (master)
$ cd ..

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop
$ ssh-keygen -t ed25519 -C "aaaaalaloi2003@gmail.com"
Generating public/private ed25519 key pair.
Enter file in which to save the key (/c:/Users/aaaa/.ssh/id_ed25519):
/c:/Users/aaaa/.ssh/id_ed25519 already exists.
Overwrite (y/n)? y
Enter passphrase for "/c:/Users/aaaa/.ssh/id_ed25519" (empty for no passphrase):

Enter same passphrase again:
Your identification has been saved in /c:/Users/aaaa/.ssh/id_ed25519
Your public key has been saved in /c:/Users/aaaa/.ssh/id_ed25519.pub
The key fingerprint is:
SHA256:47dny06jodh3pksSMsmrvvbo2Dn3Rd2MRz2uxQu aaaaalaloi2003@gmail.com
The key's randomart image is:
[025519 256]--+
|
|  o .o |
|  +o |
|  .+fo |
|  . . . . .o +
|  . . . . .S .+
|  .o..S .+
|  .oo..o. . o
|  ..+...+ . o
|  .O .+ + . .oo
|  +o .oo .+ +.o+
|  +---[SHA256]-----

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop
$ cat ~/.ssh/id_ed25519
-----BEGIN OPENSSH PRIVATE KEY-----
b3B1bnZac1ZXRtdjEAAAABG5vbmIAAAABbmDzQAAAAAABAAAAAAAMAAATzc2gtZW
dyNTU0dAAACDpaTciQ1R993C/E1L0Z4C2Z8Kcuw26VvKz29dyAAAAK0BP0e2wT6
HqAAATzc2gtZWdyNTU0dAAACDpaTciQ1R993C/E1L0Z4C2Z8Kcuw26VvKz29dyA
AAADXNNAQ41eBc3TXeXZ3KRZ0LStYhvgT1ZvZG+SqpxhmT0lphYkrVH33cl8SuUs5nhxm
p1G2QK5Z3bbpwqtn131AAAAAGF1YmDzQ2Z8Kcuw26VvKz29dyNTU0dAAACDpaTciQ1R993C/E1L0Z4C2Z8Kcuw26VvKz29dyA
-----END OPENSSH PRIVATE KEY-----

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop
$ cat ~/.ssh/id_ed25519.pub
ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAI0lphYkrVH33cl8SuUs5nhxmp1G2QK5Z3bbpwqtn131
aaaaalaloi2003@gmail.com

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop
$ cd Desktop
bash: cd: Desktop: No such file or directory

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop
$ cd Desktop
bash: cd: Desktop: No such file or directory

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop
$ cd ~/Desktop
```

```
MINGW64/c/Users/aaaa/Desktop/TD
$ cd Desktop
bash: cd: Desktop: No such file or directory

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop
$ cd Desktop
bash: cd: Desktop: No such file or directory

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop
$ cd ~/Desktop

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop
$ git clone git@github.com:X4ntray/project001.git
Cloning into 'project001'...
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.

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop
$ ls
desktop.ini  msver100.zip  projet-git/  projet001/

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop
$ cd mon-projet
bash: cd: mon-projet: No such file or directory

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop
$ cd projet001

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/project001 (main)
$ echo "Systeme d'exploitation" > Module.txt

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/project001 (main)
$ git add .
warning: in the working copy of 'Module.txt', LF will be replaced by CRLF the ne
xt time git touches it

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/project001 (main)
$ git commit -m "Ajout Module"
[main 474d2a3] Ajout Module
1 file changed, 1 insertion(+)
create mode 100644 Module.txt

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/project001 (main)
$ git branch -M main

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/project001 (main)
$ git push -u origin main
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 300 bytes | 60.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:X4ntray/project001.git
 d7eba0c..474d2a3  main -> main
branch 'main' set up to track 'origin/main'.
```

```
MINGW64/c/Users/aaaa/Desktop/TD
Please make sure you have the correct access rights
and the repository exists.

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/systeme (master)
$ git branch -
fatal: "-" is not a valid branch name
hint: See 'man git-check-ref-format'
hint: Disable this message with "git config set advice.refSyntax false"

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/systeme (master)
$

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/systeme (master)
$ git branch -M main

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/systeme (main)
$ ls

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/systeme (main)
$ mkdir image

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/systeme (main)
$ mkdir presentation

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/systeme (main)
$ mkdir projet

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/systeme (main)
$ ls
image/  presentation/  projet/

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/systeme (main)
$ cd ..

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD
$ mkdir reseaut

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD
$ cd reseaut

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/reseaut
$ ls

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/reseaut
$ mkdir image

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/reseaut
$ mkdir presentation

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/reseaut
$ mkdir projet

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD/reseaut
$ cd ..

aaaaa@DESKTOP-KJG605H MINGW64 ~/Desktop/TD
$ |
```

GitHub repository page for **mon-projet** by user **kervenslalo29**. The repository is public and has 1 branch and 0 tags. The commit history shows an initial commit by kervenslalo29 7866c13 - now, 1 Commit. The README file is visible, titled **mon-projet**. The right sidebar shows repository statistics: 0 stars, 0 watching, 0 forks. The bottom section shows the terminal output of the user's commands.

```
rm: cannot remove '/etc/post-install/01-devices.post': Permission denied
rm: cannot remove '/etc/post-install/03-mtab.post': Permission denied
rm: cannot remove '/etc/post-install/06-windows-files.post': Permission denied
rm: cannot remove '/etc/post-install/99-post-install-cleanup.post': Permission denied
rm: cannot remove '/etc/post-install/99-post-install-cleanup.post': Permission denied

aaaaa@DESKTOP-KJG60SH MINGW64 ~ (main)
$ git --version
git version 2.52.0.windows.1

aaaaa@DESKTOP-KJG60SH MINGW64 ~ (main)
$ git config --global user.name "kervenslalo29"

aaaaa@DESKTOP-KJG60SH MINGW64 ~ (main)
$ git config --list
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
filter.lfs.required=true
http.sslbackend=schannel
core.autocrlf=true
core.fsck=true
core.sylinks=false
pull.rebase=false
credential.helper=manager
credential.https://dev.azure.com.usehttppath=true
init.defaultbranch=master
user.name=kervenslalo29
user.email=aaaaa@lalo29@gmail.com
core.repositoryformatversion=0
core.filemode=false
core.bare=false
core.logallrefupdates=true
core.sylinks=false
core.ignorecase=true

aaaaa@DESKTOP-KJG60SH MINGW64 ~ (main)
$ git config --global user.email "kervenslalo29@gmail.com"

aaaaa@DESKTOP-KJG60SH MINGW64 ~ (main)
$ git config --list
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
filter.lfs.required=true
http.sslbackend=schannel
core.autocrlf=true
core.fsck=true
core.sylinks=false
pull.rebase=false
credential.helper=manager
credential.https://dev.azure.com.usehttppath=true
init.defaultbranch=master
user.name=kervenslalo29
user.email=kervenslalo29@gmail.com
core.repositoryformatversion=0
```

```
MINGW64/c/Users/aaaa/Desktop/TD
core.filemode=false
core.bare=false
core.logallrefupdates=true
core.symlinks=false
core.ignorecase=true

aaaa@DESKTOP-KJG60SH MINGW64 ~ (main)
$ ls
-1.14-windows.xml
'3D Objects'
AppData/
Apple/
'Application Data's
BIT95E0.tmp
Contacts/
cookies
Desktop/
Documents/
Downloads/
Favorites/
IntelGraphicsProfiles/
Links/
'Local Settings's
Music/
My Documents's
NTUSER.DAT
NTUSER.DAT[16ef7413-abc8-11f0-85c9-c0f2a603ebaa].TxR.0.regtrans-ms
NTUSER.DAT[16ef7413-abc8-11f0-85c9-c0f2a603ebaa].TxR.1.regtrans-ms
NTUSER.DAT[16ef7413-abc8-11f0-85c9-c0f2a603ebaa].TxR.2.regtrans-ms
NTUSER.DAT[16ef7413-abc8-11f0-85c9-c0f2a603ebaa].TxR.btf
NTUSER.DAT[16ef7414-abc8-11f0-85c9-c0f2a603ebaa].TM.btf
NTUSER.DAT[16ef7414-abc8-11f0-85c9-c0f2a603ebaa].TMContainer00000000000000000000
1.regtrans-ms
NTUSER.DAT[16ef7414-abc8-11f0-85c9-c0f2a603ebaa].TMContainer00000000000000000000
2.regtrans-ms
Networks
OneDrive/
PrintHoods
Recent's
Roaming/
'Saved Games'/
Searches/
Sendto's
'Start Menu's
Templates
Videos/
'VirtualBox VM's/
ntuser.dat.LOG1
ntuser.dat.LOG2
ntuser.ini

aaaa@DESKTOP-KJG60SH MINGW64 ~ (main)
$ cd Desktop
aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop (main)
$ mkdir projet-git
aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop (main)

MINGW64/c/Users/aaaa/Desktop/TD
$ mkdir projet-git
aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop (main)
$ cd projet-git
aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (main)
$ git init
Initialized empty Git repository in C:/Users/aaaa/Desktop/projet-git/.git/
aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (master)
$ echo "Hello Git!" > README.md
aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (master)
$ git add README.md
warning: in the working copy of 'README.md', LF will be replaced by CRLF the next time Git touches it
aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (master)
$ git commit -m "Premier commit avec PowerShell"
[master (root-commit) 5a8a9de] Premier commit avec PowerShell
1 file changed, 1 insertion(+)
create mode 100644 README.md
aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (master)
$ git status
On branch master
nothing to commit, working tree clean
aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (master)
$ git log
commit 5a8a9dec79a5cded21a15cd2c47d3f7d9f2005 (HEAD -> master)
Author: kervenslaloiz29 <kervenslaloiz29@gmail.com>
Date: Fri Nov 28 17:04:33 2025 -0500

    Premier commit avec PowerShell

aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop/projet-git (master)
$ cd ..
aaaa@DESKTOP-KJG60SH MINGW64 ~/Desktop (main)
$ ssh-keygen -t ed25519 -C "kervenslaloiz29@gmail.com"
Generating public/private ed25519 key pair.
Enter file in which to save the key (/c:/Users/aaaa/.ssh/id_ed25519):
/c:/Users/aaaa/.ssh/id_ed25519 already exists.
Overwrite (y/n)? y
Enter passphrase for '/c:/Users/aaaa/.ssh/id_ed25519' (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /c:/Users/aaaa/.ssh/id_ed25519
Your public key has been saved in /c:/Users/aaaa/.ssh/id_ed25519.pub
The key's fingerprint is:
SHA256:6CXB3S7BYUS/QE+yErV1Ykt+3wZHGp06zpj3PN7U kervenslaloiz29@gmail.com
The key's randomart image is:
---[Id25519 236]---
      o
    . o o
  . o o +
o o = o
S + B = .
```

## Conclusions

### Résumé des acquis

Ce TD a permis d'acquérir une **compréhension pratique** des concepts fondamentaux de la gestion de version distribuée avec **Git**. J'ai appris à :

- **Initialiser** un dépôt et **structurer** son contenu.
- Utiliser les trois états de Git : le répertoire de travail, la zone de *staging* (git add), et l'historique du dépôt (git commit).
- Gérer les **branches** (git branch -M).
- **Synchroniser** le travail local avec un dépôt distant (git push).

**Difficultés rencontrées et ainsi les solutions trouver :**

J'ai rencontré pas mal de difficultés, surtout avec les nouvelles commandes et je ne pouvais pas faire de push. Mais grâce à l'aide que m'ont apportée les étudiants, j'ai pu arriver à destination et bien comprendre ce que je devais faire. Maintenant, je pense être en mesure de vous envoyer tous les td.