UNIVERSITY OF CRETE

CS-255 – Git Tutorial

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Outline

- What is git
- How to join CS255 group
- What are ssh keys and how to use them
- How to fork a project
- Make a project private and add TAs as members
- How to use private.py
- How to use git

Version Control Systems (VCS)

- Collaboration on a project becomes easier by avoiding swapping files
- Ability to have unlimited number of developers working on the same code base
- Easily revert back your files if something happened

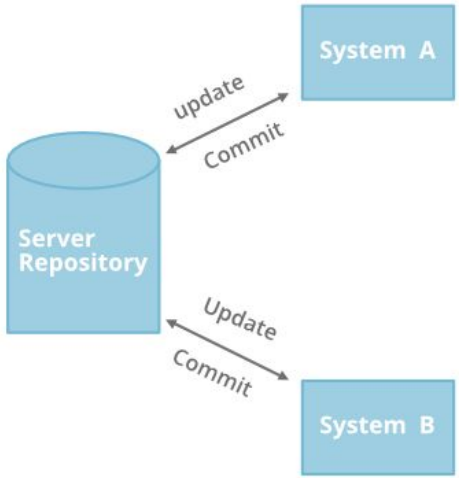
Version Control Systems (VCS)

- **There are two main categories of version control systems**

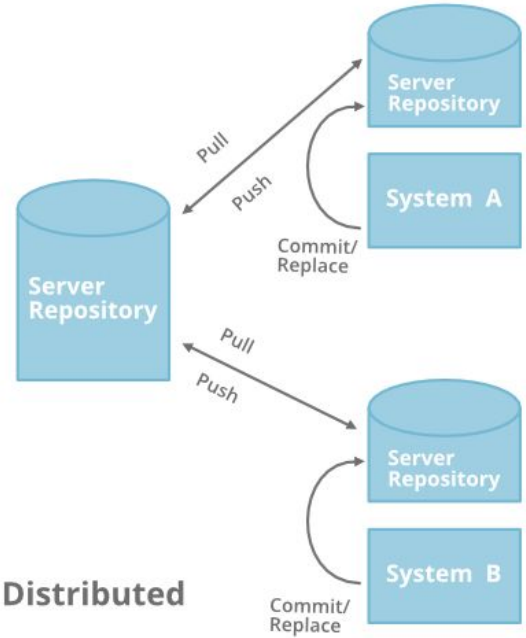
- Centralized version control systems

- Distributed version control systems

Version Control Systems (VCS)



Centralized



Distributed

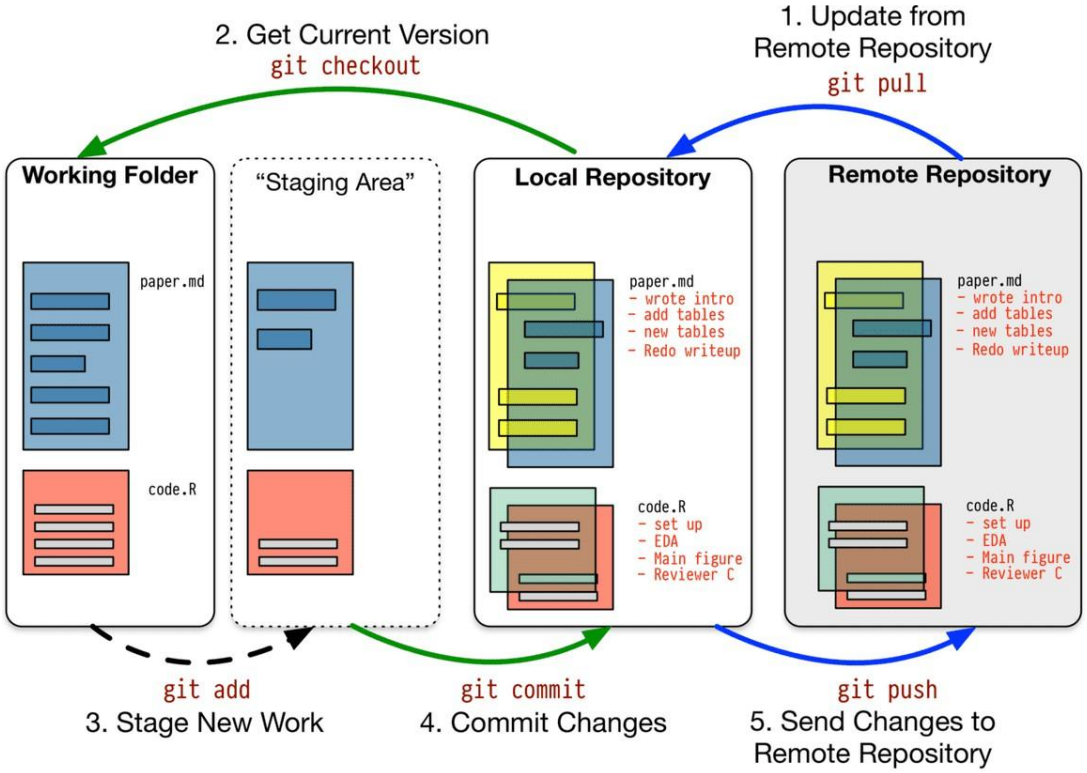
What is GIT?

- Git is a free and open source distributed system with the emphasis on speed and data integrity
- No centralized connectivity is needed
- Losing work in your project is hard (you must be careful)
- For more details on each git command look this presentation

Git directory structure

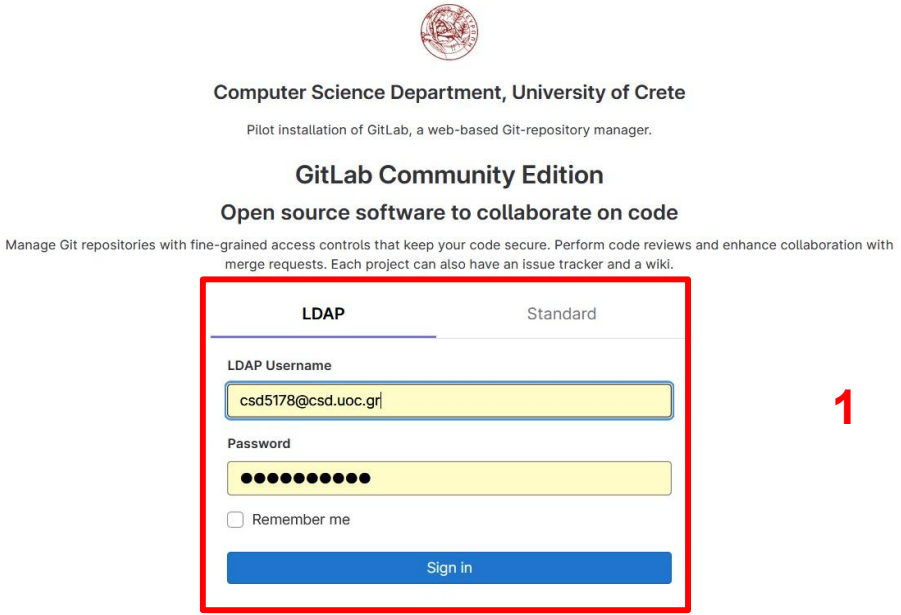
- ├─.git
- ├─ HEAD/ (A pointer to your current branch)
- ├─ config/ (contains all configuration preferences)
- ├─ description/(description of your project)
- ├─ Index/ (is used as staging area between working directory and repo)
- ├─logs/ (keeps records to changes that are made in ref)
- ├─objects/ (all data are stored here: commits, trees and tags)
- ├─ hooks/ (shell scrips that are invoked after executing a command)
- ├─refs/ (holds your local branch remote branch and tags)

How does Git Work?



How to Login to CSD Git?

- Go to csd giltab: https://gitlab-csd.datacenter.uoc.gr



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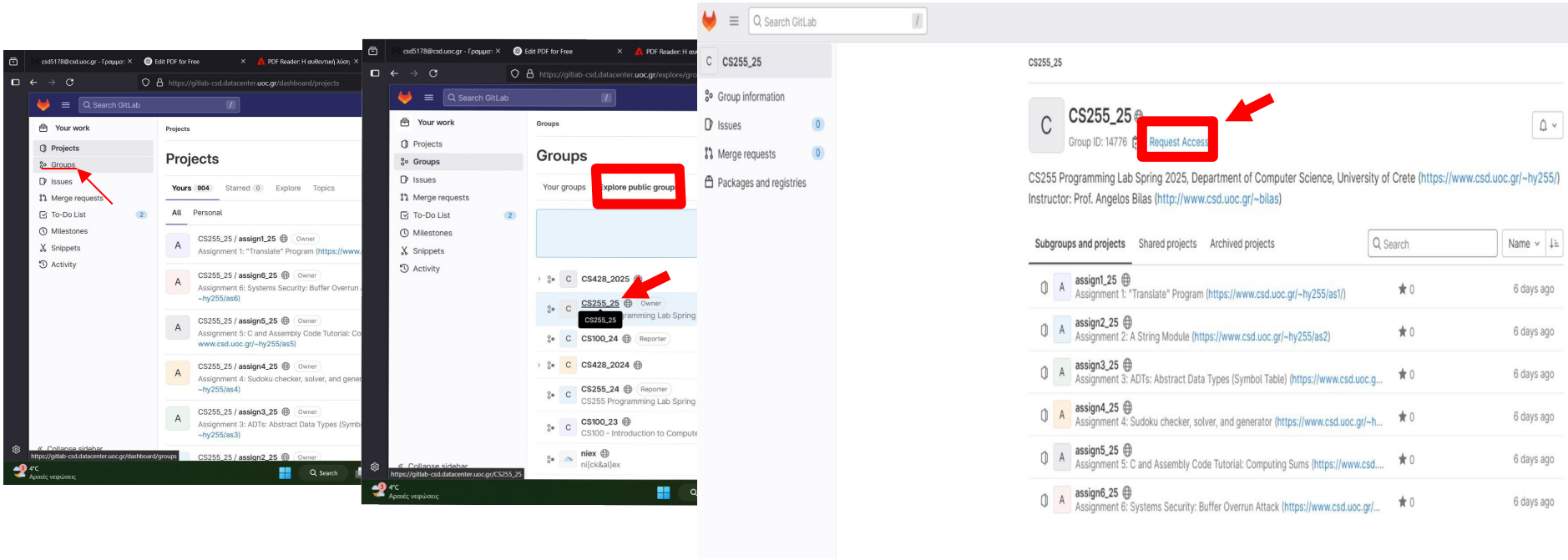
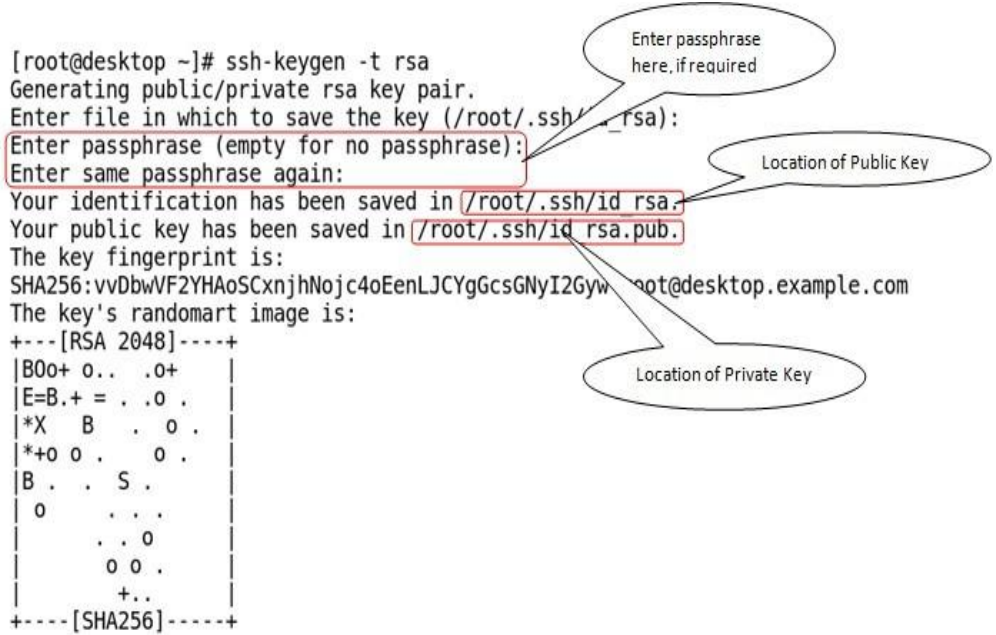
How to Join CS255 Group?

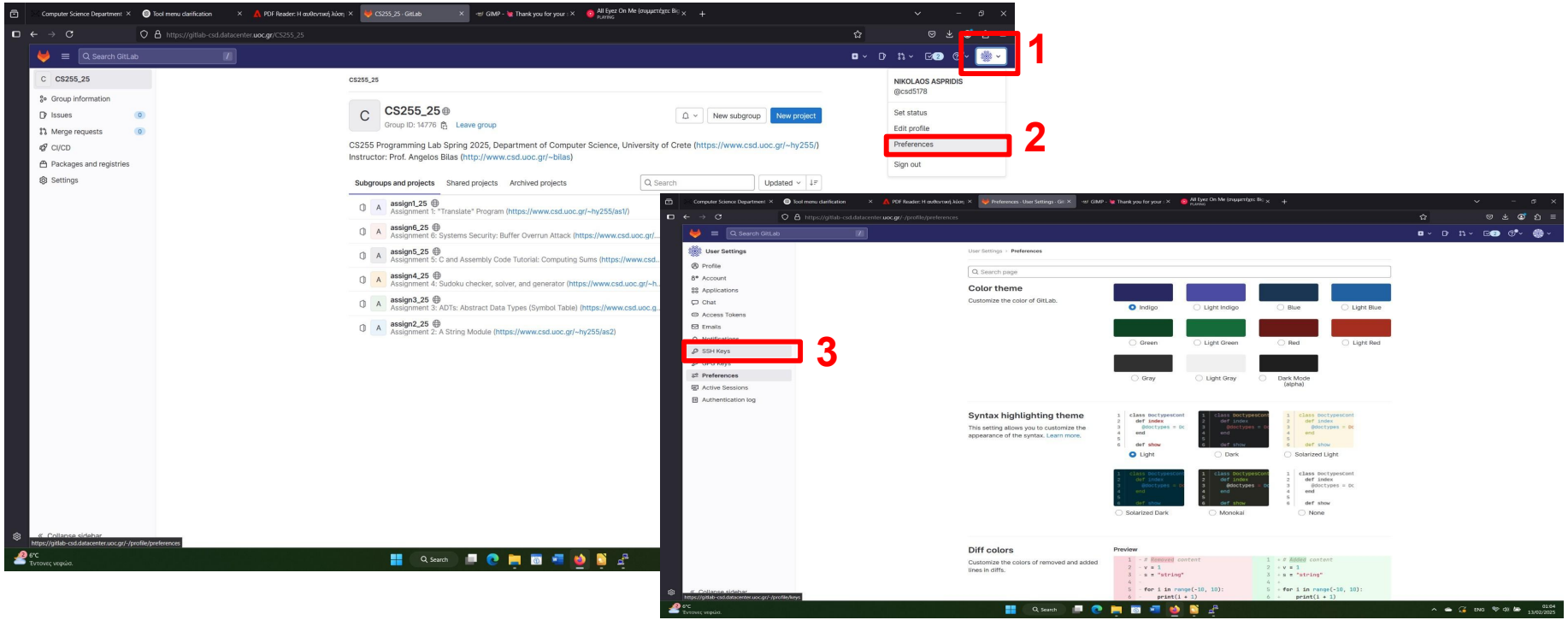


Generating ssh-keys

- Run: cd .ssh
- Run: ssh-keygen -t rsa -b 2048 -C "csd5178@csd.uoc.gr"
- Press enter in the next three options
- Run: cat ~/.ssh/id_rsa.pub
- Copy the printed text



Add ssh-keys in your Account



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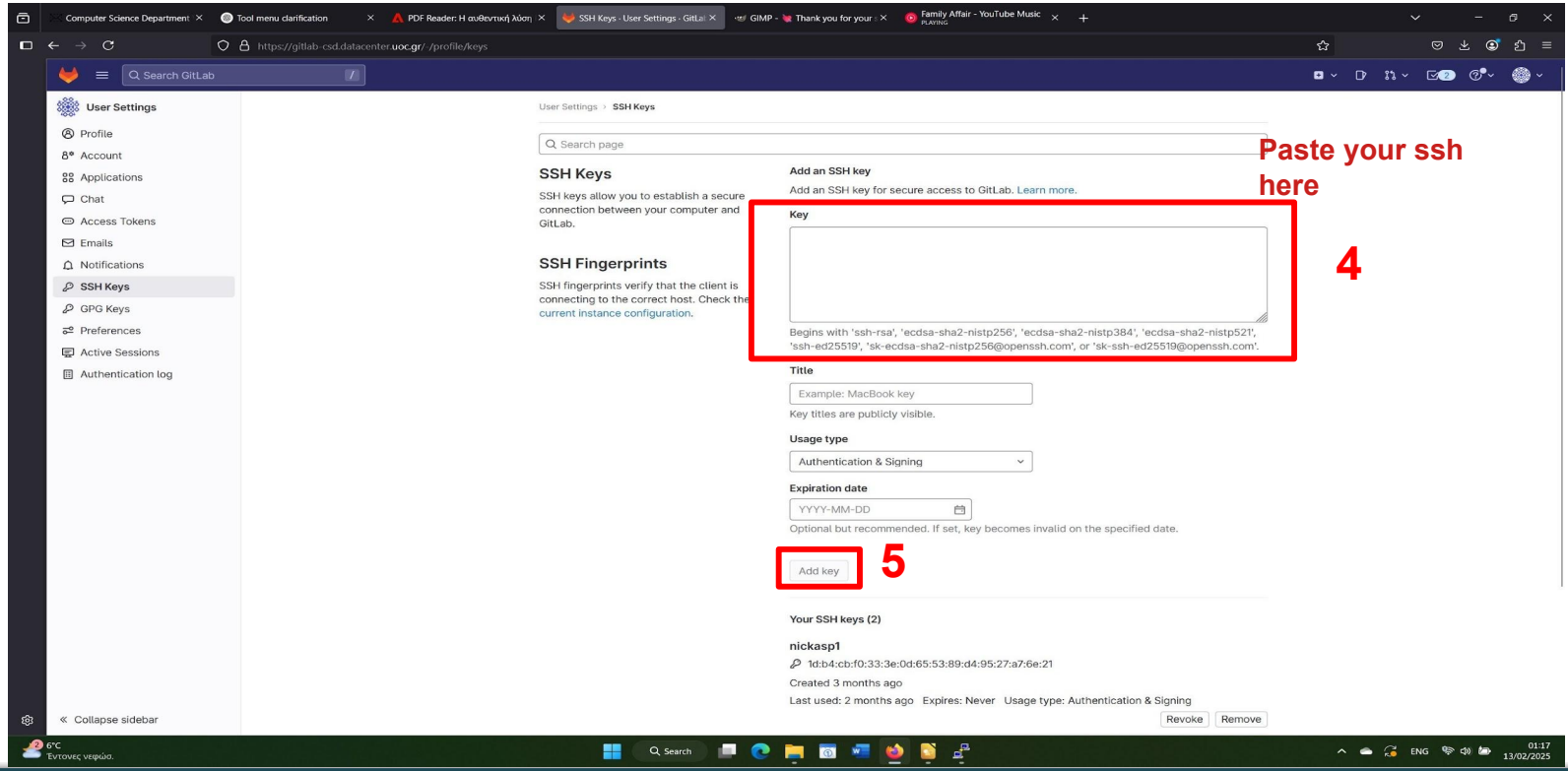
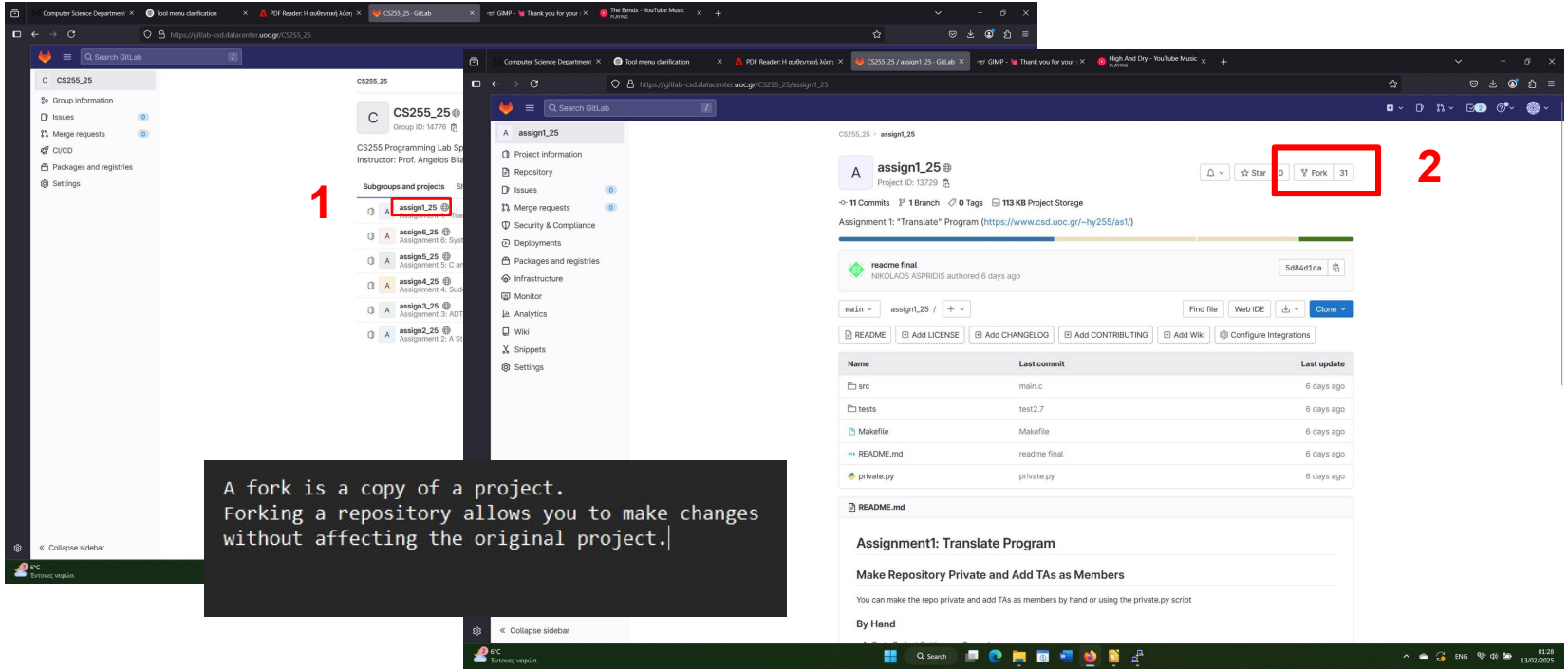


How to Fork a Repository



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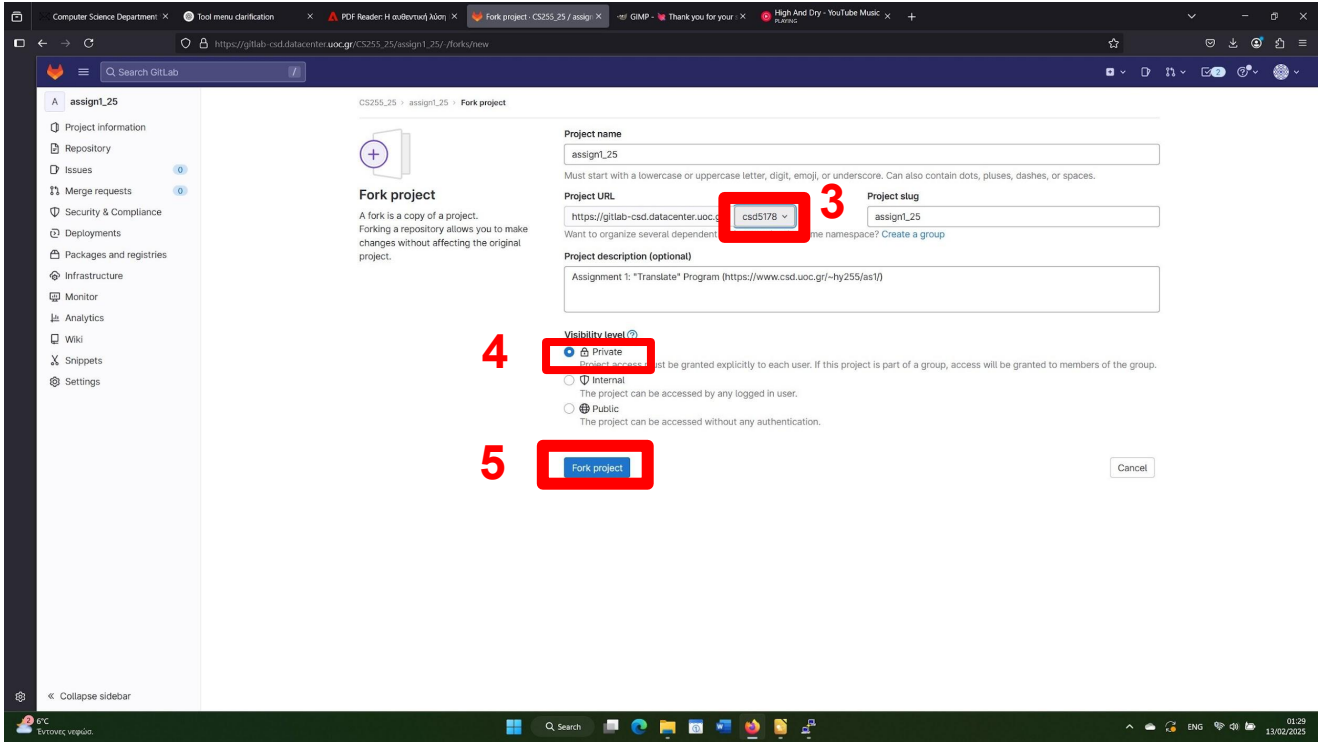
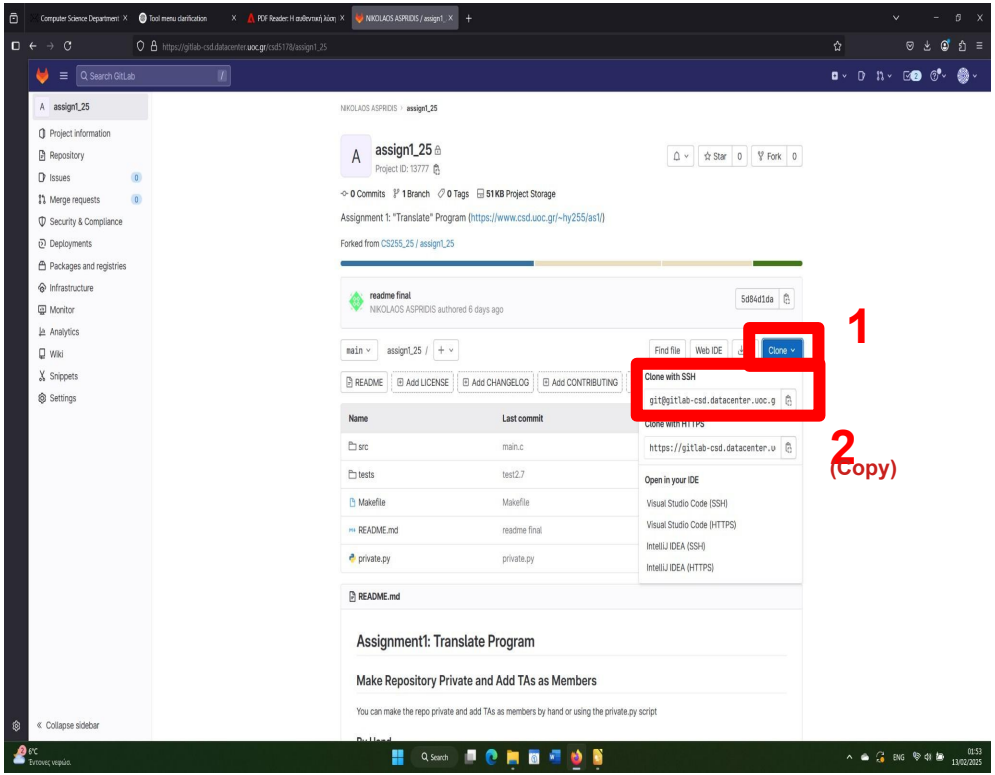


Info About Fork

- You need to fork each assignment **only once!**

- If you want to download your project in different devices (e.g., laptop, desktop PC) you need to clone it
  - Open your terminal
  - Go to the directory where you want to clone your project
  - Run: git clone <(paste)>



Make your Project Private

- To make your project private
- Go to Project Settings -> General
- Visibility
- Change Project Visibility to Private (and save changes!)

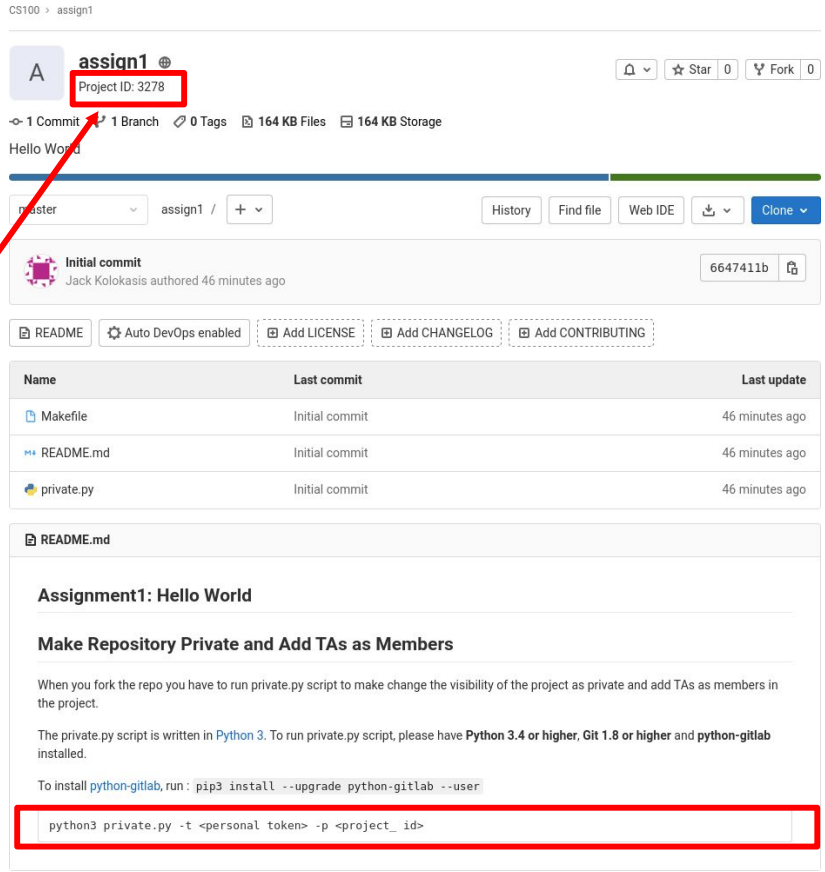
- To add the TAs in your project
- Go to Project Information → Members → Invite members
- Invite GEORGIOS XANTHAKIS (csdp1246) as a Developer

- But we can avoid to do these steps on every assignment, using the python script given with each assignment

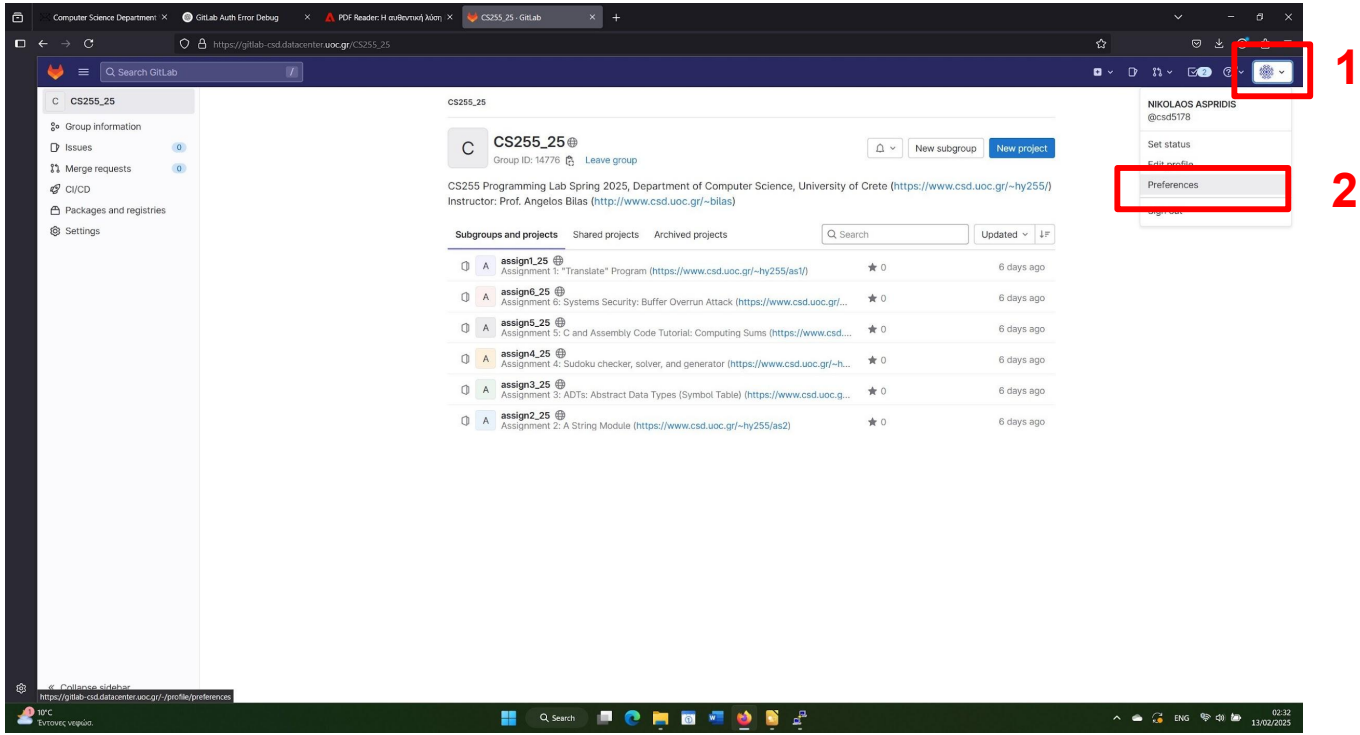
Using private.py

- Run pip3 install --upgrade python-gitlab --user
- Copy your access token and the assignment project id

python3 private.py -t <accessToken> -p <projectID>



Generating an Access Token



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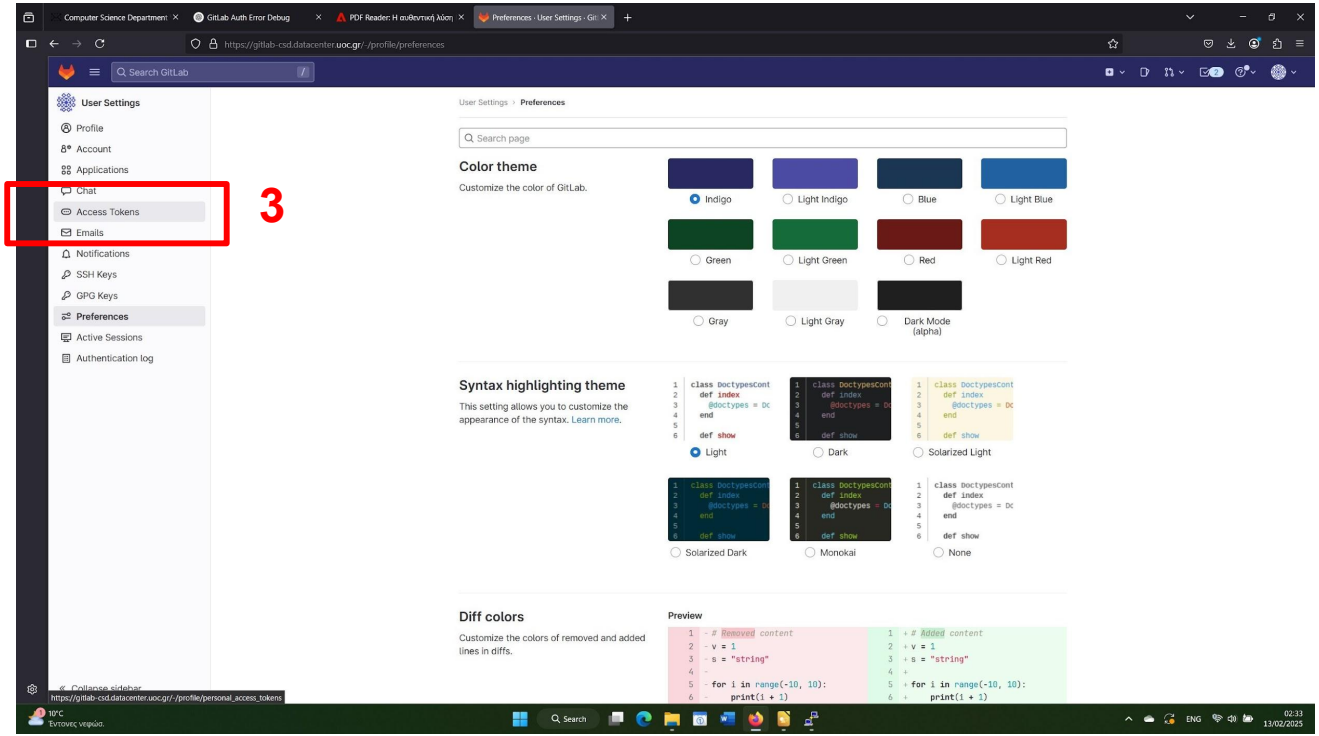

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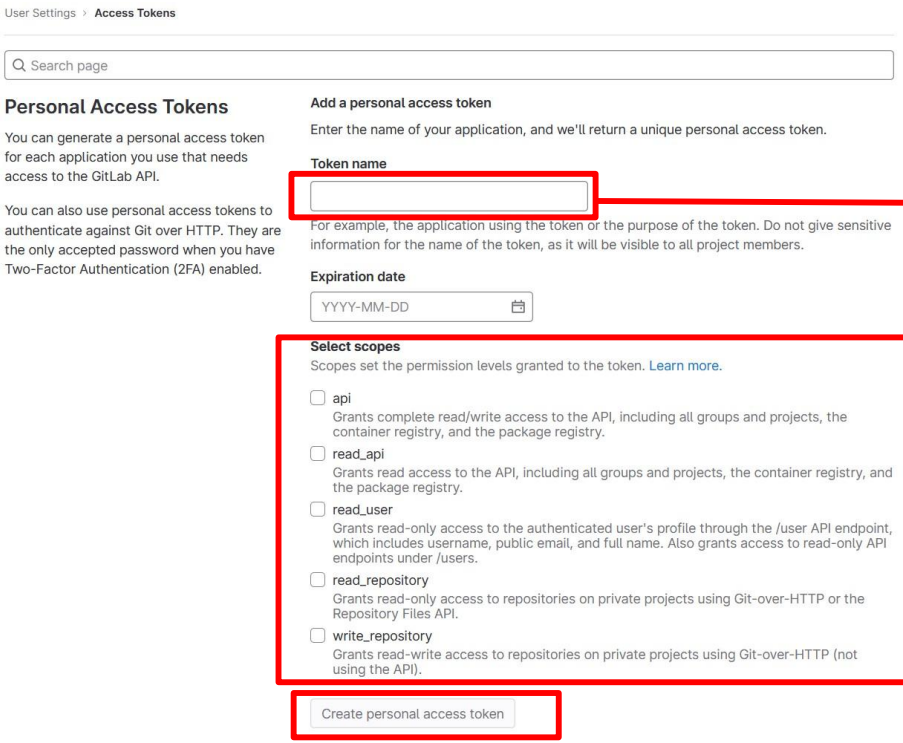

Add your name e.g., Nikolaos Aspridis

Select all the options

How to Use Git?

- To download a git repo run: git clone repo-url
- To setup your credentials in the local git repo run:
  git config user.name "Giorgos Xanthakis"
  git config user.email "gxanth@csd.uoc.gr"
- To stage a file run: git add file
- To commit staged files run: git commit –m "Your Message"
- To save your code in the server run: git push

Guidelines

- Commit often – at least one commit for each step
- Pay attention to your commit messages
- Describe precisely the purpose of the commit
- Commit only relevant files and modifications!!
- Push frequently (In case something goes wrong with your PC/laptop)

Thank you for your attention

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