05. VCS, Git

Lecture

Version control, Git

- Track changes in a set of files
- Coordinating work among developers
- Who made what changes and when
- Revert back at any time
- Local and remote repos
- Take snapshots of files by making a *commit*

Install

```
sudo apt install git
```

Basic commands

```
git init          # Initialize local git repo
git add <file>    # Add file/files to staging area
git status        # Check status of working tree and staging area
git commit -m "What I've done"    # Commit changes in index
git push          # Push to remote repository
git pull          # Pull latest changes from remote repo
git branch <new_branch_name>
git checkout <branch_name>
git merge <branch_name>   # Merge the branch into the current branch
git config --global user.name "Istvan Szabo"
git config --global user.email "istvan.szabo@gmail.com"
```

Tip

Personal token megjegyzése: `git config --global credential.helper store`

Tip

Windows és Linux óra probléma megoldása: `timedatectl set-local-rtc 1 --adjust-system-clock`

GitHub


```
git remote
git clone <link>   # Copy repo into a new directory

# Add remote to repository:
git remote add origin <link>
git push -u origin master
```

Some alternatives to GitHub

GitLab, BitBucket, Launchpad, Phabricator

Markdown

- Markup language, easy to read
- Text file → Formatted document
- Widespread usag, e.g., blogs, forums, documentations, readme files, GitHub
- Markdown Cheatsheet

Practice

0: Create a GitHub repo

1. Register to GitHub, then create a token.

2. Create a private repo on GitHub for the `ros2_course` package.

   Tip

   Store personal token: `git config --global credential.helper store`

3. Create the local repo, set up remote, then push the package contents to GitHUb (GitHub will also help after the repo is created):

```
cd ~/ros2_ws/src/ros2_course
git init
git add .
git commit -m "Initial commit"
git branch -M main
```

```
git remote add origin <REPO_GITHUB_ADDRESS>.git
git push -u origin main
```

4. Add a README.md to the ros2_course package with the following content:

```
# ros2_course

## About

Something about the package.

## Usage

How to *build* and use the package.

    cd ~/ros2_ws
    colcon build --symlink-install
```

1. Commit and push changes:

```
git add .
git commit -m "Add README"
git push
```

> **VCS in Clion**
>
> The use of GitHub can also be configured in CLion, so you can manage versions in a graphical interface.

> **Tip**
>
> **Windows and Linux clock problem:** `timedatectl set-local-rtc 1 --adjust-system-clock`

Useful links

- Markdown Cheatsheet