

# Git and GitHub

## Version Control Systems



**SoftUni Team**  
**Technical Trainers**



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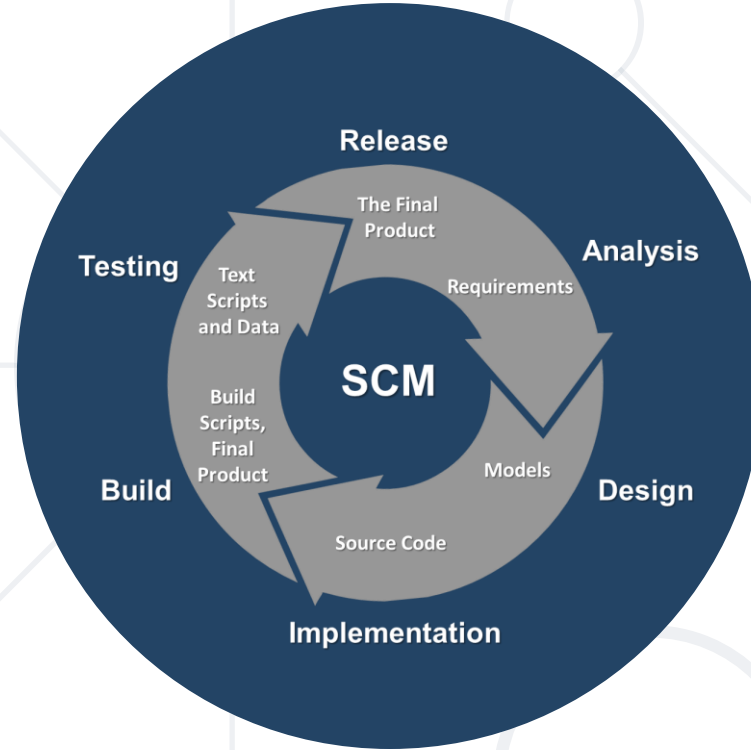
**Software University**

<https://softuni.bg>

1. Software Configuration Management
2. Introduction to Git
3. Introduction to GitHub

[sli.do](https://sli.do)

**#fund-common**



# Software Configuration Management

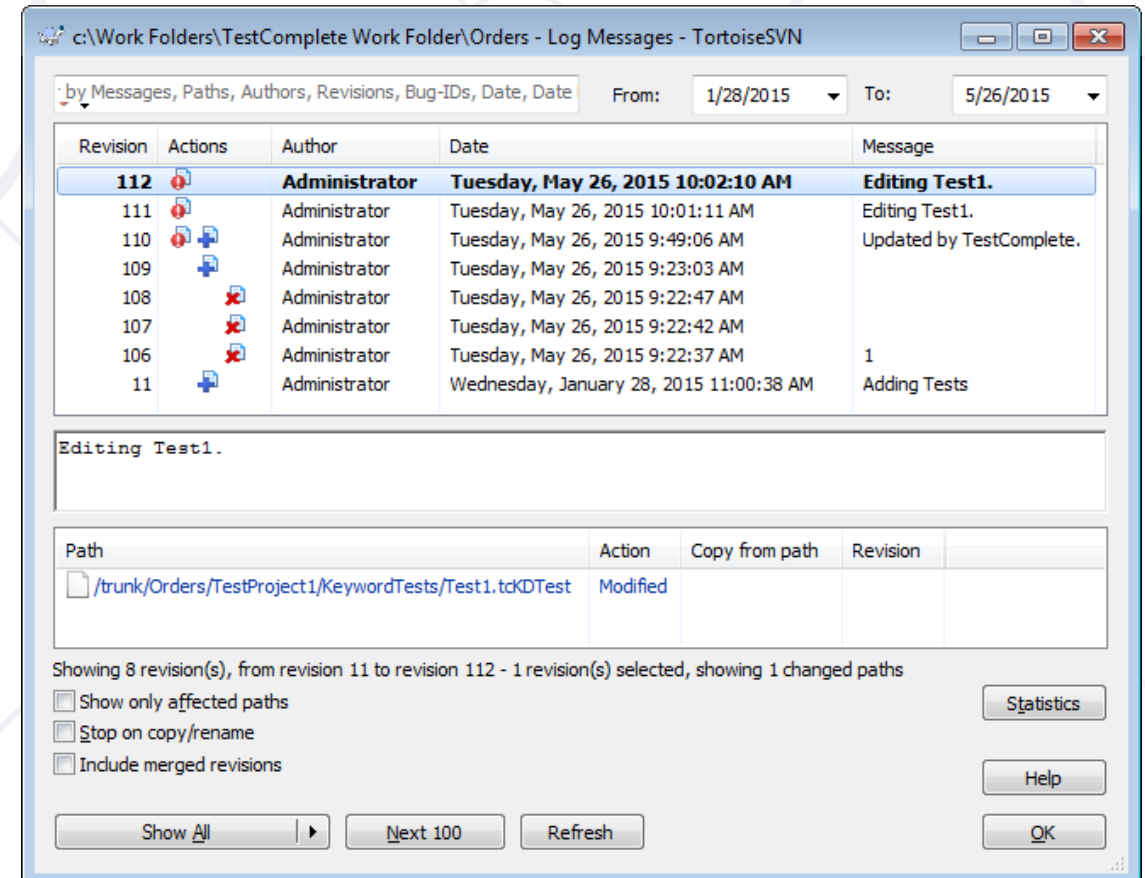
# Software Configuration Management

- **Version Control** ≈ Software Configuration Management (SCM)
  - A software engineering discipline
  - Consists of techniques, practices and tools for working on **shared source code** and files
  - Mechanisms for management, control and tracking the changes
  - Defines the process of **change management**
  - Keeps track of what is happening in the project over time
  - Solves **conflicts** in the changes



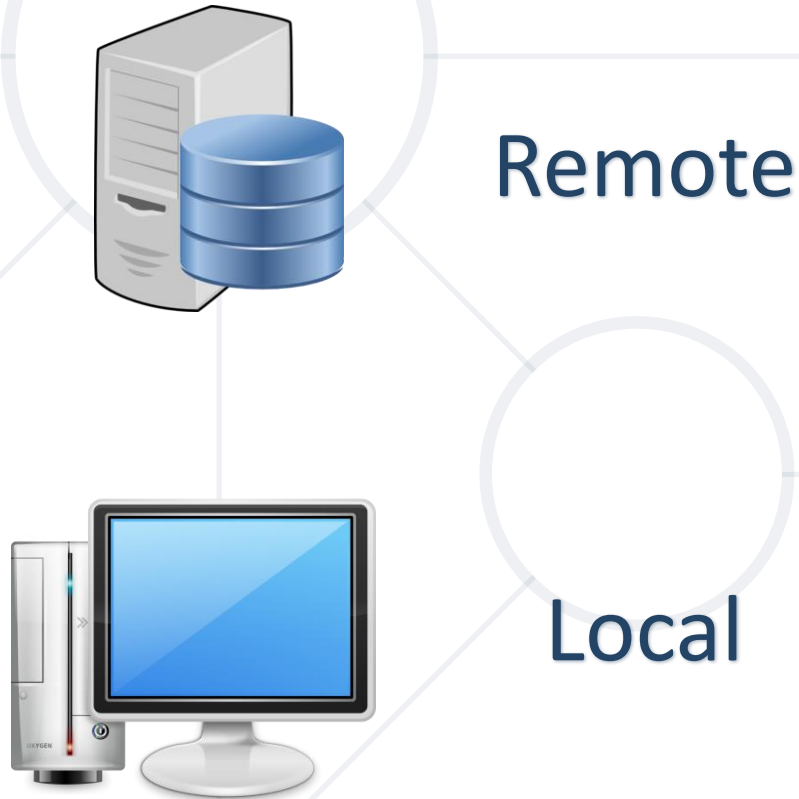
# Change Log

- Systems for version control keep their own **change log** (version history). It shows:
  - Who?
  - When?
  - Why?
  - What had been changed?
- Old versions could be **restored**



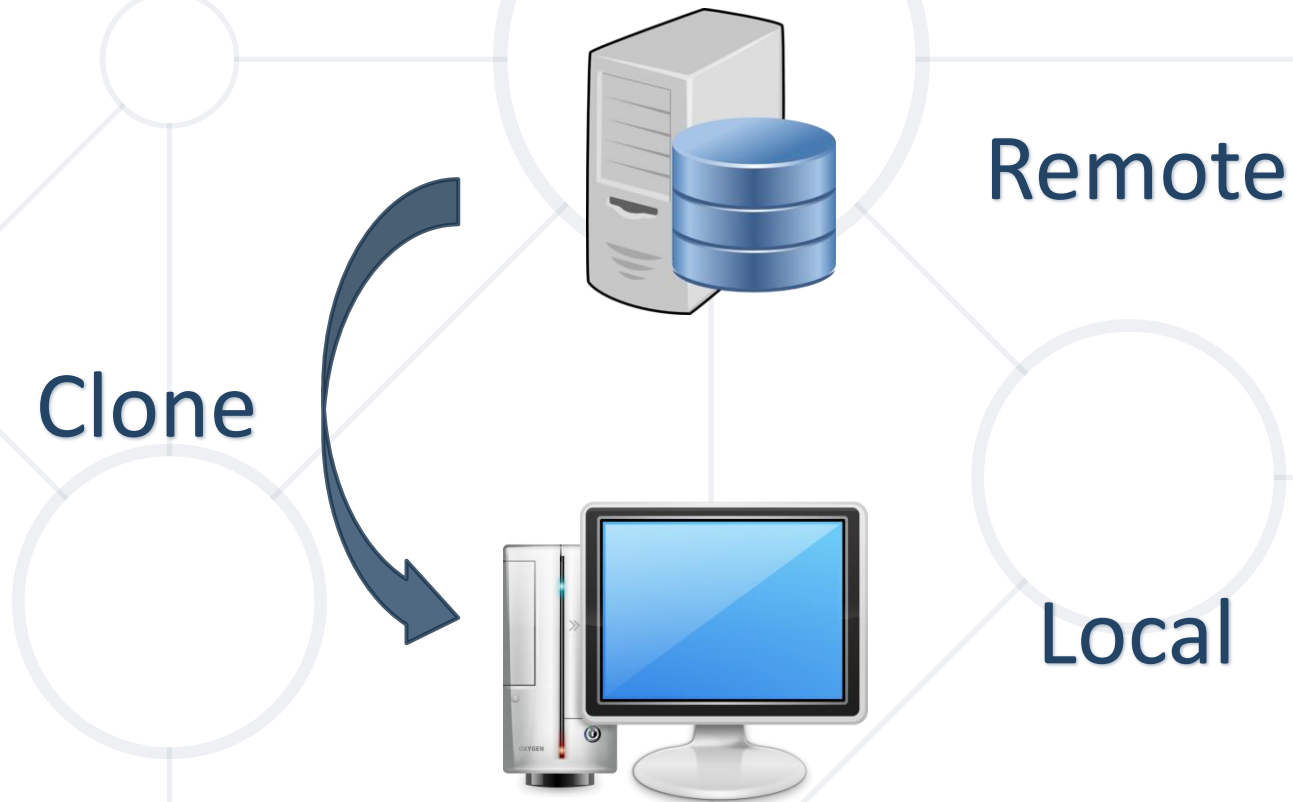
# Vocabulary: Repository (Repo)

- Stores the Project in a Remote Server



# Vocabulary: Clone

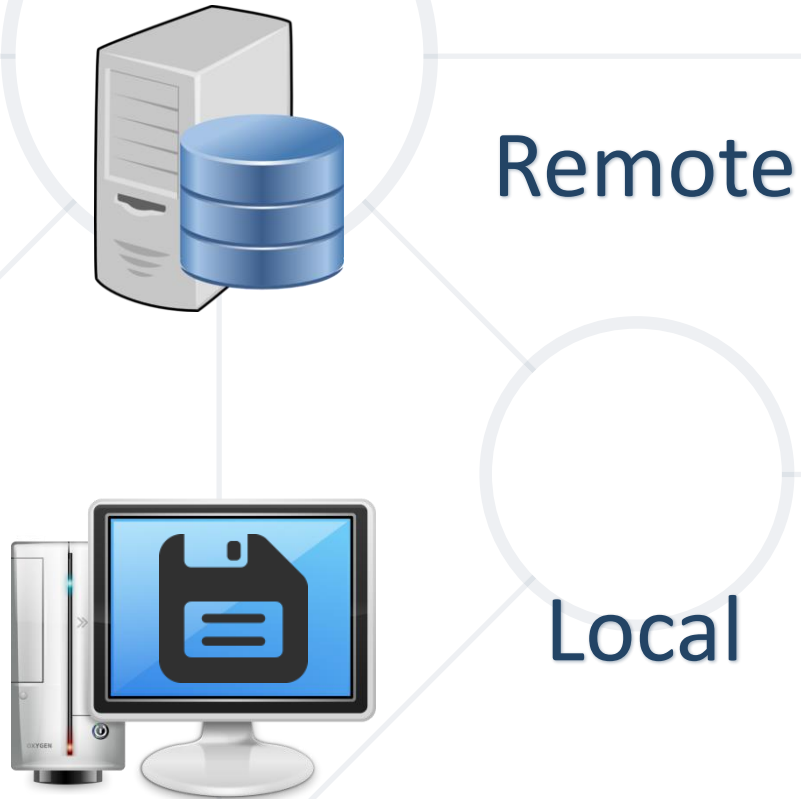
- Downloads a Local Copy of the Project





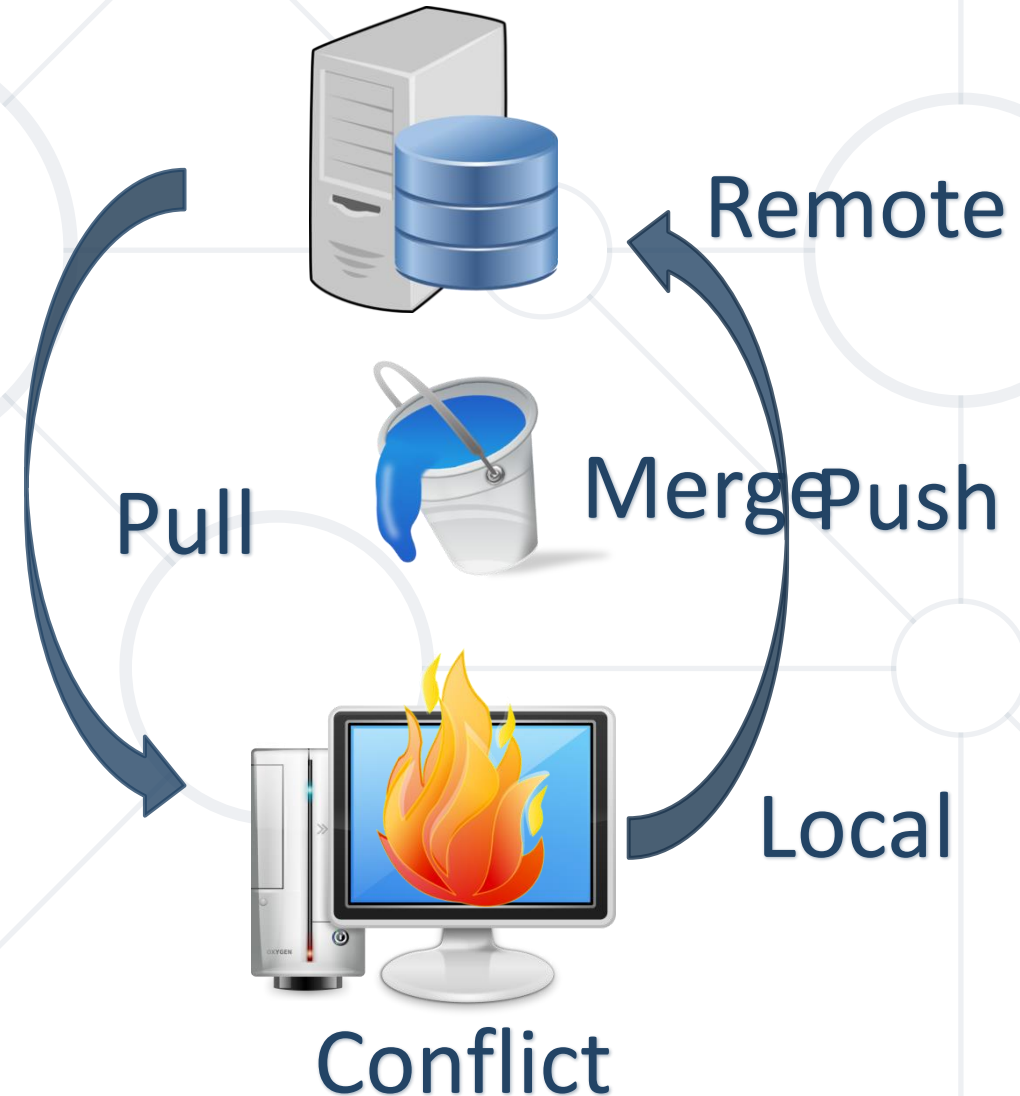
# Vocabulary: Commit

- Saves the Changes Locally



# Vocabulary: Sync (Pull / Push)

- Pull – Take and Merge the Changes from the Remote
- Push – Send Local Changes to the Remote



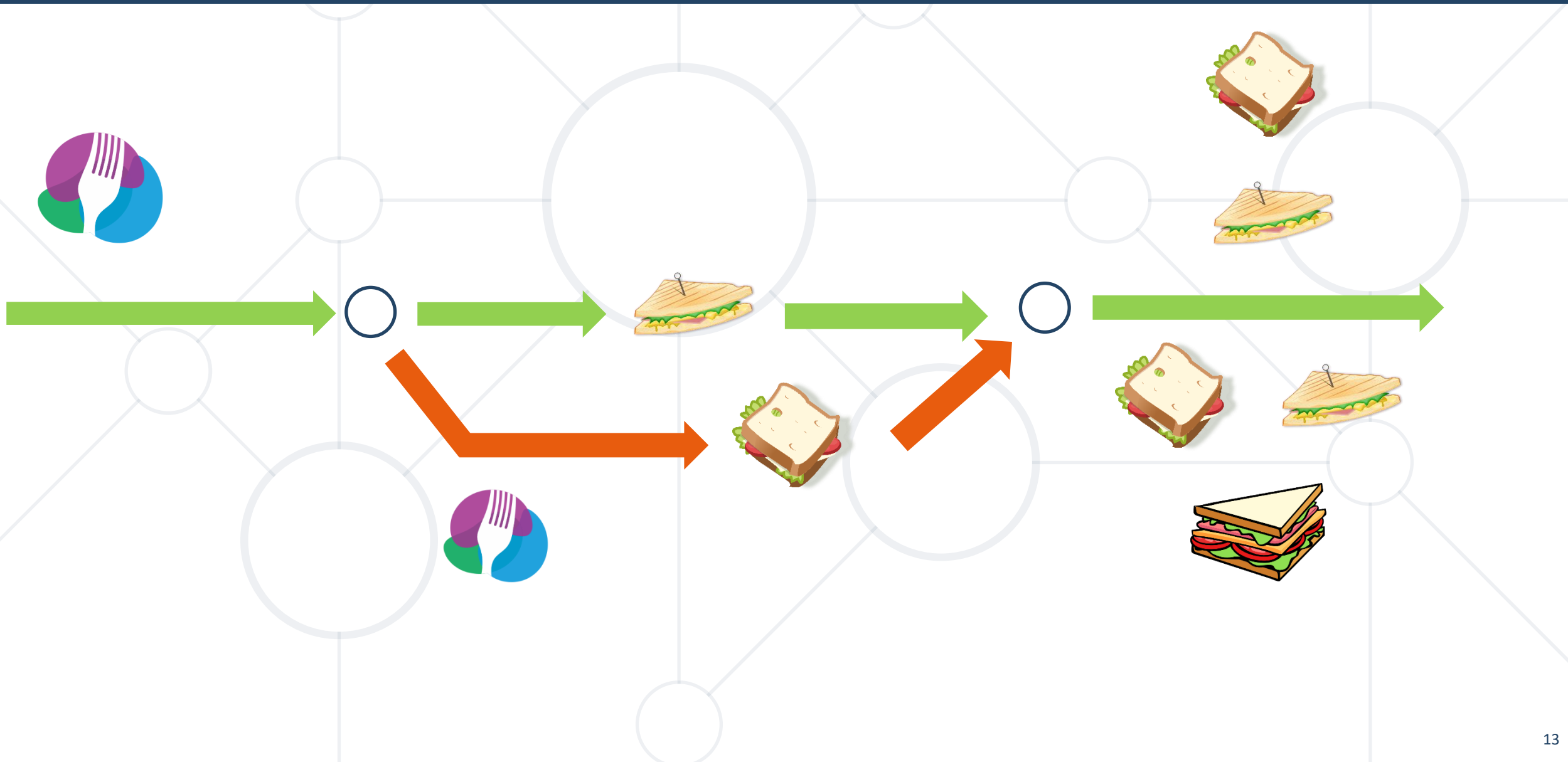
# Vocabulary: Branch



# Vocabulary: Merge Branches



# Example: Branches





**Git**

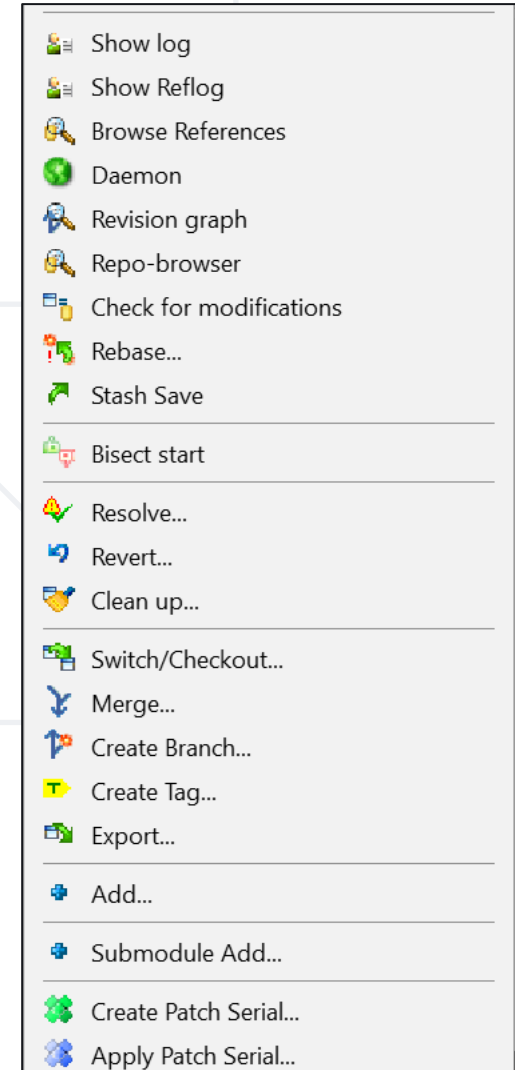
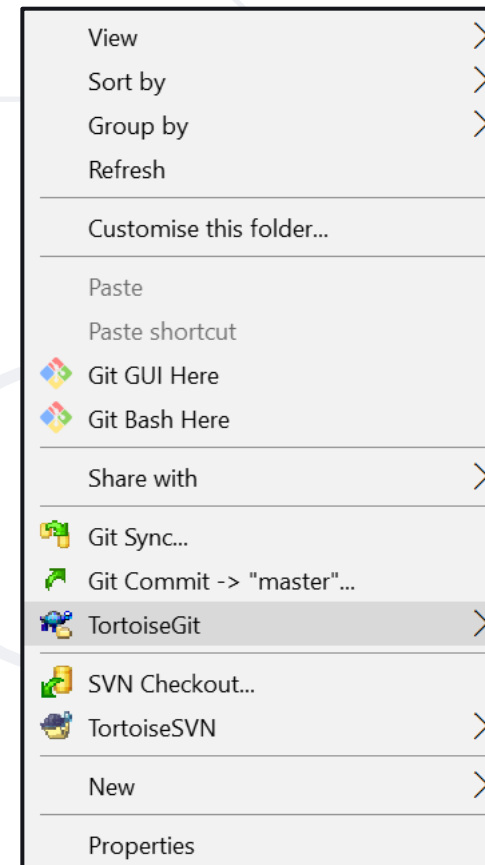
# What is Git?

- **Git** == distributed **source-control system**
  - The most popular in the world
  - Free, open-source software
- Works with **local** and **remote** repositories
- **Git bash** - command line interface for Git
- Runs on Linux, macOS and Windows (**msysGit**)
  - <https://git-scm.com>
  - <https://www.atlassian.com/git/tutorials/setting-up-a-repository>



# Using Git

- Console-based Client
  - **git, GitBash**
- Windows GUI Client – **TortoiseGit**
  - <https://tortoisegit.org/download/>
- Visual Studio / Eclipse Plug-ins
- **GitHub Desktop** Client
  - <https://desktop.github.com>

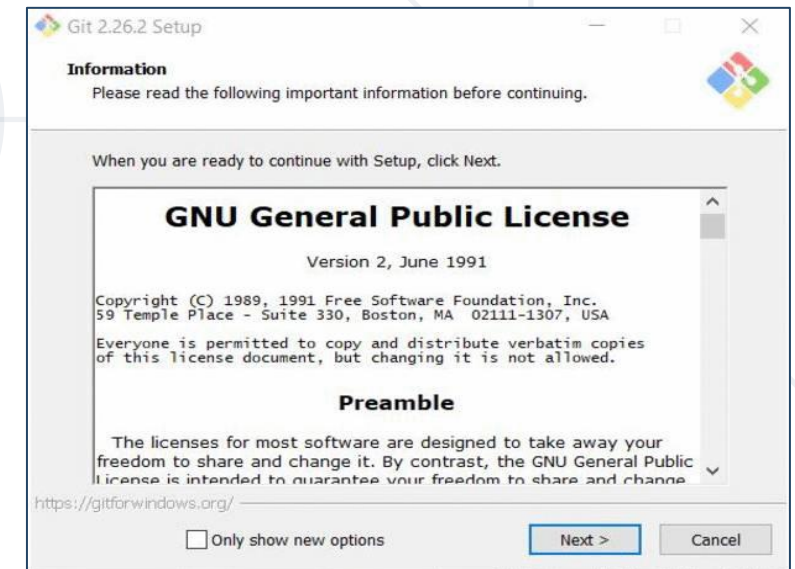




# Installing Git

- MsysGit Installation On Windows
  - <https://git-scm.com/downloads>
  - Options to Select (They Should Be Selected by Default)
    - "Use Git Bash Only"
    - "Checkout Windows-style, Commit Unix-style Endings"
- Git Installation On Linux:

```
sudo apt-get install git
```



# Basic Commands (1)

- Cloning an existing Git repository

```
git clone [remote url]
```

- Fetch and merge the latest changes from the remote repository

```
git pull
```

- Preparing (adding / selecting) files for a commit

```
git add [filename] ("git add ." adds everything)
```

- Committing to the local repository

```
git commit -m "[your message here]"
```

# Basic Commands (2)

- Check the status of your local repository (see the local changes)

```
git status
```

- Creating a new local repository (in the current directory)

```
git init
```

- Creating a remote (assign a short name for remote Git URL)

```
git remote add [remote name] [remote url]
```

- Pushing to a remote (send changes to the remote repository)

```
git push [remote name] [local name]
```



**GitHub**

# What is GitHub?

- **GitHub** is the world's #1 source code hosting site
  - Free for open-source projects
  - Paid plans for private repositories
- GitHub provides:
  - Git source code repository
  - Issue tracker (bug tracker)
  - Project board (Kanban style)
  - Wiki pages (documentation)





**Live Exercises**

- Use **version control systems** to work in a team
  - Keep the code in a central repository
  - Handle merge conflicts with ease
- Important Git commands:
  - **clone, add, commit, pull, push**
- **GitHub** == the world's most used software project hosting platform
  - Git repository, issue tracker, Kanban board, Wiki



# Questions?





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