

Git and GitHub

Version control systems



SoftUni Team
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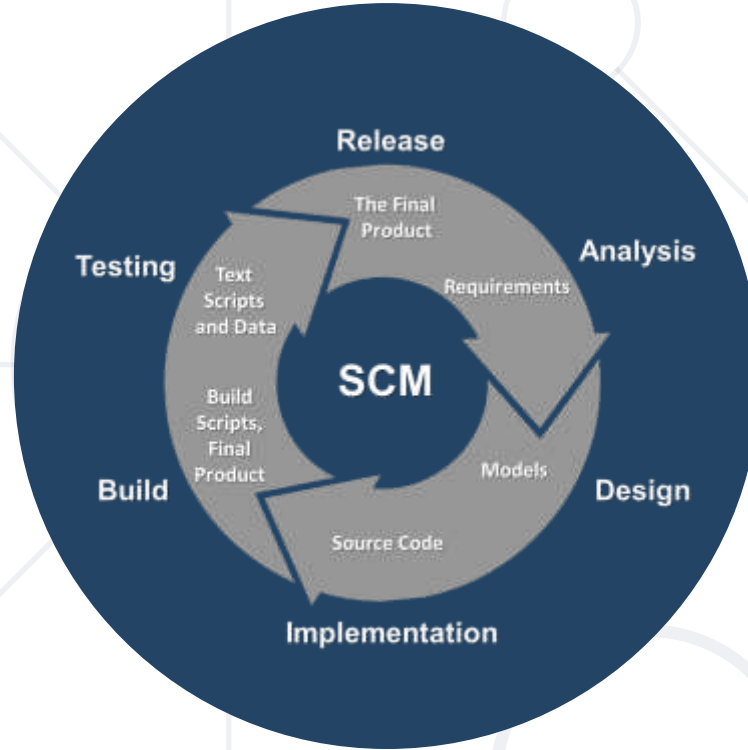
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Have a Question?

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Software Configuration Management

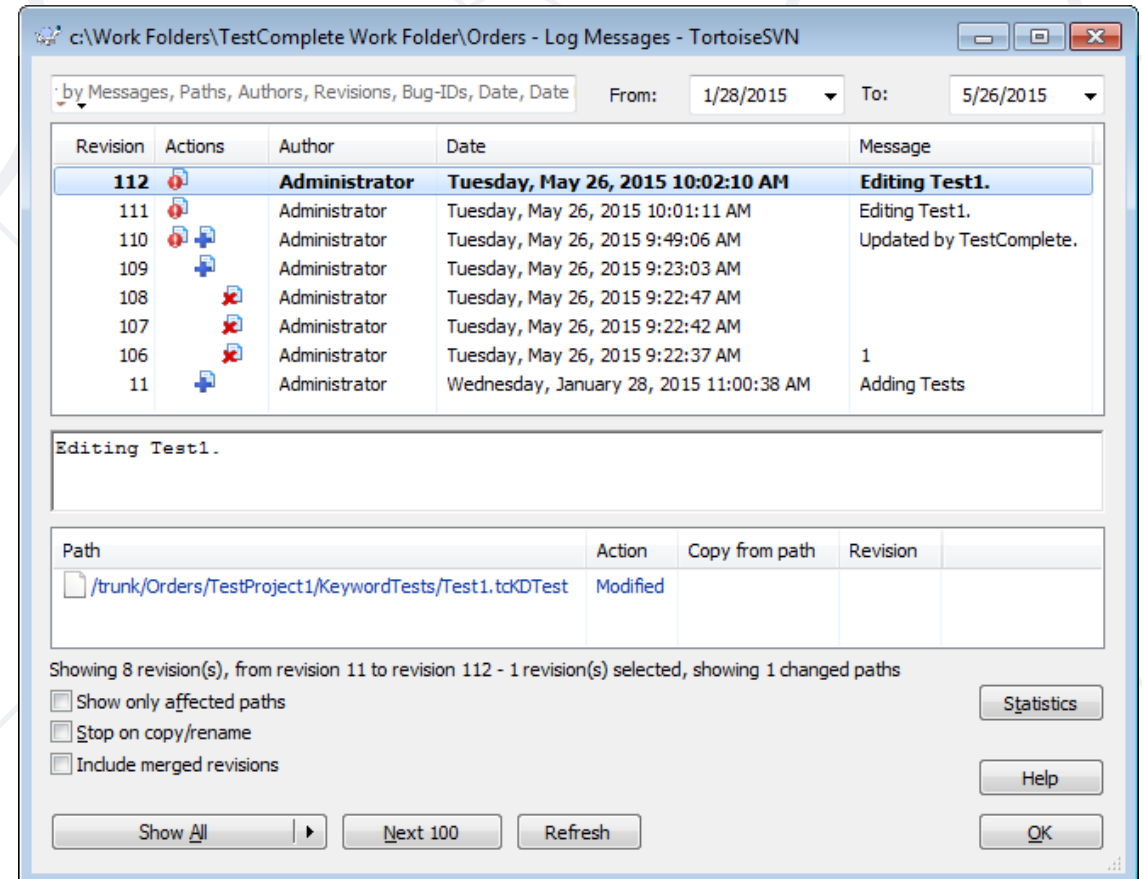
Software Configuration Management

- **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 the time
 - Solves conflicts in the changes



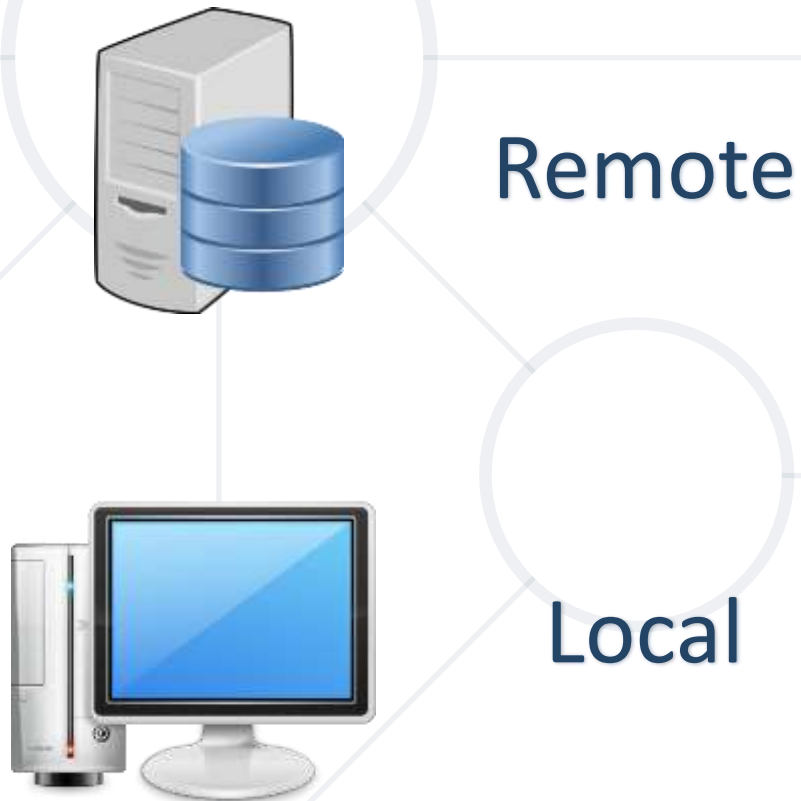
Change Log

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



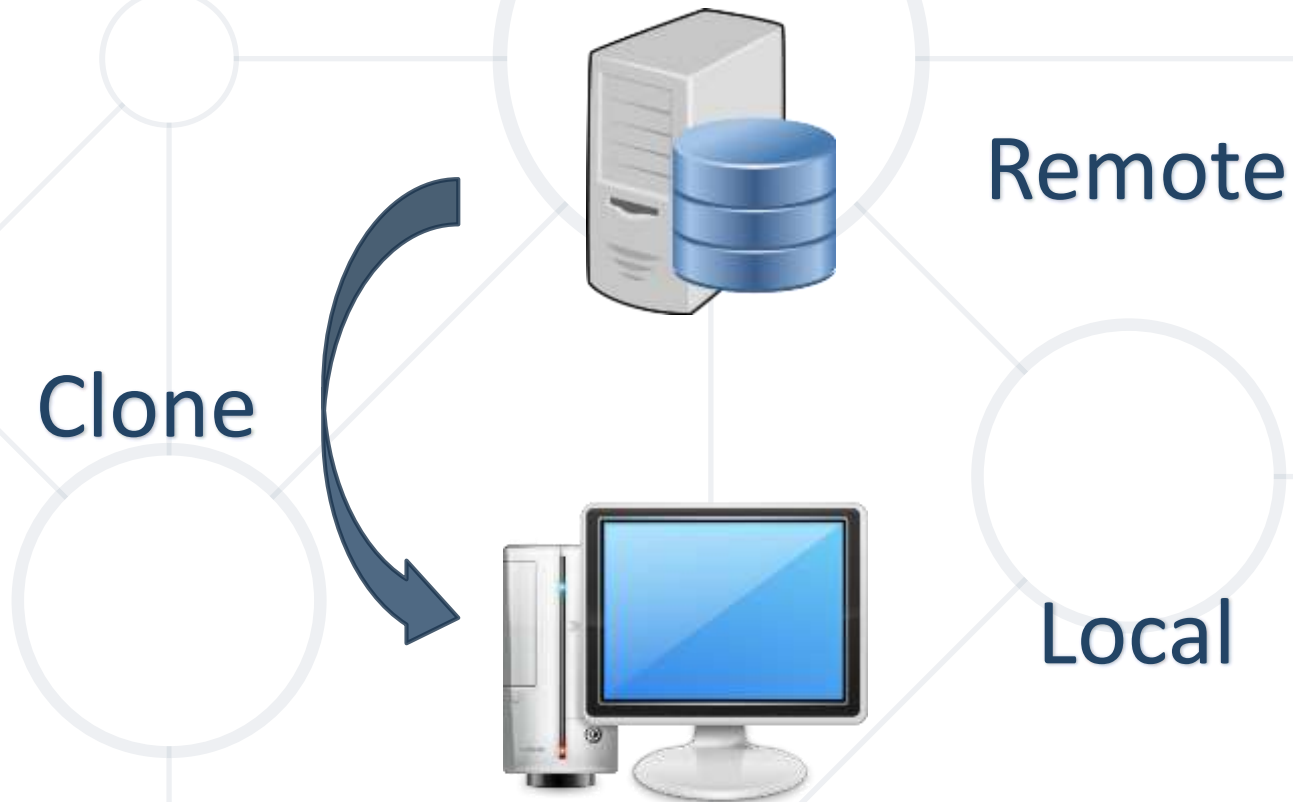
Vocabulary: Repository

- Stores the project in a remote server



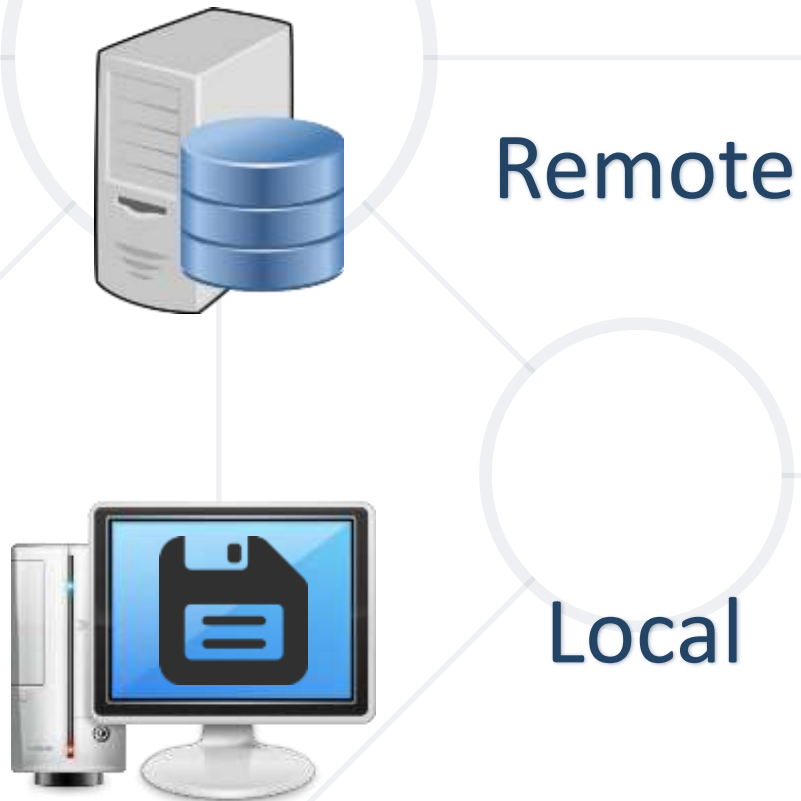
Vocabulary: Clone

- Downloads a **local copy** of the project



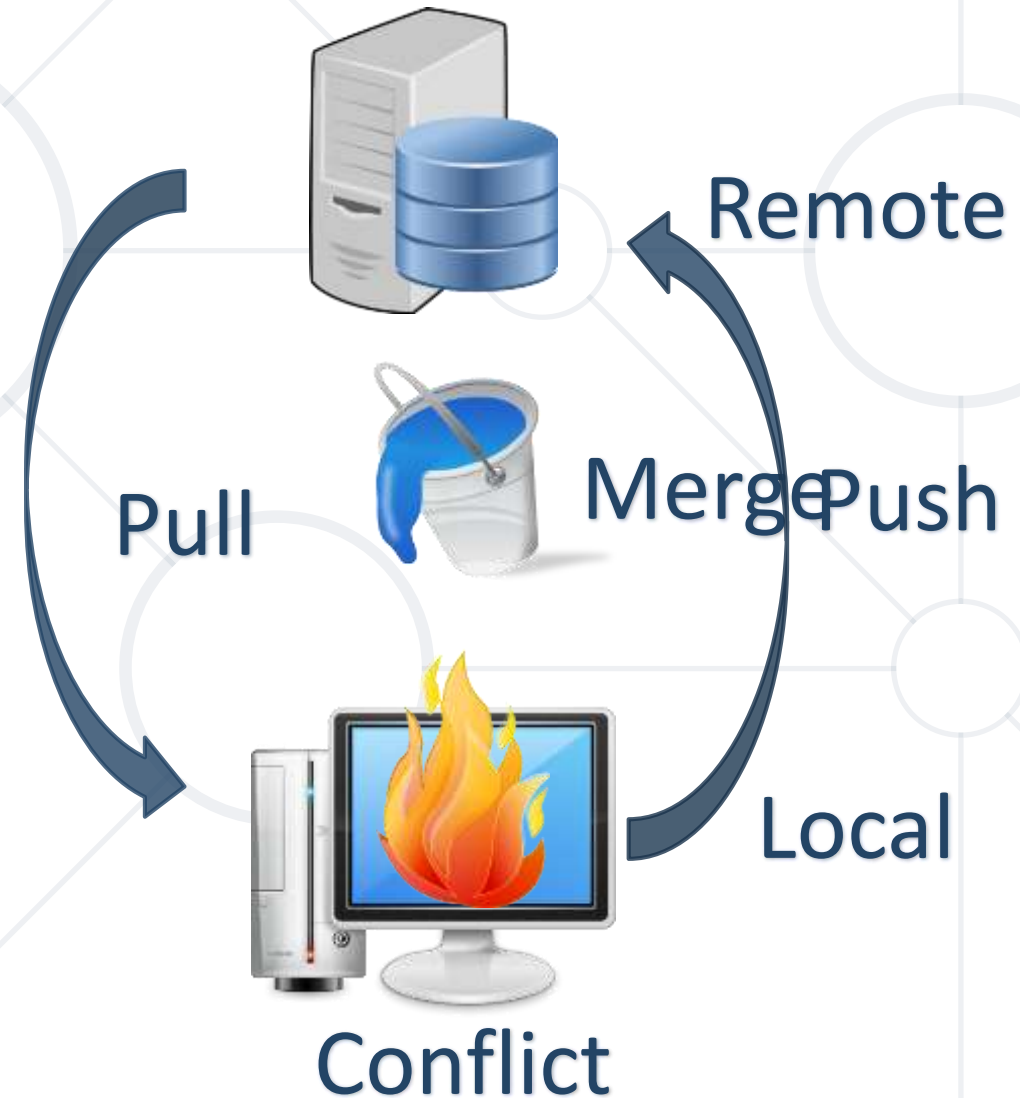
Vocabulary: Commit

- Saves the changes **locally**



Vocabulary: Sync

- **Pull** – take and merge the changes from the remote
- **Push** – send local changes to the remote



Vocabulary: Branch



master



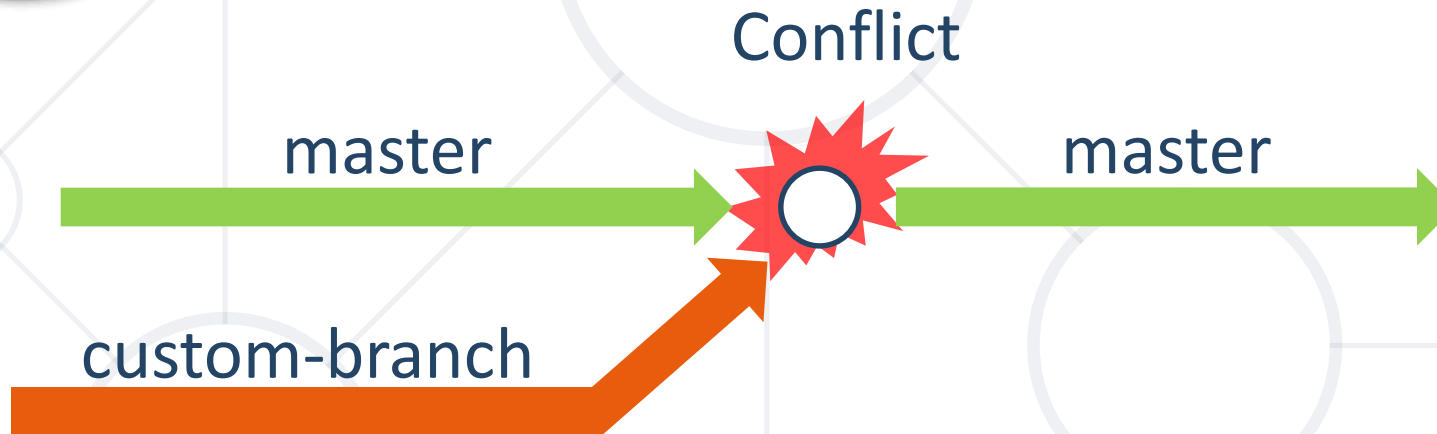
master



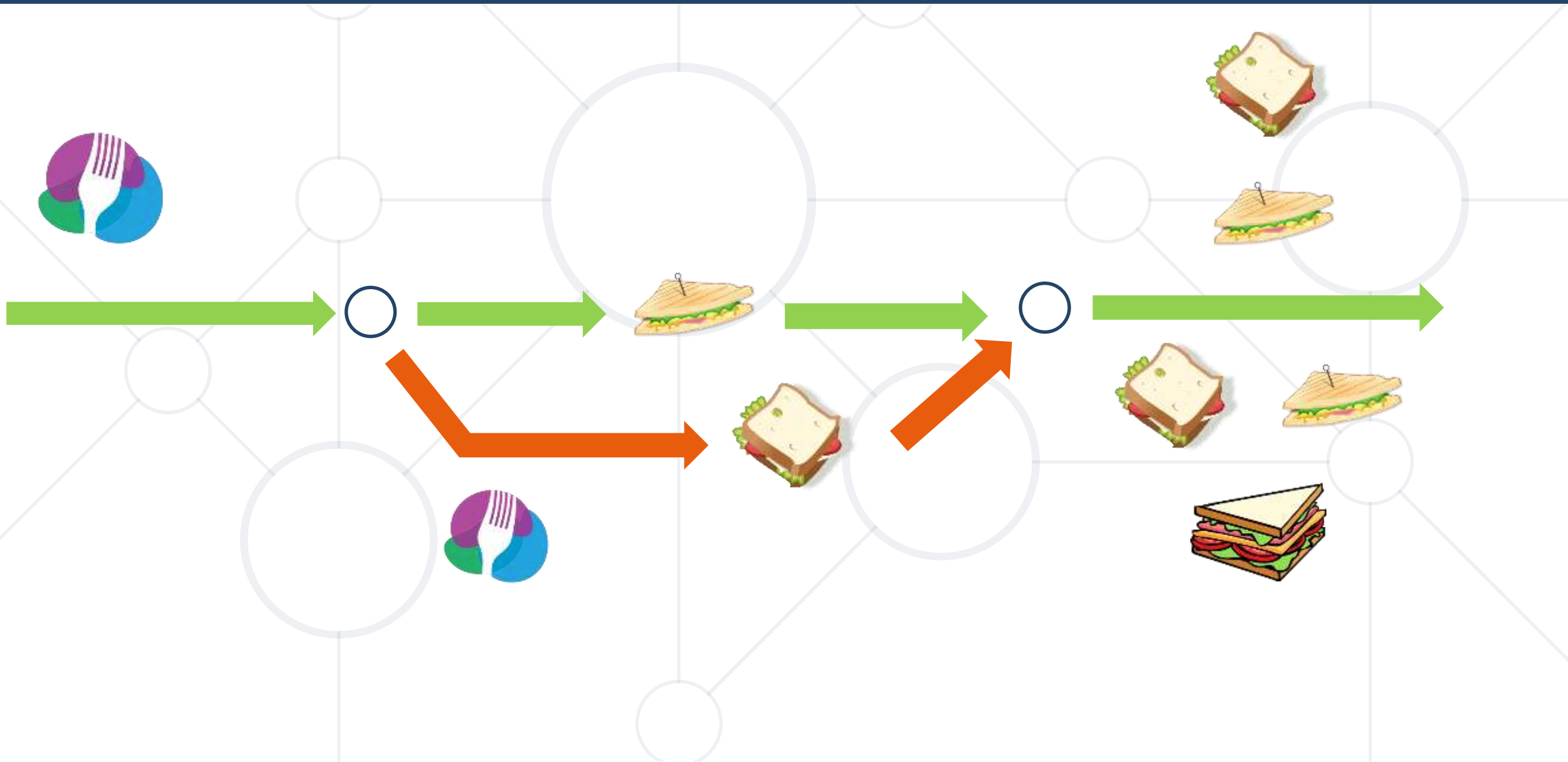
custom-branch



Vocabulary: Merge Branches



Example: Branches





Git

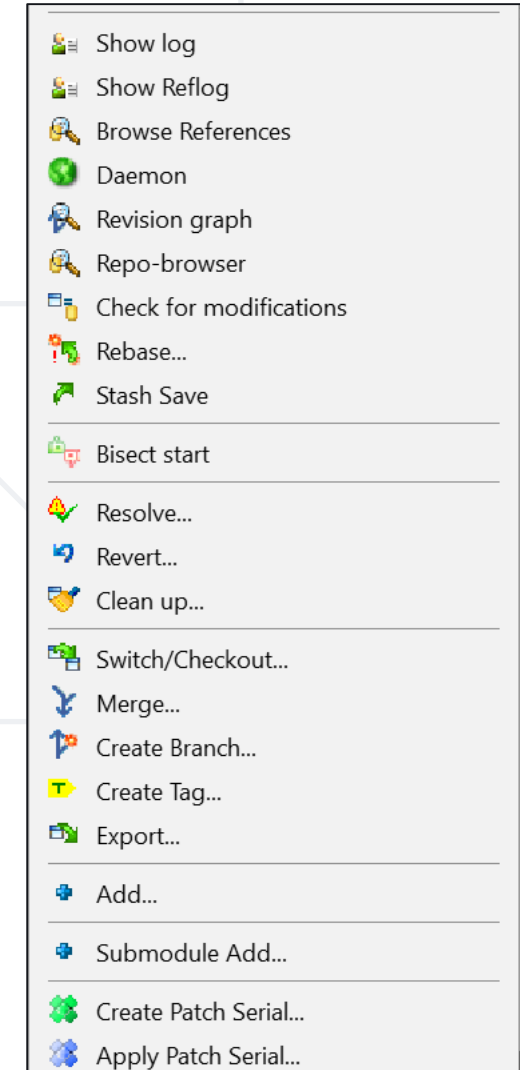
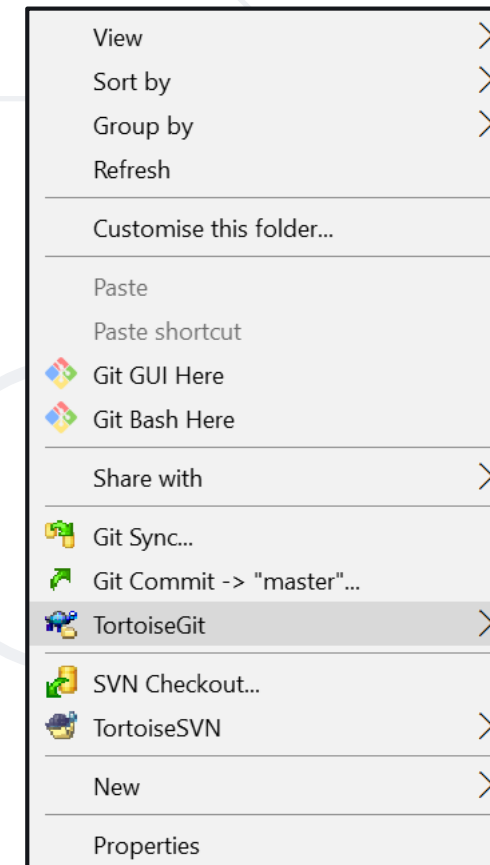
What is Git?

- **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, Mac OS and Windows (**msysGit**)
 - <http://msysgit.github.io>
 - <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>



- **msysGit** installation on Windows
 - Download Git for Windows: <https://git-for-windows.github.io>
 - "Next, Next, Next" does the installation
 - 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

Create GitHub profile and Repository

- 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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