

Introduction to Git

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Who am I?

Currently: Software Engineer @ Sioux, working w/ Philips IGT

Before:

- Software Engineer @ AirTies

- Research Assistant @ EMU (co-supervised by Cem Kalyoncu)

Outline

What is Git and why do we need it?

Basics of Git

Best practices

Summary

What is Git?

*Git is software for **tracking changes** in any set of files, usually used for **coordinating work** among programmers collaboratively developing source code during software development.*

Wikipedia

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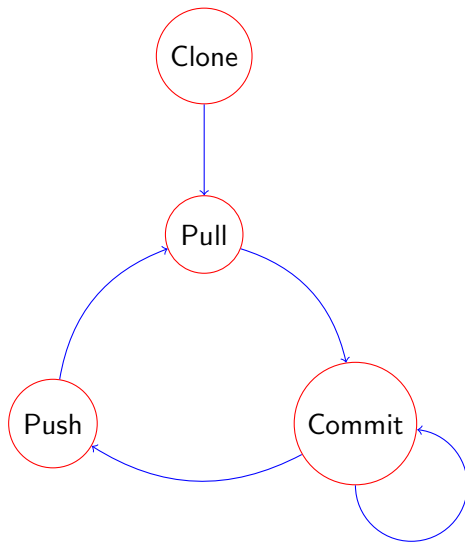
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 - ▶ CI/CD pipelines

Git loop



git-clone

- ▶ Clones a git repository (*.git* folder)

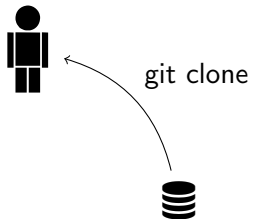
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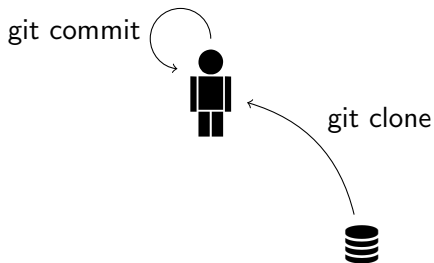
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- ▶ Many commands in Git require a commit hash as an input

git-add & git-commit cont.



git-push

- ▶ Updates remote/server with the local changes

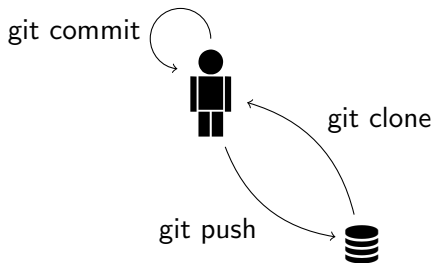
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 - ▶ More robust to storage faults (if stored remotely)

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 - ▶ filter .txt files: "*.txt"

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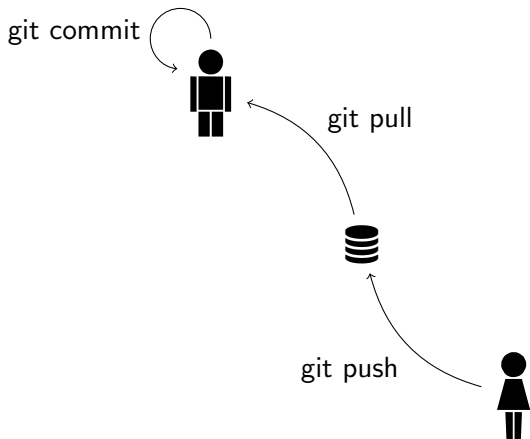
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git-log & git-diff

- ▶ *git-log* shows the commit history

git log

- ▶ *git-diff* shows the current changes (the “diff”)

git diff

Time for a small demo.
Let's create a git repo in Bitbucket from scratch.

Commit atomic changes

```
std::string find_surname(int id)
{
    std::map<int, std::string>& data = get_data();
    return data[id];
}
```


Commit atomic changes

```
std::string get_surname(int id) // 1 - change the name
{
    // 2 - fix a potential bug
    const std::map<int, std::string>& data = get_data();
    return data.at(id);
}
```

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 - ▶ Early feedback (extremely important)

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- ▶ How to improve?
 - ▶ Be grammatically correct
 - ▶ Do not be afraid of writing long texts when needed
 - ▶ Express “why” (intent) and not “how” (most common problem)
 - ▶ Do not repeat what the code already says
 - ▶ Changes to code already show the “how” part

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- ▶ Express “why” in commit messages

Some resources

`git help <command-name>`

<https://git-scm.com/doc>

<https://gitexplorer.com>

Closure

Thanks!
Questions?