Introduction to Git

Cengiz Kandemir

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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?

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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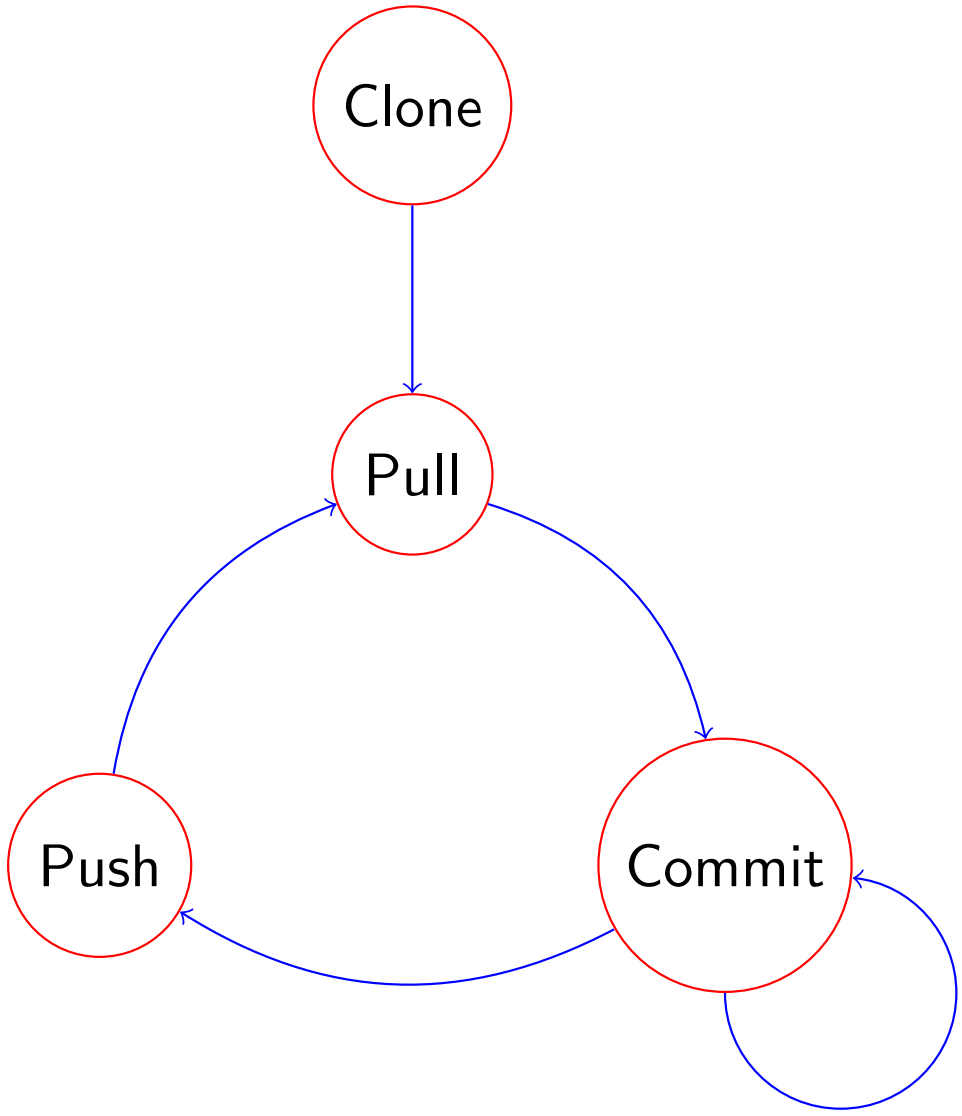
  - CI/CD pipelines

Git loop



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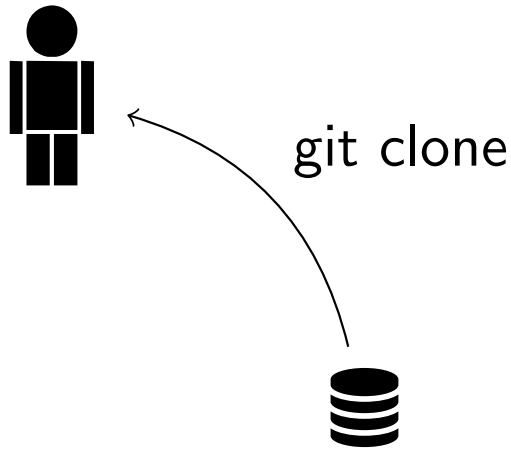

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- Many commands in Git require a commit hash as an input

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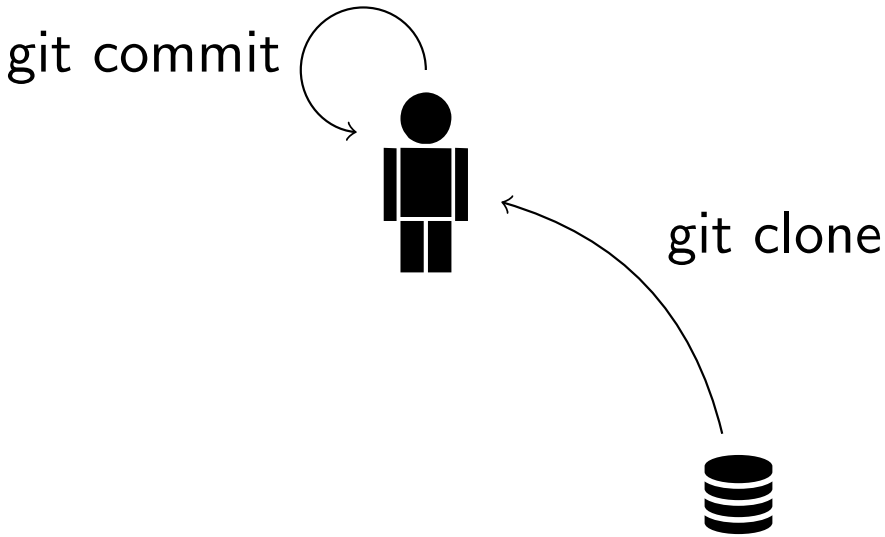

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  - More robust to storage faults (if stored remotely)

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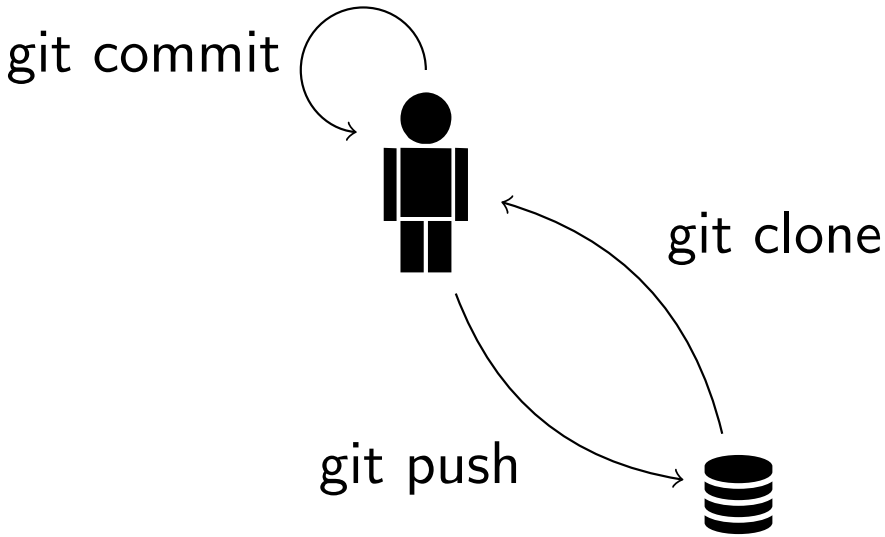

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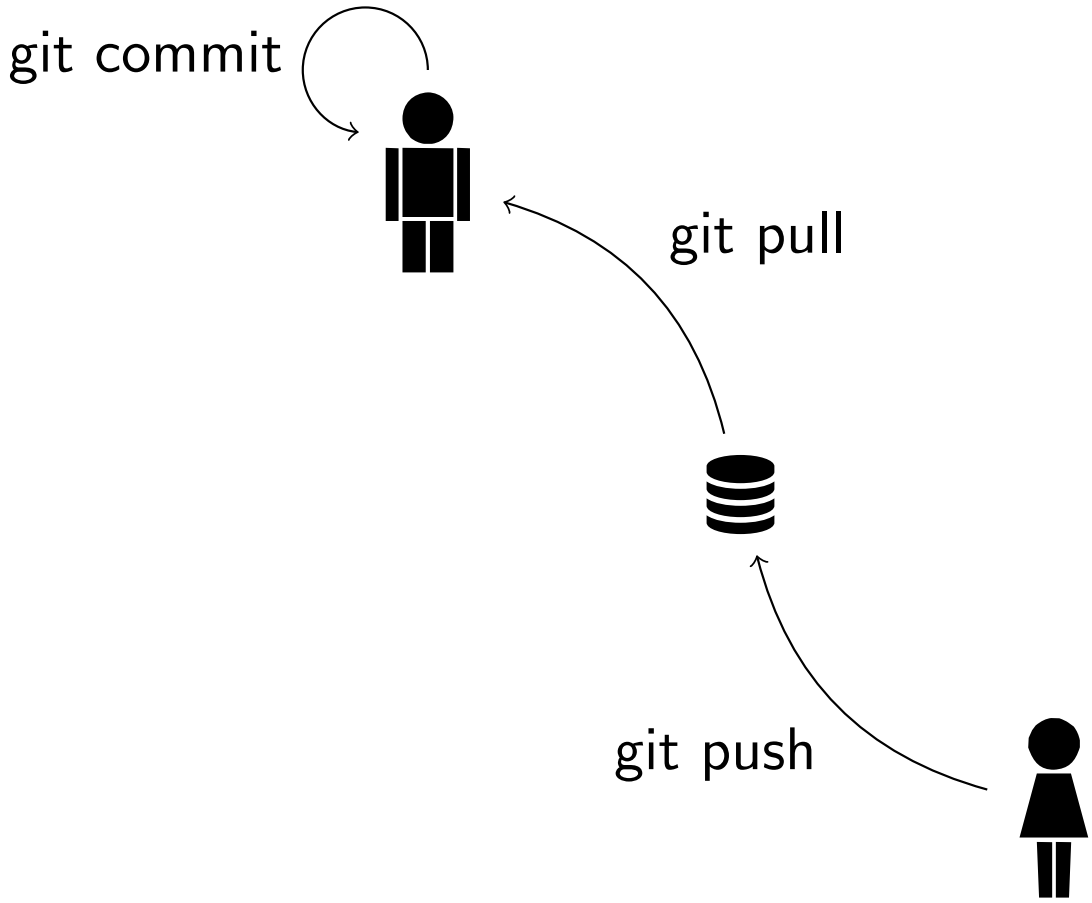

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  - filter .txt files: "*.txt"

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

Importance of commit messages cont.

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std::string find_surname(int id)
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"Use const & and .at operator in get_surname method"

Importance of commit messages cont.

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"Use const & and .at operator in get_surname method"

"Avoid inserting new elements to data when id is not found"

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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?