Git & Github Tutorial

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General

Terminology

Git areas

Use your Github user in Git

Ignoring files

Local repositories

Staging and committing

Display changes and commits

Remote repositories

Remote repositories

General

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- Git is a **V**ersion **C**ontrol **S**ystem

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- created in 2005 by Linus Torvalds

Terminology

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- Commit (History)

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- Branch (Merge)

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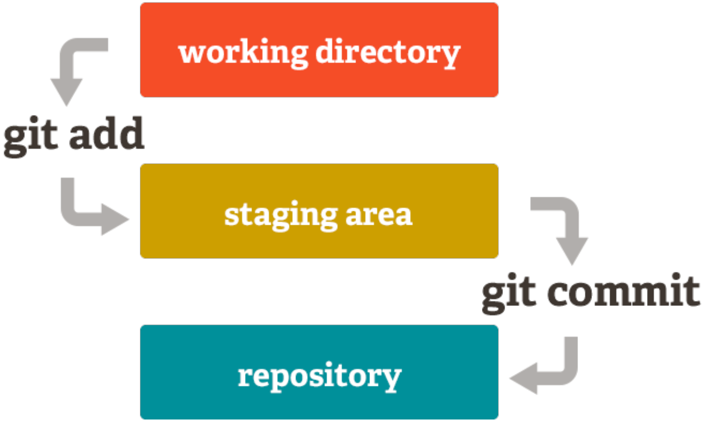
- Commit (History)
- Branch (Merge)
- (Remote) Repository

Git areas


working directory
git add
staging area
git commit
repository

Use your Github user in Git

Use your Github user in Git

- set your username and e-mail

  ```
  $ git config --global user.name "<username>"
  $ git config --global user.email <e-mail>
  ```

Ignoring files

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- exclude files with `.gitignore`-file
- contains patterns
- $*$ matches anything
- postceding / matches a folder
- preceding / matches only in the root folder
- preceding `!` negates the pattern (i.e. includes files)

What do the following rules exclude?

```
/src/
!/src/working/
```

Local repositories

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- create new local repository

```
$ git init
```

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```
$ git init
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- clone a remote repository

```
$ git clone <URL>
```

Staging and committing

Staging and committing

- stage changes

  ```
  $ git add (--all / <files>)
  ```

Staging and committing

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  $ git add (--all / <files>)
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- commit all the staged changes

  ```
  $ git commit -m "<Message>"
  ```

Staging and committing

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  ```

- Commit messages are important!

Display changes and commits

Display changes and commits

- see changes in code

```
$ git diff <commit1> <commit2> <files>
```

Display changes and commits

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```

- see staged changes

```
$ git status
```

Display changes and commits

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  ```
  $ git diff <commit1> <commit2> <files>
  ```

- see staged changes

  ```
  $ git status
  ```

- see commit history

  ```
  $ git log
  ```

Remote repositories

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- add remote repository

```
$ git remote add <Name> <URL>
```

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- not needed when repository was cloned
- set remote repository as up-stream

```
$ git branch -u <Name> <Branch>
$ git push -u <Name> <Branch>
```

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  $ git remote add <Name> <URL>
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  ```
  $ git branch -u <Name> <Branch>
  $ git push -u <Name> <Branch>
  ```

- push all commits to remote repository

  ```
  $ git push
  ```

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$ git remote add <Name> <URL>
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```
$ git branch -u <Name> <Branch>
$ git push -u <Name> <Branch>
```

- push all commits to remote repository

```
$ git push
```

- pulls all commits from remote repository

```
$ git pull
```

Remote repositories

Remote repositories

- list tags

```
$ git tag --list
```

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```
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```

- tag a commit

```
$ git tag -a <version> -m "<message>"<commit>
```

Remote repositories

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```
$ git tag --list
```

- tag a commit

```
$ git tag -a <version> -m "<message>"<commit>
```

- push all tags

```
$ git push origin --tags
```