

# git (GitHub CLI)

Packages:

```
sudo apt install gh git
```

## Configuring gh and git

Login via (just follow the prompts)

```
gh auth login
```

Config username and email: → remove `--global` option to just configure the login for one specific repository/directory

```
git config --global user.email "<email-address>"
```

```
git config --global user.name "<github-username>"
```

Replace `email-address` with your GitHub email and `github-username` with your username.

## Initialize directory for git

Change to the highest directory of your project, then initialize repository:

```
git init
```

Add the remote:

```
git remote add origin '<url>'
```

In case of GitHub `<url>` for example can be <https://github.com/<username>/<repository>/>.

## Pushing changes to GitHub

Add files to commit:

```
git add /path/to/file(s)
```

View status of changes:

```
git status
```

Before starting to edit, sync external changes\*:

```
git pull origin <branch>
```

Create commit:

```
git commit -m <message>
```

Push changes\*:

```
git push origin <branch>
```

\*Replace branch with the concerning branch, e.g. main.

## git merge and git rebase

**Merge:**

```
git merge
```

**Rebase:**

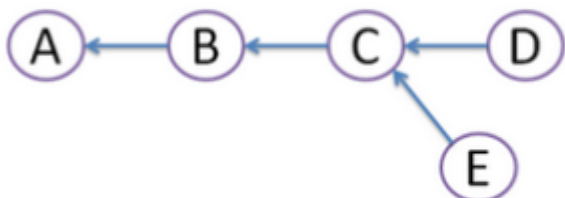
```
git rebase
```

**Differences:**

Suppose originally there were 3 commits, **A**, **B**, **C** :

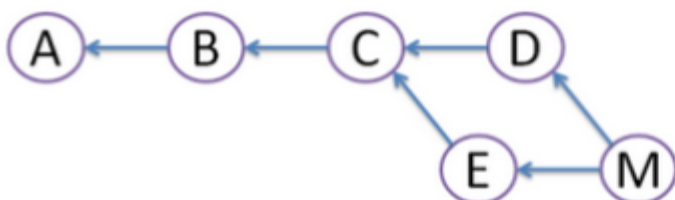


Then developer Dan created commit **D** , and developer Ed created commit **E** :



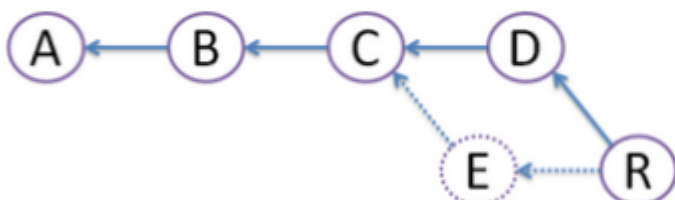
Obviously, this conflict should be resolved somehow. For this, there are 2 ways:

**MERGE:**



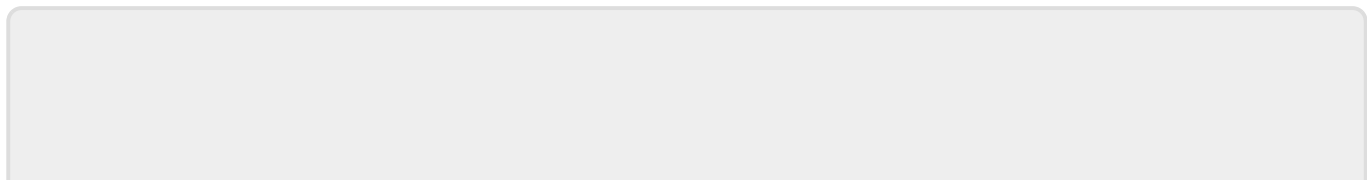
Both commits **D** and **E** are still here, but we create merge commit **M** that inherits changes from both **D** and **E** . However, this creates *diamond* shape, which many people find very confusing.

**REBASE:**



We create commit **R** , which actual file content is identical to that of merge commit **M** above. But, we get rid of commit **E** , like it never existed (denoted by dots - vanishing line). Because of this obliteration, **E** should be local to developer Ed and should have never been pushed to any other repository. Advantage of rebase is that *diamond* shape is avoided, and history stays nice straight line - most developers love that!

Sourced from: [stackoverflow.com](https://stackoverflow.com) - [git merge & git rebase](#)



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