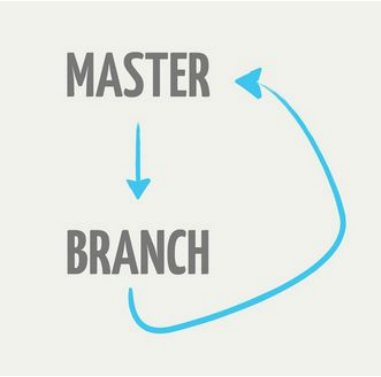
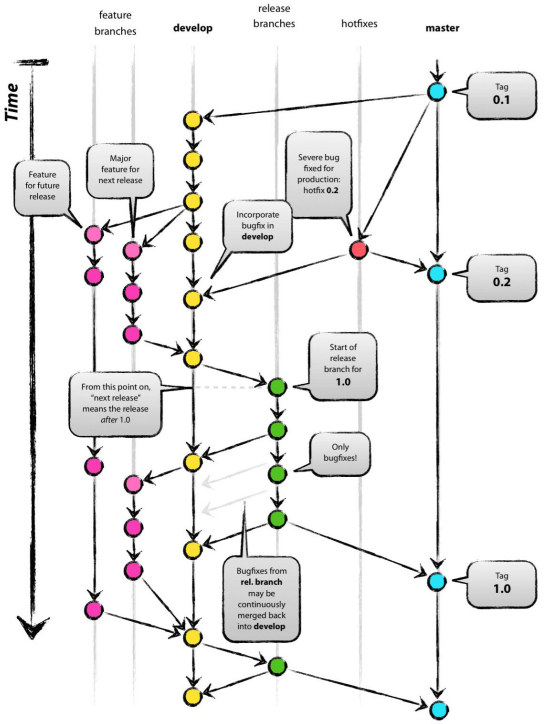
Git Series. Episode 3

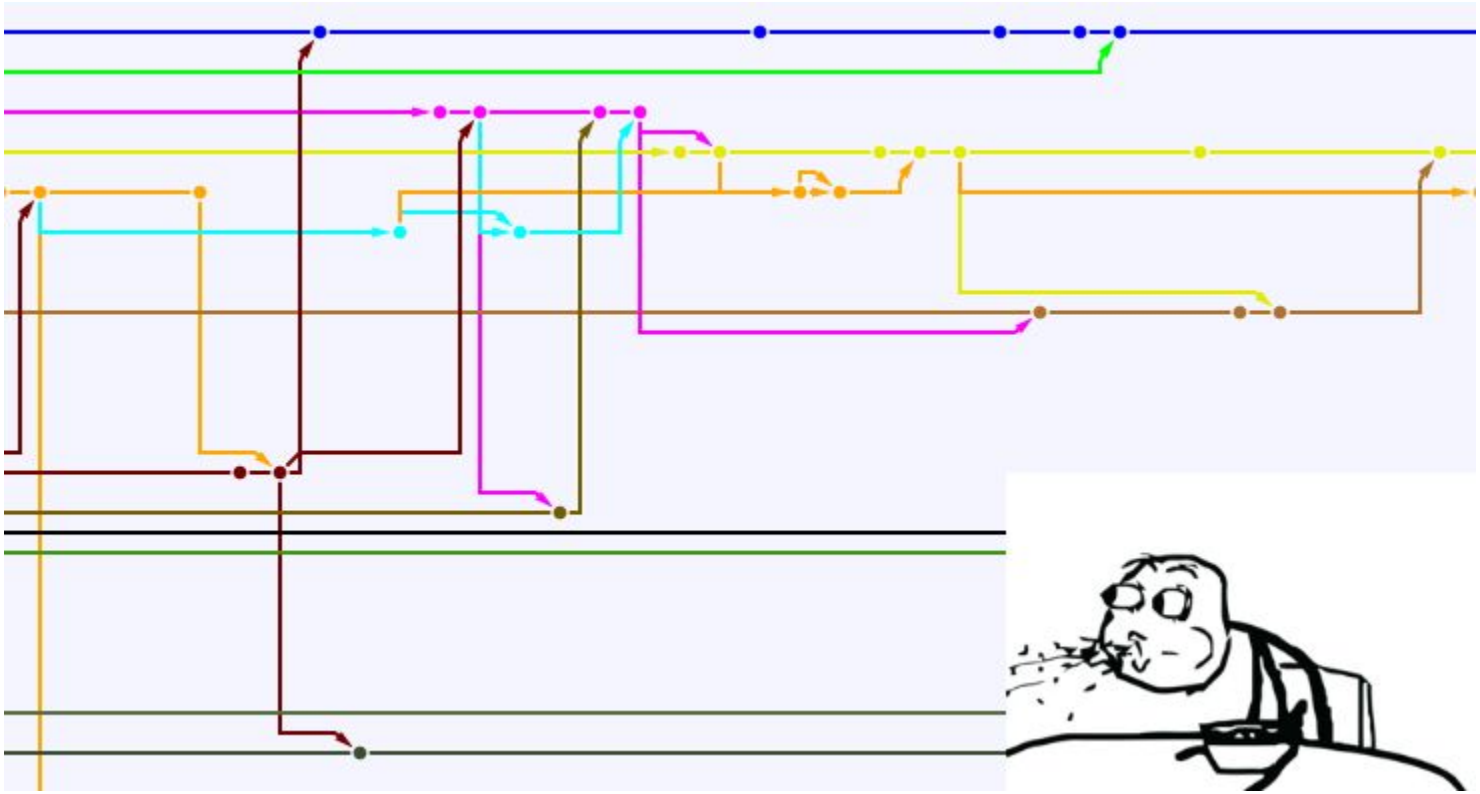
Git-Flow and Github-Flow





Mikhail Melnik, 2015

Sometimes History Become Messy



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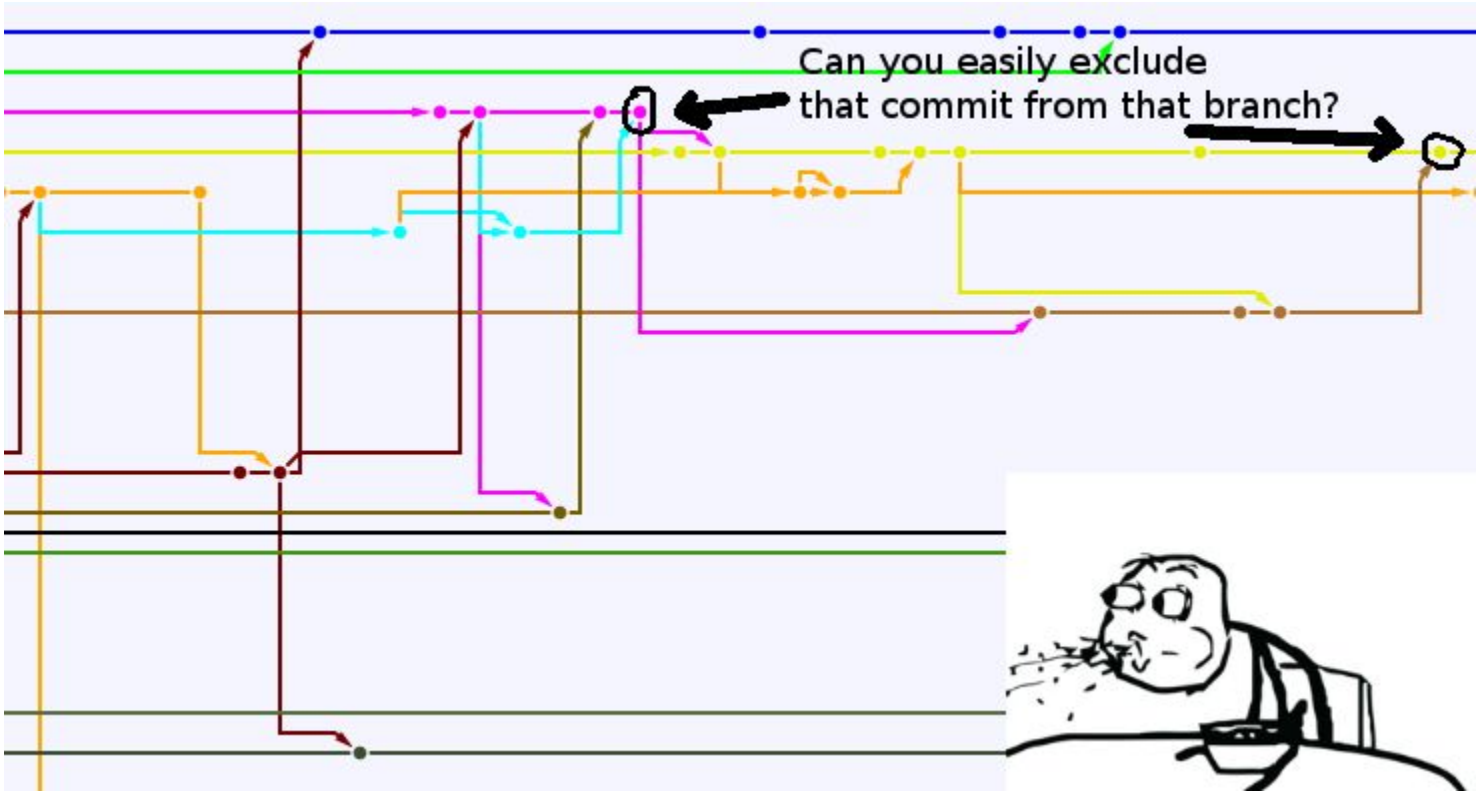

Branching Model Matters

Good branching strategy allows you:

- Group the features with its description and its code
- Easy removal of a feature from code if requirements change
- Track to the developers implied in a feature and their progress
- Control the features and changes in the roadmap
- Group the differents elements related with the feature (test cases, specs, docs) just linking to the ticket
- Automate the merge with main branch by using a CI server if tests run OK
- Join two worlds: developers and their code with managers and their planning

Git-Flow

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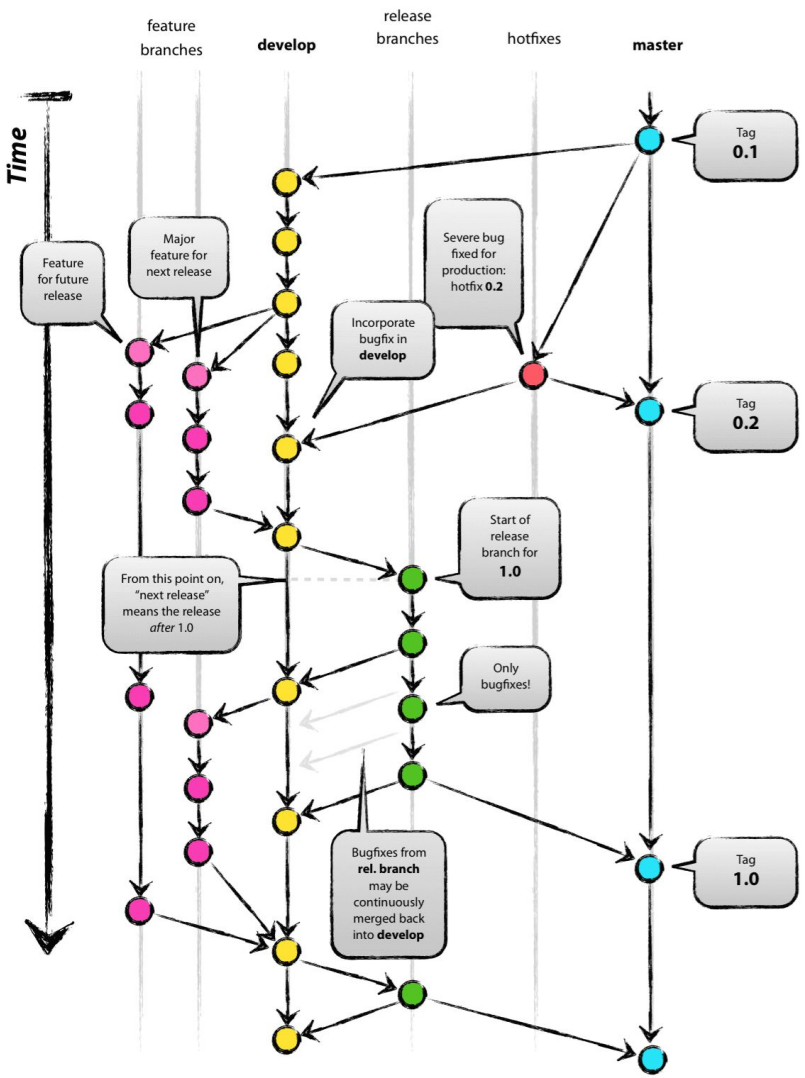
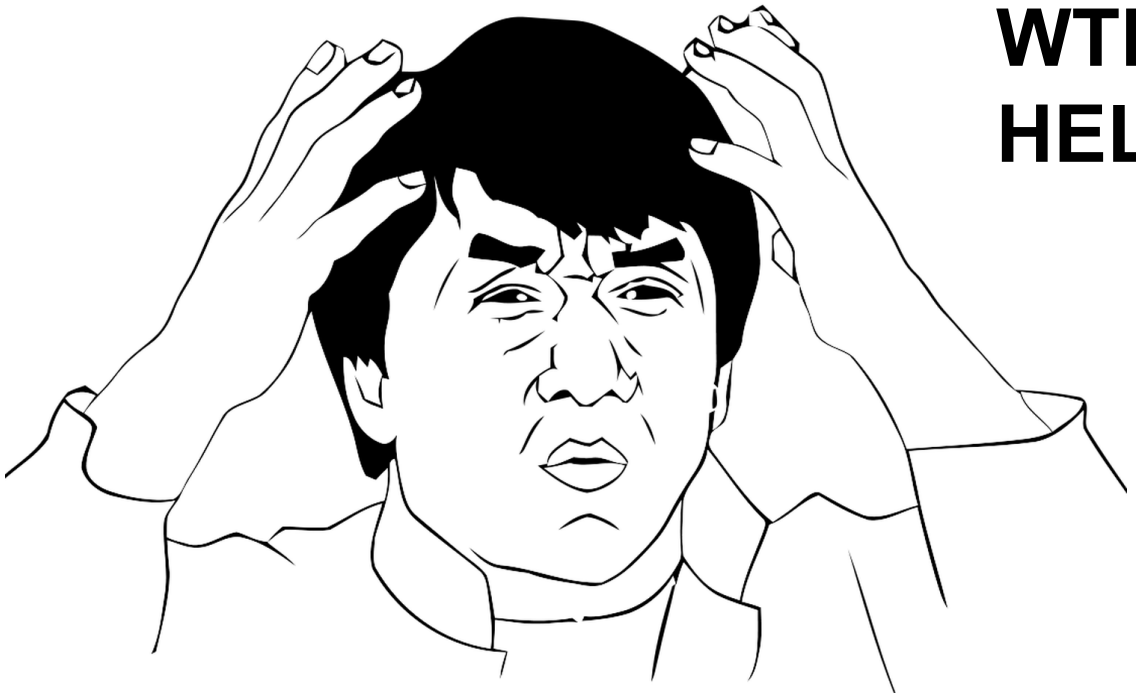




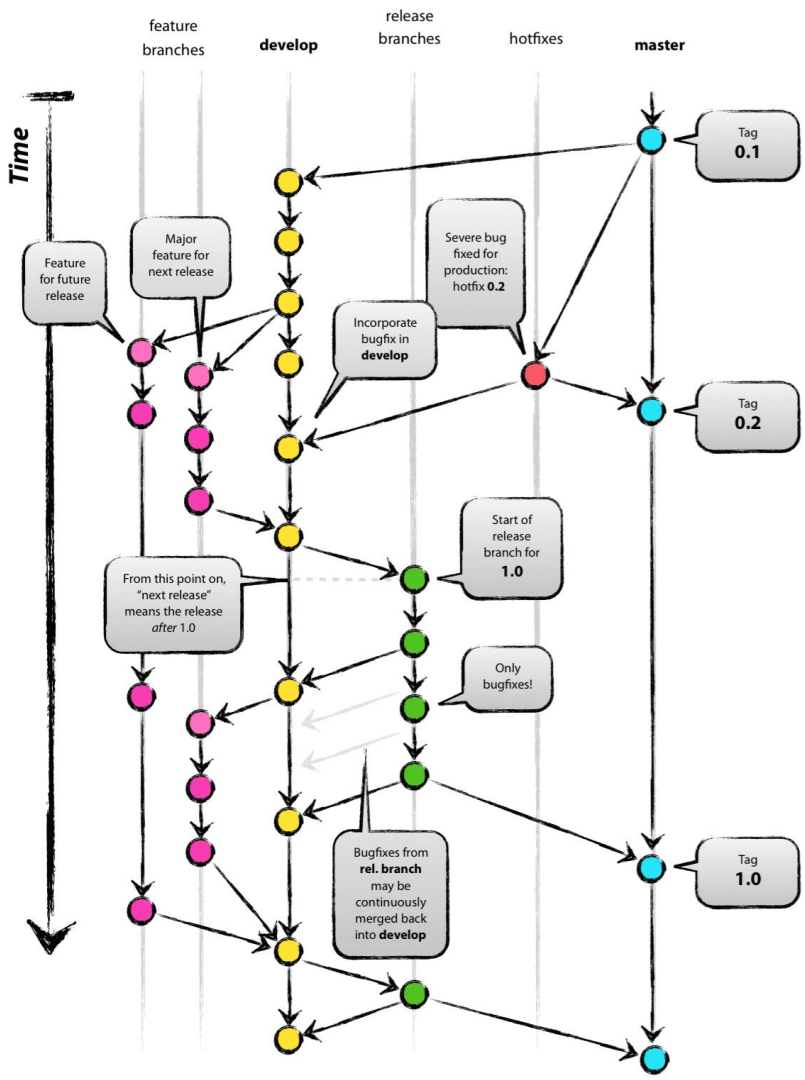
WTF! GOD, HELP US!

Take a closer look!

master

Main production branch.

1. Every commit on this branch is a production release.
2. Every other commit on this branch is forbidden.
3. Every release is **tagged** with a **version number.**



develop

Main development line.

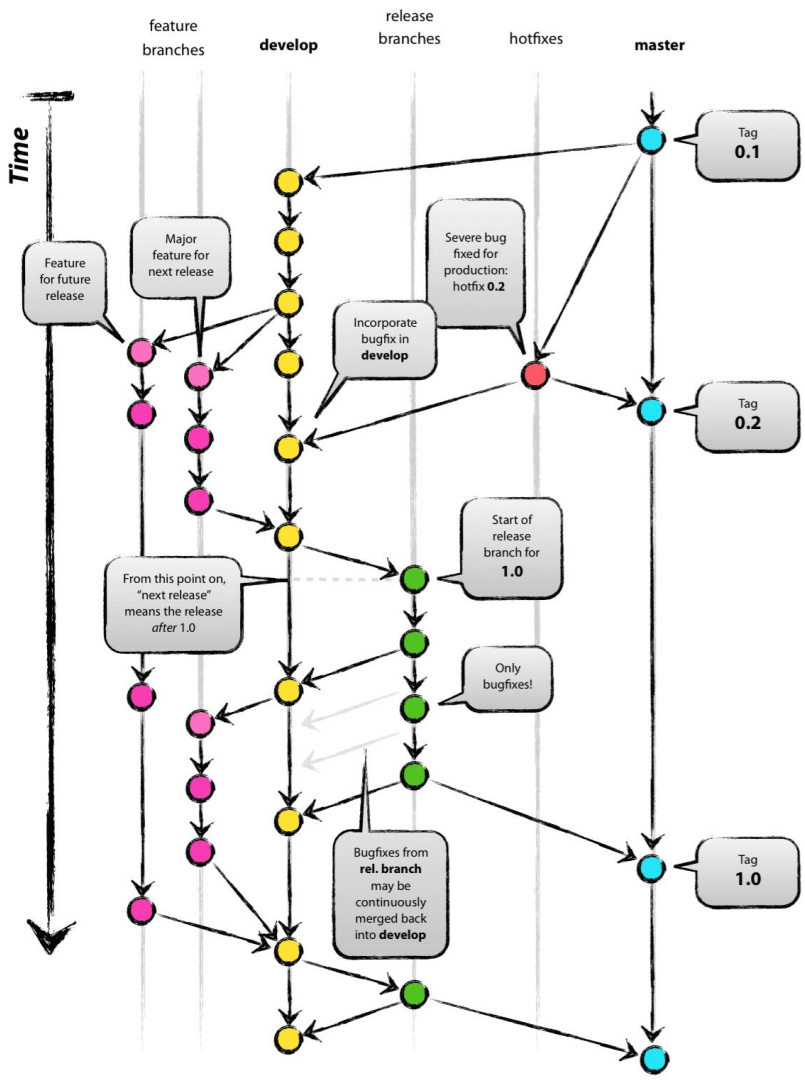
1. There is always only

   one main development line.

2. As a general rule

   no work should be directly committed

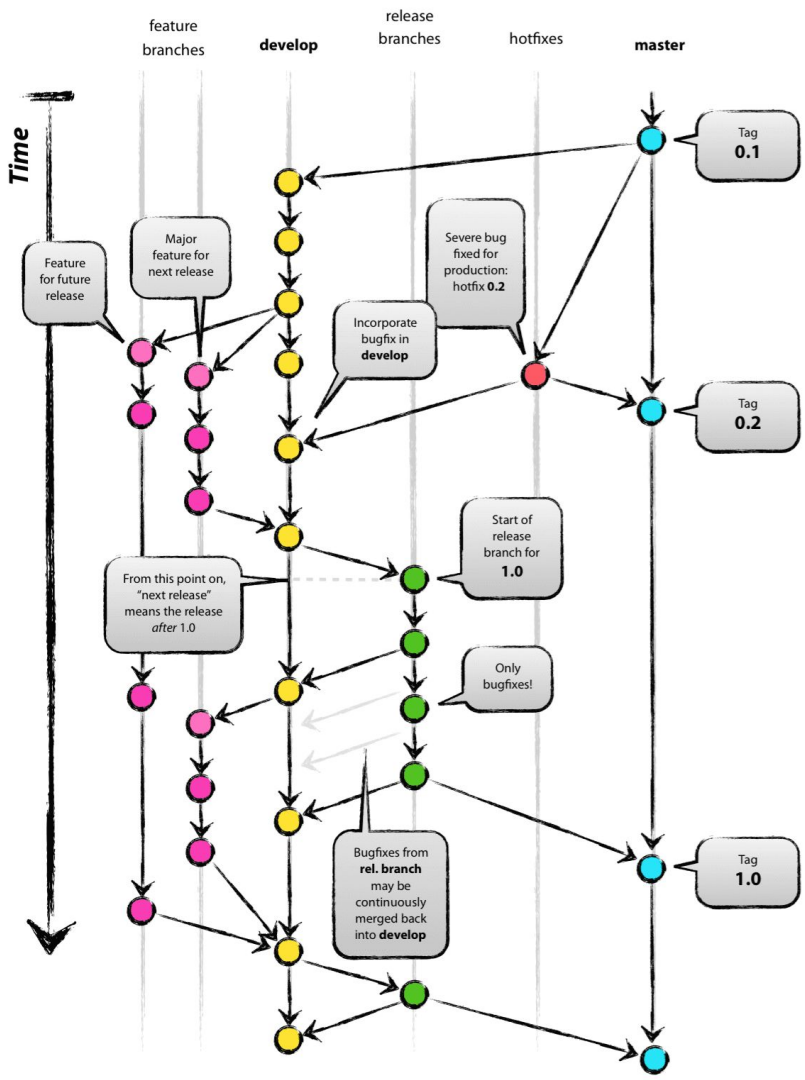
   on this line (except minor changes).



feature

Branches for every "issue" (bug or new feature).

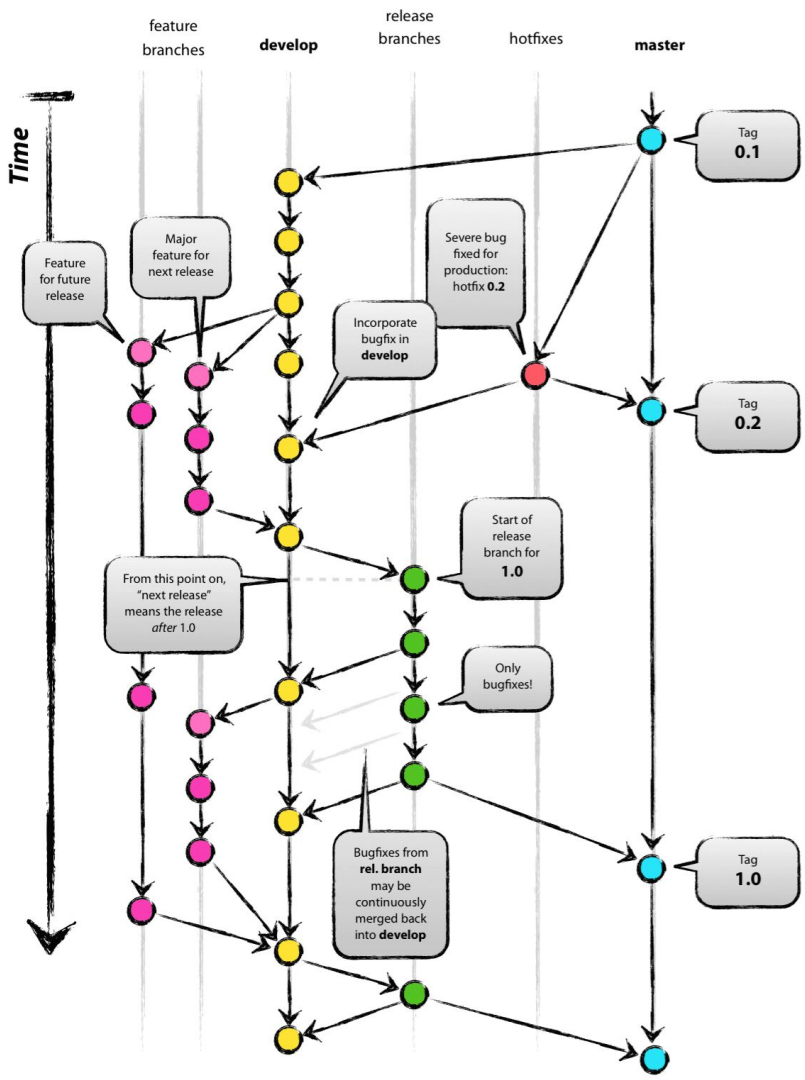
1. Always create a branch when working on an issue, regardless of how big it is.
2. Naming should follow your issue-tracking numbering (i.e. feature-<issue#>)



release

Branches with release candidates.

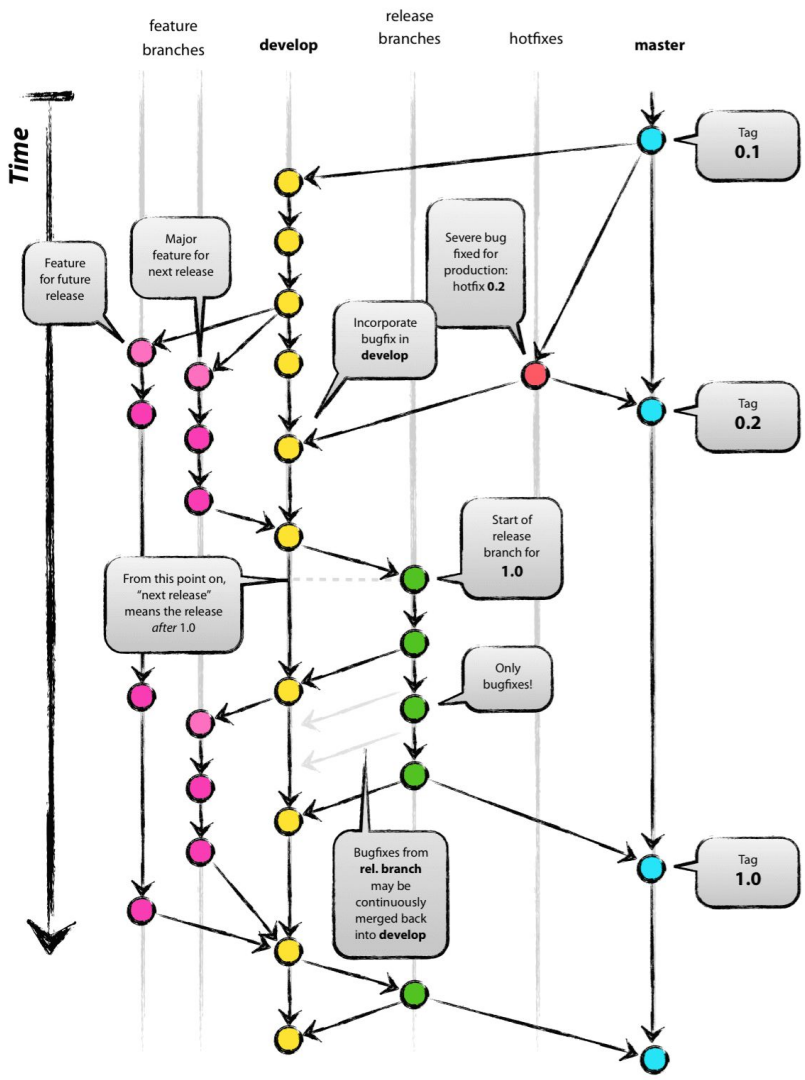
1. Branch is made from develop when a new release is near to ready, excluding bug fixing.
2. When you are on this branch you are in strict **feature-freeze**.
3. This version should be tested by Q.A. and/or customer in Test or Pre-Production.
4. Every bugfix is done directly on the release branch and must be merged back to develop ASAP



hotfix

Production bug-fixes are here.

1. Naming should follow issue-tracking numbering (hotfix-<issue#>).
2. After testing, hotfixes are merged to master creating a **new minor release version** and immediately merged back to develop.



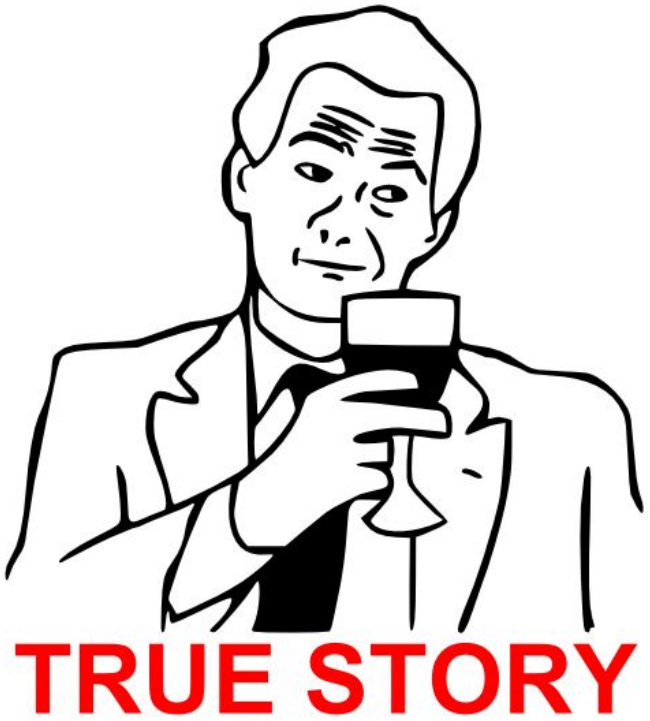
Git-Flow

It works really great for the projects with planned, versioned deployments that are:

- **time based (every second Tuesday no matter what)**

or

- **based on milestones (finished set of new features).**



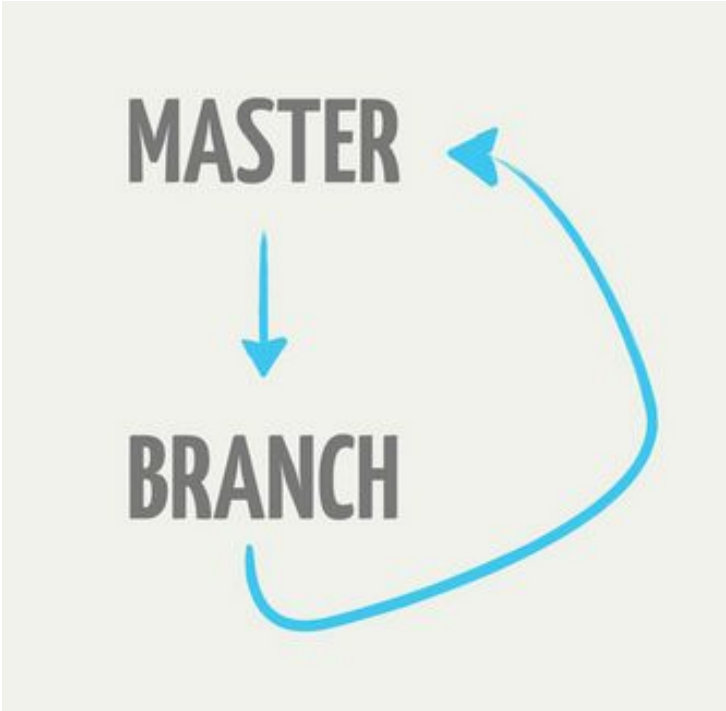
Git-Flow

Two important things you should remember.

All merges must be strictly non Fast-Forward

In canonical Git-flow Rebases are forbidden

Github-Flow



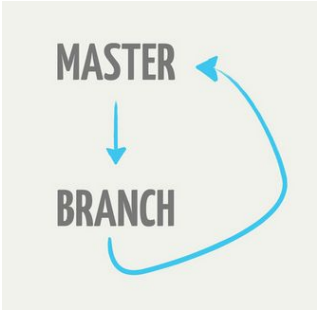
Zach Holman

What’s in a branch?

Releasable business value

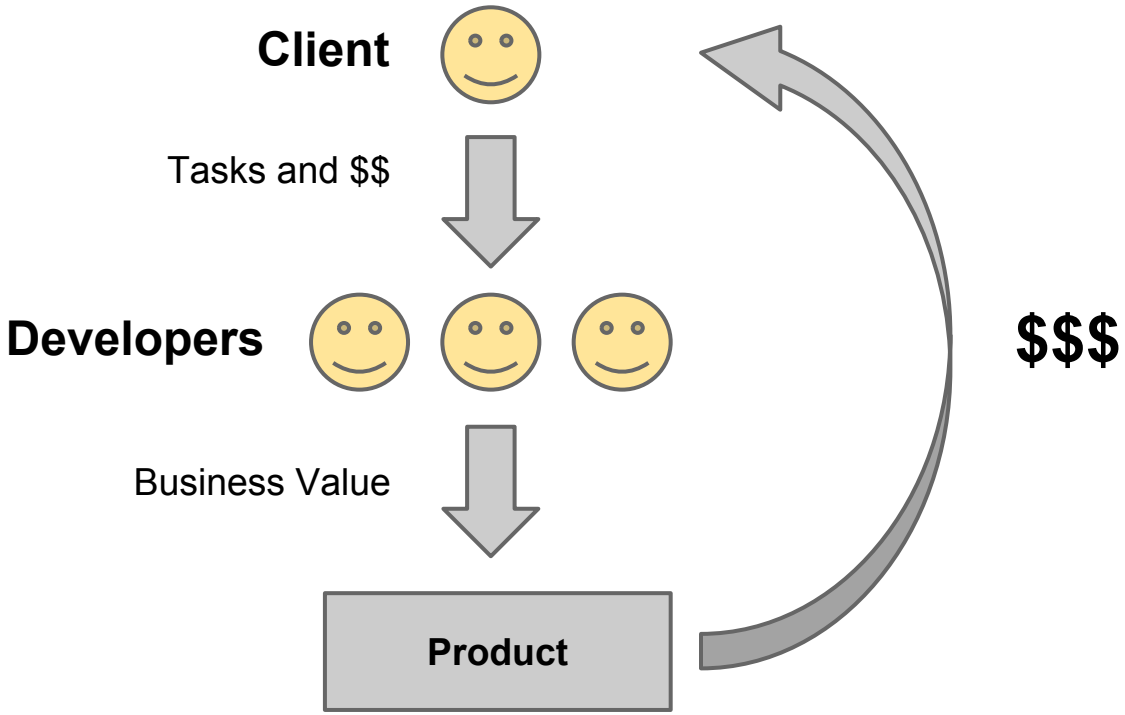
- As small as cosmetic UI (e.g. spelling) fix
- Bug fix
- Feature

Github-Flow Statements

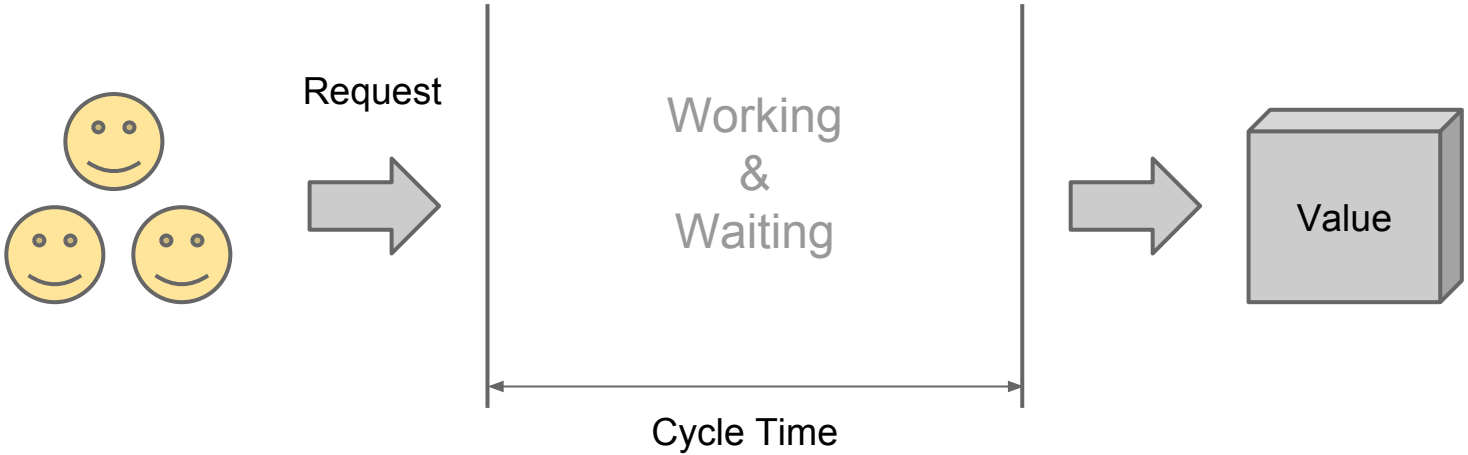


1. `master` is always deployable
2. All changes go through feature branches
    a. Pull Request — review is QA process
    b. Merge
3. Rebase to avoid/resolve conflicts
4. Merge back to `master`

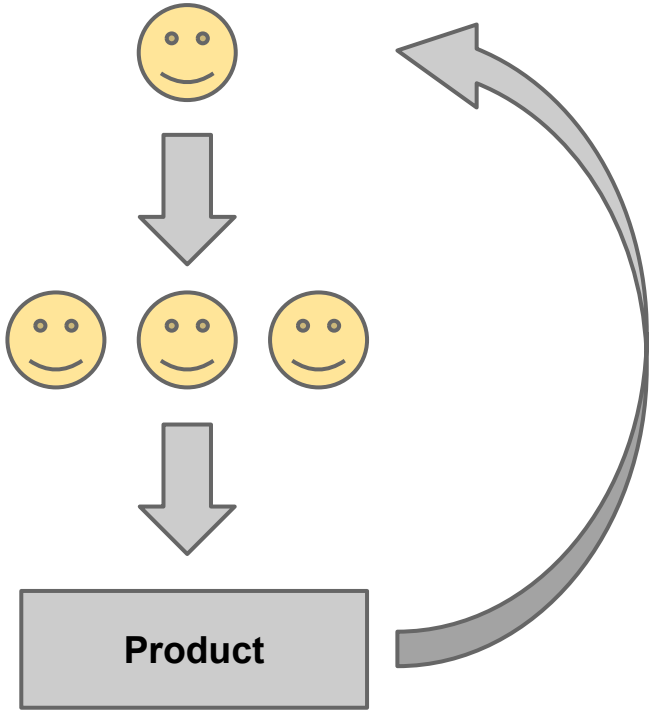
Business Model

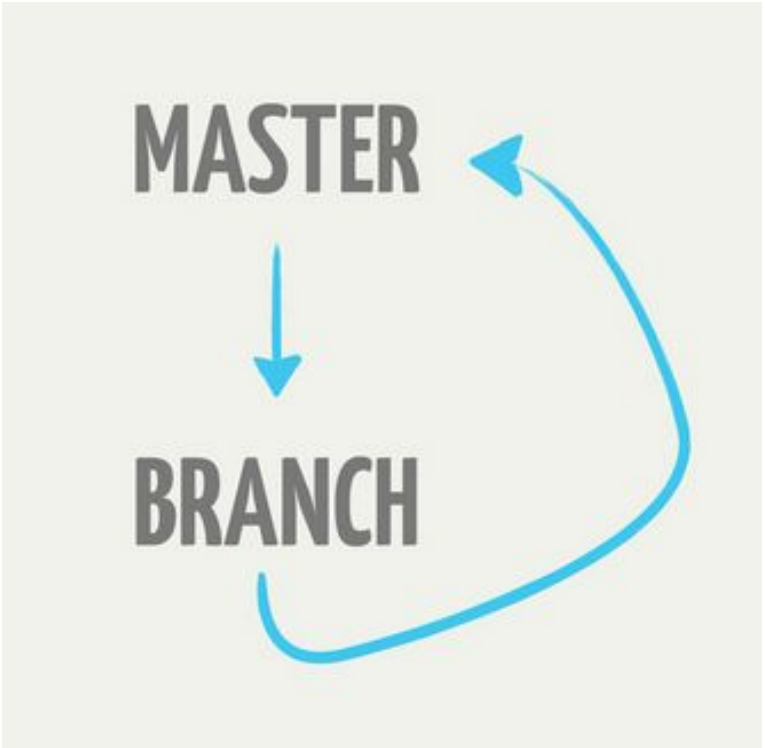


Lean Perspective



Conway's Law





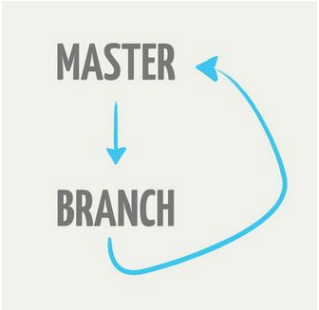
DOs

- **DO** keep `master` in working order.
- **DO** rebase your feature branches.
  - **DO** pull in (rebase on top of) changes
- **DO** tag releases
- **DO** push feature branches for discussion
- **DO** learn to rebase

DON’Ts

- **DON'T** merge in broken code.
- **DON'T** commit onto `master` directly.
  - **DON'T** hotfix onto `master`! Use a feature branch.
- **DON'T** rebase `master`.
- **DON'T** merge with conflicts. Handle conflicts upon rebasing.

Sounds Scary?



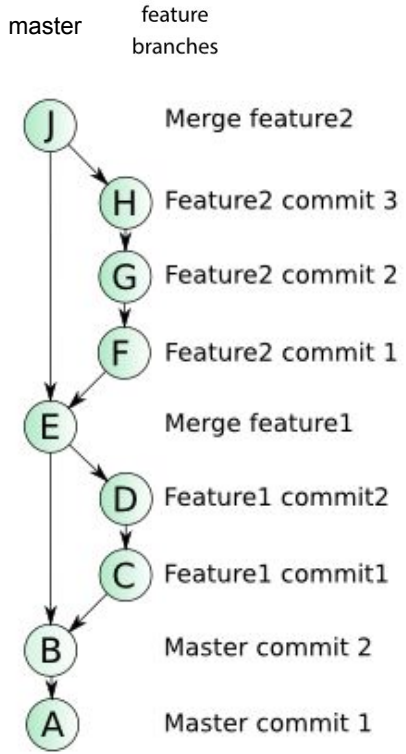
- Code coverage by auto-tests
- Pull Requests
- Feature Flags
- A/B Releases

Github-Flow

Github-flow (aka Linear Git or Simple Git) works perfectly for projects with continuous delivery/deployment cycle.

Main concepts:

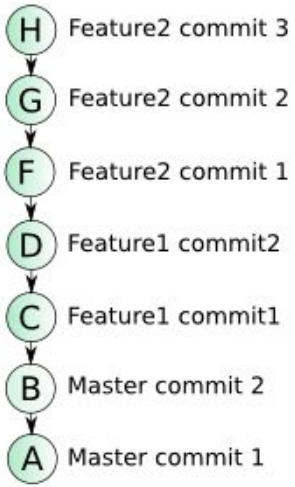
- origin/master is always deployable. Always.
- Any change is done in its own branch, started from origin/master.
- Create new merge request once you started to work on new change-set, so everyone can review and check your work. This is the part of QA process.
- When work is ready and your request is signs off by someone, you merge back into origin/master.
- This is now deployable and will be deployed at anytime.
- Test coverage must be high enough to handle most of the errors and bugs.



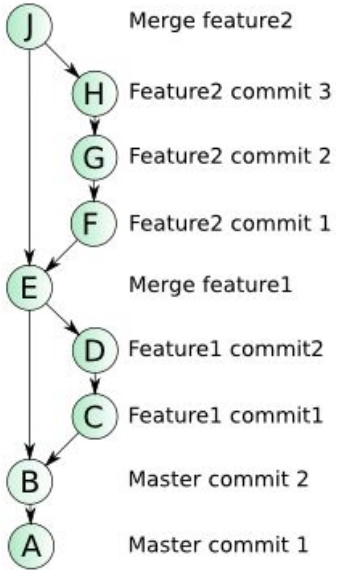
Github-Flow

There are two possible strategies of merging features in Github-Flow.

Linear (using fast-forward)



With merge bubbles (using true merge)



Links

Popular branching models:

1. Git-flow
2. Github-flow
3. Git workflow for agile team

More links on flow discussions:

1. What Git branching models work for you
2. The Dymitruk Model
3. Trust the merge and branch simplification musings
4. The essence of branch-based workflows

More links about Github-flow:

1. Issues with Git-flow
2. Understanding the Github-flow
3. Simple git workflow is simple

Feel free to mail me at mikhailimelnik@gmail.com.