



6. Branching and Merging

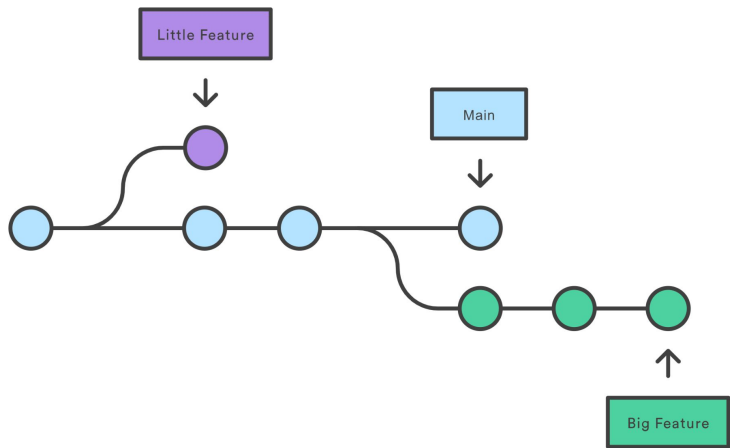


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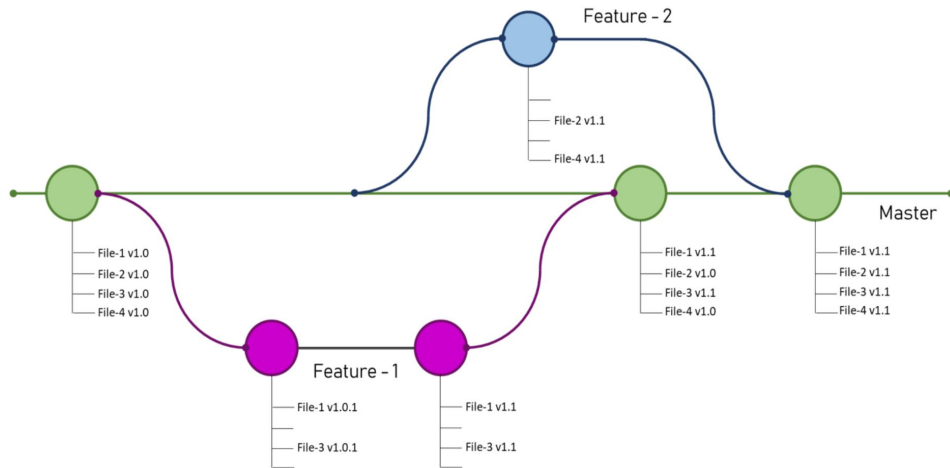
6.1 What are Branches ?



- Git branches are pointers to snapshots of your changes.
- New branches isolate work when adding features or fixing bugs.
- Branching prevents unstable code from affecting the main codebase.
- It allows you to clean up the commit history before merging.
- Each branch represents an independent line of development and records new commits separately.



6.1 What are Branches ?



- **Isolated Development:** Git branches allow working on features independently without affecting the main codebase.
- **Parallel Workflows:** Multiple branches enable team members to collaborate without conflicts.
- **Version Control:** Each branch tracks a separate set of changes.
- **Easy Integration:** Completed branches can be merged back into the main project.



6.2 Branches on GitHub



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Branches

Overview Active Stale All

Q Search branches...

Branch	Updated	Check status	Behind	Ahead	Pull request
gh/mvitousek/23/orig	8 hours ago	✓ 2 / 2	5	2	🗑️ ...
gh/mvitousek/27/orig	8 hours ago		5	1	🗑️ ...
gh/mvitousek/28/orig	8 hours ago	✓ 2 / 2	5	3	🗑️ ...
gh/mvitousek/23/head	8 hours ago	✓ 19 / 19	5	4	🔗 #30902 🗑️ ...
gh/mvitousek/23/base	8 hours ago	✓ 2 / 2	5	1	🗑️ ...
gh/mvitousek/28/base	8 hours ago	✓ 19 / 19	5	4	🗑️ ...
gh/mvitousek/28/head	8 hours ago	✓ 19 / 19	5	5	🔗 #30913 🗑️ ...
gh/mvitousek/27/base	8 hours ago	✓ 189 / 191	5	0	🗑️ ...
gh/mvitousek/27/head	8 hours ago	✓ 19 / 19	5	1	🔗 #30912 🗑️ ...
gh/mvitousek/27/orig	8 hours ago		5	1	🗑️ ...



6.3 git branch



```
git branch
```

List all of the branches in your repository. This is synonymous with `git branch --list`.

```
git branch <branch>
```

Create a new branch called `<branch>`. This does *not* check out the new branch.

```
git branch -d <branch>
```

Delete the specified branch. This is a “safe” operation in that Git prevents you from deleting the branch if it has unmerged changes.

```
git branch -D <branch>
```

Force delete the specified branch, even if it has unmerged changes. This is the command to use if you want to permanently throw away all of the commits associated with a particular line of development.

```
git branch -m <branch>
```

- Lists all branches in the repository.
- Can create, delete, or rename branches.
- It's important to understand that branches are just pointers to commits. When you create a branch, all Git needs to do is create a new pointer, it doesn't change the repository in any other way.



6.4 git checkout & git switch



git checkout

git switch

to switch from
one branch to
another.

`git checkout <branchname>`

`git switch <branchname>`

creates a new
branch and also
switches to it.

`git checkout -b <branchname>`

`git switch -c <branchname>`

git checkout

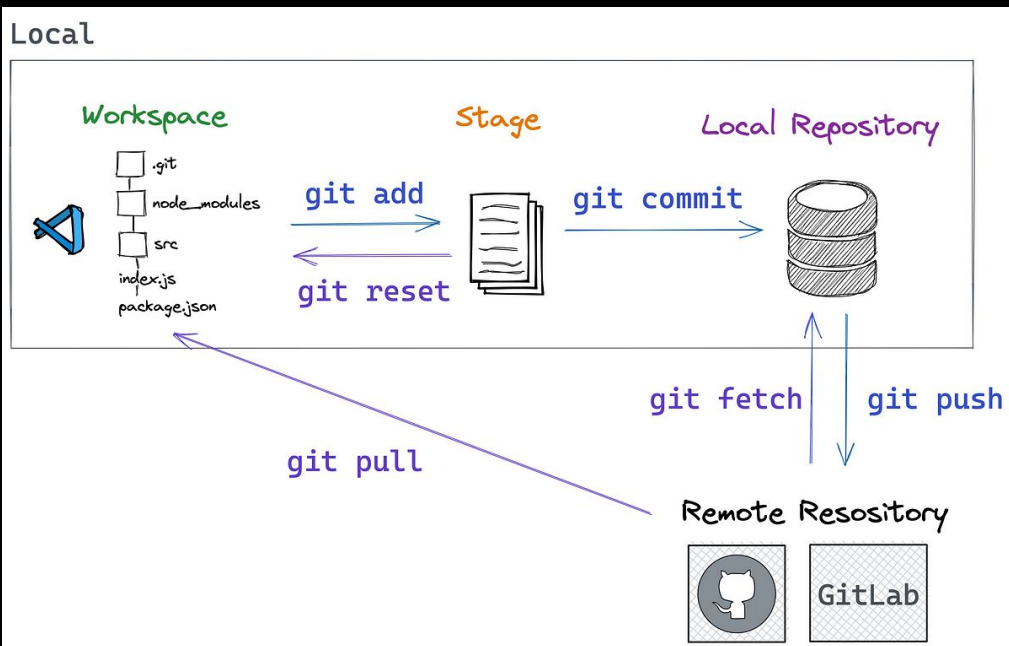
- Switches between branches or restores files.
- Can also create and switch to a new branch.

git switch

- A simpler command to switch between branches.
- Similar to git checkout but only for switching branches.

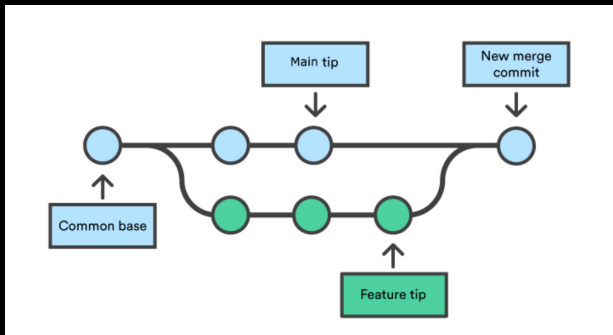
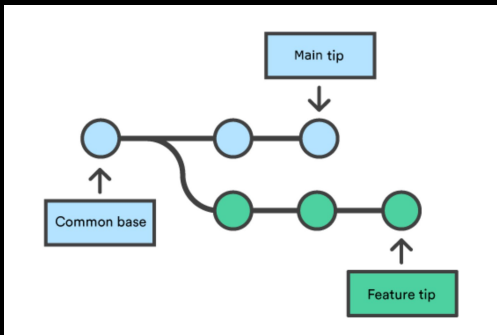


6.5 git fetch



- Downloads changes from a remote repository without merging them.
- Updates local tracking branches.

6.6 git merge



```
# Merge in the new-feature branch
git checkout main
git merge new-feature
git branch -d new-feature
```

- Combines changes from one branch into the current branch.
- Merges commit histories and resolves conflicts if needed.
- Git merge will combine multiple sequences of commits into one unified history.



6.7 Branch Tracking



1. View Tracking Information:

```
git branch -vv
```

2. Tracking a Remote Branch:

- You can set a local branch to track a remote branch, meaning it will automatically fetch updates from the remote branch.
- Command:

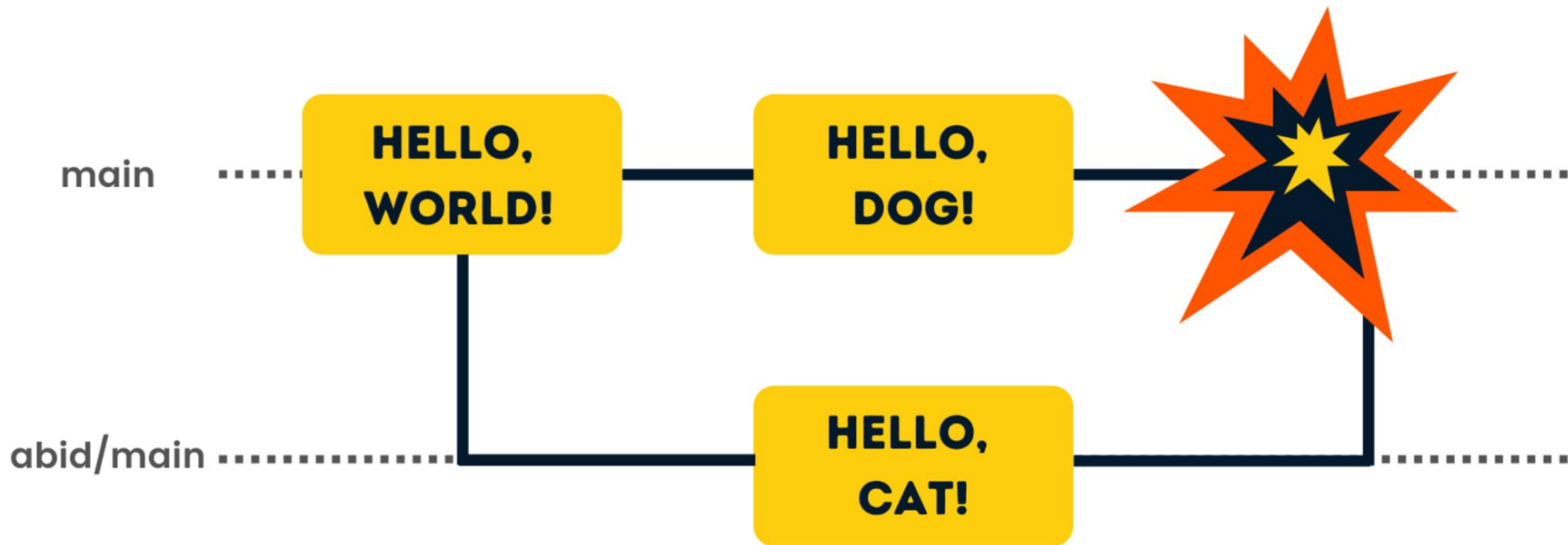
```
git branch -u origin/branch_name
```

3. Set Upstream During Checkout:

- When creating a new branch and you want it to track the remote branch immediately, use:

```
git checkout -b branch_name --track origin/branch_name
```

6.8 Resolving conflicts





6.8 Resolving conflicts



Current Repository
foo

Current Branch
master

Pull origin
Last fetched just now 1 + 1 +

Changes 3

History

3 changed files

bin/.gitignore

bin/Foobar.class

src/Foobar.java

Merge branch 'master' of https://

Description

Commit to master

Committed 3 minutes ago
idk

Undo

src/Foobar.java

@@ -9,7 +9,13 @@ public class Foobar
boolean myBoolean;
char myChar;
Scanner input = new Scanner(System.in);
+<<<<<< HEAD
System.out.println(10.1 % 2);
+
+
+ System.out.println(5.1 % 2);
+
+>>>>>> 8a55f481e4ccdc195a8956281d6fbc4595186648
System.out.print("Gimme an int: ");
myInt = input.nextInt();
System.out.print("Gimme a double: ");
@@ -19,7 +25,9 @@ public class Foobar
System.out.print("Gimme a char: ");
myChar = input.next().charAt(0);
- System.out.println();
+ System.out.println{ };
+
+
System.out.printf("%20s","Your int was...");
System.out.printf("%10d",myInt);
System.out.println();
@@ -31,17 +39,17 @@ public class Foobar
System.out.println();
System.out.printf("%20s","Your boolean was...");



6.9 Pull Requests and Merging on Github



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Filters Q is:pr is:open

🏷️ Labels 71 📅 Milestones 1

New pull request

🔗 172 Open ✓ 15,806 Closed	Author ▾	Label ▾	Projects ▾	Milestones ▾	Reviews ▾	Assignee ▾	Sort ▾
🔗 [compiler][playground] Fix displayed naming of outlined functions • CLA Signed	#30907 opened 1 minute ago by mvitousek						1
🔗 [DevTools] Add Flight Renderer ✓ CLA Signed React Core Team	#30906 opened 11 hours ago by sebmarkbage						1
🔗 [DevTools] Add Map for Server Component Logs ✓ CLA Signed React Core Team	#30905 opened 13 hours ago by sebmarkbage						1
🔗 [compiler] Allow ref access in useImperativeHandle ✓ CLA Signed	#30904 opened 14 hours ago by mvitousek						1
🔗 [compiler] Improve handling of refs ✓ CLA Signed	#30902 opened 16 hours ago by mvitousek						1
🔗 [compiler][wip] Inline single return JSX for known function components ✗ CLA Signed React Core Team	#30901 opened 18 hours ago by josephsavona · Draft						4
🔗 [DevTools] Delete fiberToFiberInstanceMap ✓ CLA Signed React Core Team	#30900 opened 19 hours ago by sebmarkbage						1
🔗 [DevTools] Refactor Error / Warning Count Tracking ✓ CLA Signed React Core Team	#30899 opened 19 hours ago by sebmarkbage						1



6.10 Reviewing Code on Github



Open

[compiler][rewrite] PropagateScopeDeps hir rewrite #30894

mofeiZ wants to merge 7 commits into [gh/mofeiZ/18/base](#) from [gh/mofeiZ/18/head](#)



vercel bot

deployed to **Preview** 2 days ago

[View deployment](#)



mofeiZ commented 2 days ago

[View reviewed changes](#)

compiler/packages/babel-plugin-react-compiler/src/HIR/CollectHoistablePropertyLoads.ts

Comment on lines +337 to +340

```
337 +   const isMutableAtInstr =
338 +     object.mutableRange.end > object.mutableRange.start + 1 &&
339 +     object.scope !== null &&
340 +     inRange(instr, object.scope.range);
```



mofeiZ 2 days ago

[Contributor](#)

[Author](#)

...

This is a little awkward, and also an example of being able to make use of more granular mutable range (instead of scope-range info)

Note that mutableRanges are no longer valid at this point, but we're only comparing relative start/ends (end === start + 1 indicates nonmutable value)



Reply...