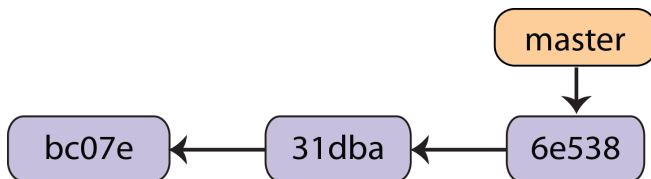


## Git: Branching and Merging

# What is a branch?

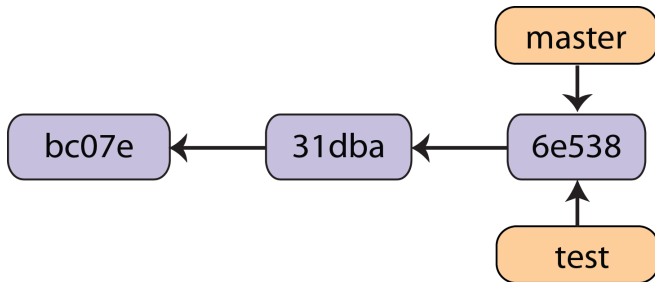
A branch is just a pointer to a commit:



We have been using the `master` branch.

# Intro to Branching

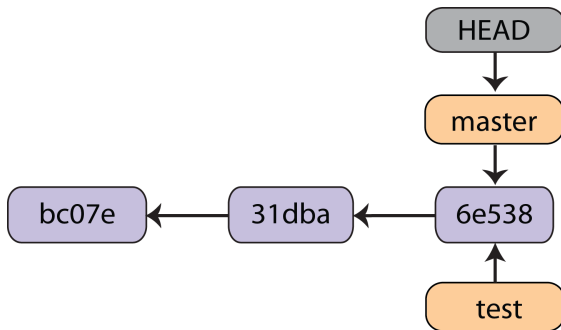
We can create a new branch and it will add a new pointer to the current commit:



```
git branch test
```

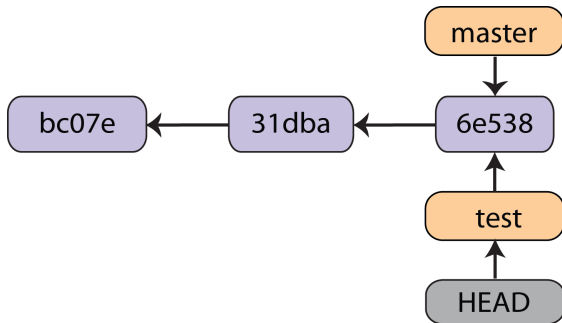
# Intro to Branching

How does Git know which branch you are currently on?



# Intro to Branching

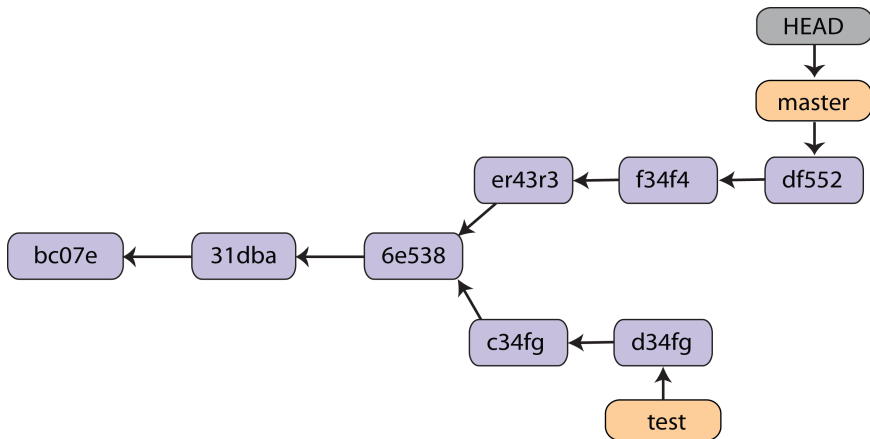
You can change the current branch by using `git checkout`:



```
git checkout test
```

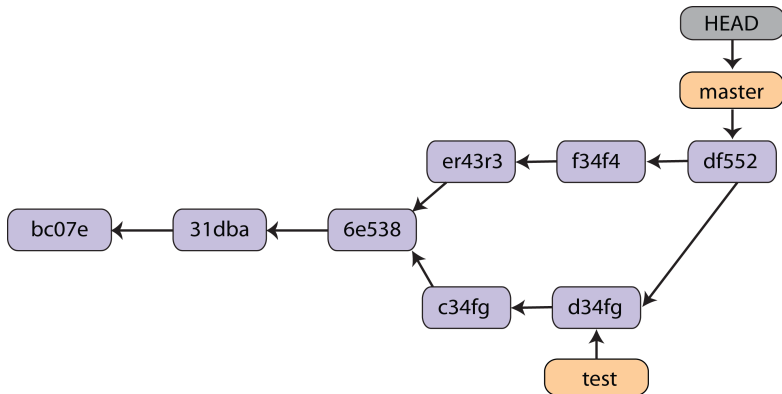
# Intro to Branching

If you add commits on both branches, the directories can diverge:



# Intro to Branching

Eventually, you might want to merge your changes on your branch back into the master development branch:



```
git merge test
```

# Resolving Conflicts

Inevitably, you will get this error at some point when merging:

```
$ git merge test
Auto-merged file1.txt
CONFLICT (content): Merge conflict in file1.txt
Automatic merge failed; fix conflicts and then
commit the result.
```



# Resolving Conflicts

This has now been put in the conflicting file:

```
<<<<<< HEAD:file1.txt  
This is in the master branch.  
=====  
This is in the test branch.  
>>>>>> test:file1.txt
```

# Resolving Conflicts

This has now been put in the conflicting file:

```
<<<<<< HEAD:file1.txt  
This is in the master branch.  
=====  
This is in the test branch.  
>>>>>> test:file1.txt
```

*Let's see how you resolve a merge conflict.*

# Why branch?

Isolation of changes.

# Why branch?

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Try new things without disrupting main code.

# Why branch?

Isolation of changes.

Try new things without disrupting main code.

Usually, there are a few main types of branches:

## 1. Feature Branch

- ▶ If a particular feature is disruptive enough that you don't want the entire development team to be affected in its early stages, you can create a branch on which to do this work.

## 2. Fixes Branch

- ▶ While development continues on the main trunk, a fixes branch can be created to hold the fixes to the latest released version of the software.

# Your Turn

## Exercise 5 (30 mins)