Git Branching

Software Engineering for Scientists

A **branch** is an independent line of development

(new file, changes to files)

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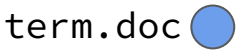

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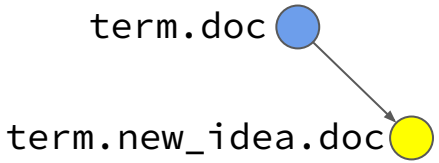

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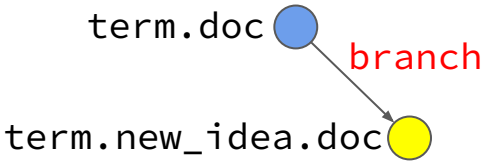

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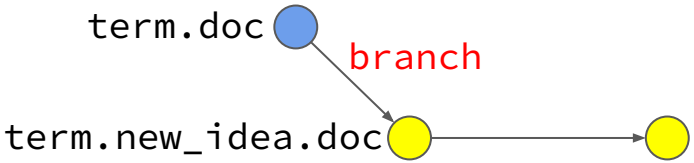

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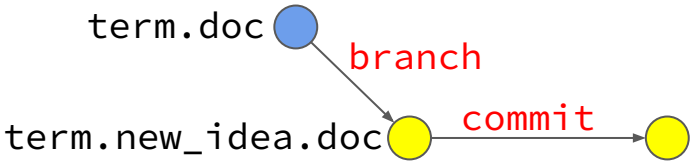

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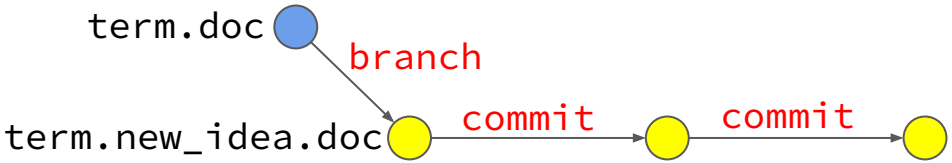

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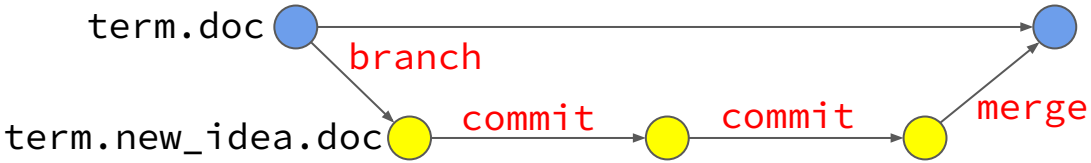

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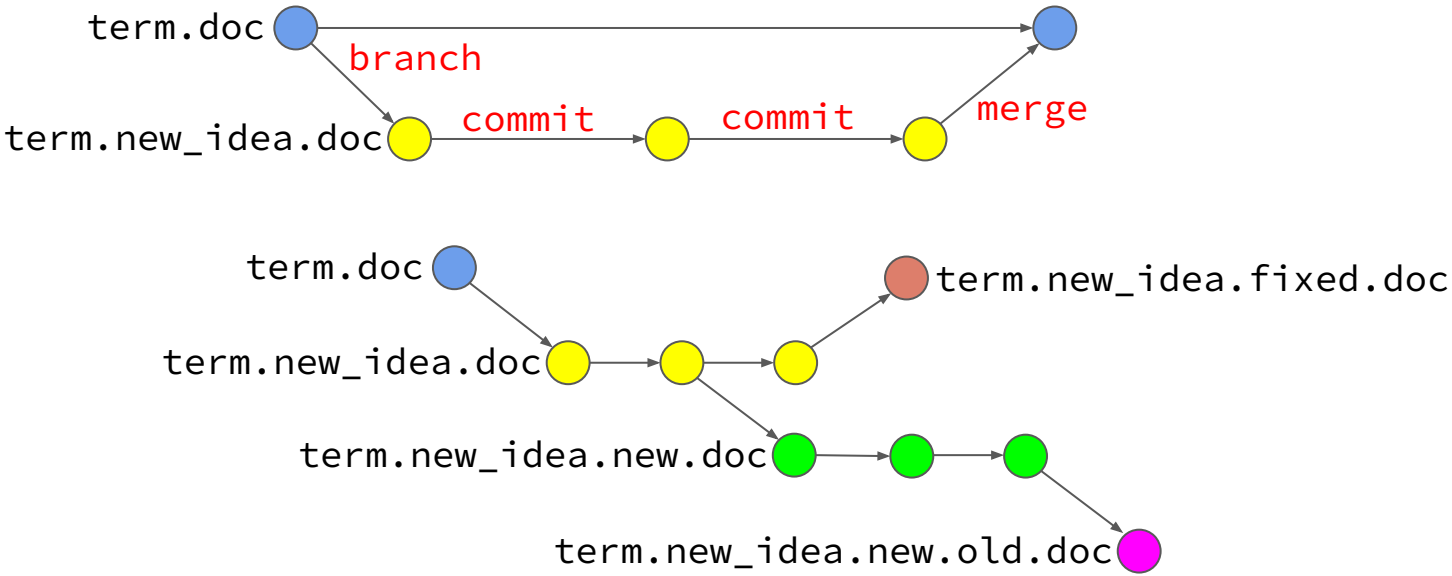

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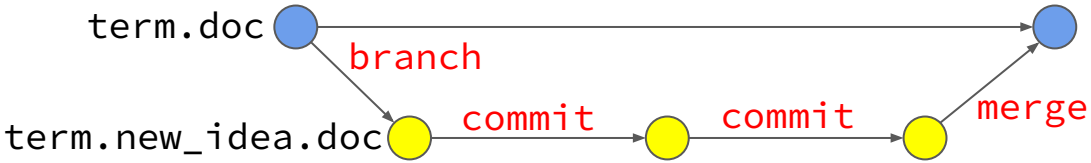
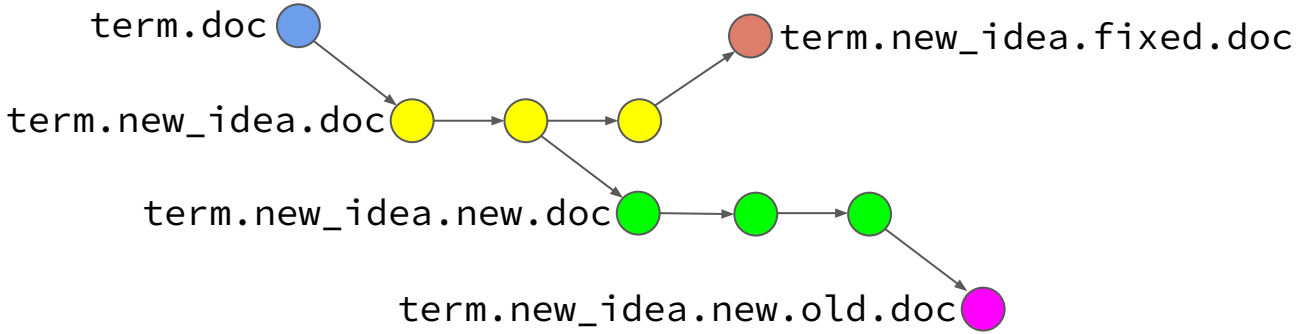
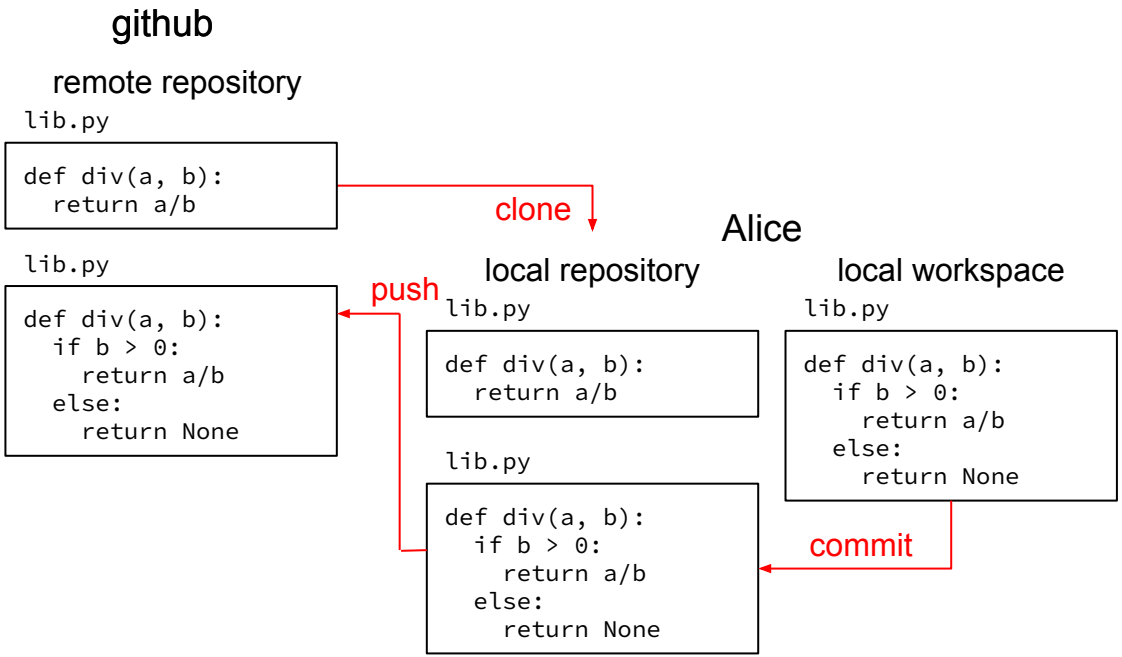




git branching/merging is cheap and fast

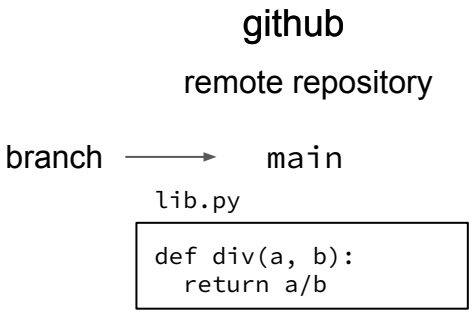

github
remote repository
lib.py
def div(a, b):
return a/b
clone
Alice
local repository
local workspace
lib.py
def div(a, b):
if b > 0:
return a/b
else:
return None
push
lib.py
def div(a, b):
return a/b
lib.py
def div(a, b):
if b > 0:
return a/b
else:
return None
lib.py
def div(a, b):
if b > 0:
return a/b
else:
return None
commit

github

remote repository

lib.py

```
def div(a, b):
  return a/b
```


github
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main
lib.py
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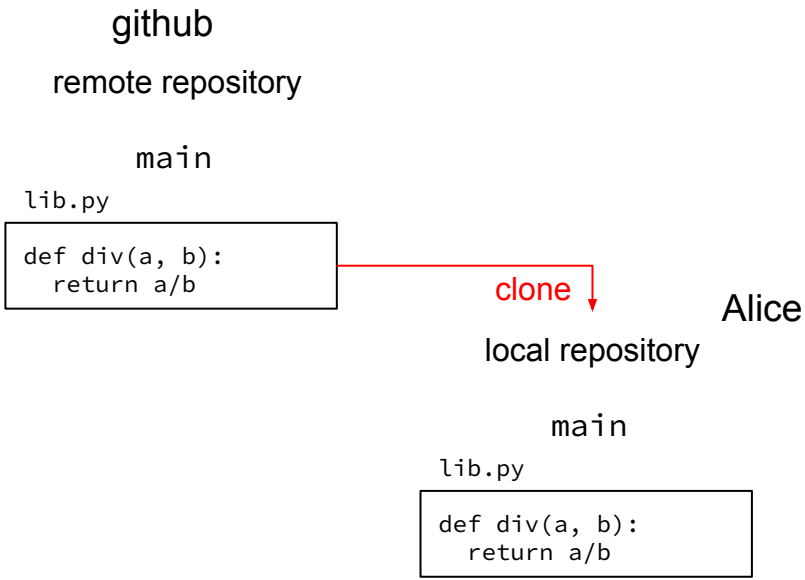
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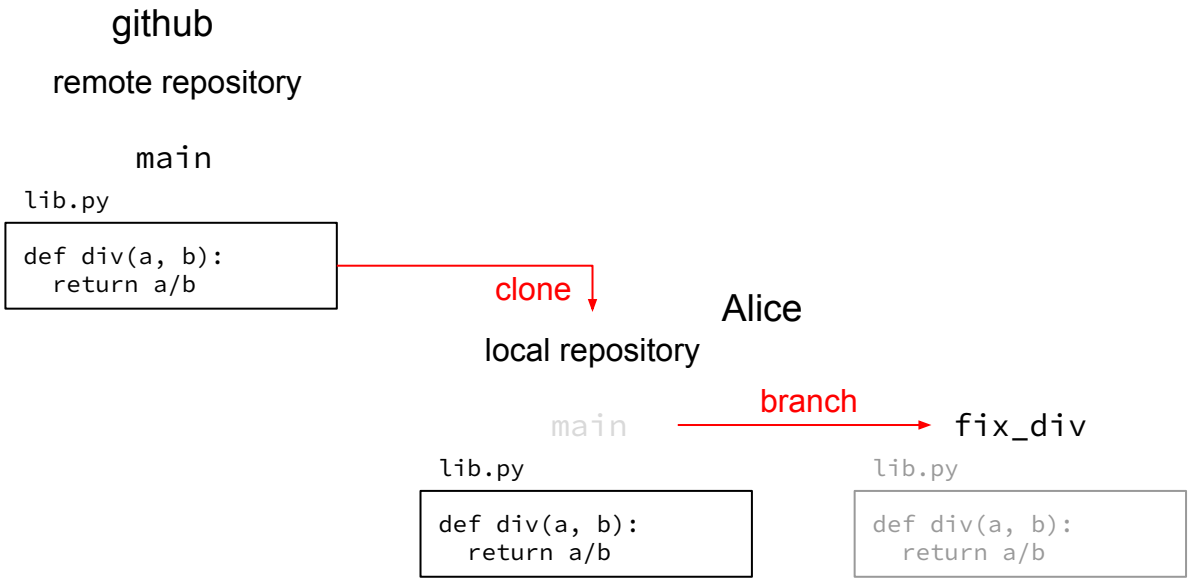
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Alice
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fix_div
lib.py
def div(a, b):
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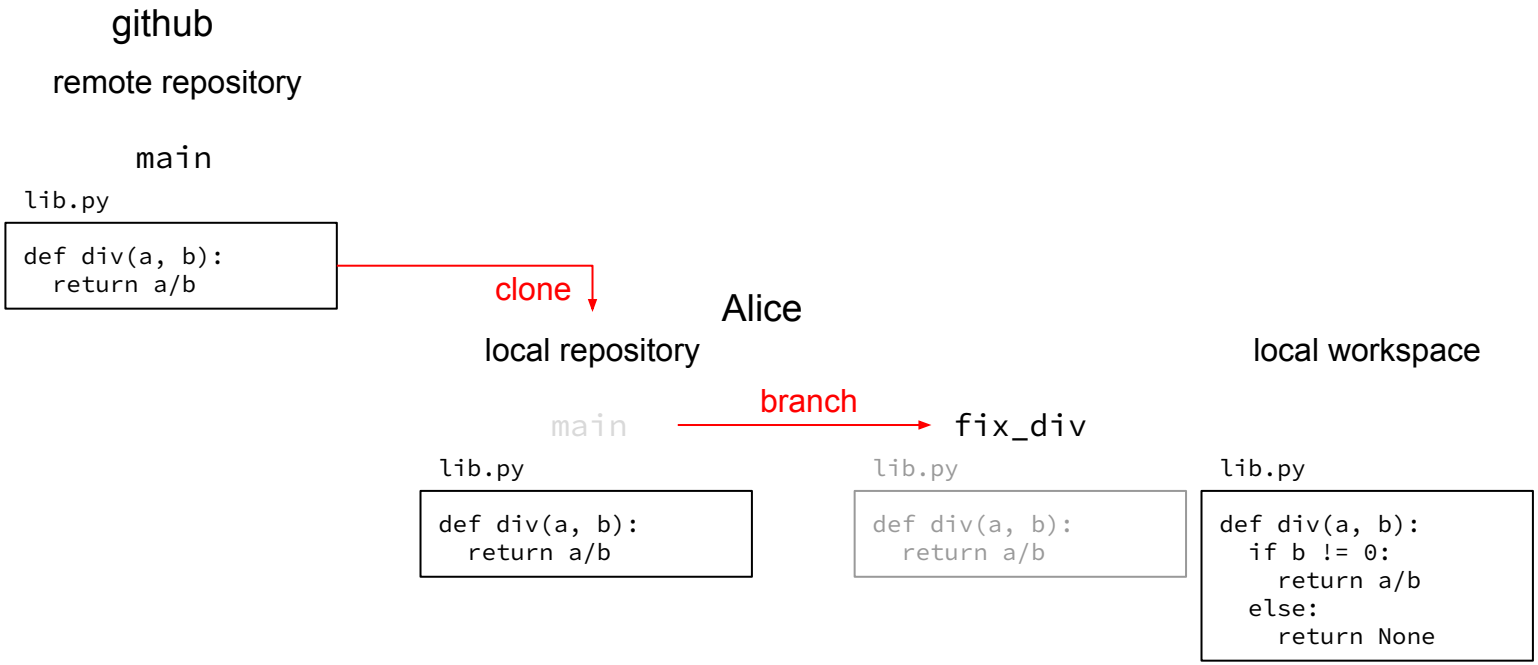
def div(a, b):
return a/b


github
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local workspace
branch
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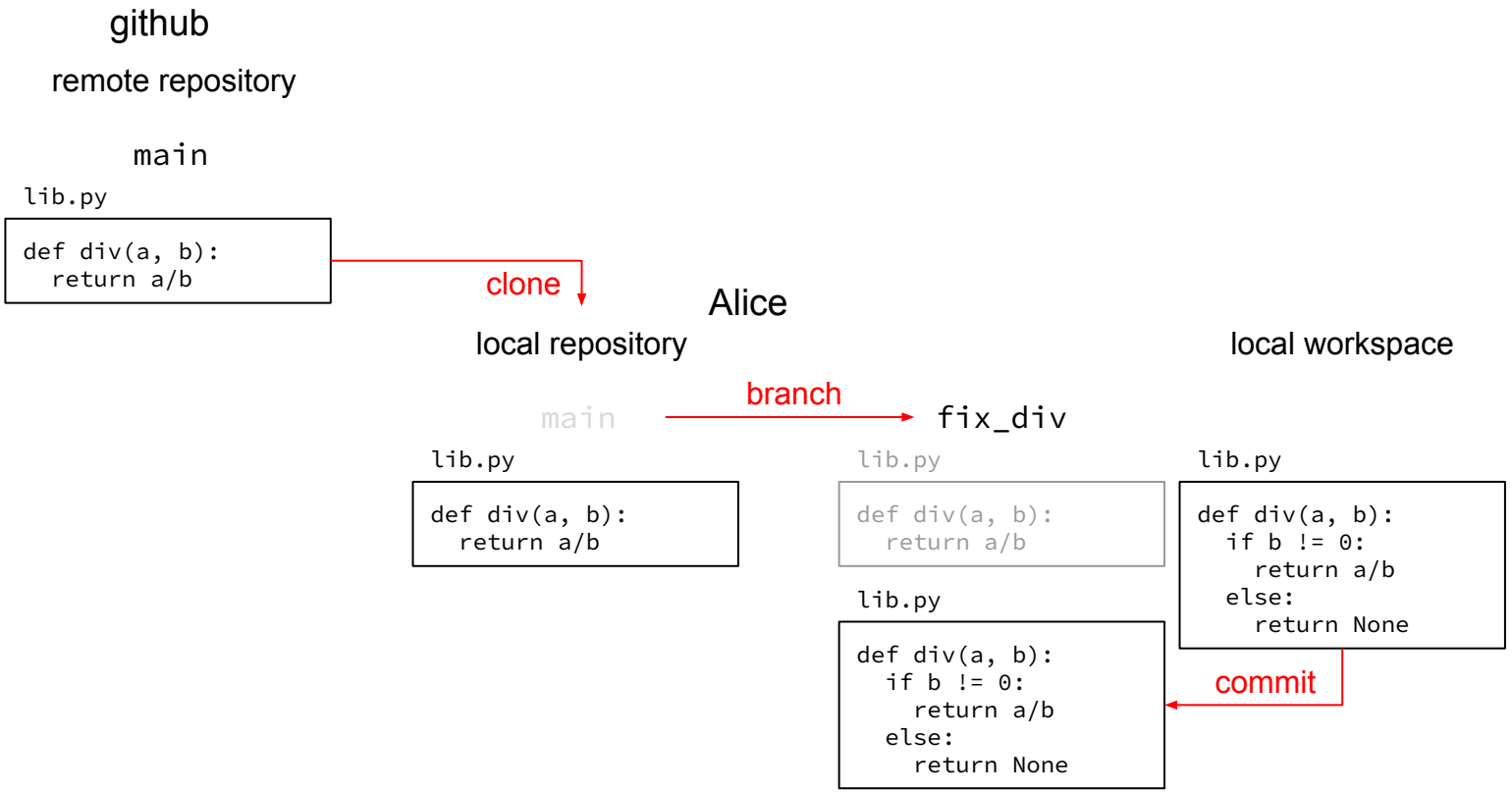
lib.py
def div(a, b):
return a/b
lib.py
def div(a, b):
return a/b
lib.py
def div(a, b):
if b != 0:
return a/b
else:
return None


github
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main
lib.py
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clone
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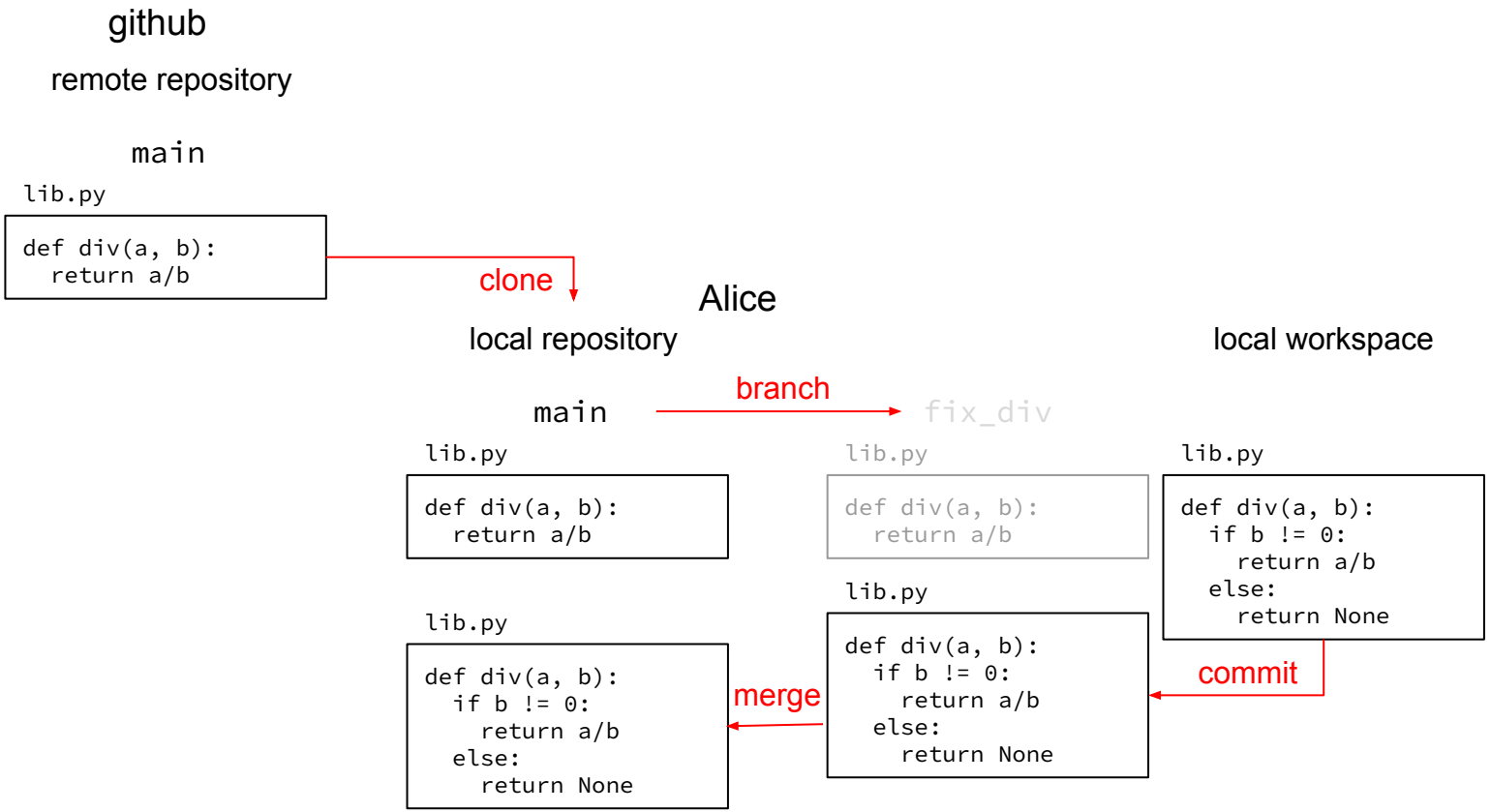
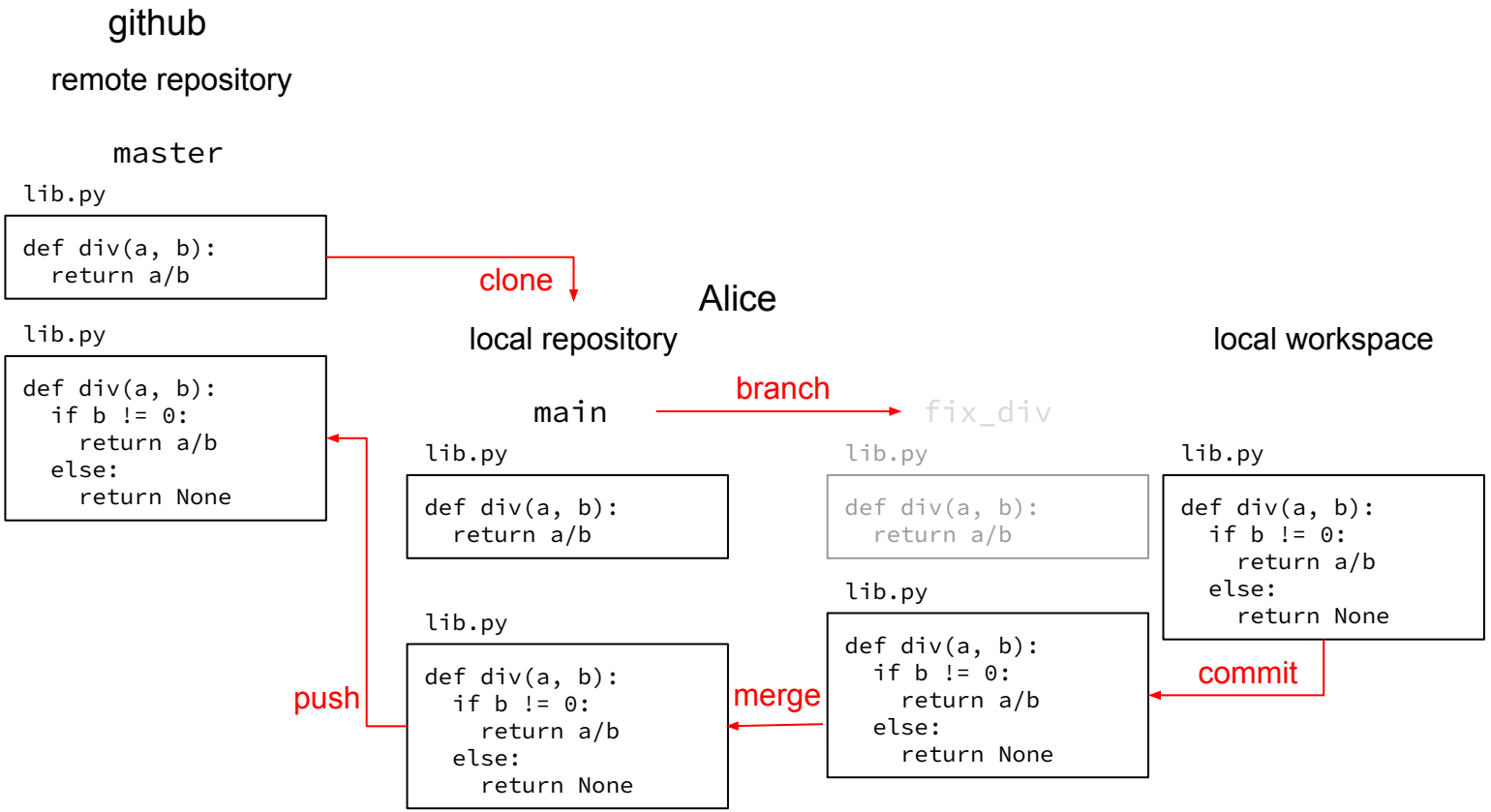
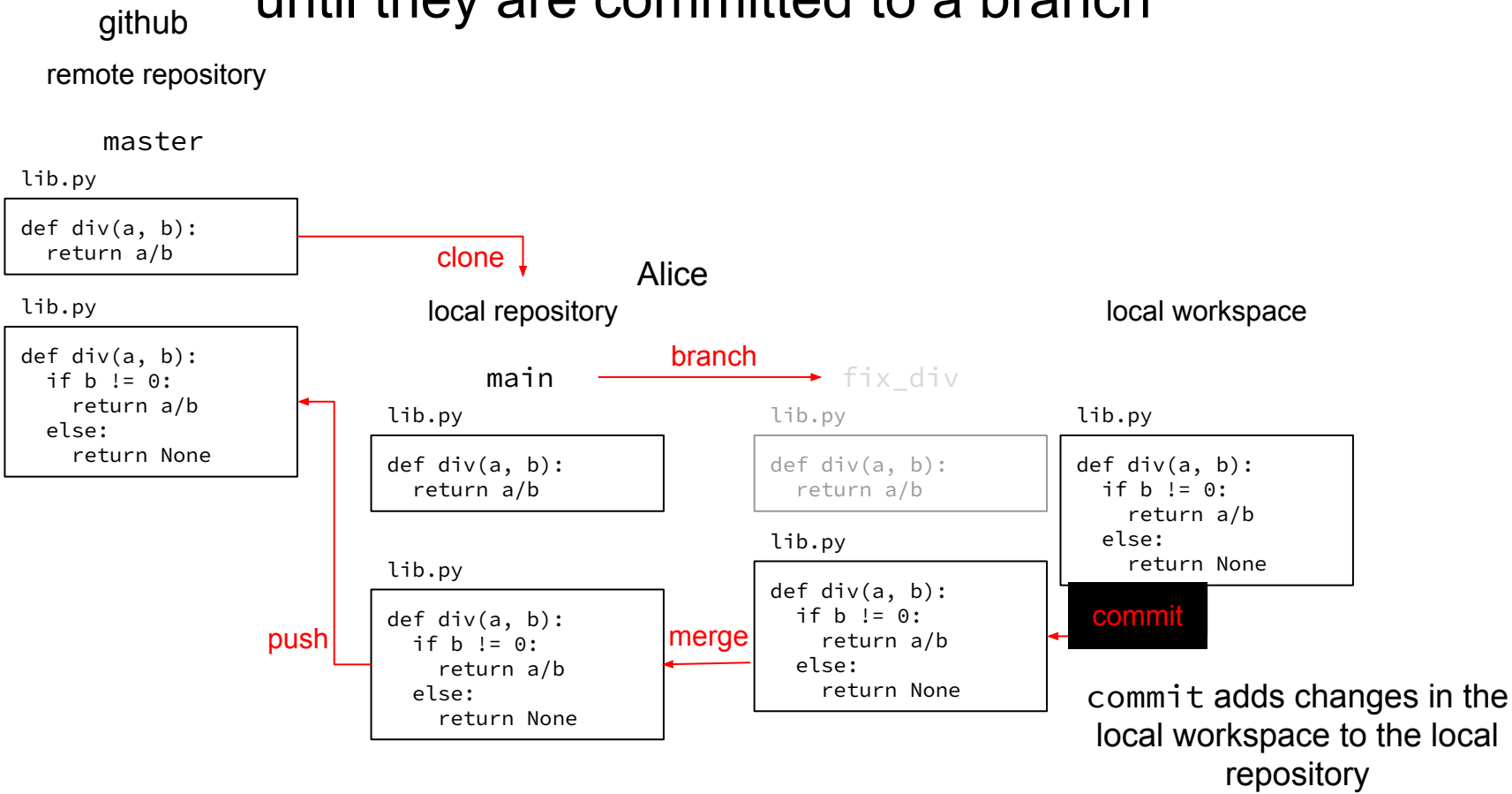
lib.py
def div(a, b):
if b != 0:
return a/b
else:
return None
commit


github
remote repository
main
lib.py
def div(a, b):
return a/b
clone
Alice
local repository
local workspace
main
branch
fix_div
lib.py
def div(a, b):
return a/b
lib.py
def div(a, b):
return a/b
lib.py
def div(a, b):
if b != 0:
return a/b
else:
return None
lib.py
def div(a, b):
if b != 0:
return a/b
else:
return None
merge
lib.py
def div(a, b):
if b != 0:
return a/b
else:
return None
commit


github
remote repository
master
lib.py
def div(a, b):
return a/b
clone
Alice
local repository
local workspace
lib.py
def div(a, b):
if b != 0:
return a/b
else:
return None
branch
main
fix_div
lib.py
def div(a, b):
return a/b
lib.py
def div(a, b):
return a/b
lib.py
def div(a, b):
if b != 0:
return a/b
else:
return None
commit
lib.py
def div(a, b):
if b != 0:
return a/b
else:
return None
merge
push
lib.py
def div(a, b):
if b != 0:
return a/b
else:
return None

Edits and new files will stay in your local workspace until they are committed to a branch



Alice

local repository

main

lib.py

```
def div(a, b):
  return a/b
```

local workspace

lib.py

```
def div(a, b):
  return a/b
```


Alice
local repository
local workspace
branch
main
fix_div
lib.py
def div(a, b):
return a/b
lib.py
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lib.py
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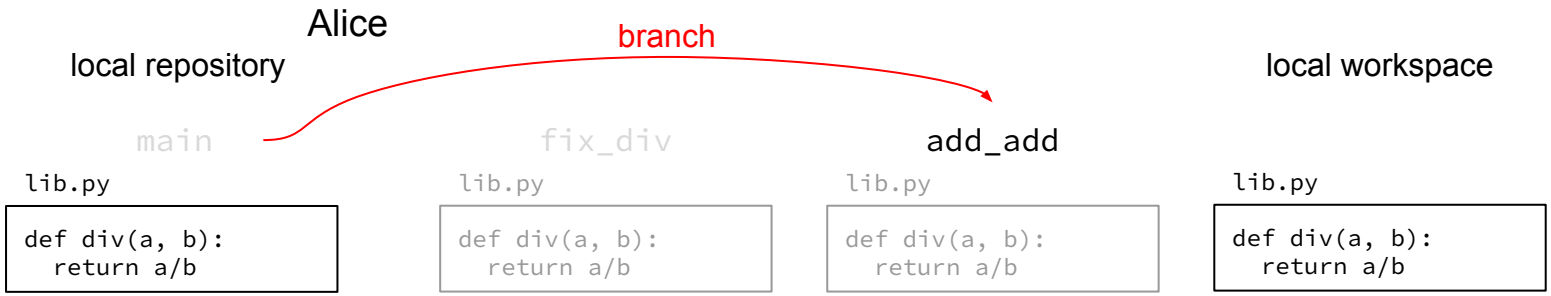

Alice
local repository
branch
local workspace
main
fix_div
add_add
lib.py
def div(a, b):
return a/b
lib.py
def div(a, b):
return a/b
lib.py
def div(a, b):
return a/b
lib.py
def div(a, b):
return a/b

Alice

local repository

main

lib.py

```
def div(a, b):
  return a/b
```

fix_div

lib.py

```
def div(a, b):
  return a/b
```

add_add

lib.py

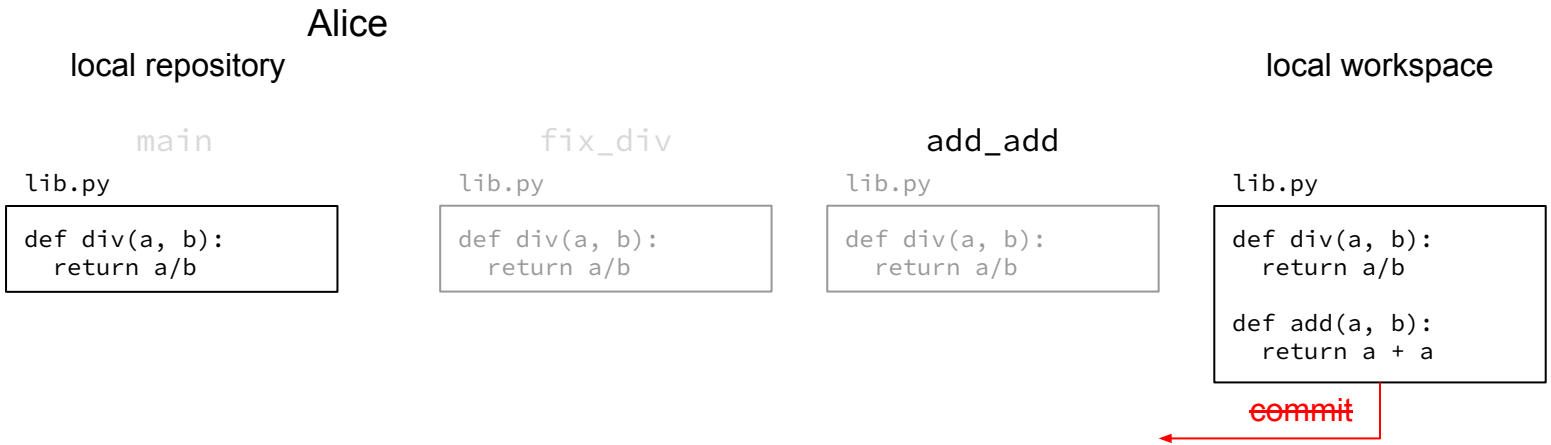
```
def div(a, b):
  return a/b
```

local workspace

lib.py

```
def div(a, b):
  return a/b

def add(a, b):
  return a + a
```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lib.py
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def div(a, b):
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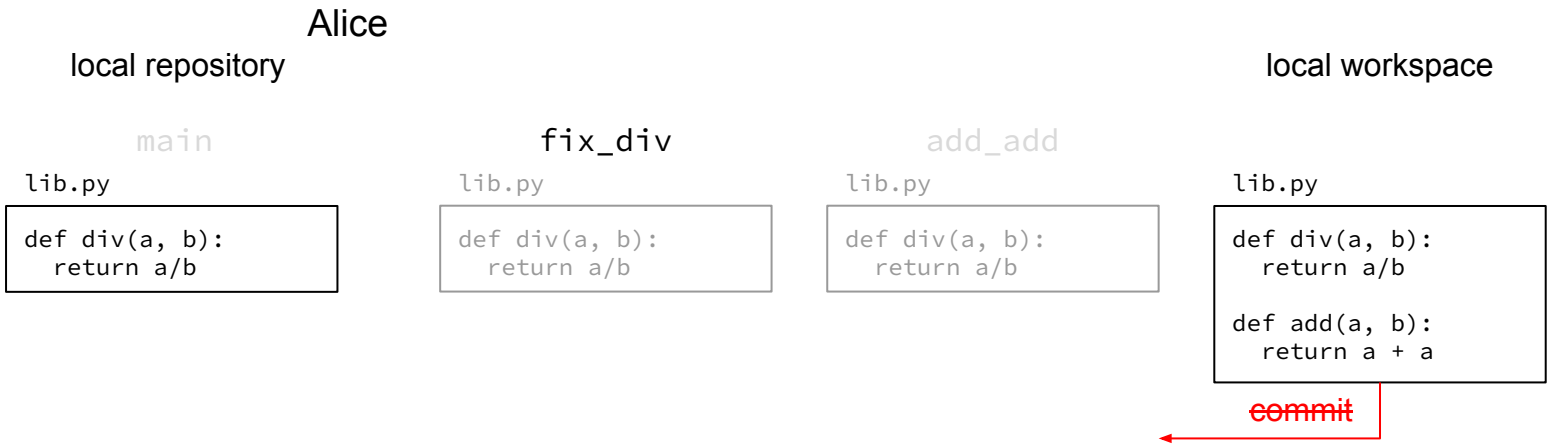
def add(a, b):
return a + a
commit


Alice
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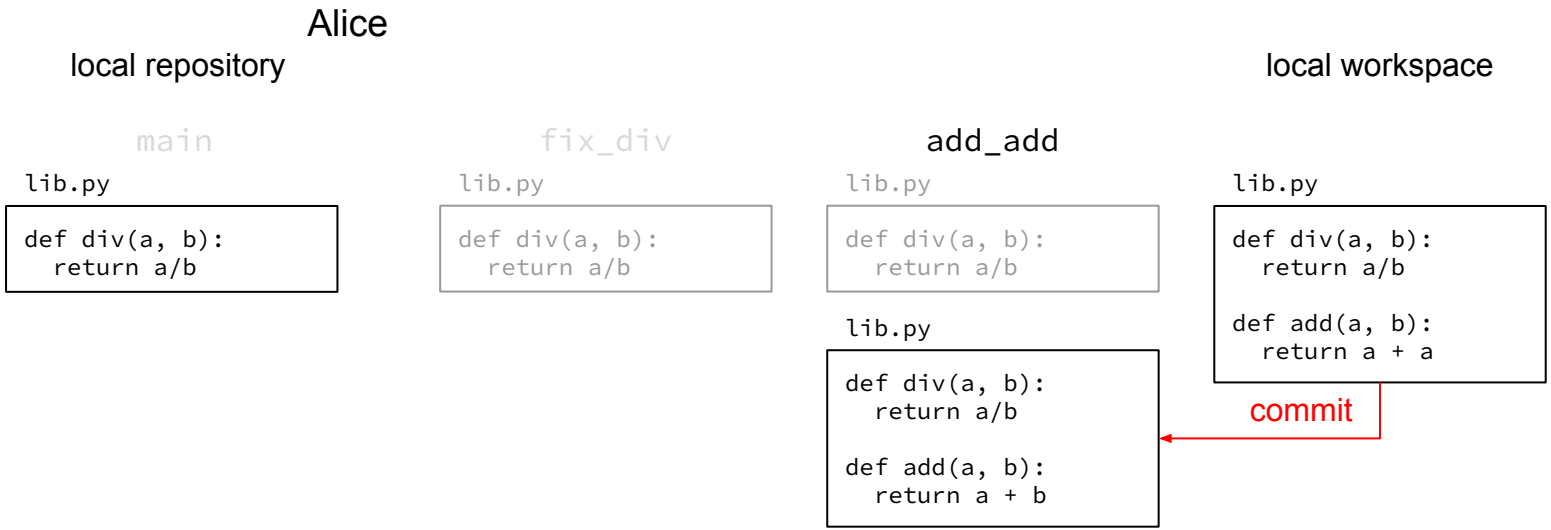
commit


Alice
local repository
local workspace
main
fix_div
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def div(a, b):
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lib.py
def div(a, b):
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def add(a, b):
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commit
lib.py
def div(a, b):
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def add(a, b):
return a + b

Alice

local repository

main

lib.py

```
def div(a, b):
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fix_div

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add_add

lib.py

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def div(a, b):
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lib.py

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```

local workspace

lib.py

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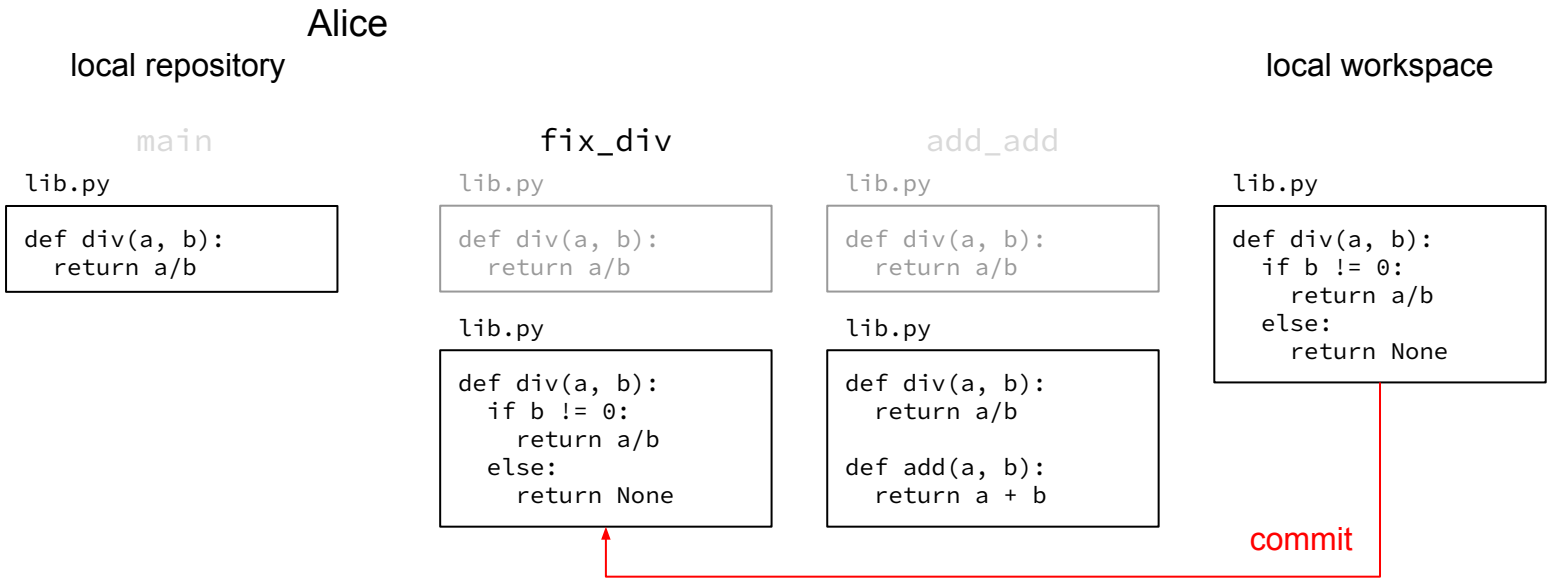
Alice
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local workspace
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lib.py
def div(a, b):
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lib.py
def div(a, b):
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lib.py
def div(a, b):
if b != 0:
return a/b
else:
return None
lib.py
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Alice

local repository

local workspace

main

lib.py

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fix_div

lib.py

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def div(a, b):
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lib.py

```
def div(a, b):
  if b != 0:
    return a/b
  else:
    return None
```

add_add

lib.py

```
def div(a, b):
  return a/b
```

lib.py

```
def div(a, b):
  return a/b

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  return a + b
```

lib.py

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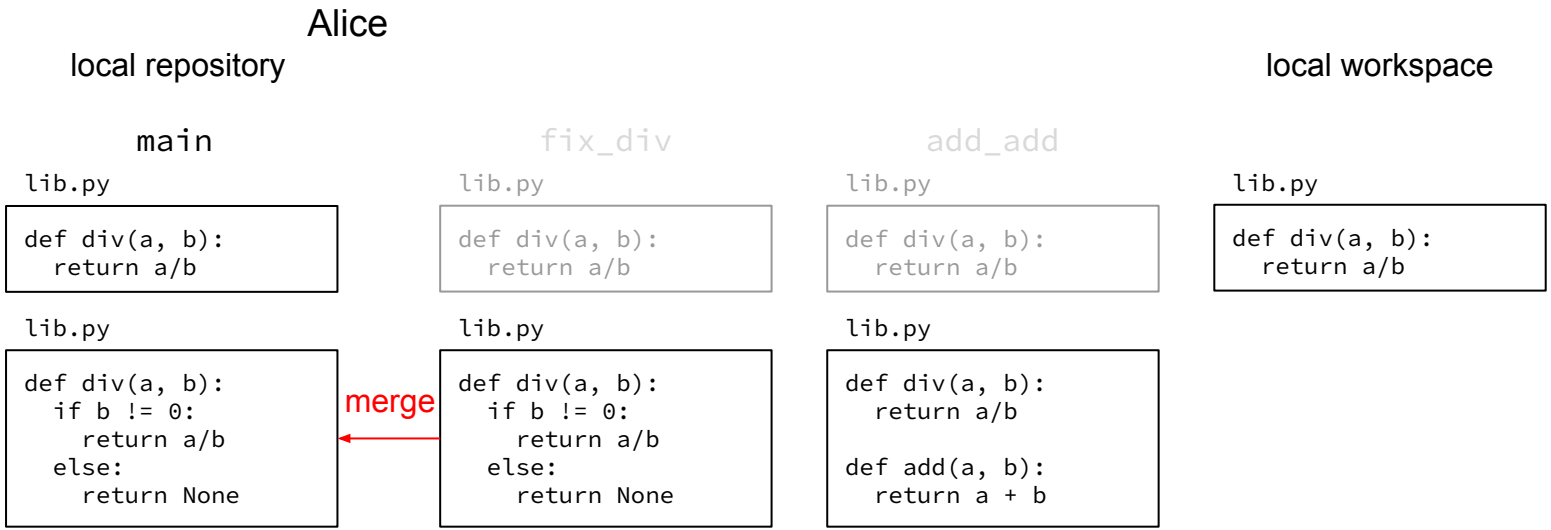
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lib.py
def div(a, b):
return a/b
lib.py
def div(a, b):
if b != 0:
return a/b
else:
return None
merge
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def div(a, b):
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lib.py
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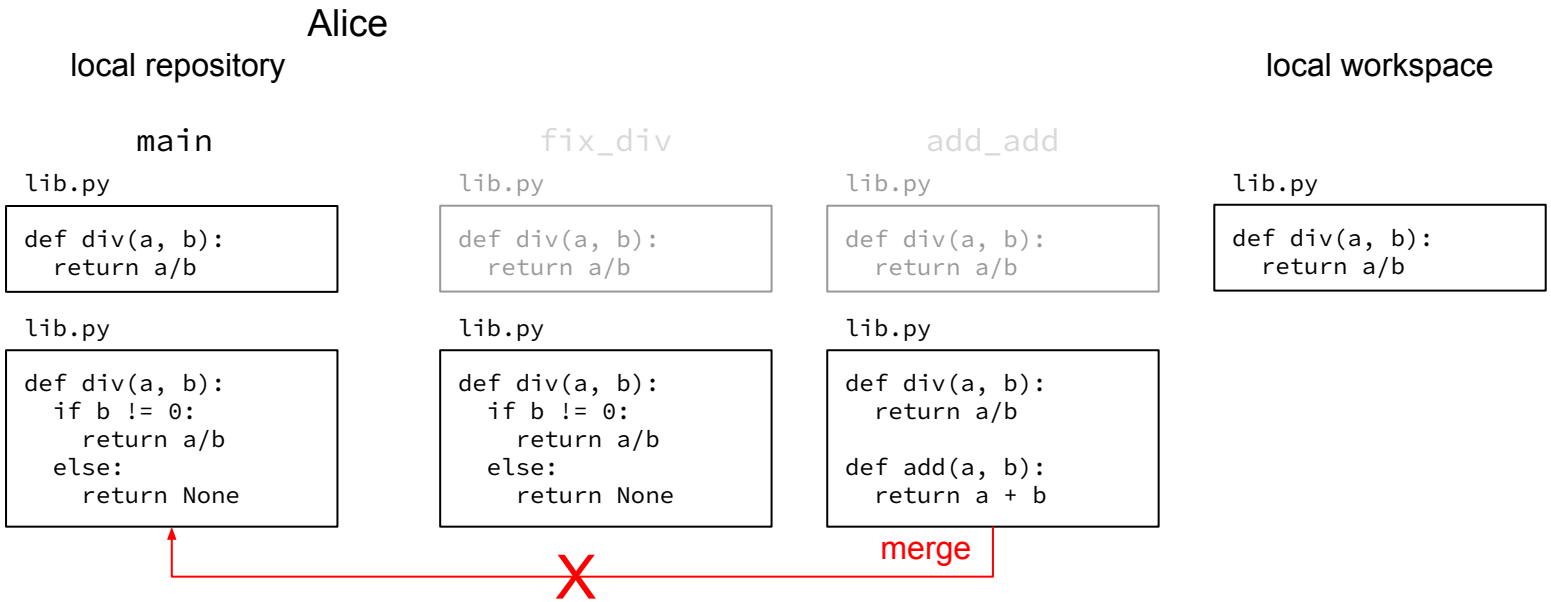
return a + b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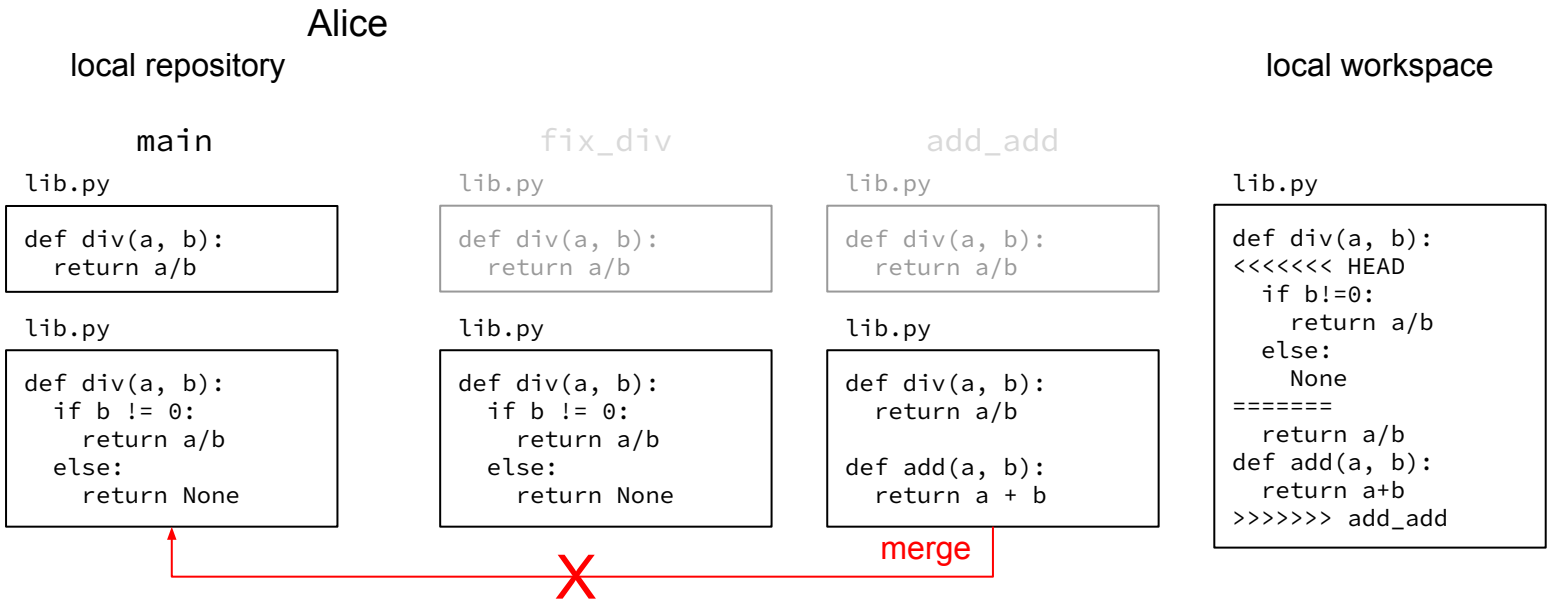
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def div(a, b):
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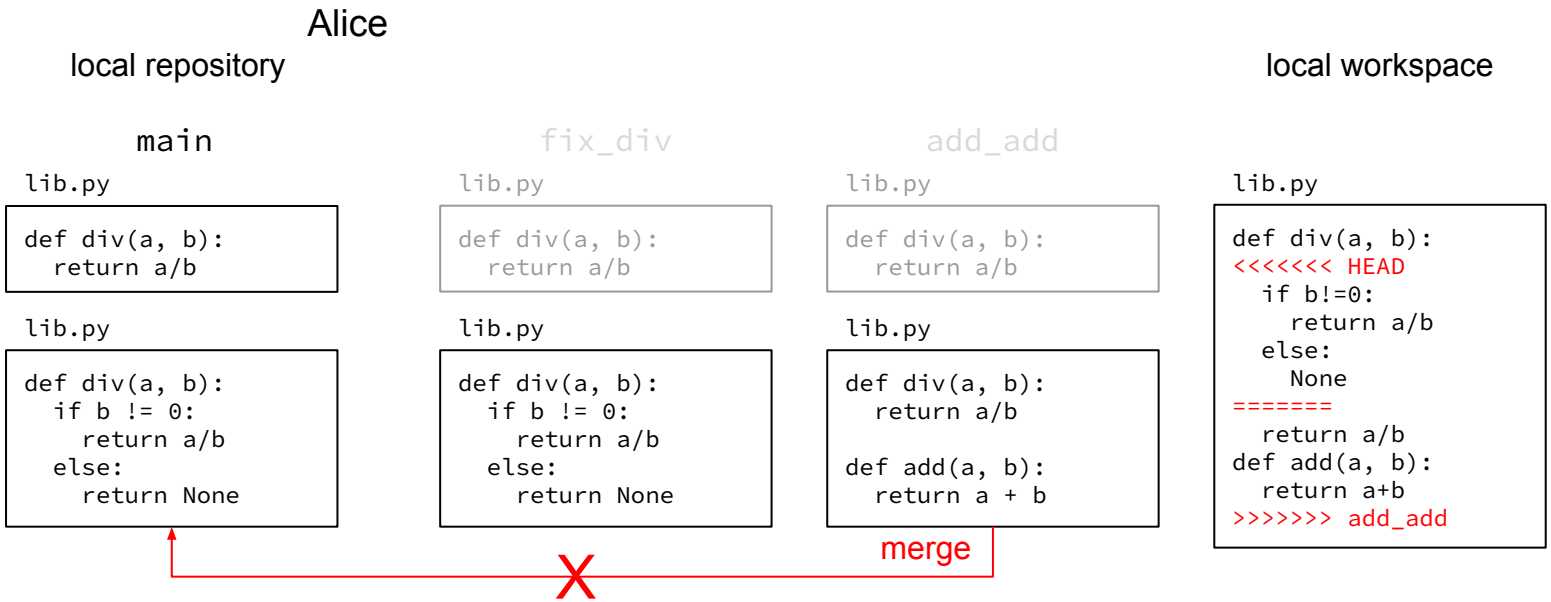
return a + b
merge
lib.py
def div(a, b):
<<<<<<< HEAD
if b!=0:
return a/b
else:
None
=======
return a/b
def add(a, b):
return a+b
>>>>>>> add_add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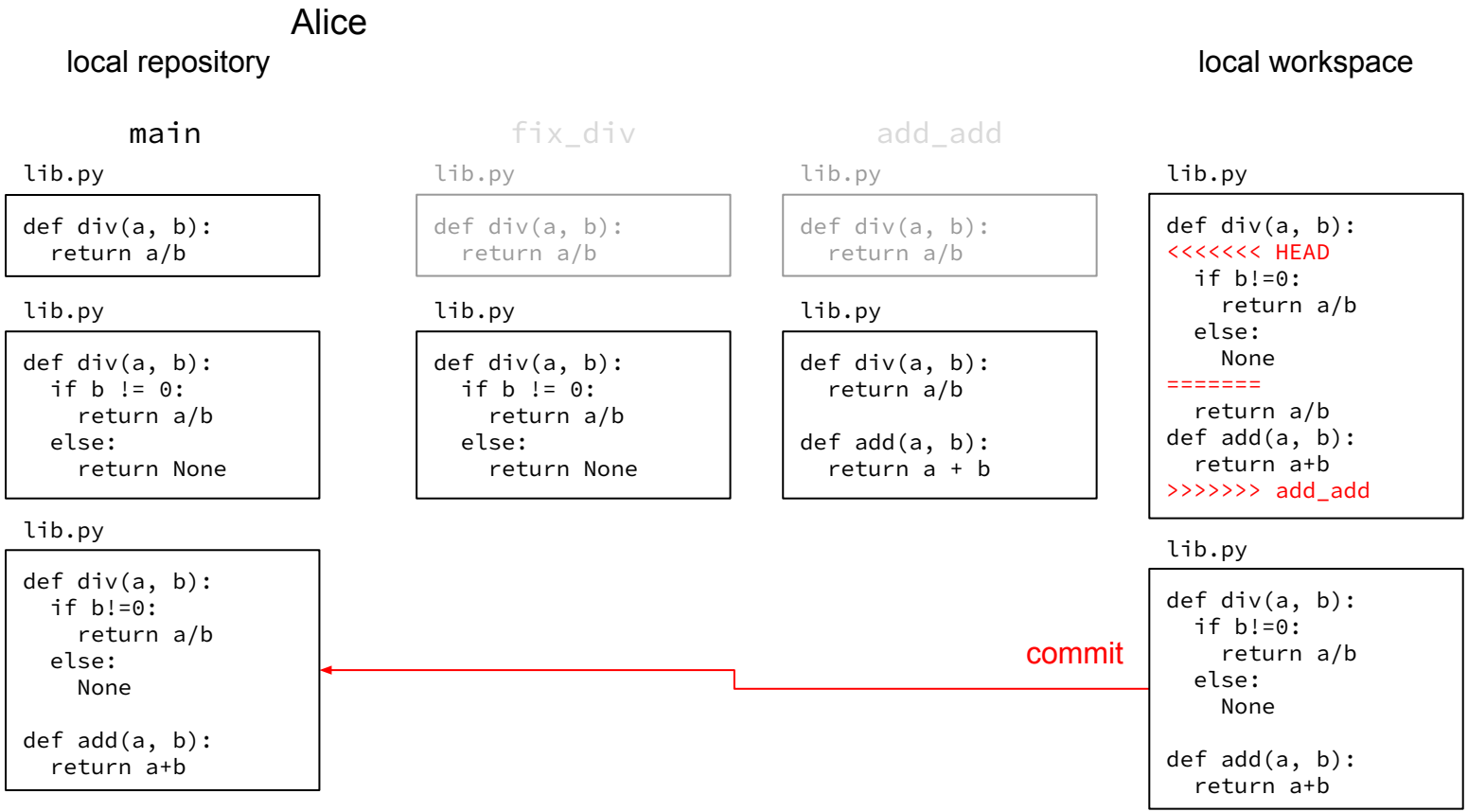
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return a+b
>>>>>>> add_add
lib.py
def div(a, b):
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else:
None
def add(a, b):
return a+b
commit