GIT
WORKSHOP

BACK TO THE FUTURE

JUL 07 - 2020

PREREQUIRES

YOU HAVE GIT ON YOU MACHINE

YOU HAVE GITLENS VSCODE EXTENSION

YOU HAVE A GIT ACCOUNT

GIT WORKSHOP

JUL 07 - 2020

WORK ON **MY OWN** COMPUTER WITH GIT

- TO **COMPARE** TO HISTORY
  - INIT
  - CLONE
  - ADD
  - COMMIT
  - PUSH
  - DIFF
  - CHECKOUT
- TO **REVERT** CHANGES
  - RESET

WORK WITH **OTHER PEOPLE** WITH GITHUB

- IN 1 **BRANCH** WITH NO CONFLICT
  - PULL
- IN 1 BRANCH WITH **CONFLICTS**
- IN **MANY BRANCHES**
  - BRANCH
  - MERGE

RELEASE APPLICATIONS

- TAG

YOU LISTEN AND UNDERSTAND

YOU DO IT

#1 to #19

INDIVIDUAL WORK

WHAT GIT IS USED FOR ?

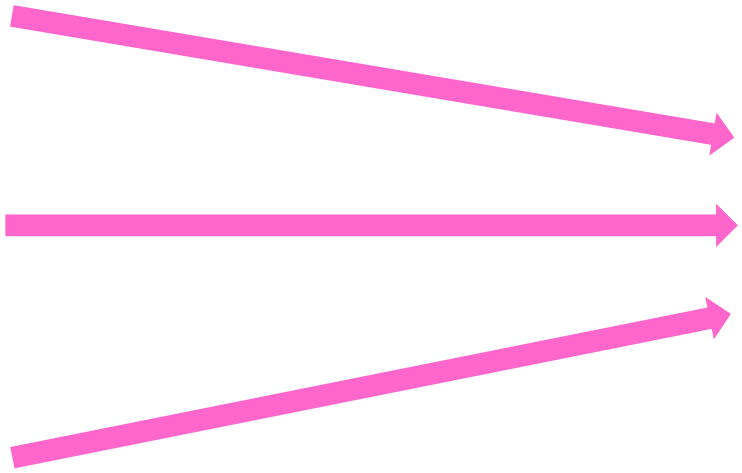
MY COMPUTER

GIT REPOSITORY

REASON #1

BE ABLE TO SEE **MY HISTORY OF CHANGES**
AND MAYBE **UNDO** SOME OF THEM

WHAT GIT IS USED FOR ?

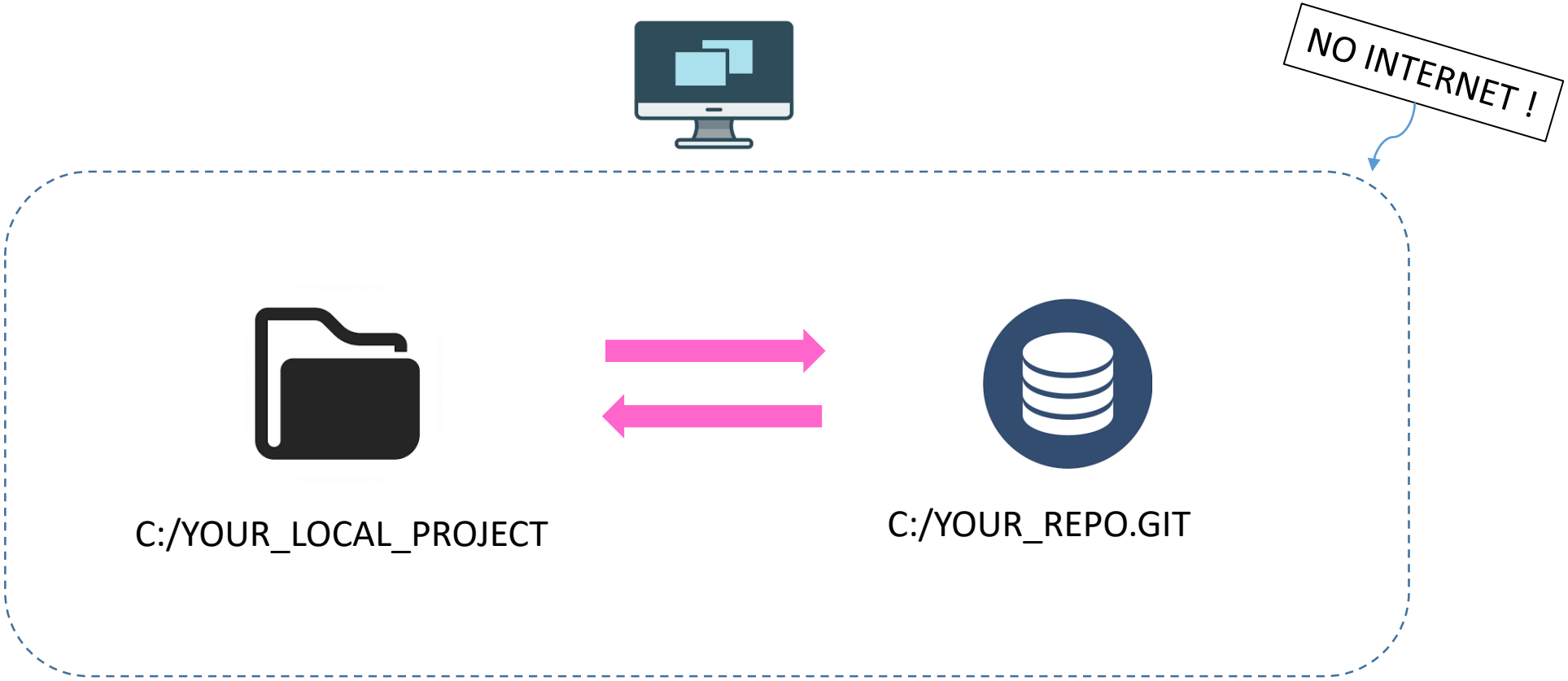


GIT REPOSITORY

REASON #2

BE ABLE TO WORK TOGETHER
ON A SAME PROJECT

WHAT IF IS GIT WHAT JUST ON YOUR COMPUTER !!!!



#1 Initialize a GIT repository

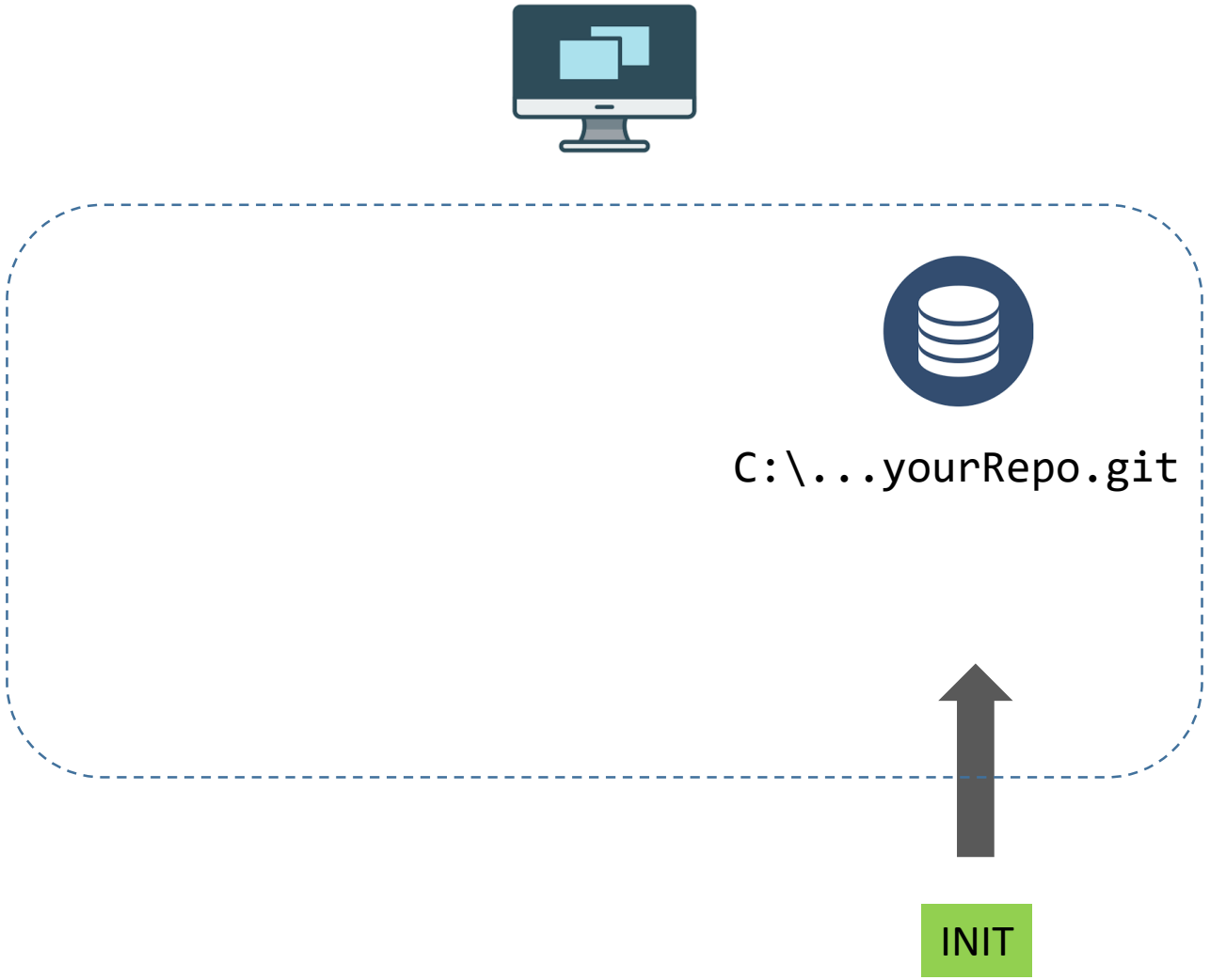
1 – Create a folder to store the repo GIT

```
C:\myGitServer\
```

2 – Run init command from this folder:

```
git init yourGitRepo.git --bare
```

Check you GIT repository has been created



#2 Clone this repo to a folder

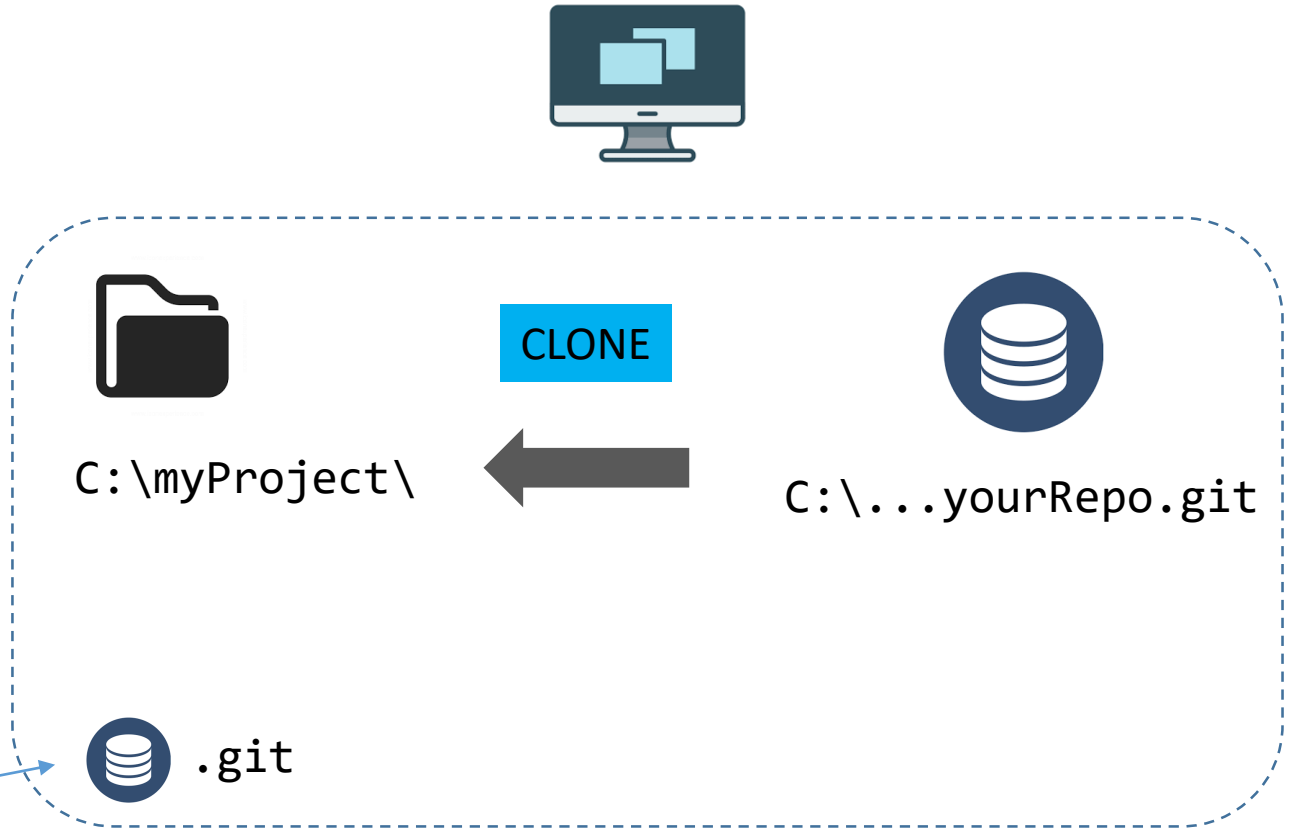
1 – Create a folder to start working

```
C:\myProject
```

2 – Clone the repository

```
git clone c:/..yourGitRepo.git
```

⚠ Direct slashes



✓ Check an folder is created with a .git folder

#3 Just add a new file

1- Open this folder on VS Code

2- Check status

```
git status
```

Check status : nothing changed

3- Create a new file: index.html

```
<!DOCTYPE html>
<html lang="en">
  <body>
    <h1>My first commit</h1>
  </body>
</html>
```

4- Check status

```
git status
```

Check status : 1 new file to add

C:\myProject\

C:\...yourRepo.git

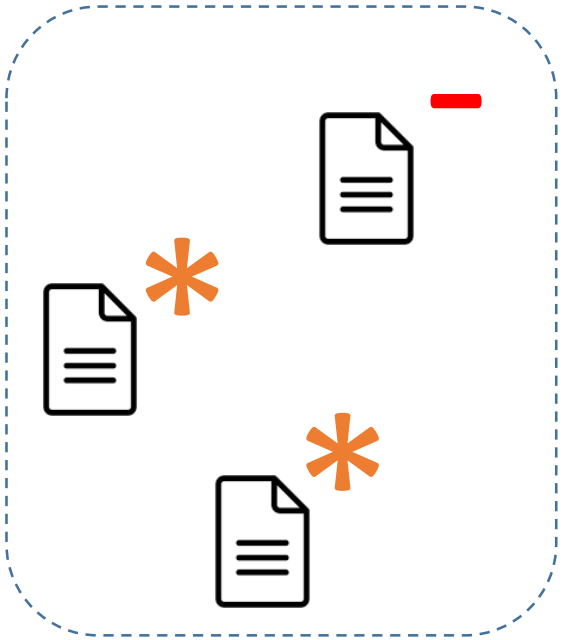
+ index.html

.git

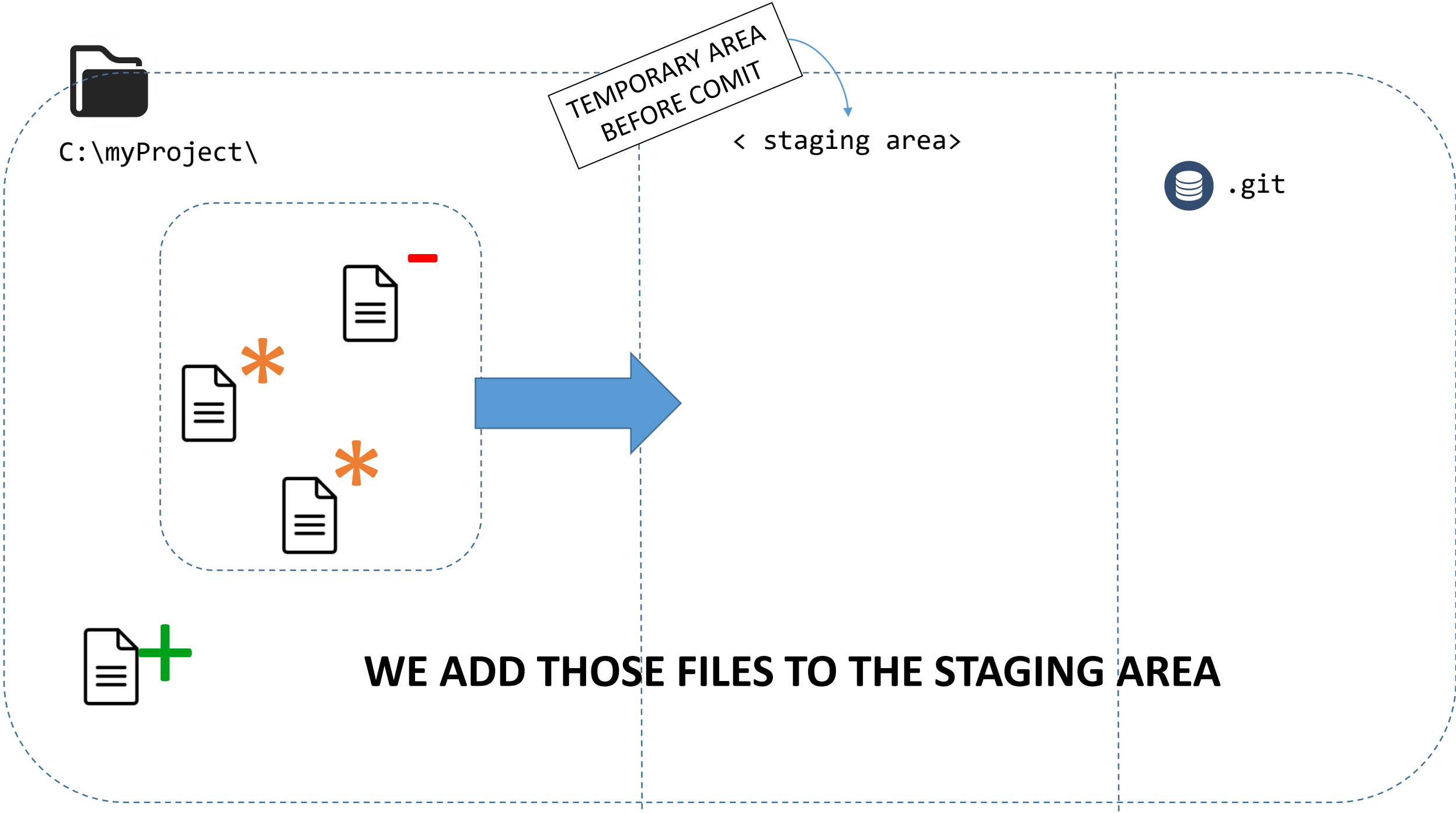
C:\myProject\

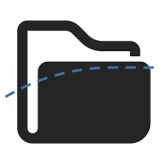
< staging area>

.git



WE WANT TO COMMIT ONLY THOSE FILES


C:\myProject\
TEMPORARY AREA
BEFORE COMIT
< staging area>
.git
WE ADD THOSE FILES TO THE STAGING AREA

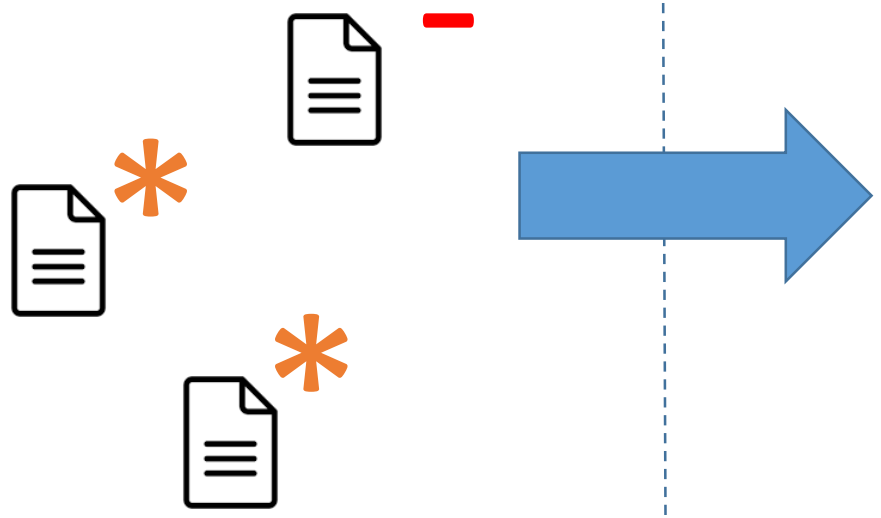


C:\myProject\

TEMPORARY AREA
BEFORE COMIT

< staging area>

.git



WE COMMIT, WITH A COMMENT…

#4 Add this file to the stage and commit

1- Add file to stage

```
git add *
```

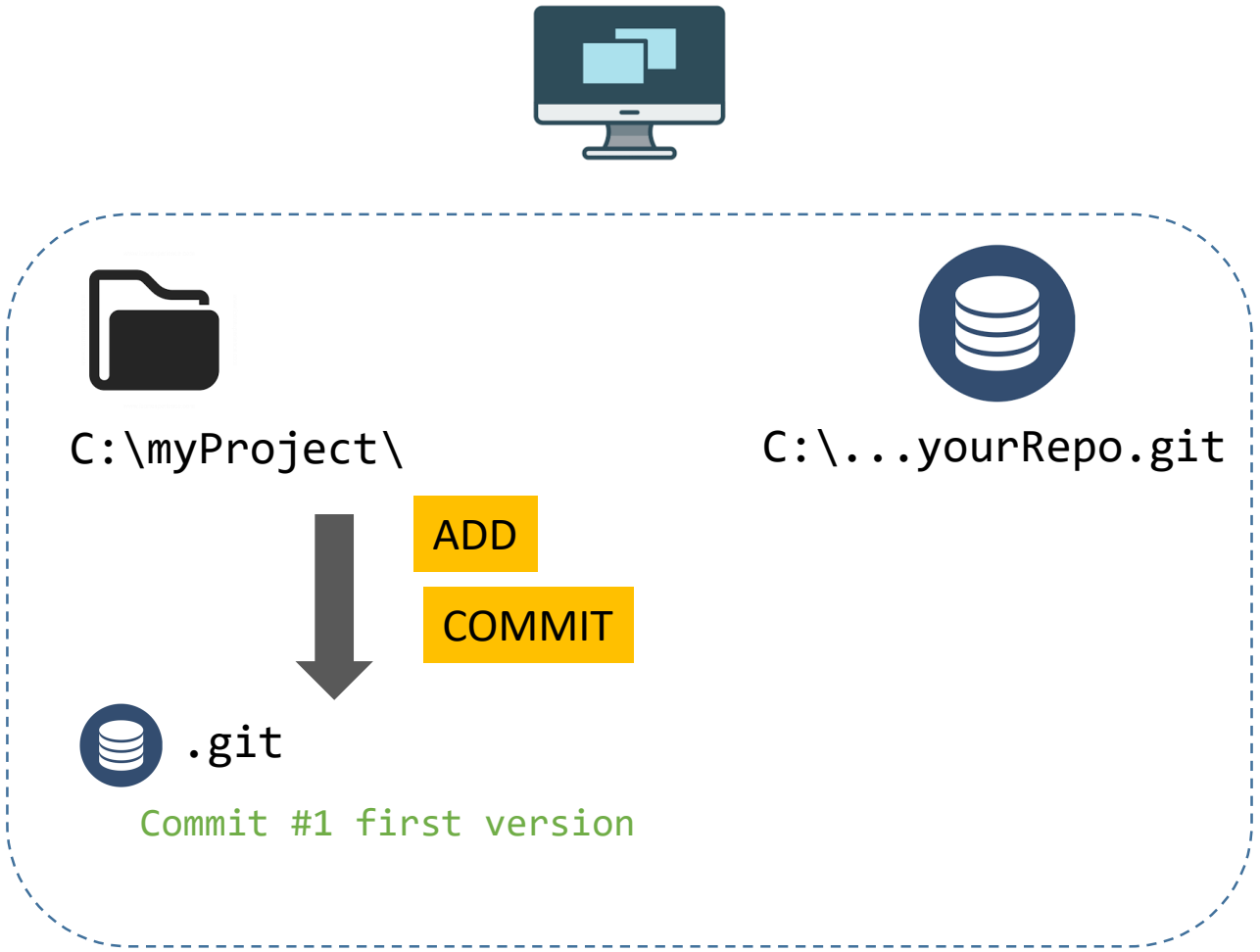
Check status : 1 change to be committed

2- Commit change

```
git commit –m “first version”
```

Check status : nothing to change

Check what is the id you your commit?



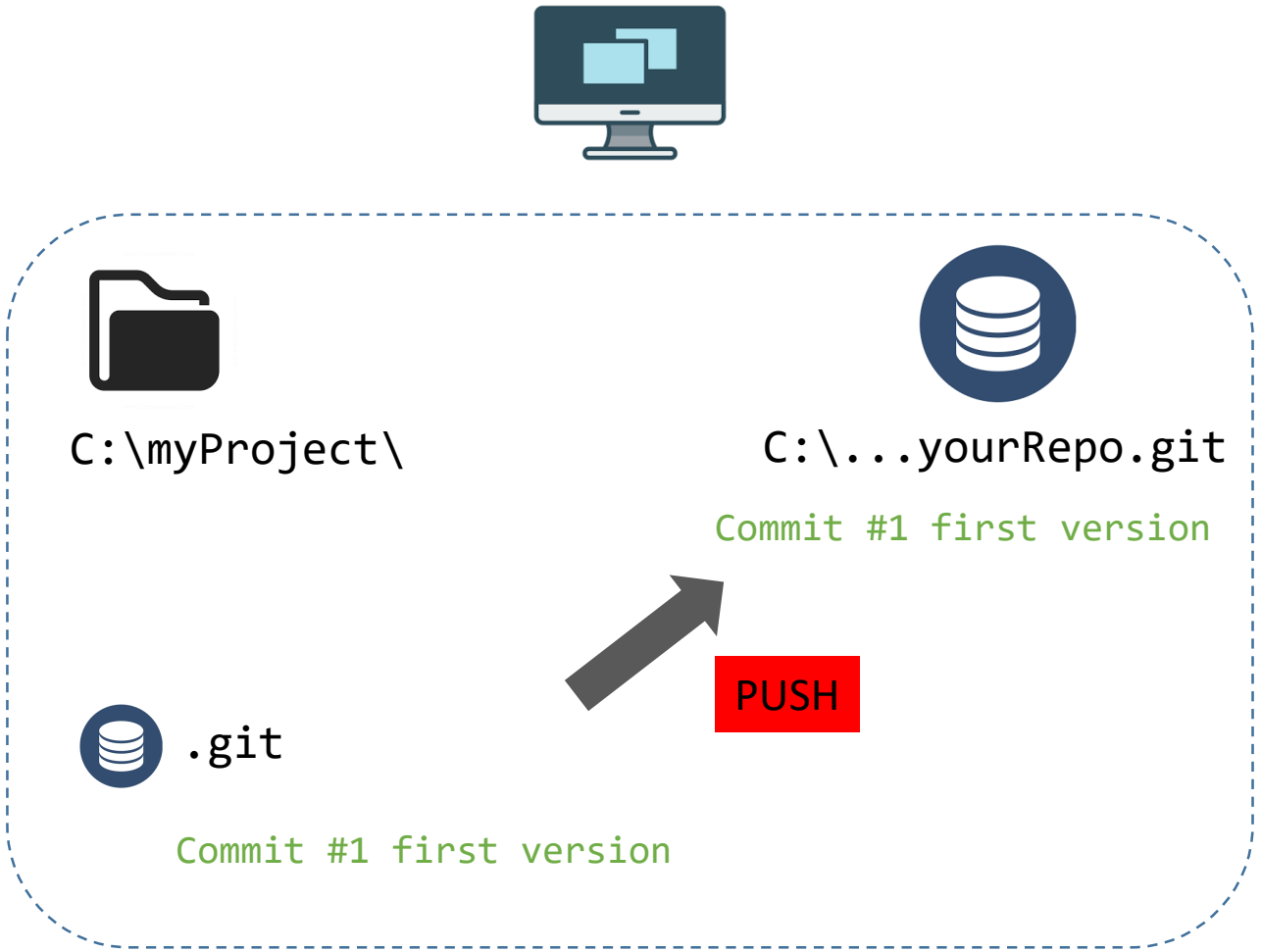
DO IT !

#5 Push to your remote repo…

1- Push

```
git push
```

Check the remote origin in VS Code Contains your commit



#6 Let’s add 2 changes…

1- Create style.css

```
.title {
  background-color: blue;
}
```

2- Update index.html

```
<!DOCTYPE html>
<html lang="en">
 <head>
  <link rel="stylesheet" href="style.css" />
 </head>
 <body>
  <h1 class="title">My app is yellow !</h1>
  </body>
</html>
```

3- Check status

Check status : 2 changes

C:\myProject\

```
+ style.css
* index.html
```

C:\...yourRepo.git

```
Commit #1 first version
```

.git

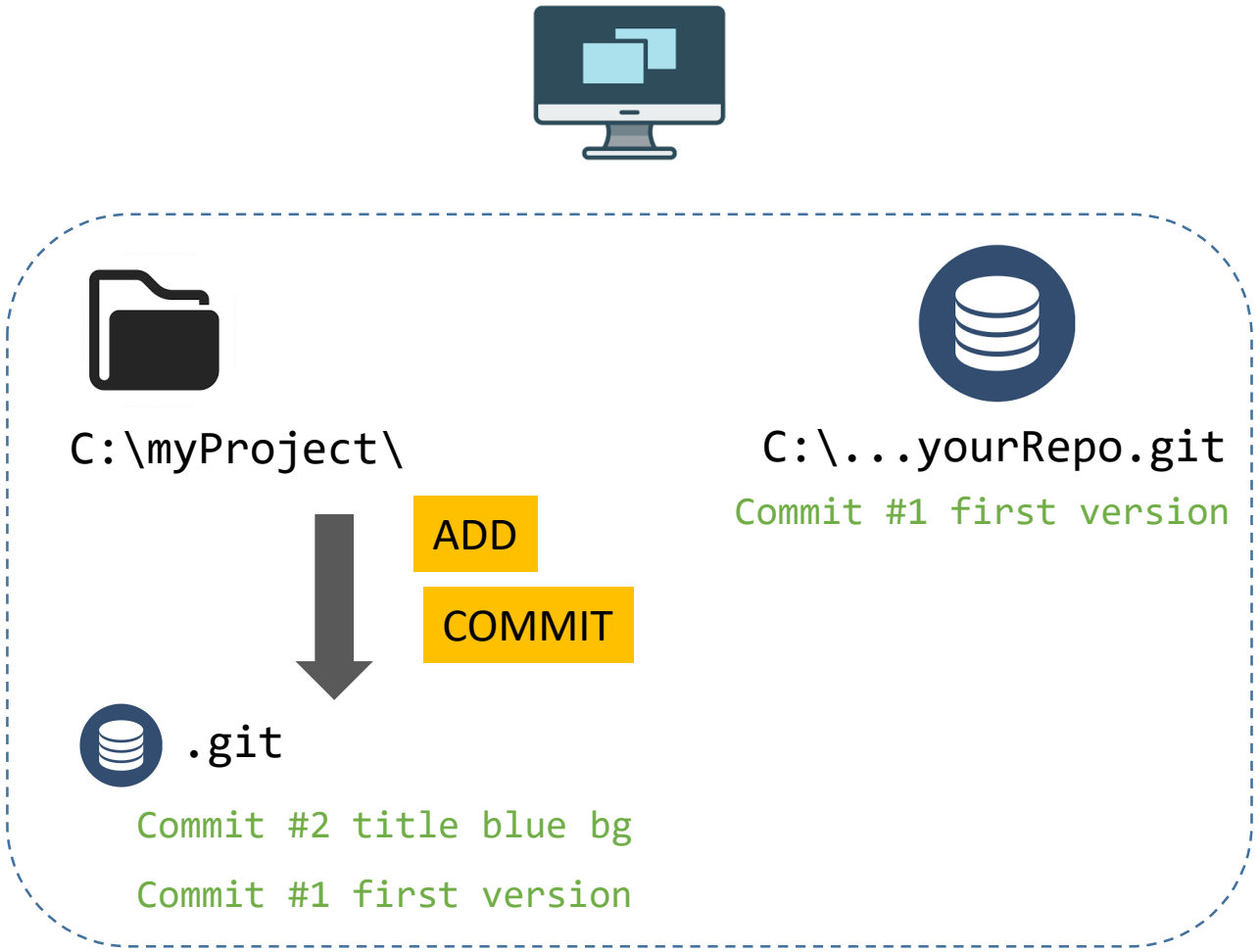
```
Commit #1 first version
```

#7 Let’s commit 2 changes…

1- Add and commit

```
git add *
git commit –m “title blue bg”
```

- Check status : nothing to change
- Check what is the id you your commit?

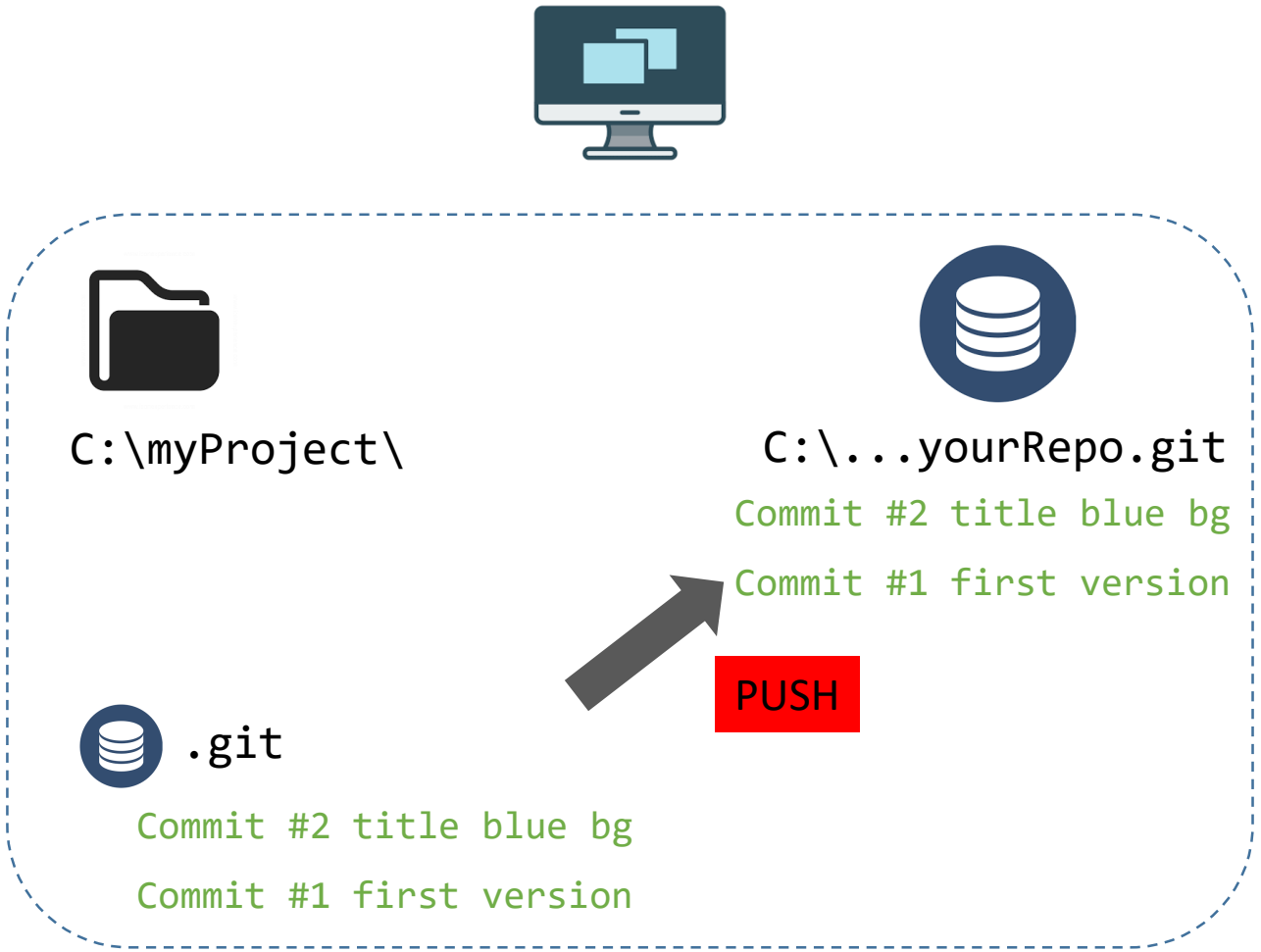


#8 Let’s push 2 changes…

1- Push

```
git push
```

Check the remote origin in VS Code Contains your commit



#9 Use VS Code (+GitLens) efficiently

1- Commit + Push 3 times a change on the <H1>

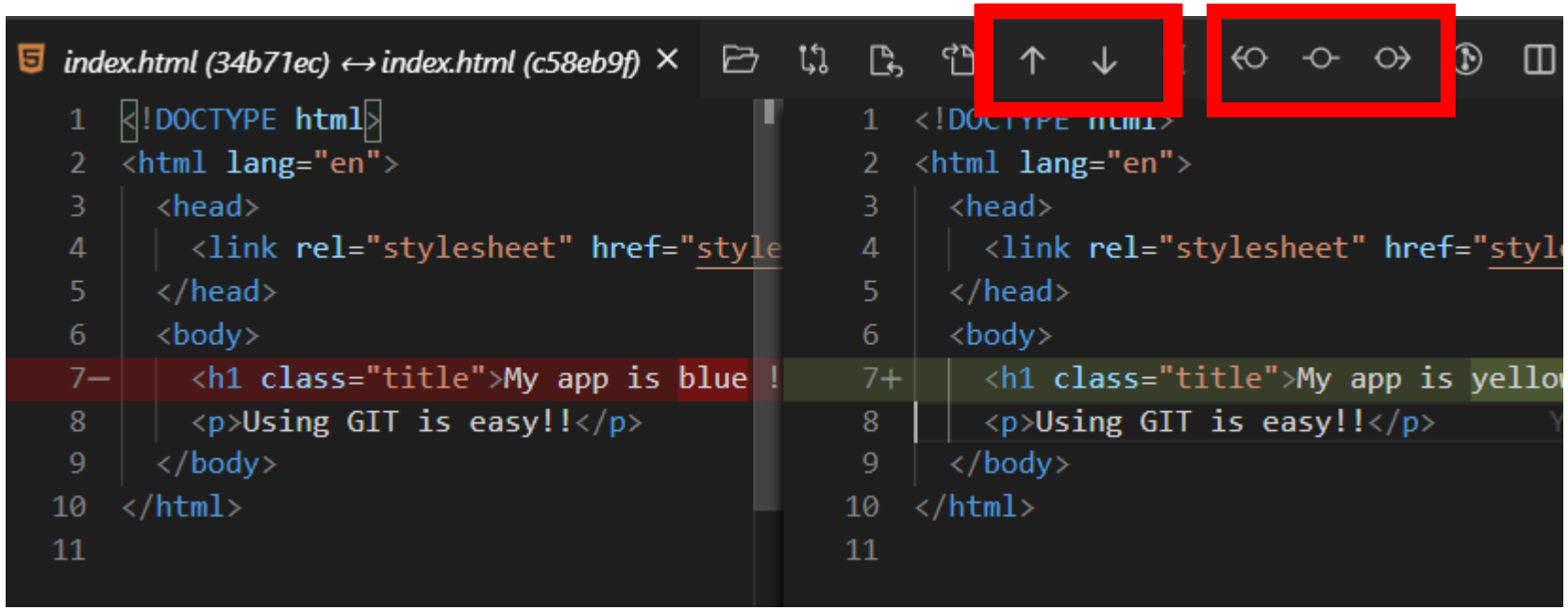
1. My app is blue
2. My app is green
3. My app is yellow

2- Open the index.html in VSCode

Check you can set all commit changes on this file by using the history arrows

Go to next/previous change in this file

Go to next/previous Commit in this file



DO IT !

#10 Let’s remove and restore

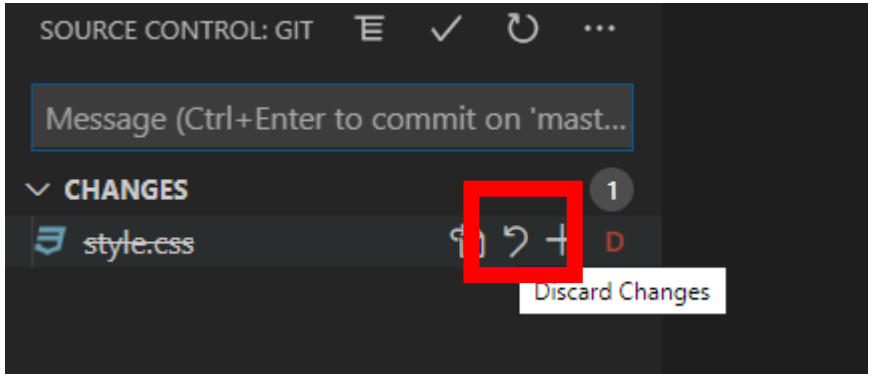
1- Remove style.css

2- Restore this file using command line

```
git reset --hard
```

✅ **Check file is restored**

3- Remove again and restore this file using VS CODE



✅ **Check file is restored**

#11 Let's update and restore

1- Update style.css

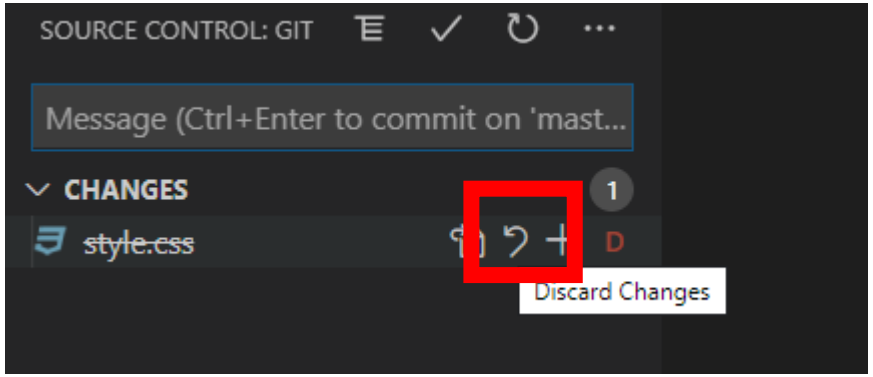
```
.title {
  qsdsqdsqdsq
}
```

2- Restore this file using command line

```
git reset --hard
```

✅ **Check file is restored**

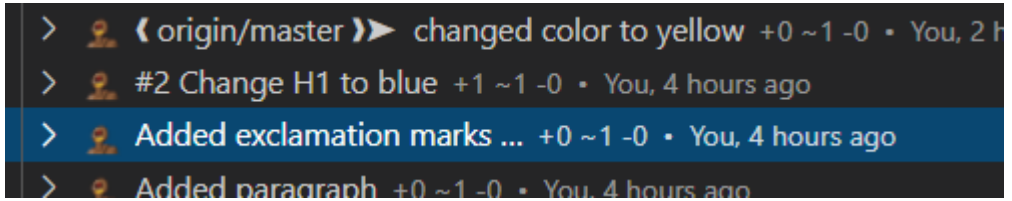
3- Remove again and restore this file using VS CODE



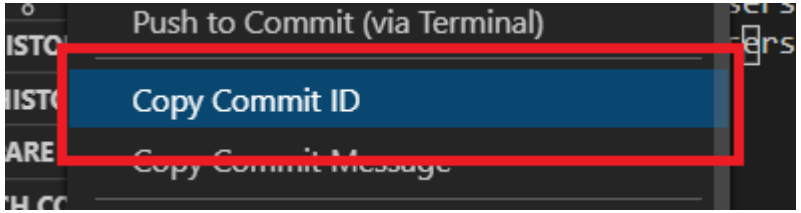
✅ **Check file is restored**

#12 Let's compare 2 commits

1- Select a commit in GitLens view



2- Copy the commit ID



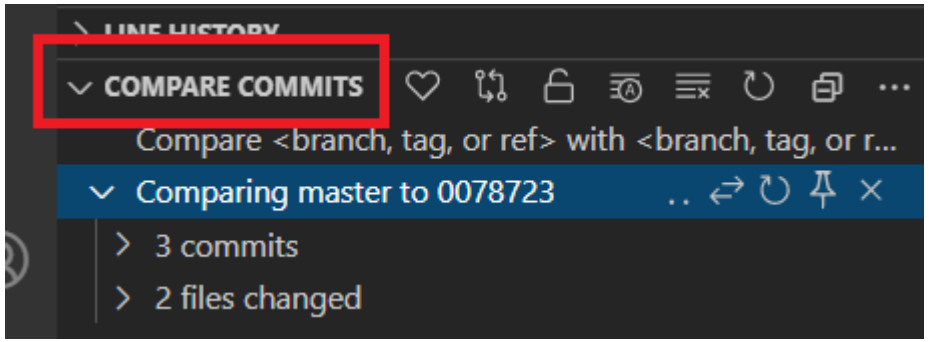
3- Once you have 2 commit, compare them:

```
git diff   <id1> <id2>
```

⚠ To quit the diff mode : type 'q'

✓ Check you have see the differences between the 2 commits

4- You can also use VSCode to compare !



#13 Let's clone again – on your local machine

1 – Create another folder

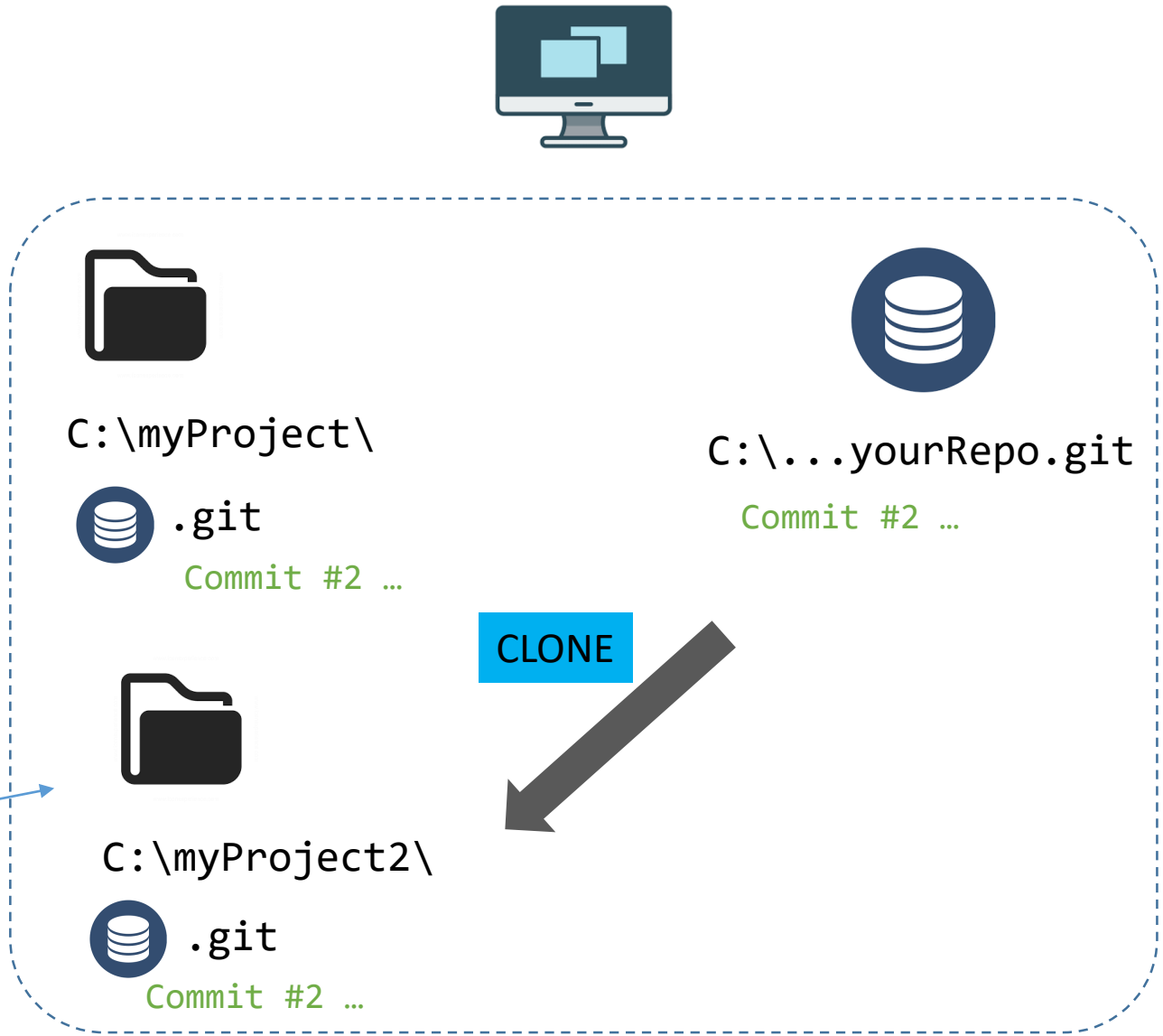
```
C:\myProject2
```

2 – Clone the repository

```
git clone c:/..yourGitRepo.git
```

⚠ Direct slashes

✓ Check an folder is created with a .git folder



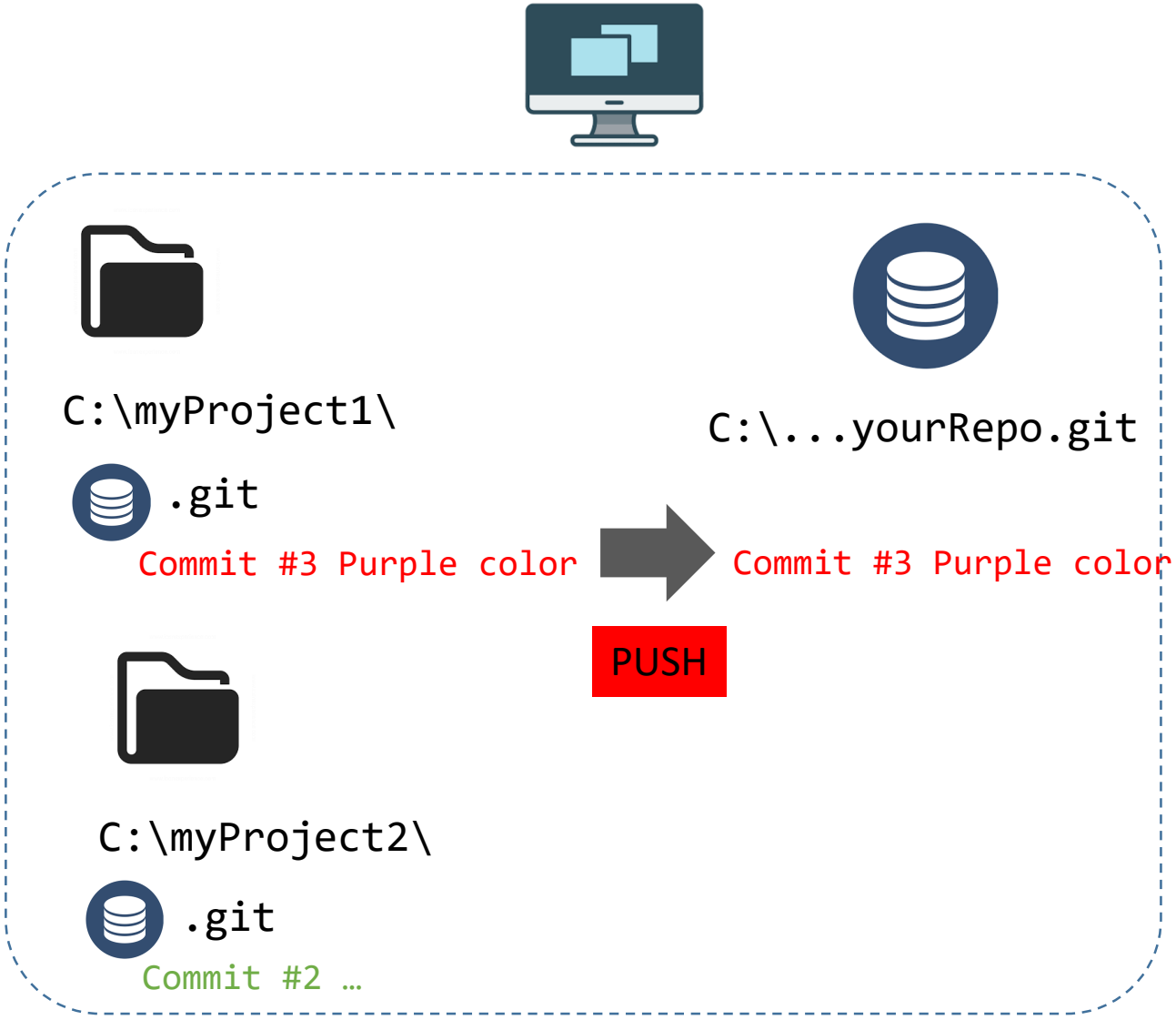
#14 Push a change from project 1…

1 – From project1, edit a change on style.css

```
.title {
  background-color: purple;
}
```

2 – commit and push : “purple color”

- Check remote origin has the new commit
- Check on project2, the new commit is still not present



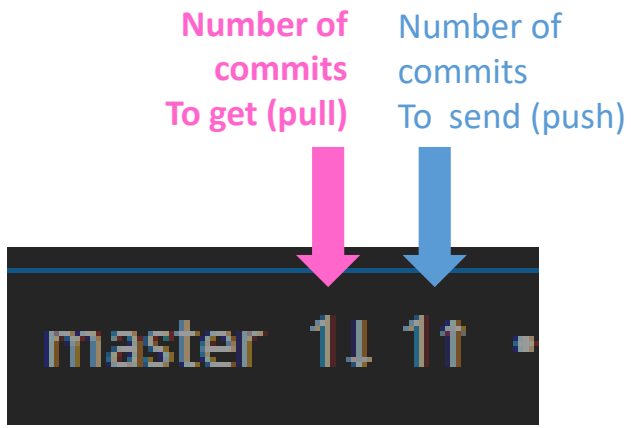
#15 Fetch and pull on project2

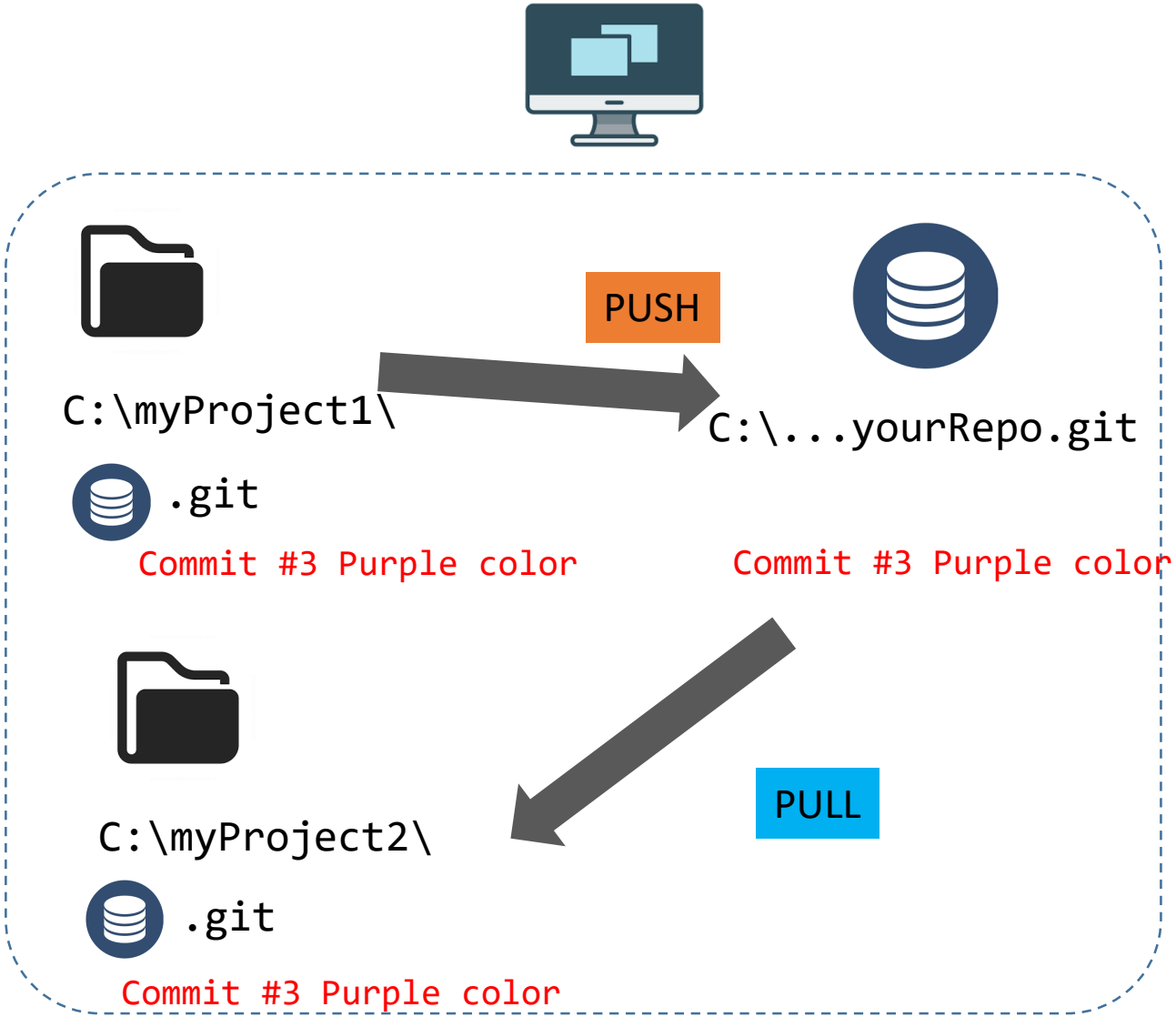
1 – From project2, fetch

You should see you have 1 commit behind

2 – From project2, pull

Now on project2, the new commit ahs been added





DO IT !

#16 Let ‘s create a conflict

1- From **project1** , commit + push

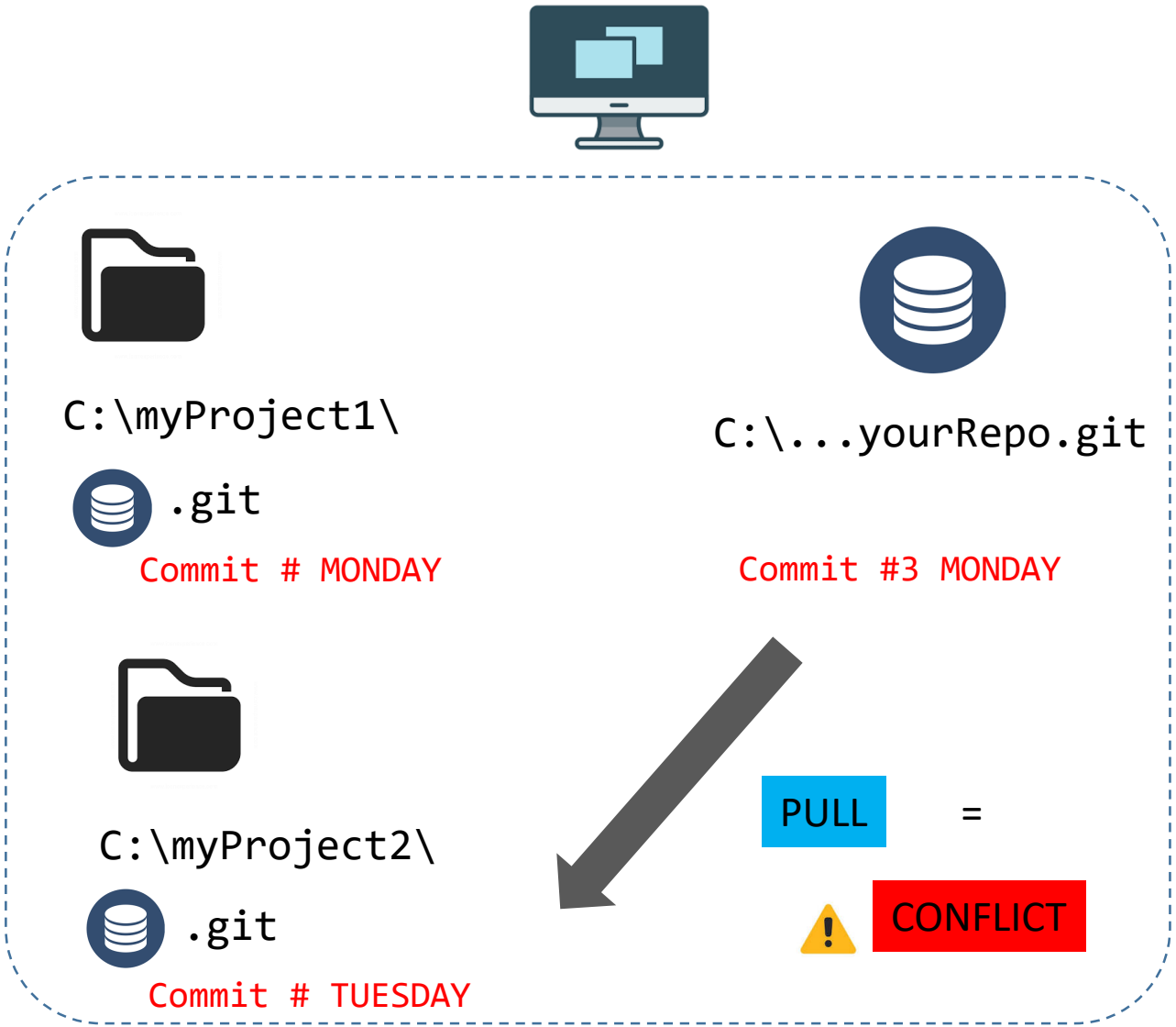
<h1>My app is MONDAY <h1>

2- From **project2** , commit

<h1>My app is TUESDAY <h1>

3- From **project2** , pull

Check you get a conflict



#17 Let ‘s resolve the conflict

1- Understand the conflict mode

THIS IS THE **CURRENT** VERSION

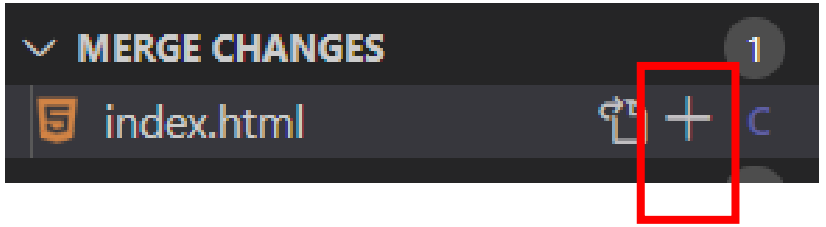
THIS IS THE VERSION FROM **OUTSIDE**

```
<<<<<<< HEAD (Current Change)
    <h1 class="title">My app is  TUESDAY</h1>
=======
    <h1 class="title">My app is MONDAY</h1>
>>>>>>> 6516e964fc940f8cb758f581347cb872faa7fd1b (Incoming Change)
```

2- Click on “Accept current change”

3- Change the title to

<h1>My app is MONDAY OR TUESDAY <h1>



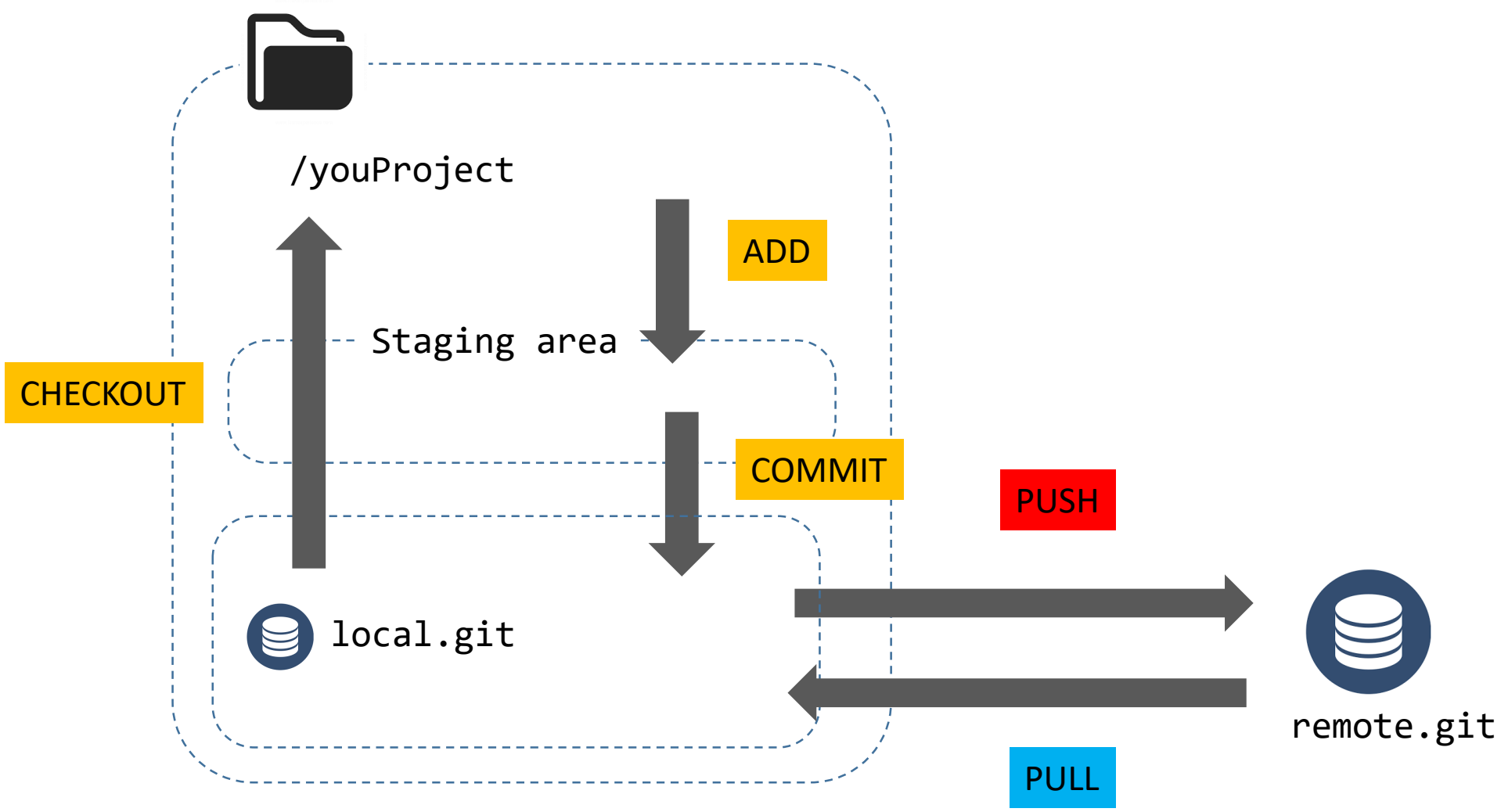
Stage the change (i.e. GIT add), before committing !

4 – Stage change !!

5 – Commit and push

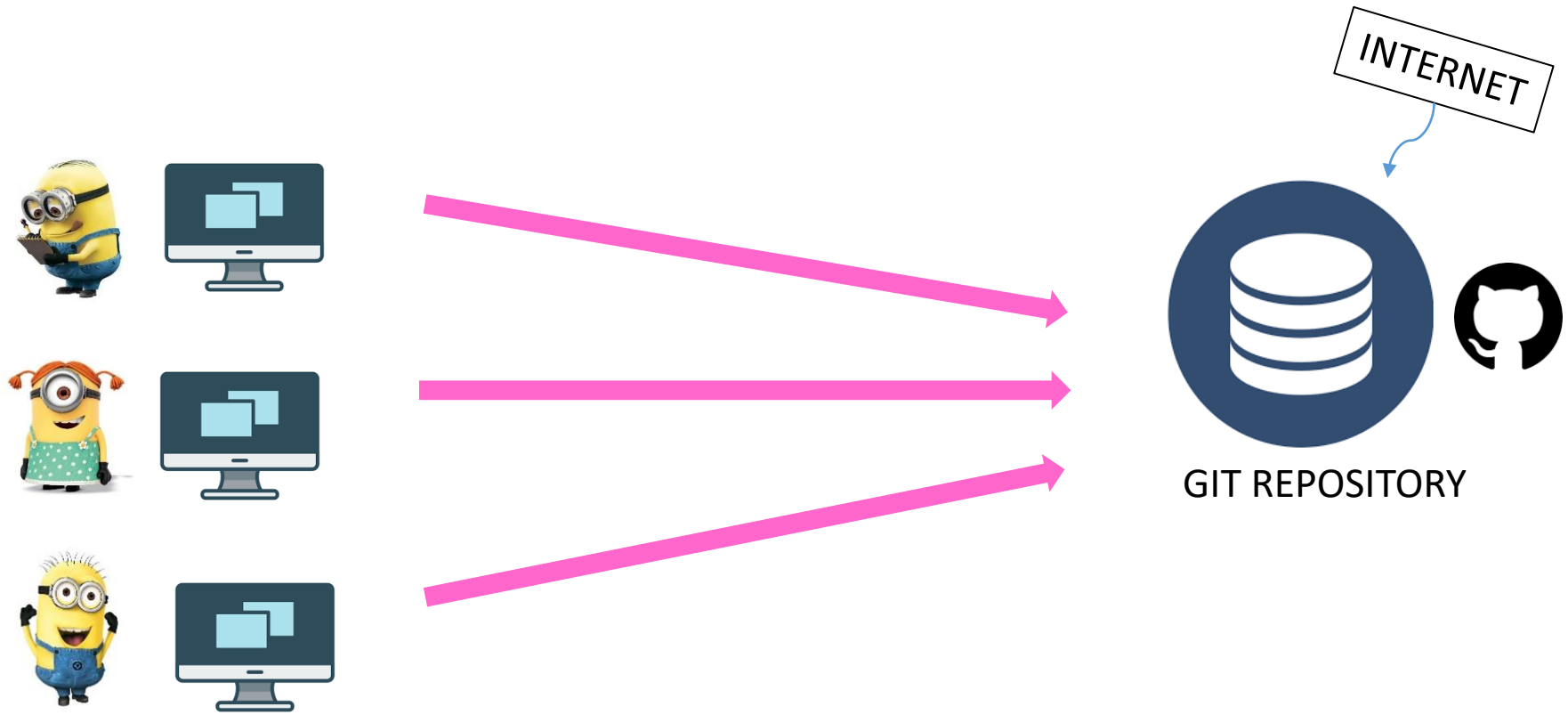
Pull on project 1 , and check this merge commit has been added

To Sum up… all of this on MY computer



DO IT !

OK, SO NOW LETs WORK WITH OTHER PEOPLE !



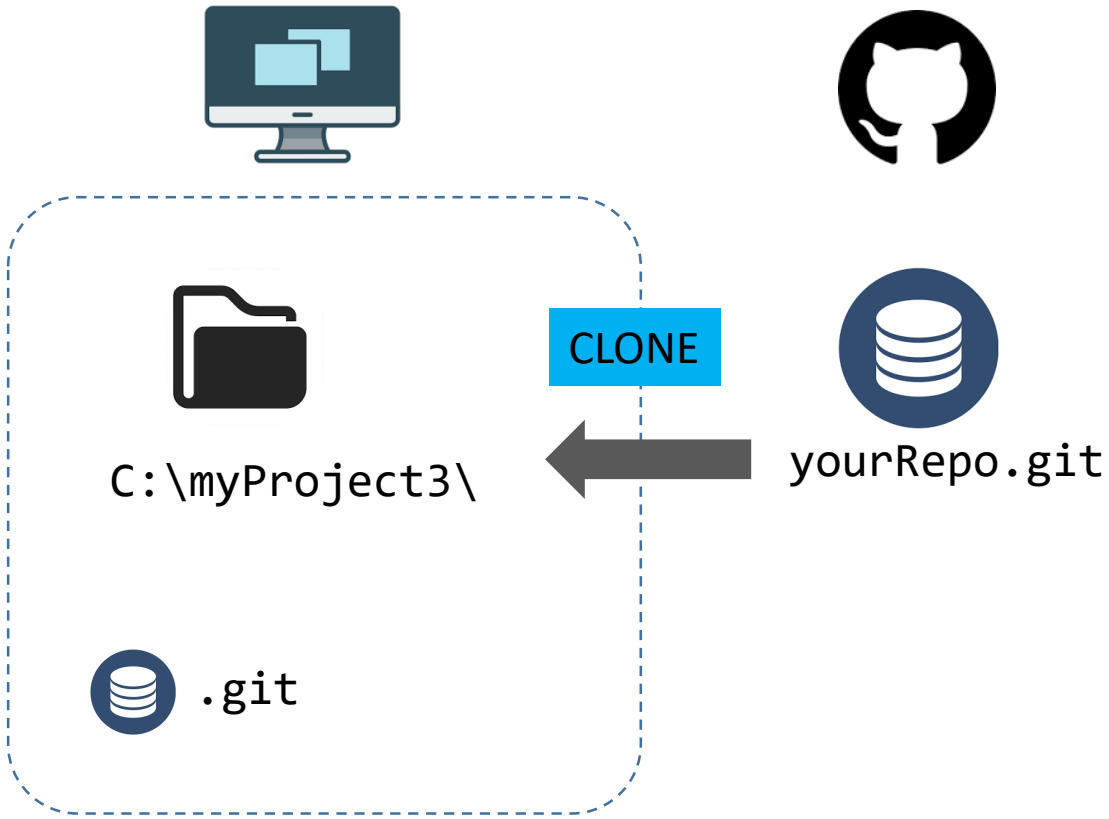
#18 Clone from GitHub

1 – Create a project on GITHUB

2 – Create a folder myProject3

3 – Clone the GitHub project

```
git clone https://github.com/xx.git
```



Check an folder is created with a .git folder

#18-1 Setup your global GIT configuration

1 – Run the below 2 commands:

```
git config --global user.name “YourFirstName YOurLastName"
git config --global user.email YourMail
```

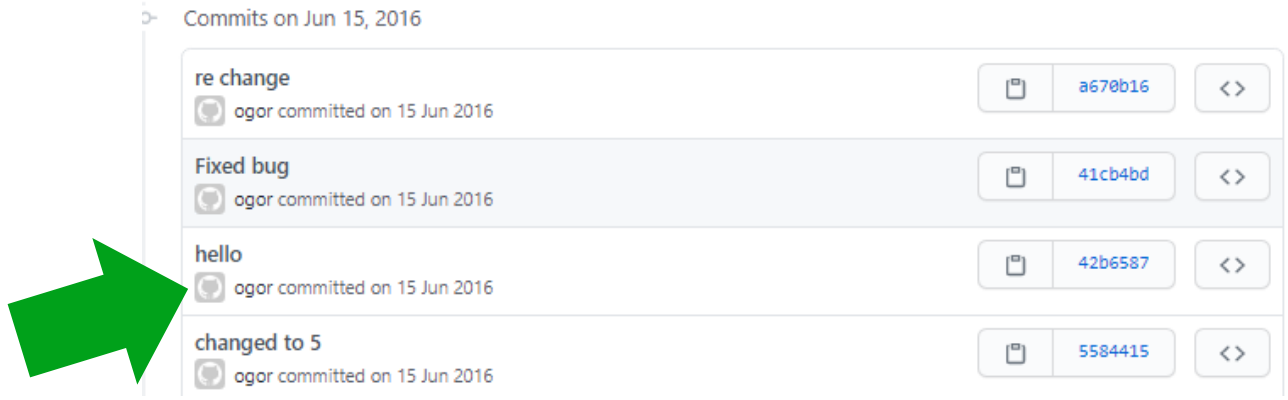
Check the bellow file has been updated with this information:

```
C:\Users\YourUserName\.gitconfig
```

#19 Check commits on GIT HUB

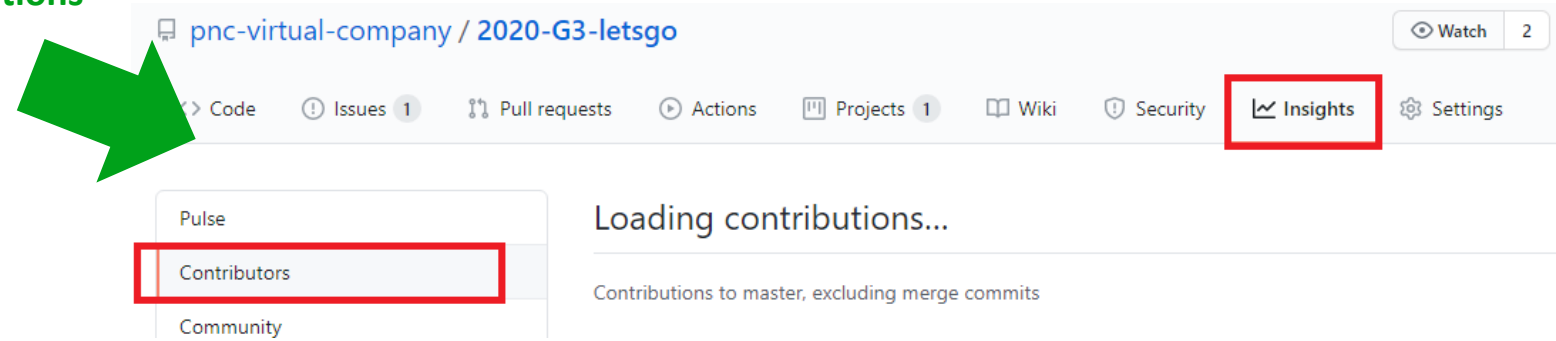
1 – Commit and push 4 changes (make 4 commit, not just 1) :

- Create an HTML file with a menu : home / Contact
- Create a CSS file to display menu in green
- Add an image below menu
- Add a H1 title



Check you can see the history of commit in GITHUB

Also check your commit is displayed in the contributions



DO IT !

#20 to #25

TEAM OF 5 - WORK

WORK WITH YOUR VC2 GROUP !

COMMUNICATE IN YOUR VC2 SKYPE GROUP

#20 No conflicts Preparation…

(LEADER WEEK1 ONLY)

- Create a repository
- Invite other team members to your project and send them the GIT URL

- Clone project, create the index and CSS files and push

- Determine who will be the student 1, 2, 3,4 , 5

STUDENT 1 **STUDENT 2** **STUDENT 3** **STUDENT 4** **STUDENT 5**

LEADER WEEK1 **LEADER WEEK2**

(ALL)

- Clone this project to your computer (folder /projectTeam/

#20 No conflicts

1- Push 5 commits (1 per student) :

Student 1

- Update menu
  - Home
  - Contact
  - Apply job
  - Help

Student 2

- Add header title “PNC website”
- Add a paragraph
  Welcome to PNC !

Student 3

Create Help page containing a H1

<H1>Help</H1>

Student 4

Create Contact page containing a H1

<H1>Contact</H1>

Student 5

Create Apply page containing a H1

<H1>Apply</H1>

2- Wait for everyone to push their changes

3- Push again 5 commits (1 per student)

Student 1

- Link menu Contact to contact page

Student 2

- Link menu Apply job to Apply page

Student 3

Link menu Help to Help page

Student 4

CSS :
Set all H1 in RED

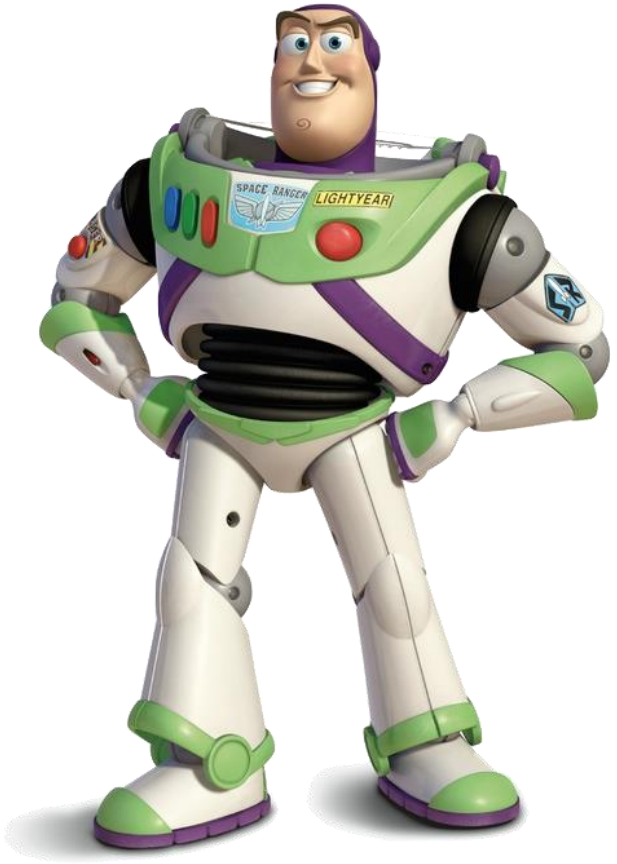
Student 5

CSS :
Set Menu in BLUE

Try to understand after EACH pull, what are the changes, by comparing the commits and changes

DO IT !

WARNING BEFORE STARTING



YOU MUST DO ONLY THE WORK ASSIGNED TO YOU !

(student 1 , student 2 etc….) and let other people push their changes

DON’T PULL BEFORE STARTING

First commit your changes
Then fetch (refresh) and pull

BECAUSE WE WANT TO GET A CONFLICT !

#21 Conflicts

(LEADER WEEK 2 ONLY)

Create a new GITHUB PROJECT (**toyStory**)

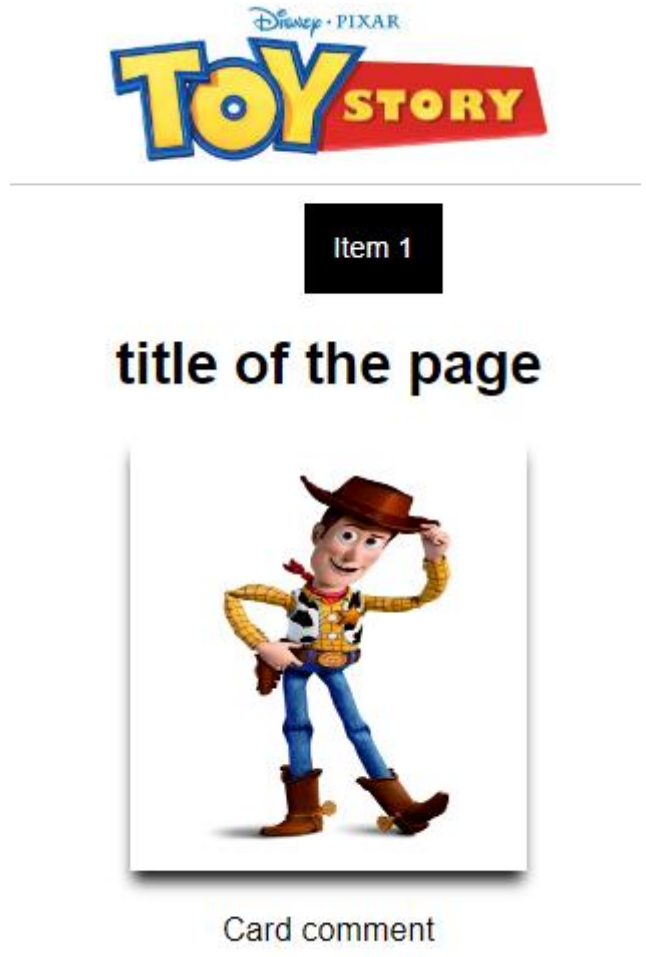
Clone it, and push the following content (click me)

Invite other team members to this project and send them the GIT URL

(ALL)

- Clone this project to your computer (folder /projectToyStory/

Everyone should clone and see the starting project



#21 STUDENT 1 - ONLY

- **On HTML file:**
  - Add a new section under the menu, and above the title of the page :
  - Add a image on this section

    src = "images/movie.jpg"

- **On CSS file :**
  - Create a new CSS class "header-image" to define the style of this section
    - top/bottom margins to 50 pixels

#21 STUDENT 2 - ONLY

- **On HTML file:**
  - Add a new card "Buzz"

    image = images/buzz.png

    text = Buzz is the friend of woody

  - Update the title of the page to integrate Buzz : "Toy Story world contains the characters ... and Buzz"

  - Add a menu item to "Buzz life" and link to : https://en.wikipedia.org/wiki/Buzz_Lightyear

#21 STUDENT 3 - ONLY

- On HTML file:

- Add a new section under the menu, and above the title of the page :
- the text to display is the following :

```
Toy Story is a Disney media franchise that commenced in 1995 with the release of the
animated feature film of the same name, produced by Pixar Animation Studios and
released by Walt Disney Pictures. The franchise is based on the anthropomorphic concept
that all toys, unknown to humans, are secretly alive, and the films focus on a diverse
group of toys that feature a classic cowboy doll named Sheriff Woody and a modern
spaceman action figure named Buzz Lightyear,
```

- **On CSS file** :
  - create a new CSS class "header-description" to define the style of this section
  - Set this section left/right margins to 100 pixels

#21 STUDENT 4 - ONLY

- On HTML file:

- Udate the text of the card "woody"
  text = Woody is the main character

- Set the title of the page : "Toy Story world contains the character Woody"

- Set the first menu item to "Woody life" and link to :
https://en.wikipedia.org/wiki/Sheriff_Woody

- Set the HTML page title to "Toy Story World !"

#21 STUDENT 5 - ONLY

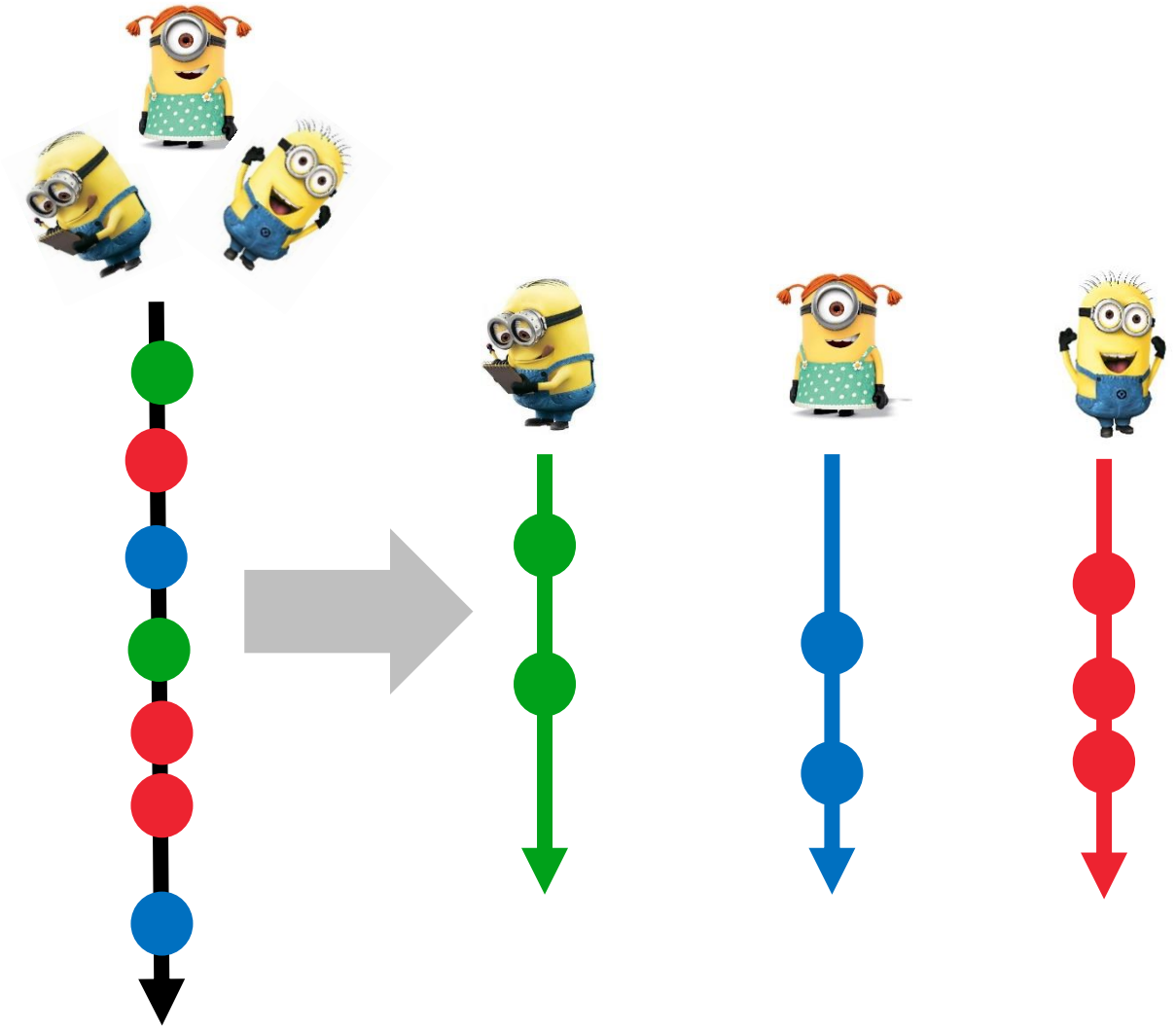
- On HTML file:

- Add a new card "Jessie"

image	=	images/jessie.png
text	=	Jessie is a good friend

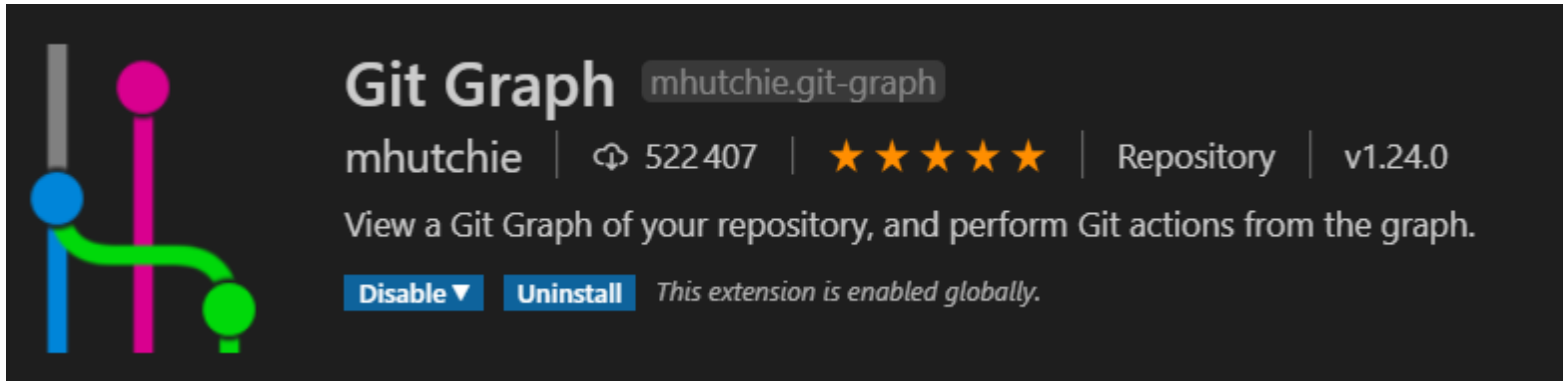
- Update the title of the page to integrate Jessie : "Toy Story world contains the characters ... and Jessie"
- Add a menu item to "Jessie life" and link to : https://en.wikipedia.org/wiki/Jessie_(Toy_Story)

LET'S WORK IN PARALLEL

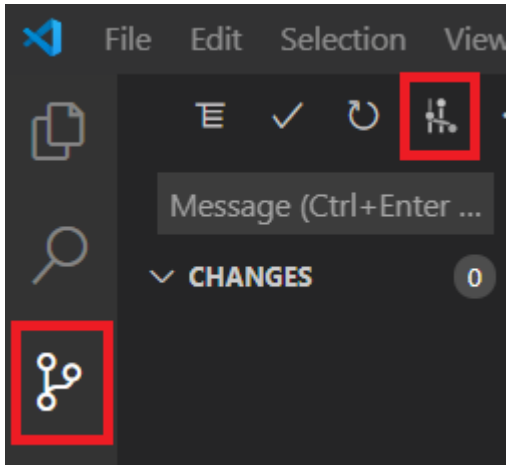


Before starting…

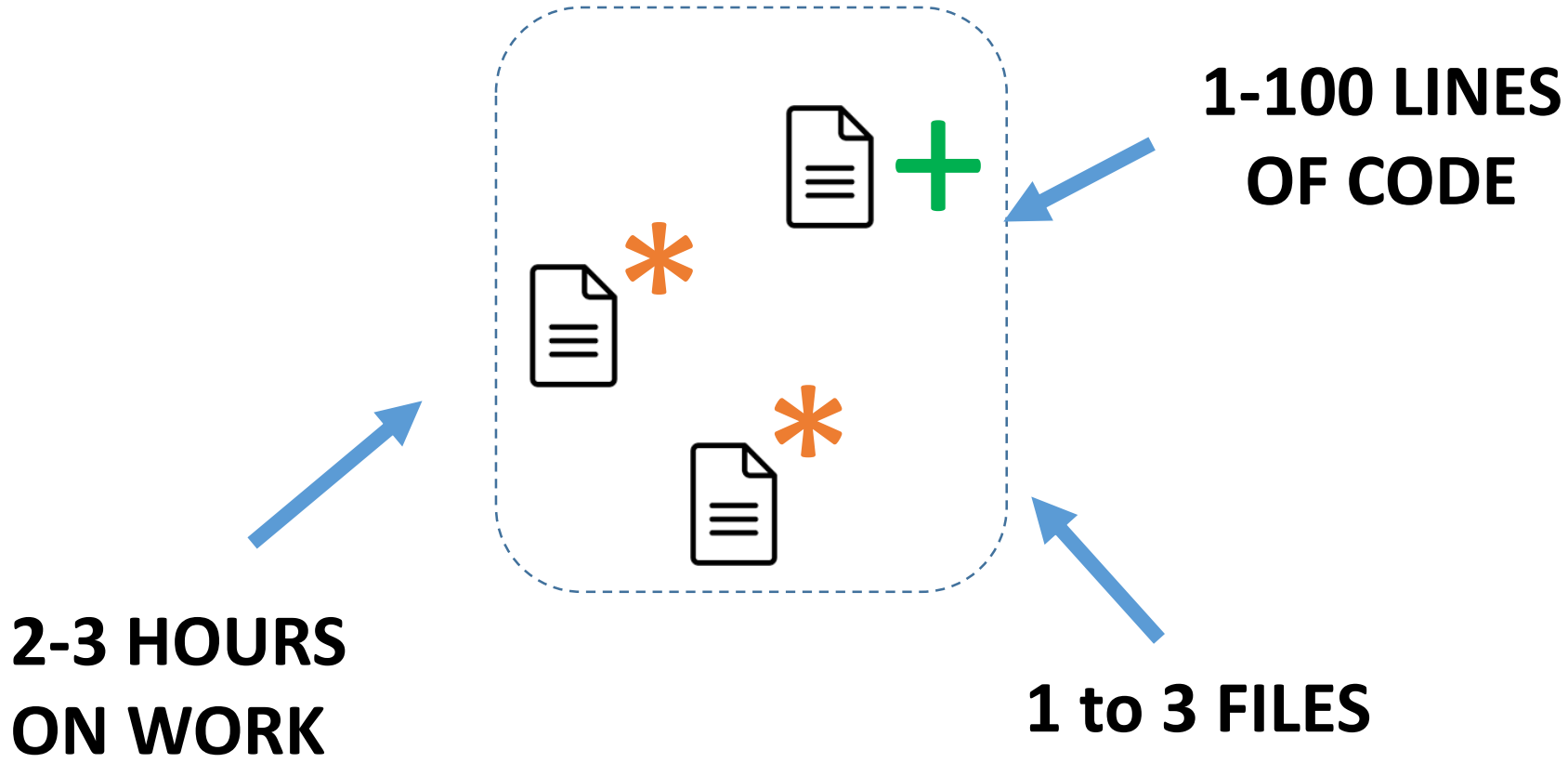
Install GIT GRAPH extension on VS Code



View the graph : check there is only one branch right now



A COMMIT IS A SMALL CHANGE



A FEATURE CAN REQUIRES MANY COMMITS

GITHUB
ISSUE ID

#145 : Refactoring on class name

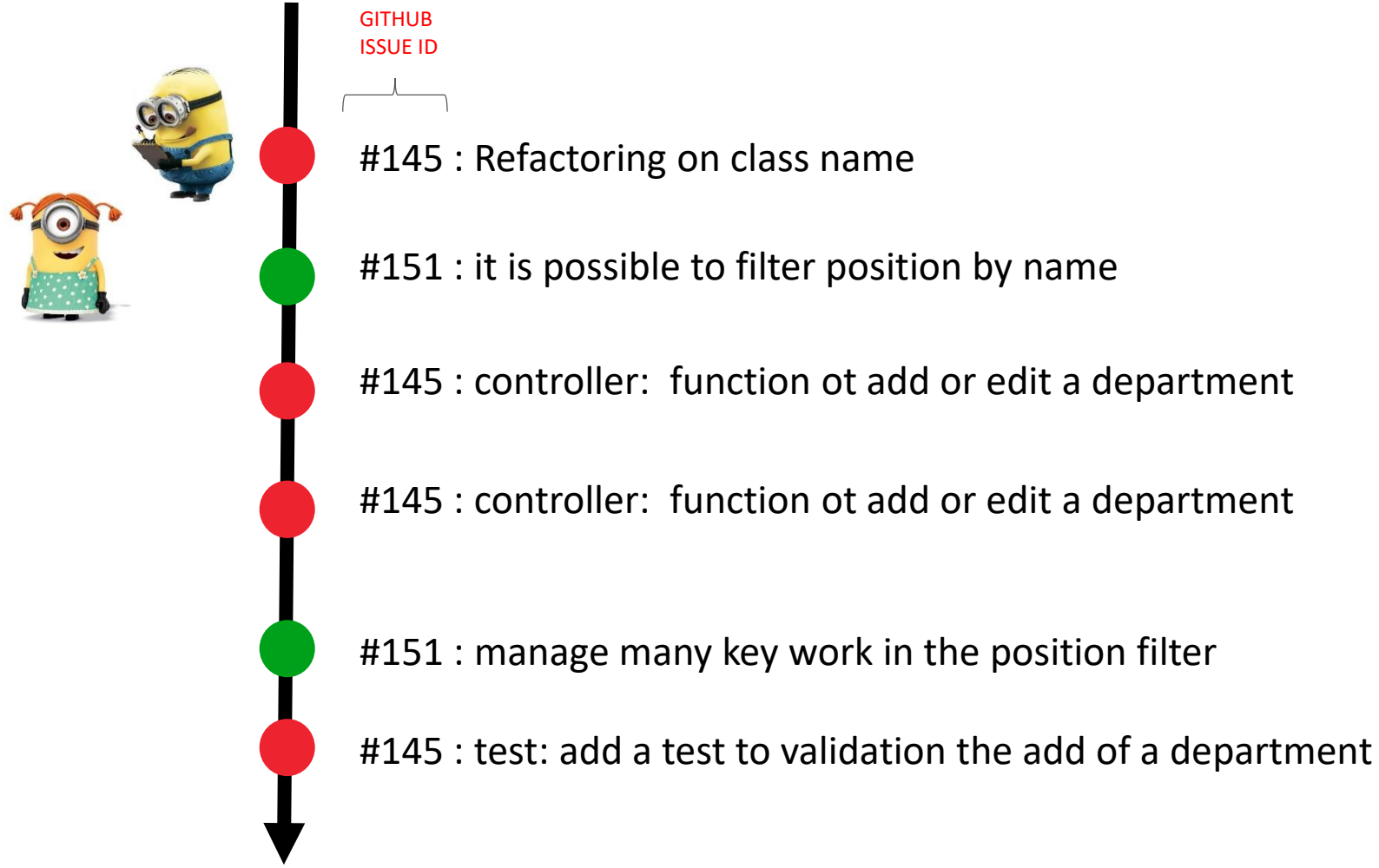
#145 : controller: function ot add or edit a department

#145 : view : add/edit department pop-up

#145 : test: add a test to validation the add of a department

COMMITING in 1 BRANCH CAN BE A MESS

WHEN PEOPLE ARE WORKING ON DIFFERENT FEATURES



WE USE BRANCHES TO DEVELOPP IN PARALLEL

MASTER

151 position view

#145 department view

#35 : Fix button color

#151 : it is possible to filter position by name

#151 : manage many key work in the position filter

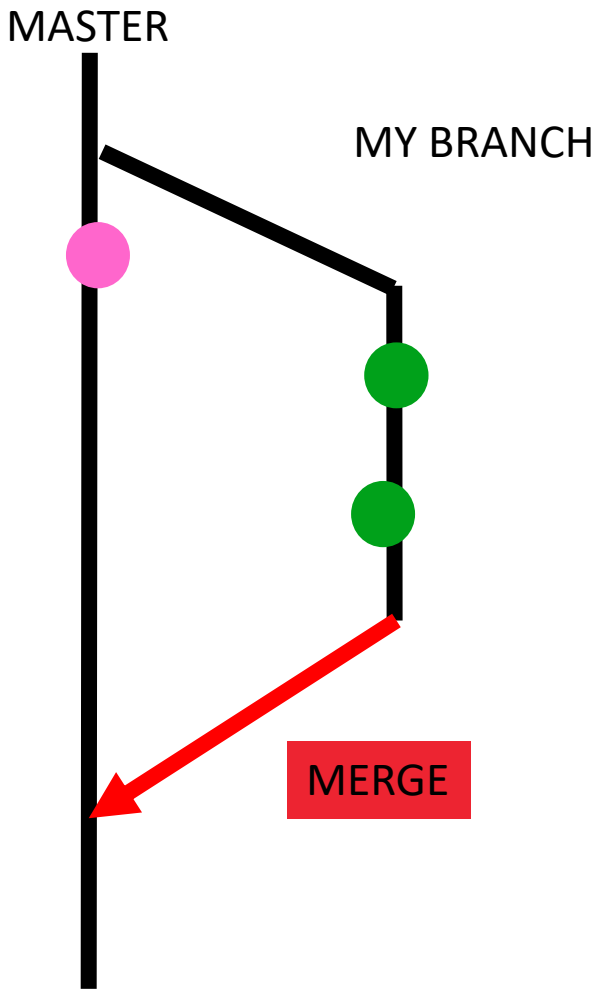
#145 : Refactoring on class name

#145 : controller: function ot add or edit a department

#145 : controller: function ot add or edit a department

#145 : test: add a test to validation the add of a department

BRING BACK A BRANCH = MERGE



#22 Let's start

Create a new project "**branchesProject**" project your local machine GIT repository :

```
C:\myGitServer\

git init branchesProject.git --bare
```

Clone this project in another folder

```
git clone <your repository path>
```

Create a index.html file with a H1

Commit push this change

Check the branch tree using GIT graph

#23 Create branch menuBranch

Create a branch menuBranch

```
git branch menuBranch
```

Switch to this branch

```
git checkout menuBranch
```

✓ **Check that the current branch is now menuBranch** `git branch`

Push your new branch

```
git push --set-upstream origin menuBranch
```

From this branch, commit and push 4 changes (4 commits to perform)

- Add a menu to your HTML file
- Add a menu item “page 1 ” to your HTML file linking to the page “page1.html
- Add a menu item “page 2 ” to your HTML file linking to the page “page2.html
- Add a menu item “page 3 ” to your HTML file linking to the page “page3.html

✓ **Check your commit in on branch menuBranch but not on branch master**

✓ **Check the branch tree using GIT graph**

#24 Create branch paragraphBranch

Switch to master

Create a branch paragraphBranch

```
git branch paragraphBranch
```

Switch to this branch

✓ **Check that the current branch is now menuBranch** `git branch`

Push your new branch

```
git push --set-upstream origin paragraphBranch
```

From this branch, commit and push 4 changes (4 commits to perform)

- Add a paragraph about cats
- Add a paragraph about dogs
- Add a paragraph about birds
- Add a paragraph about ronans

✓ **Check your commit in on branch paragraphBrnach but not on branch master**

✓ **Check the branch tree using GIT graph**

#25 Create branch inputFields

Switch to master

Create a branch inputFieldsBranch

```
git branch inputFieldsBranch
```

Switch to this branch `git checkout inputFieldsBranch`

✓ **Check that the current branch is now menuBranch** `git branch`

Push your new branch

```
git push --set-upstream origin inputFieldsBranch
```

From this branch, commit and push 4 changes (4 commits to perform)

- Add a textfiled
- Add a checkbox
- Add a text area
- Add a combobox

✓ **Check your commit in on branch inputFieldsBranch but not on branch master**

✓ **Check the branch tree using GIT graph**

#26 Let’s merge menuBranch

Switch to master

Merge menuBranch to the current branch

```
git merge menuBranch
```

- Check the master has now the changes from menuBranch
- Check the branch tree using GIT graph

Push your merge

```
git push
```

#27 Let’s merge paragraphBranch

Switch to master

Merge paragraphBranch to the current branch

```
git merge paragraphBranch
```

- Check the master has now the changes from paragraphBranch
- Check the branch tree using GIT graph

Push your merge

```
git push
```

#28 Let’s merge inputFields

Switch to master

Merge inputFields to the current branch

```
git merge inputFields
```

- Check the master has now the changes from inputFields
- Check the branch tree using GIT graph

Push your merge

```
git push
```

TO SUM UP

```
# Start a new feature
git branch new-feature
git checkout new-feature
git push --set-upstream origin new-feature


# Edit some files on your branch
git add <file>
git commit -m “my feature change"
git push

# Merge the new-feature branch into master
git checkout master
git merge new-feature
git push
```

DO IT !

(individual)

GIT + GITHUB WORKFLOW

WHEN WORKING WITH BIG ISSUES

1. Start issue XXX
2. Create branch “XXX”

   ⚠ `Always from MASTER`

3. Checkout branch “XXX”
4. Implement changes and push in branch “XXX”

   ⚠ `Commits: #id-issue`

5. Move issue to REVIEW for code review
6. PM validate to DONE
7. Merge MASTER -> XXX
8. Merge XXX -> MASTER

IN THIS EXERCICE
WE SAY THE PM
VALIDATES
ALL BRANCHES AT THE THEN

#29 Create new project

Create a new GITHUB repository (**toyStory2**)

Create GITHUB project with Kanban

Create milestone V1.0

Create 5 issues scoped to this milestone :

- Project initialization
- Header image
- Buzz card
- Woody card
- Jessie card

#30 Issue ‘Project initialization’ (performed on MASTER)

Set issue status to **ON PROGRESS**

Clone MASTER

Add the following content (click me)

Commit / Push

Set issue status to **REVIEW**

#31 Issue ‘Header image’ (performed on Header_image)

Set issue status to **ON PROGRESS**

Create branch Header_image

Checkout Header_image

Perform changes :

- **On HTML file:**
  - Add a new section under the menu, and above the title of the page :
  - Add a image on this section
    src = "images/movie.jpg"

- **On CSS file :**
  - Create a new CSS class "header-image" to define the style of this section
    - top/bottom margins to 50 pixels

Commit / Push

#32 Issue ‘Buzz card’ (performed on Buzz card)

Set issue status to **ON PROGRESS**

Create branch Buzz_card

Checkout Buzz_card

Perform changes :

- **On HTML file:**
  - Add a new card "Buzz"

image	=	images/buzz.png
text	=	Buzz is the friend of woody

  - Update the title of the page to integrate Buzz : "Toy Story world contains the characters ... and Buzz"
  - Add a menu item to "Buzz life" and link to : https://en.wikipedia.org/wiki/Buzz_Lightyear

Commit / Push

#33 Issue ‘Woody card’ (performed on woody_card)

Set issue status to **ON PROGRESS**

Create branch woody_card

Checkout woody_card

Perform changes :

- On HTML file:

- Udate the text of the card "woody"
  text = Woody is the main character
- Set the title of the page : "Toy Story world contains the character Woody"
- Set the first menu item to "Woody life" and link to : https://en.wikipedia.org/wiki/Sheriff_Woody
- Set the HTML page title to "Toy Story World !"

Commit / Push

#34 Issue ‘Jessie card’ (performed on jessie_card)

Set issue status to **ON PROGRESS**

Create branch jessie_card

Checkout jessie_card

Perform changes :

- On HTML file:

- Add a new card "Jessie"

image	=	images/jessie.png
text	=	Jessie is a good friend

- Update the title of the page to integrate Jessie : "Toy Story world contains the characters ... and Jessie"
- Add a menu item to "Jessie life" and link to : https://en.wikipedia.org/wiki/Jessie_(Toy_Story)

Commit / Push

#35 Close ‘Header image’ (performed on Header_image)

Checkout Header_image

Merge master into Header_image

⚠ `Resolve conflicts if needed`

Commit / Push

Checkout MASTER

Set issue status to **REVIEW**

Merge Header_image into MASTER

#36 Close ‘Buzz card’ (performed on Buzz_card

Checkout Buzz_card

Merge master into Buzz_card

⚠ `Resolve conflicts if needed`

Commit / Push

Checkout MASTER

Set issue status to **REVIEW**

Merge Buzz_card into MASTER

#37 Close ‘Woody card’ (performed on woody_card

Checkout woody_card

Merge master into woody_card

⚠ `Resolve conflicts if needed`

Commit / Push

Checkout MASTER

Merge woody_card into MASTER

Set issue status to **REVIEW**

#38 Close ‘Jessie card’ (performed on jessie_card

Checkout Jessie_card

Merge master into Jessie_card

⚠ `Resolve conflicts if needed`

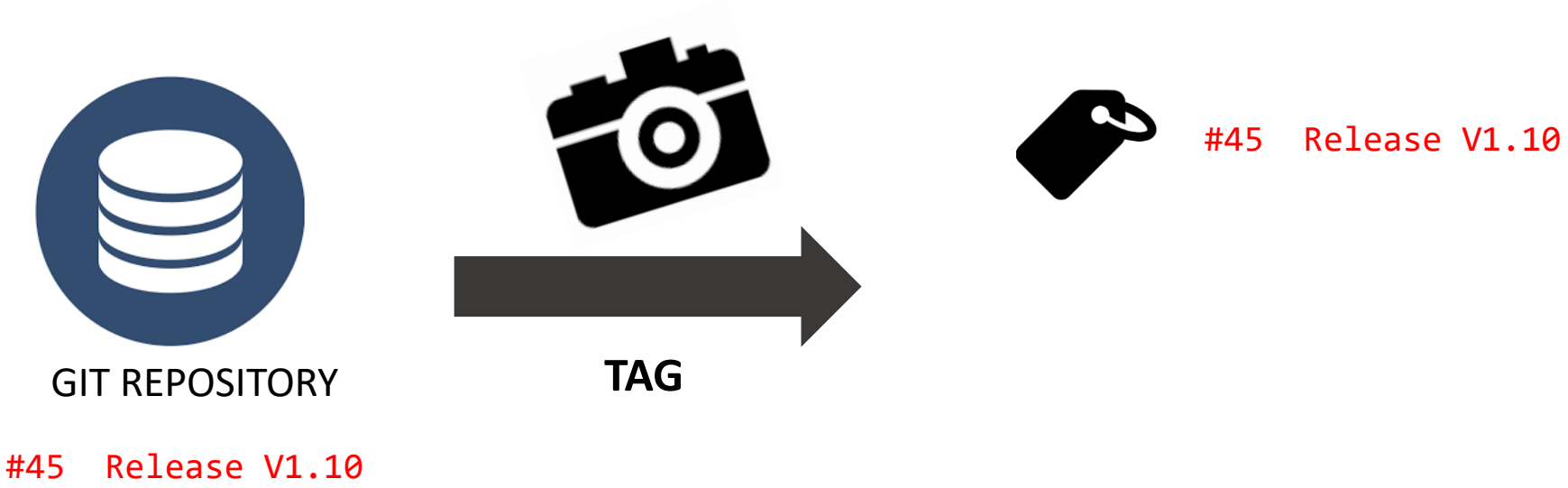
Commit / Push

Checkout MASTER

Merge Jessie_card into MASTER

Set issue status to **REVIEW**

What is tag ?



A picture of your repository, at a given commit.

A branch that does not change

Why tagging ?

GIT REPOSITORY

#4546 Add blue icons

#45 Release V1.10

To retrieve the version of the software delivered to the customer

And be able to reproduce bugs

#39 Tag your version

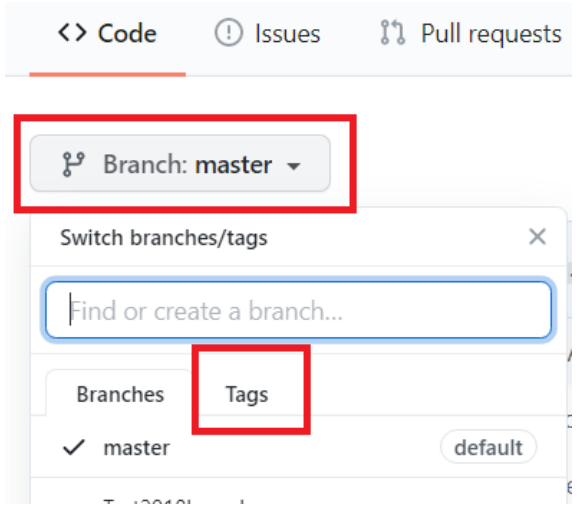
1 – Create tag :

```
git tag -a v1.0 -m "my version 1.0"
```

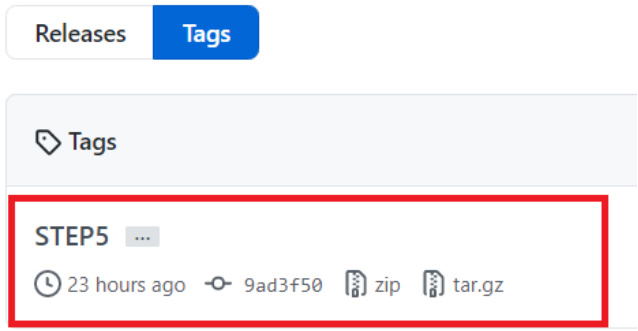
2 – Push tag :

```
git push origin v1.0
```

Check you can see the tag in GITHUB



3 – You can also tag directly from GitHub



#40 Checkout a tag

1 – Check the tag

```
git checkout v1.0
```