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PASSION FOR INNOVATION

Politecnico di Torino

1859

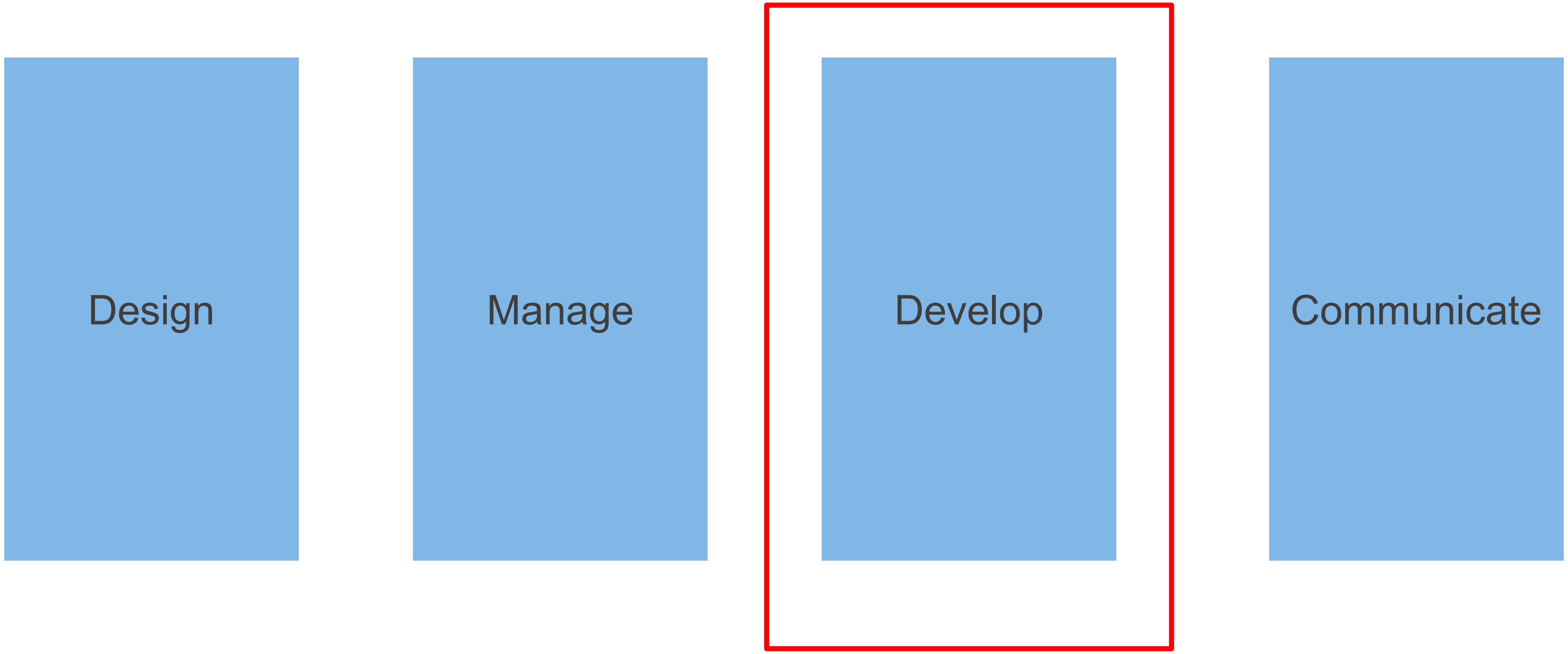
ellis

European Laboratory for Learning and Intelligent Systems

Applied Data Science Project

L12 – Version Control

Pillars



Design

Manage

Develop

Communicate

Version control

- History of the development
  - what has been done 2 days ago
  - what a team member contributed to
  - restore a past version that resulted to be more robust than the last one

- Shared space for collaborators

- Monitor development branches and derive forks to be utilized for spinoff projects

- Package the development into tags (releases) that answer project milestones

Version control

https://colab.research.google.com

Colaboratory natively stores different development versions each labeled either automatically by Colaboratory or defined by the team manually

https://github.com

An application that manages local repositories and synchronises with remote repositories utilizing the git protocol. It also offers an intuitive web dashboard for the supervision of the project and analytics

Two different needs

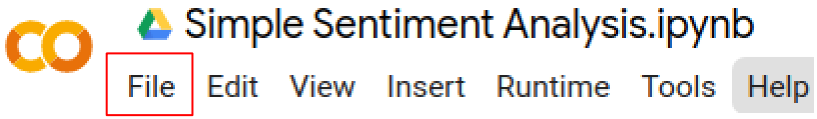
https://colab.research.google.com

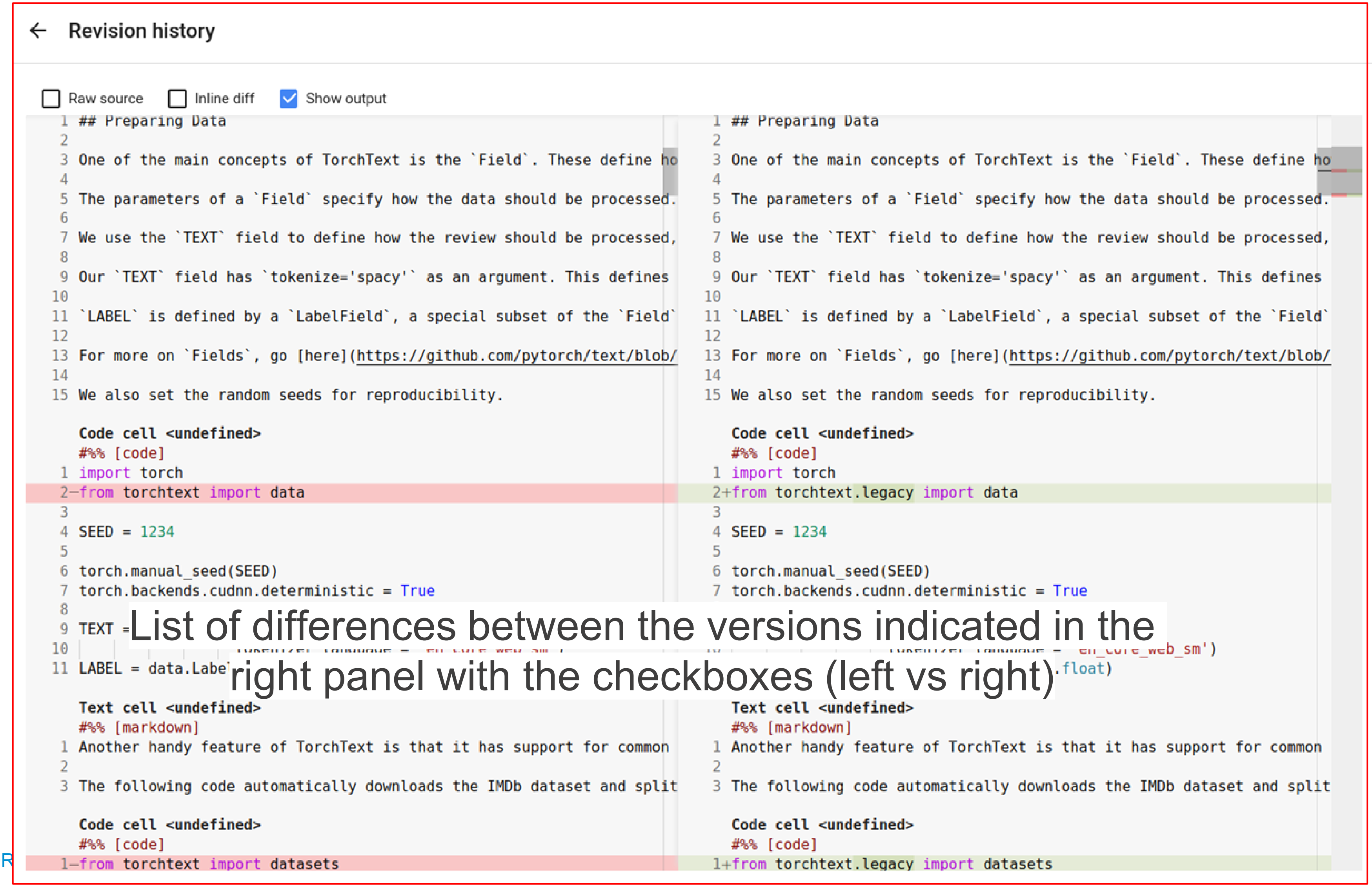
When the project is about one notebook, this is the favorite option in an initial phase (lean option)

https://github.com

When the project grows in terms of files and modules that cannot stay in just a notebook

Version control

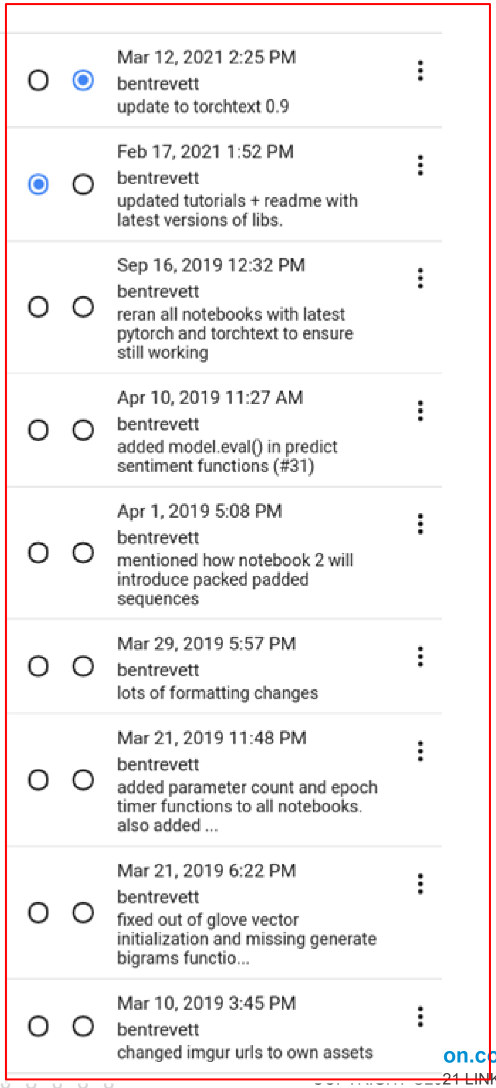




```
## Preparing Data                                                     ## Preparing Data

One of the main concepts of TorchText is the `Field`. These define ho  One of the main concepts of TorchText is the `Field`. These define ho

The parameters of a `Field` specify how the data should be processed.  The parameters of a `Field` specify how the data should be processed.

We use the `TEXT` field to define how the review should be processed,  We use the `TEXT` field to define how the review should be processed,

Our `TEXT` field has `tokenize='spacy'` as an argument. This defines   Our `TEXT` field has `tokenize='spacy'` as an argument. This defines

`LABEL` is defined by a `LabelField`, a special subset of the `Field`  `LABEL` is defined by a `LabelField`, a special subset of the `Field`

For more on `Fields`, go [here](https://github.com/pytorch/text/blob/  For more on `Fields`, go [here](https://github.com/pytorch/text/blob/

We also set the random seeds for reproducibility.                      We also set the random seeds for reproducibility.

Code cell <undefined>                                                  Code cell <undefined>
#%% [code]                                                             #%% [code]
import torch                                                           import torch
-from torchtext import data                                            +from torchtext.legacy import data

SEED = 1234                                                            SEED = 1234

torch.manual_seed(SEED)                                                torch.manual_seed(SEED)
torch.backends.cudnn.deterministic = True                              torch.backends.cudnn.deterministic = True

TEXT =
                                                                                                  en_core_web_sm')
LABEL = data.Labe                                                                                 .float)

Text cell <undefined>                                                  Text cell <undefined>
#%% [markdown]                                                         #%% [markdown]
Another handy feature of TorchText is that it has support for common  Another handy feature of TorchText is that it has support for common

The following code automatically downloads the IMDb dataset and split  The following code automatically downloads the IMDb dataset and split

Code cell <undefined>                                                  Code cell <undefined>
#%% [code]                                                             #%% [code]
-from torchtext import datasets                                        +from torchtext.legacy import datasets
```

List of differences between the versions indicated in the right panel with the checkboxes (left vs right)

List of differences



○ ● Mar 12, 2021 2:25 PM
bentrevett
update to torchtext 0.9

● ○ Feb 17, 2021 1:52 PM
bentrevett
updated tutorials + readme with latest versions of libs.

○ ○ Sep 16, 2019 12:32 PM
bentrevett
reran all notebooks with latest pytorch and torchtext to ensure still working

○ ○ Apr 10, 2019 11:27 AM
bentrevett
added model.eval() in predict sentiment functions (#31)

○ ○ Apr 1, 2019 5:08 PM
bentrevett
mentioned how notebook 2 will introduce packed padded sequences

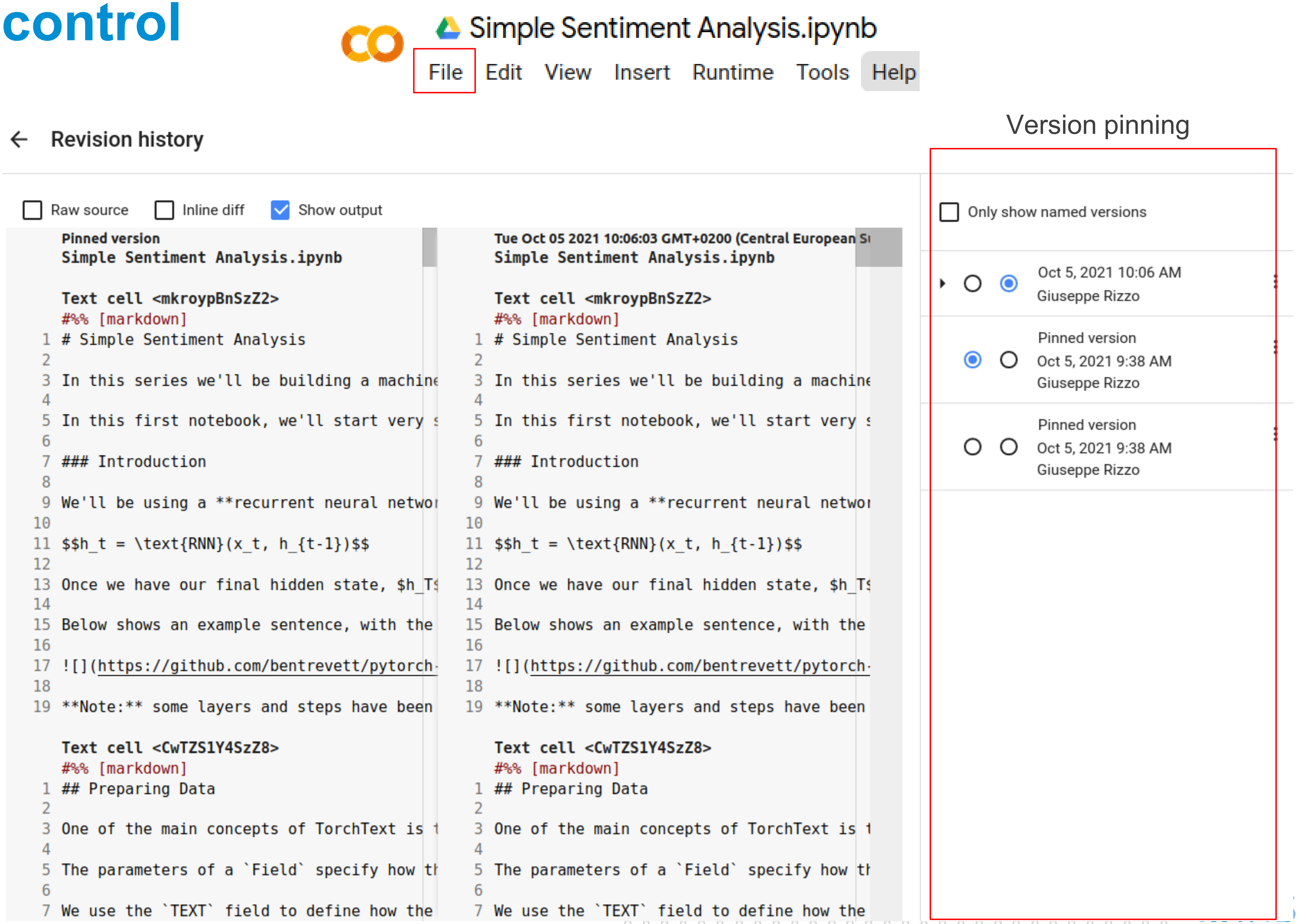
○ ○ Mar 29, 2019 5:57 PM
bentrevett
lots of formatting changes

○ ○ Mar 21, 2019 11:48 PM
bentrevett
added parameter count and epoch timer functions to all notebooks. also added ...

○ ○ Mar 21, 2019 6:22 PM
bentrevett
fixed out of glove vector initialization and missing generate bigrams functio...

○ ○ Mar 10, 2019 3:45 PM
bentrevett
changed imgur urls to own assets

Version control



Revision history

□ Raw source □ Inline diff ☑ Show output

Pinned version

```
Simple Sentiment Analysis.ipynb

Text cell <mkroypBnSzZ2>
#%% [markdown]
# Simple Sentiment Analysis

In this series we'll be building a machine

In this first notebook, we'll start very s

### Introduction

We'll be using a **recurrent neural networ

$$h_t = \text{RNN}(x_t, h_{t-1})$$

Once we have our final hidden state, $h_T$

Below shows an example sentence, with the

![](https://github.com/bentrevett/pytorch-

**Note:** some layers and steps have been

Text cell <CwTZS1Y4SzZ8>
#%% [markdown]
## Preparing Data

One of the main concepts of TorchText is t

The parameters of a `Field` specify how th

We use the `TEXT` field to define how the
```

Tue Oct 05 2021 10:06:03 GMT+0200 (Central European Su

```
Simple Sentiment Analysis.ipynb

Text cell <mkroypBnSzZ2>
#%% [markdown]
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#%% [markdown]
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We use the `TEXT` field to define how the
```

Version pinning

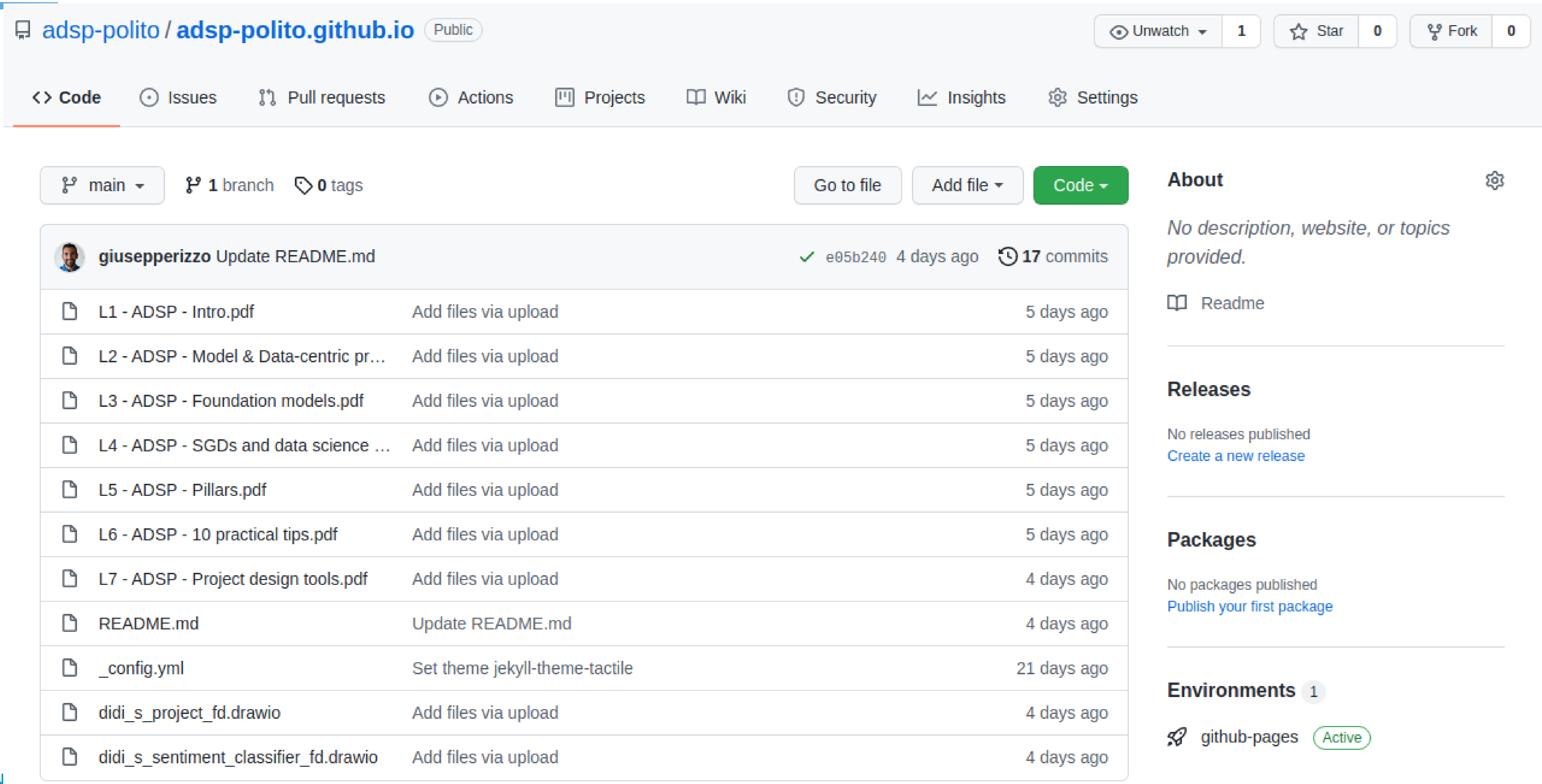
□ Only show named versions

○ ● Oct 5, 2021 10:06 AM
Giuseppe Rizzo

● ○ Pinned version
Oct 5, 2021 9:38 AM
Giuseppe Rizzo

○ ○ Pinned version
Oct 5, 2021 9:38 AM
Giuseppe Rizzo

Version control



adsp-polito / adsp-polito.github.io Public

1 branch 0 tags

giusepperizzo Update README.md ✓ e05b240 4 days ago 17 commits

L1 - ADSP - Intro.pdf	Add files via upload	5 days ago
L2 - ADSP - Model & Data-centric pr…	Add files via upload	5 days ago
L3 - ADSP - Foundation models.pdf	Add files via upload	5 days ago
L4 - ADSP - SGDs and data science …	Add files via upload	5 days ago
L5 - ADSP - Pillars.pdf	Add files via upload	5 days ago
L6 - ADSP - 10 practical tips.pdf	Add files via upload	5 days ago
L7 - ADSP - Project design tools.pdf	Add files via upload	4 days ago
README.md	Update README.md	4 days ago
_config.yml	Set theme jekyll-theme-tactile	21 days ago
didi_s_project_fd.drawio	Add files via upload	4 days ago
didi_s_sentiment_classifier_fd.drawio	Add files via upload	4 days ago

About

No description, website, or topics provided.

Readme

Releases

No releases published
Create a new release

Packages

No packages published
Publish your first package

Environments 1

github-pages Active

Version Control System

Repository is a shared folder where there are saved files necessary for the configuration, development and execution of a project

Workspace is a local folder that developers utilize to work

Both repository and workspace are part of a Version Control System (VCS) that defines the shared development and resolves conflicts

VCS typologies

local: it is a simple database that tracks changes to files under version

centralized: it is a repository stored on a server, while clients access to individual files

distributed: clients have an integral copy of a repository

VCS typologies

local: it is a simple database that tracks changes to files under version

centralized: it is a repository stored on a server, while clients access to individual files

distributed: clients have an integral copy of a repository

Git and GitHub

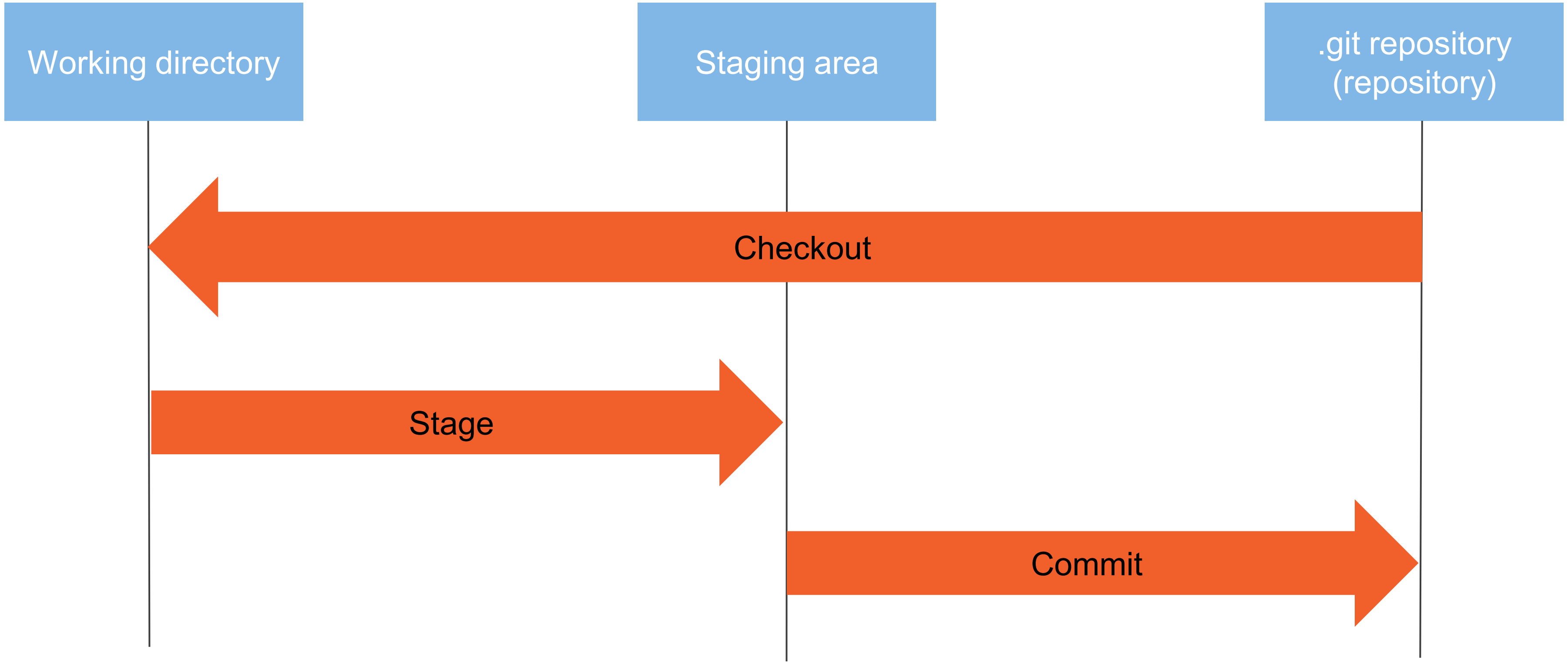
How a project looks like

.git folder: it is managed automatically and contains the access information to the repository. This folder is created once there is a clone operation from the remote repository

whole working folder: it contains a project version checkout. Files of this folder are computed starting from the indexes present in .git. Those files can be modified by a user locally

stage area: it saves all files that will be included in the request to update the remote repository with the local changes. Files that are modified locally, but not stages, will not generate a request of change remotely

Flow



Working directory

Staging area

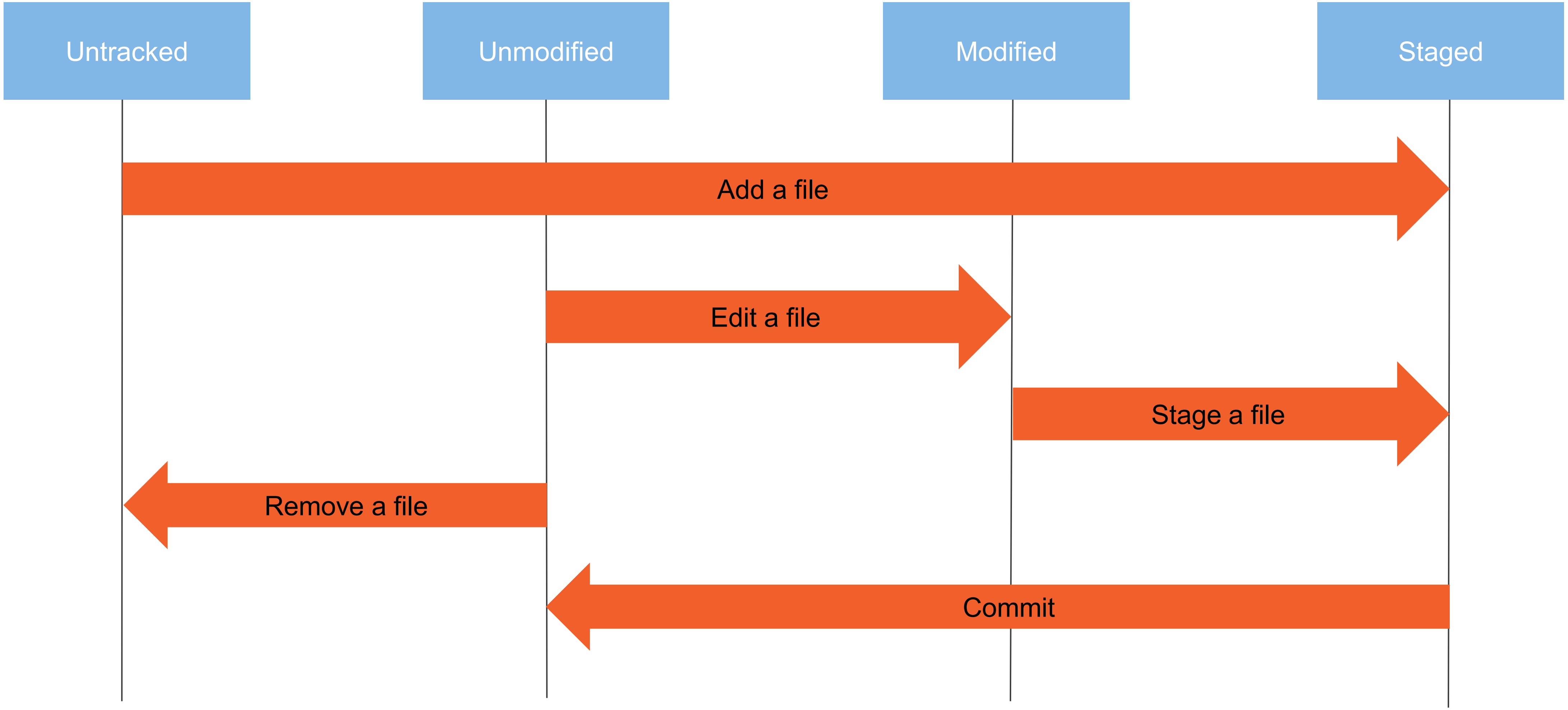
.git repository
(repository)

Checkout

Stage

Commit

Flow


Untracked
Unmodified
Modified
Staged
Add a file
Edit a file
Stage a file
Remove a file
Commit

Basic commands

- git status: it gets the status of the files in the workspace
- git add: it stages a file
- git diff: it shows differences between the workspace copy and the one in the repository
- git commit: it does a commit to the workspace
- git mv: it moves a file from a folder to another and the change has an impact to the repository
- git rm: it removes a file with an impact remotely
- git log: it visualizes a log
- git init: it initializes an empty repository
- git clone: it clones a remote repository
- git pull: it downloads the changes done in the remote repository
- git push: it pushes the changes staged to the remote repository

git clone

remote address of the repository we aim to clone locally

```
$ git clone git@github.com:adsp-polito/adsp-polito.github.io.git
Cloning into 'adsp-polito.github.io'...
remote: Enumerating objects: 56, done.
remote: Counting objects: 100% (56/56), done.
remote: Compressing objects: 100% (53/53), done.
remote: Total 56 (delta 24), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (56/56), 5.17 MiB | 8.01 MiB/s, done.
Resolving deltas: 100% (24/24), done.
```

git status

```
$ git status
On branch main
Your branch is up to date with 'origin/main'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        L8 - ADSP - AgileSwDev.pdf

nothing added to commit but untracked files present (use "git add" to
track)
```

a new file is in the workspace but not in the repository

git add

```
$ git add L8\ -\ ADSP\ -\ AgileSwDev.pd
$ git status
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   L8 - ADSP - AgileSwDev.pdf
```

add a new file in the workspace

a new file is staged

git commit

```
$ git commit L8\ -\ ADSP\ -\ AgileSwDev.pdf  -m "add slides of the lecture made by prof. Marco Torchiano"
[main dd5e042] add slides of the lecture made by prof. Marco Torchiano
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 L8 - ADSP - AgileSwDev.pdf
$ git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
```

our workspace is ahead to the remote repository

git push

```
$ git push
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 1.12 MiB | 9.83 MiB/s, done.
Total 3 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To github.com:adsp-polito/adsp-polito.github.io.git
   e05b240..dd5e042  main -> main
$ git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
```

the change is propagated remotely

git pull

```
$ git pull
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 7.31 MiB | 5.94 MiB/s, done.
From github.com:adsp-polito/adsp-polito.github.io
   dd5e042..f2c6801  main       -> origin/main
Updating dd5e042..f2c6801
Fast-forward
 L9 - ADSP - Scrum.pdf | Bin 0 -> 9285900 bytes
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 L9 - ADSP - Scrum.pdf
```

a new file present in the remote repository is also added to the local workspace

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Thank you for your attention.

Questions?

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