

A decorative background featuring a network diagram with nodes and connecting lines. The nodes are represented by circles of varying sizes and colors (blue, grey, and white), and the lines are thin and grey. The diagram is spread across the top and bottom corners of the slide.

# Projet développement web

Elaboration d'une interface web interactive pour valoriser des données externes

Master CTN

## Contexte du projet



Vous êtes *freelance* et un client vous commissionne pour **valoriser** ses données sur le **web**



## Contexte du projet

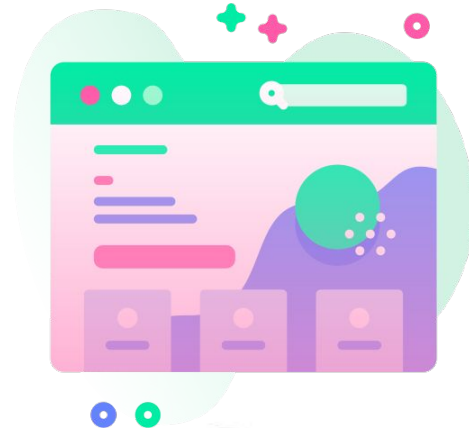
Vous avez carte blanche pour promouvoir les données du client

- ☐ Interface rendant lisible et accessible la consultation et la manipulation des données à l'aide de divers filtres et traitements

- ☐ Analyses statistiques

- ☐ Mini-jeu

- ☐ etc.

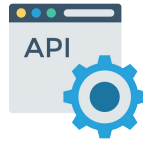


# Objectif et positionnement du projet



Penser, Spécifier, Concevoir et Prototyper un système informatisé complet

Exploiter des données externes à l'aide une **interface de programmation** (API) et valorisation de ces données par le biais d'une **application web** orientée *frontend*



# Objectif et positionnement du projet



Définir un **cahier des charges** succinct



Exploiter les méthodes de gestion de projet et du génie logiciel pour concevoir et réaliser une application Web remplissant les objectifs du cahier des charges

- ☐ Définitions algorithmiques
- ☐ Programmation *frontend* en HTML, CSS, Javascript
- ☐ Récupération des données au moyen d'une API

# Les API et les données



Une API un ensemble normalisé de classes, de méthodes, de fonctions et de constantes qui sert de façade par laquelle un logiciel offre des services à d'autres logiciels

Une API peut fournir des données comme elle peut fournir différents services

- **<https://hp-api.herokuapp.com/api/characters>** permet d'obtenir des informations concernant les personnages de la saga Harry Potter
- **<https://developers.giphy.com/docs/sdk>** permet d'obtenir des gif en fonction de mots-clés
- **<https://funtranslations.com/api/minion#translate>** permet de traduire une phrase en anglais en minion

## Les API et les données

La thématique des données est libre (vous pouvez choisir une ou plusieurs API)



<https://github.com/public-apis/public-apis>

Le répertoire Github **public-apis** référence 51 catégories et 1425 API différentes

Vous êtes libre de choisir une API en dehors de cette liste (si l'équipe pédagogique la valide)



# Les API et les données

API	Description	Auth	HTTPS	CORS
<a href="#">An API of Ice And Fire</a>	Game Of Thrones API	No	Yes	Unknown
<a href="#">Bob's Burgers</a>	Bob's Burgers API	No	Yes	Yes
<a href="#">Breaking Bad</a>	Breaking Bad API	No	Yes	Unknown
<a href="#">Breaking Bad Quotes</a>	Some Breaking Bad quotes	No	Yes	Unknown
<a href="#">Catalogopolis</a>	Doctor Who API	No	Yes	Unknown
<a href="#">Catch The Show</a>	REST API for next-episode.net	No	Yes	Unknown
<a href="#">Czech Television</a>	TV programme of Czech TV	No	No	Unknown
<a href="#">Dailymotion</a>	Dailymotion Developer API	OAuth	Yes	Unknown
<a href="#">Dune</a>	A simple API which provides you with book, character, movie and quotes JSON data	No	Yes	Yes
<a href="#">Final Space</a>	Final Space API	No	Yes	Yes
<a href="#">Game of Thrones Quotes</a>	Some Game of Thrones quotes	No	Yes	Unknown
<a href="#">Harry Potter Charactes</a>	Harry Potter Characters Data with with imagery	No	Yes	Unknown

Pour faciliter la manipulation des données, préférez les API sans *Auth* ou tout du moins sans *OAuth*

Renseignez-vous bien sur la nature et la manière dont les données sont structurées avant de faire votre choix





# Exemple de réalisation

<https://hp-api.herokuapp.com/>

Welcome to the **HP-API!**

Use these routes to request data on Harry Potter characters:

View

- all characters:
  - <https://hp-api.herokuapp.com/api/characters>
  - or
  - <https://hp-api.onrender.com/api/characters>
- characters who are Hogwarts students during the book series:
  - <https://hp-api.herokuapp.com/api/characters/students>
  - or
  - <https://hp-api.onrender.com/api/characters/students>
- characters who are Hogwarts staff during the book series:
  - <https://hp-api.herokuapp.com/api/characters/staff>
  - or
  - <https://hp-api.onrender.com/api/characters/staff>
- characters in a certain house, e.g. /gryffindor:
  - <https://hp-api.herokuapp.com/api/characters/house/house>
  - or
  - <https://hp-api.onrender.com/api/characters/house/house>
- all spells:
  - <https://hp-api.herokuapp.com/api/spells>
  - or
  - <https://hp-api.onrender.com/api/spells>

# Exemple de réalisation

Non sécurisée hp-api.herokuapp.com/api/characters






















Emails Cloud

```
{
  "name": "Harry Potter", "alternate_names": [], "species": "human", "gender": "male", "house": "Gryffindor", "dateOfBirth": "31-07-1980", "yearOfBirth": 1980, "wizard": true, "ancestry": "half-blood", "eyeColour": "green", "hairColour": "black", "wand": "wood", "holly", "core": "phoenix feather", "length": 11, "patronus": "stag", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "Daniel Radcliffe", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/harry.jpg",
  "name": "Hermione Granger", "alternate_names": [], "species": "human", "gender": "female", "house": "Gryffindor", "dateOfBirth": "19-09-1979", "yearOfBirth": 1979, "wizard": true, "ancestry": "muggleborn", "eyeColour": "brown", "hairColour": "brown", "wand": "wood", "vine", "core": "dragon heartstring", "length": 10, "patronus": "otter", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "Emma Watson", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/hermione.jpeg",
  "name": "Ron Weasley", "alternate_names": [], "species": "human", "gender": "male", "house": "Gryffindor", "dateOfBirth": "01-03-1980", "yearOfBirth": 1980, "wizard": true, "ancestry": "pure-blood", "eyeColour": "blue", "hairColour": "red", "wand": "wood", "willow", "core": "unicorn tail-hair", "length": 14, "patronus": "Jack Russell terrier", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "Rupert Grint", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/ron.jpg",
  "name": "Draco Malfoy", "alternate_names": [], "species": "human", "gender": "male", "house": "Slytherin", "dateOfBirth": "05-06-1980", "yearOfBirth": 1980, "wizard": true, "ancestry": "pure-blood", "eyeColour": "grey", "hairColour": "blonde", "wand": "wood", "hawthorn", "core": "unicorn tail-hair", "length": 10, "patronus": "cat", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "Tom Felton", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/draco.png",
  "name": "Minerva McGonagall", "alternate_names": [], "species": "human", "gender": "female", "house": "Gryffindor", "dateOfBirth": "04-16-1925", "yearOfBirth": 1925, "wizard": true, "ancestry": "pure-blood", "eyeColour": "black", "wand": "wood", "cat", "core": "cat", "length": 11, "patronus": "tabby cat", "hogwartsStudent": false, "hogwartsStaff": true, "actor": "Diane Gawn", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/mcgonagall.jpg",
  "name": "Cedric Diggory", "alternate_names": [], "species": "human", "gender": "male", "house": "Hufflepuff", "dateOfBirth": "1977", "yearOfBirth": 1977, "wizard": true, "ancestry": "pure-blood", "eyeColour": "brown", "wand": "wood", "ash", "core": "unicorn hair", "length": 12.25, "patronus": "stag", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "Robert Pattinson", "alternate_actors": [], "alive": false, "image": "http://hp-api.herokuapp.com/images/cedric.png",
  "name": "Cho Chang", "alternate_names": [], "species": "human", "gender": "female", "house": "Ravenclaw", "dateOfBirth": "1980", "yearOfBirth": 1980, "wizard": true, "ancestry": "pure-blood", "eyeColour": "brown", "hairColour": "black", "wand": "wood", "cat", "core": "cat", "length": 11, "patronus": "swan", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "Katie Leung", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/cho.jpg",
  "name": "Severus Snape", "alternate_names": ["Half-Blood Prince"], "species": "human", "gender": "male", "house": "Slytherin", "dateOfBirth": "09-01-1960", "yearOfBirth": 1960, "wizard": true, "ancestry": "half-blood", "eyeColour": "black", "hairColour": "black", "wand": "wood", "cat", "core": "cat", "length": 10, "patronus": "cat", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "Alfred Enoch", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/snape.jpg",
  "name": "Rubeus Hagrid", "alternate_names": [], "species": "half-giant", "gender": "male", "house": "Gryffindor", "dateOfBirth": "06-12-1928", "yearOfBirth": 1928, "wizard": true, "ancestry": "half-blood", "eyeColour": "black", "hairColour": "black", "wand": "wood", "oak", "core": "cat", "length": 16, "patronus": "cat", "hogwartsStudent": false, "hogwartsStaff": true, "actor": "Robbie Coltrane", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/hagrid.png",
  "name": "Neville Longbottom", "alternate_names": [], "species": "human", "gender": "male", "house": "Gryffindor", "dateOfBirth": "30-07-1980", "yearOfBirth": 1980, "wizard": true, "ancestry": "pure-blood", "eyeColour": "blonde", "wand": "wood", "cherry", "core": "unicorn tail-hair", "length": 13, "patronus": "cat", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "Matthew Lewis", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/neville.jpg",
  "name": "Luna Lovegood", "alternate_names": [], "species": "human", "gender": "female", "house": "Ravenclaw", "dateOfBirth": "13-02-1981", "yearOfBirth": 1981, "wizard": true, "ancestry": "pure-blood", "eyeColour": "grey", "hairColour": "blonde", "wand": "wood", "cat", "core": "cat", "length": 11, "patronus": "hare", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "Evanna Lynch", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/luna.jpg",
  "name": "Ginny Weasley", "alternate_names": [], "species": "human", "gender": "female", "house": "Gryffindor", "dateOfBirth": "11-08-1981", "yearOfBirth": 1981, "wizard": true, "ancestry": "pure-blood", "eyeColour": "brown", "hairColour": "red", "wand": "wood", "yew", "core": "cat", "length": 10, "patronus": "horse", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "Bonnie Wright", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/ginny.jpg",
  "name": "Sirius Black", "alternate_names": ["Padfoot", "Snuffles"], "species": "human", "gender": "male", "house": "Gryffindor", "dateOfBirth": "03-11-1959", "yearOfBirth": 1959, "wizard": true, "ancestry": "pure-blood", "eyeColour": "grey", "hairColour": "black", "wand": "wood", "cat", "core": "cat", "length": 11, "patronus": "hare", "hogwartsStudent": false, "hogwartsStaff": false, "actor": "Gary Oldman", "alternate_actors": ["James Walters", "Rohan Gotobed"], "alive": false, "image": "http://hp-api.herokuapp.com/images/sirius.JPG",
  "name": "Remus Lupin", "alternate_names": ["Professor Lupin", "Moony", "Remus John Lupin"], "species": "werewolf", "gender": "male", "house": "Gryffindor", "dateOfBirth": "10-03-1960", "yearOfBirth": 1960, "wizard": true, "ancestry": "half-blood", "eyeColour": "green", "hairColour": "brown", "wand": "wood", "cypress", "core": "unicorn tail-hair", "length": 10.25, "patronus": "cat", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "David Thewlis", "alternate_actors": [], "alive": false, "image": "http://hp-api.herokuapp.com/images/lupin.jpg",
  "name": "Arthur Weasley", "alternate_names": [], "species": "human", "gender": "male", "house": "Gryffindor", "dateOfBirth": "06-02-1950", "yearOfBirth": 1950, "wizard": true, "ancestry": "pure-blood", "eyeColour": "red", "wand": "wood", "cat", "core": "cat", "length": 11, "patronus": "weasel", "hogwartsStudent": false, "hogwartsStaff": false, "actor": "Mark Williams", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/arthur.jpg",
  "name": "Bellatrix Lestrange", "alternate_names": ["Bellatrix"], "species": "human", "gender": "female", "house": "Slytherin", "dateOfBirth": "1951", "yearOfBirth": 1951, "wizard": true, "ancestry": "pure-blood", "eyeColour": "brown", "hairColour": "black", "wand": "wood", "walnut", "core": "dragon heartstring", "length": 12.75, "patronus": "cat", "hogwartsStudent": false, "hogwartsStaff": false, "actor": "Helena Bonham Carter", "alternate_actors": [], "alive": false, "image": "http://hp-api.herokuapp.com/images/bellatrix.jpg",
  "name": "Lord Voldemort", "alternate_names": ["Tom Marvolo Riddle", "the Dark Lord", "the Lord of the Dark"], "species": "human", "gender": "male", "house": "Slytherin", "dateOfBirth": "31-12-1926", "yearOfBirth": 1926, "wizard": true, "ancestry": "half-blood", "eyeColour": "red", "hairColour": "bald", "wand": "wood", "yew", "core": "phoenix feather", "length": 13.5, "patronus": "cat", "hogwartsStudent": false, "hogwartsStaff": false, "actor": "Ralph Fiennes", "alternate_actors": [], "alive": false, "image": "http://hp-api.herokuapp.com/images/voldemort.jpg",
  "name": "Horace Slughorn", "alternate_names": [], "species": "human", "gender": "male", "house": "Slytherin", "dateOfBirth": "1928", "yearOfBirth": 1928, "wizard": true, "ancestry": "pure-blood", "eyeColour": "green", "hairColour": "blonde", "wand": "wood", "cedar", "core": "dragon heartstring", "length": 10.25, "patronus": "cat", "hogwartsStudent": false, "hogwartsStaff": true, "actor": "Jim Broadbent", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/slughorn.JPG",
  "name": "Kingsley Shacklebolt", "alternate_names": [], "species": "human", "gender": "male", "house": "Gryffindor", "dateOfBirth": "1978", "yearOfBirth": 1978, "wizard": true, "ancestry": "pure-blood", "eyeColour": "brown", "hairColour": "brown", "wand": "wood", "cat", "core": "cat", "length": 11, "patronus": "lynx", "hogwartsStudent": false, "hogwartsStaff": false, "actor": "George Harris", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/kingsley.jpg",
  "name": "Dolores Umbridge", "alternate_names": ["The Bitch"], "species": "human", "gender": "female", "house": "Slytherin", "dateOfBirth": "1954", "yearOfBirth": 1954, "wizard": true, "ancestry": "half-blood", "eyeColour": "brown", "hairColour": "grey", "wand": "wood", "cat", "core": "dragon heartstring", "length": 8, "patronus": "persian cat", "hogwartsStudent": false, "hogwartsStaff": true, "actor": "Imelda Staunton", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/umbridge.jpg",
  "name": "Lucius Malfoy", "alternate_names": [], "species": "human", "gender": "male", "house": "Slytherin", "dateOfBirth": "1954", "yearOfBirth": 1954, "wizard": true, "ancestry": "pure-blood", "eyeColour": "grey", "hairColour": "blonde", "wand": "wood", "cat", "core": "dragon heartstring", "length": 10, "patronus": "cat", "hogwartsStudent": false, "hogwartsStaff": false, "actor": "Jason Isaacs", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/lucius.jpg",
  "name": "Vincent Crabbe", "alternate_names": ["the Goats"], "species": "human", "gender": "male", "house": "Slytherin", "dateOfBirth": "1980", "yearOfBirth": 1980, "wizard": true, "ancestry": "pure-blood", "eyeColour": "black", "hairColour": "black", "wand": "wood", "cat", "core": "cat", "length": 11, "patronus": "cat", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "Jamie Waylett", "alternate_actors": [], "alive": false, "image": "http://hp-api.herokuapp.com/images/crabbe.jpg",
  "name": "Gregory Goyle", "alternate_names": [], "species": "human", "gender": "male", "house": "Slytherin", "dateOfBirth": "1980", "yearOfBirth": 1980, "wizard": true, "ancestry": "pure-blood", "eyeColour": "brown", "hairColour": "brown", "wand": "wood", "cat", "core": "cat", "length": 11, "patronus": "cat", "hogwartsStudent": true, "hogwartsStaff": false, "actor": "Josh Herdman", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/goyle.jpg",
  "name": "Mrs Norris", "alternate_names": ["the Cat in the Hat"], "species": "cat", "gender": "female", "house": "Gryffindor", "dateOfBirth": "1980", "yearOfBirth": 1980, "wizard": false, "ancestry": "muggle", "eyeColour": "grey", "hairColour": "grey", "wand": "wood", "cat", "core": "cat", "length": 11, "patronus": "cat", "hogwartsStudent": false, "hogwartsStaff": true, "actor": "Maxine, Alanis and Tommy the cats", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/norris.JPG",
  "name": "Argus Filch", "alternate_names": [], "species": "human", "gender": "male", "house": "Gryffindor", "dateOfBirth": "1980", "yearOfBirth": 1980, "wizard": false, "ancestry": "muggle", "eyeColour": "grey", "hairColour": "grey", "wand": "wood", "cat", "core": "cat", "length": 11, "patronus": "cat", "hogwartsStudent": false, "hogwartsStaff": true, "actor": "David Bradley", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/filch.jpg",
  "name": "Vernon Dursley", "alternate_names": ["the Bitch"], "species": "human", "gender": "male", "house": "Gryffindor", "dateOfBirth": "1980", "yearOfBirth": 1980, "wizard": false, "ancestry": "muggle", "eyeColour": "grey", "hairColour": "grey", "wand": "wood", "cat", "core": "cat", "length": 11, "patronus": "cat", "hogwartsStudent": false, "hogwartsStaff": false, "actor": "Richard Griffiths", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/dursley.jpg",
  "name": "Dudley Dursley", "alternate_names": [], "species": "human", "gender": "male", "house": "Gryffindor", "dateOfBirth": "1980", "yearOfBirth": 1980, "wizard": false, "ancestry": "muggle", "eyeColour": "blue", "hairColour": "blonde", "wand": "wood", "cat", "core": "cat", "length": 11, "patronus": "cat", "hogwartsStudent": false, "hogwartsStaff": false, "actor": "Fiona Shaw", "alternate_actors": [], "alive": true, "image": "http://hp-api.herokuapp.com/images/dudley.jpg",
  "name": "Lily Potter", "alternate_names": [], "species": "human", "gender": "female", "house": "Gryffindor", "dateOfBirth": "1980", "yearOfBirth": 1980, "wizard": true, "ancestry": "muggleborn", "eyeColour": "green", "hairColour": "black", "wand": "wood", "willow", "core": "cat", "length": 10.25, "patronus": "cat", "hogwartsStudent": false, "hogwartsStaff": false, "actor": "Geraldine Somerville", "alternate_actors": [], "alive": false, "image": "http://hp-api.herokuapp.com/images/lily.jpg",
  "name": "James Potter", "alternate_names": []
}
```

# Exemple de réalisation

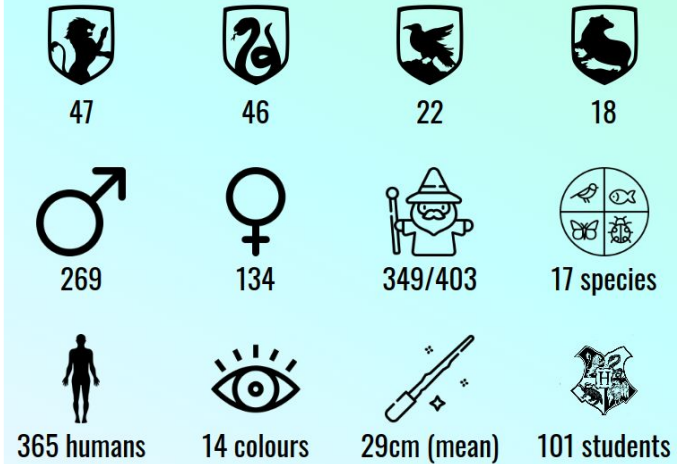
## Harry Potter Mining

⚡ Search

Image	Name ▲	Date of birth	Specie	Gender	Eye colour	Wizard	House	Patronus
	Harry Potter	31-07-1980	Human	♂	Green			Stag
	Hermione Granger	19-09-1979	Human	♀	Brown			Otter
	Ron Weasley	01-03-1980	Human	♂	Blue			Jack Russell Terrier
	Draco Malfoy	05-06-1980	Human	♂	Grey			-
	Minerva McGonagall	04-10-1925	Human	♀	-			Tabby Cat
	Cedric Diggory	-	Human	♂	Grey			-
	Cho Chang	-	Human	♀	Brown			Swan

— prev 1 2 3 — 58 next —

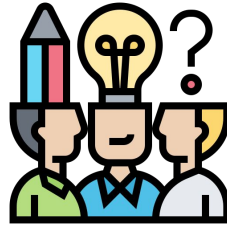
## Harry Potter Mining



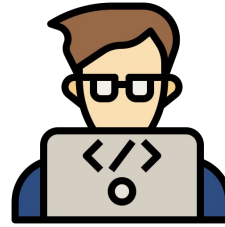
# Les grandes étapes du projet



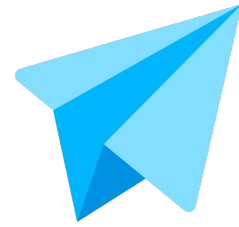
Constitution des équipes



Réflexion, analyse et  
définition des  
spécifications



Développement



Livraison



## Définition des équipes

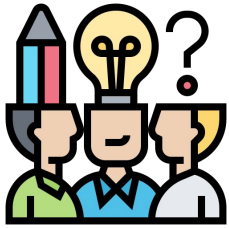


Les équipes regroupent **2 personnes** qui seront mobilisées sur la réalisation d'un même projet

Ce projet doit **féderer l'équipe complète**

Privilégier des groupes nouveaux au sein de la promo (une personne avec qui vous ne partagez pas déjà un même projet)

# Réflexion, analyse et définition des spécifications



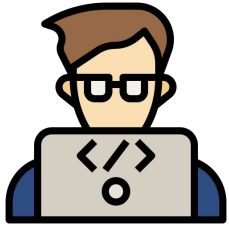
Quel est le périmètre du projet ? Quelles sont les **données** à exploiter ? Quels sont les **objectifs** visés en termes de rendu ?  
Quelles **fonctionnalités** seront proposées par la solution ? Les définir de manière détaillée

Ces objectifs sont-ils cohérents au regard

- ☐ Des contraintes de temps
- ☐ Des capacités techniques de l'équipe
- ☐ De la faisabilité technique (accès aux données, outils disponibles, temps de calcul, ressources matérielles engagées, contraintes de déploiement...) ?

- La rédaction du cahier des charges doit détailler ces différents aspects

# Développement de la solution fonctionnelle



Définition des **interactions** avec les sources de données (selon la ou les API en question) et **développement** de l'interface web

Définitions algorithmiques

Implémentation des fonctionnalités *frontend* (HTML, CSS, JS)

Définition de la base de données (si nécessaire)

Identification et prise en main de librairies tierces (requêtes, visualisation)

Phases de tests et vérification de l'adéquation avec les spécifications

Rédaction de la documentation (pour reprendre et déployer votre application)

# Livraison



Préparation de la livraison :

- ☐ Archivage du code et de la documentation
- ☐ Test de réception (simulation)

Envoi et validation de la réception

Restitution orale de votre application

- ☐ Rappel des spécifications du cahier des charges
- ☐ Respect de la solution par rapport au cahier des charges
- ☐ Démonstration



# Contraintes



Budget nul et fortes contraintes sur la mobilisation de personnes externes (hors enseignants)



Équipe de 2 personnes



Technologies utilisées (HTML, CSS, JS)

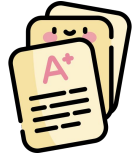


Utilisation d'au moins une API pour récupérer des données



Calendrier (9 séances de travail et 1 séance dédiée à l'exposé des travaux)

## Evaluation



Note commune à l'ensemble des membres d'une équipe (hors engagement différenciant)

Evaluation sur la base des différents rendus

- **Cahier des charges**, interactions avec l'équipe encadrante

- **Solution implémentée** (fond/forme de la solution et de la construction technique, e.g. code, documentation technique)